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Uranerz
ENERGY CORPORATION

September 15, 2010

Attn: Document Control Desk
Ron Linton
Project Manager
Uranium Recovery Licensing Branch
Division of Waste Management and
Environmental Protection
Office of Federal and State Materials and
Environmental Management Programs
U.S. Nuclear Regulatory Commission
Two White Flint North, MS T8F5
11545 Rockville Pike
Rockville, MD 20852

Re: Text Revisions to the Open Issues to the Safety Evaluation Report for the Nichols Ranch ISR Project License Application (TAC J00553, Docket No 040-09067)

Dear Mr. Linton,

In a letter dated October 13, 2009 the Nuclear Regulatory Commission (NRC) staff presented open issues to Uranerz regarding the NRC Nichols Ranch facility Safety Evaluation Report (SER). On February 24, 2010 Uranerz submitted detailed responses to the Open Issues to be reviewed by the NRC. By this letter, Uranerz is submitting text revisions to the NRC for the open issues and confirmatory item responses. Also included are several other items that have been added to bring the Technical Report up to date as a result of the additional collection of baseline hydrological data and revisions to the Uranerz Wyoming Department of Environmental Quality – Land Quality Division Permit to Mine application. The revisions/additions include:

- A table detailing the text changes for the open issue/confirmatory items. The table lists the open issue/confirmatory item number along with the section in the Technical Report that was revised
- 6 copies of Chapters 2 through 11 of the Technical Report that include all text, figure, and addendum revisions.
- 6 copies of Exhibits D5-17a – D5-24 for Volume Va
- Index sheets detailing additions/changes to Volume I, Volume II, Volume Va, and Appendix D6 Volumes VI and VIa, of the Technical Report.
- Text revisions to Appendix D6, Volumes VI and VIa, of the Technical Report.

- A new surety estimate for the Nichols Ranch ISR Project first year of operation is included in Addendum 6B. This most recent surety estimate has been approved by the Wyoming Department of Environmental Quality – Land Quality Division

If you have any questions regarding the open issue text revision submittal, please contact me at 307-265-8900 or by email at: mthomas@uranerz.com.

Sincerely,

Mike Thomas
Environmental, Safety, and Health Manager
Uranerz Energy Corporation

Attachments

Open Issue Comment	Text Revision (Y/N)	Location
2.2.1 & 2.2.2	Y	Section 7.3.1.2, 7.3.1.2.6, Addendum 7D (NB MILDOS)
2.2.3	Y	Section 2.5.1
2.2.4 & 2.2.5	N	
2.2.6	Y	Section 2.5.1
2.3.1 & 2.3.2	Y	Section 2.6.2 (pg TR-54), Exhibits D5-17a - D5-24 of Volume Va
2.4.1	Y	Section 2.7.1.2 (last paragraph)
2.4.2	Y	Table D6-1 of Volume VI, Appendix D6
2.4.3	Y	Section 2.7.1.2 (last paragraph)
2.4.4	Y	Section 2.7.2.4.1 (2nd paragraph)
2.4.5	Y	Table D6D.1-1 of Volume VI, Appendix D6, Addendum D6D
2.4.6	N	
2.4.7	Y	Section 2.7.5
2.4.8	Y	Figure 2-21b of the TR Volume I
2.4.9	Y	Addendum D6C of Volume VI, Appendix D6
2.4.10	Y	Addendum 3C (Need to add in numerical modeling as 3B & 3C), Section 7.2.3.1 & 7.2.3.2
2.5.1	Y	Tables D6E.1-1 and D6E.2-1 of Volume VI, Appendix D6, Addendum D6E
2.5.2	Y	Section 2.7.1.4
2.6.1	Y	Created New Section 2.9.6, Figures 2-25 & 2-26, Tables 2-33a - 33e (insert into text)
2.6.2	Y	Tables 2-22 - 2-25 (added footnote)
3.1.1	Y	Section 3.4.5
3.1.2	Y	Section 3.4.6
3.1.3	Y	Section 3.3.1
3.1.4	Y	Section 3.2.6
3.1.5	Y	Section 3.4.8.2
3.1.6	Y	Section 3.4.8.2, Addendum 3C (and Addendum 3B)
3.1.7	Y	Section 3.4.8.2, Addendum 3C (and Addendum 3B)
3.1.8	Y	Addendum 3C
3.1.10	Y	Section 3.3.1
3.1.11	Y	Section 3.4.4, Figure 3-12
3.2.1	Y	Section 3.3.1
3.3.1	Y	Section 3.5
4.1.1	Y	Section 4.1.1
4.1.2	Y	Section 4.1.2
4.1.3	Y	Section 4.1.2
4.1.4	Y	Section 4.1.1
4.2.1	Y	Section 3.2.6
4.2.2	Y	Section 3.2.6
4.2.3	Y	Section 7.5.2 & 7.5.3.1
4.2.4	Y	Section 3.2.6
4.2.5	Y	Section 3.2.6
5.7.1.1	Y	Sections 4.1.1, 4.1.2, 5.7.3.2, 5.7.3.3
5.7.1.2	Y	Sections 5.7.7.2.1 & 5.7.7.2.2 (Both new sections)
5.7.2.1	Y	Section 5.7.2.2
5.7.2.2	Y	Section 5.7.2.2
5.7.2.3	Y	Section 5.2.1.3
5.7.3.1	Y	Section 5.7.3.1
5.7.4.3	Y	Section 5.7.4.1
5.7.4.4	Y	Section 5.2.1.4
5.7.5.3	Y	Section 5.7.4.1
5.7.5.4	Y	Section 5.7.4.4
5.7.6.1	Y	Section 5.7.6.2
5.7.7.2	Y	Section 5.7.7
5.7.8.1	Y	Section 5.7.8.5.1, New Appendix D6 text for Volume VI
5.7.8.2	Y	Section 3.4.5
5.7.8.4	Y	Section 5.7.8.5.1
5.7.8.5	Y	Figures 2-21a and 2-21b, Tables D6E.1-1 and D6E.2-1
5.7.8.6	Y	See Addendum 3C
5.7.8.7	Y	Section 5.7.8.10.3
5.7.8.8	Y	Refer to Addendum 3C
5.7.8.9	Y	Section 5.7.8.10.3
5.7.8.10	Y	Section 5.7.8.10.1
5.7.8.11	Y	New Section 5.7.8.11 has been added (Needs to be put in TOC)
6.1.2.1	Y	Section 6.1
6.1.3.1	Y	Section 6.1.3.3
6.1.4.1	Y	Section 6.1.3.5
6.1.4.2	Y	Section 6.1.3.5, Table 6a
6.1.4.4	Y	Section 6.1.3
6.1.5.3	Y	Section 6.2.8
6.1.6.1	Y	Section 6.1.3.4
6.1.7.1	Y	Section 4.2.1, Table 4-1, Section 5.7.1.2
6.1.8.1	Y	Section 6.1.3
6.1.8.2	Y	Section 6.1.4
6.1.10.1	Y	Figure 3-12 & Table 7-5
6.4	Y	Section 6.2.6.1
6.5	Y	Section 6.2.8
7.0.1	Y	Section 7.5.2 & 7.5.3
7.0.2	Y	Section 7.5
7.0.3	Y	Section 7.5.3.1
7.0.4	Y	Figure 3-1 and Figure 3-2
7.0.5	Y	Section 7.5

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INDEX SHEET FOR NRC SOURCE MATERIAL LICENSE AMENDMENTS OR REVISIONS

Date 9-09-2010
Docket No.: 040-09067 – TAC J00553
LICENSE NO.: _______

MINE COMPANY NAME: Uranerz Energy Corporation
MINE NAME: Nichols Ranch ISR Project

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MPT 9-9-2010

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Volume Number	Page, Map or other Permit Entry to be REMOVED	Page, Map or other Permit Entry to be ADDED	Description of Change
Volume I Technical Report	Chapter 2.0	Chapter 2.0, July 2010	Chapter 2.0 of Technical Report updated per Open Issues/Confirmatory Item responses.
Volume I Technical Report	Chapter 2.0, Figures 2-21a, 2-21b, 2-25 and 2-26.	Chapter 2.0, Figures 2-21a, 2-21b, 2-25 and 2-26,	Figures updated per Open Issues/Confirmatory Item responses.
Volume I Technical Report	Chapter 3.0	Chapter 3.0, July 2010	Chapter 2.0 of Technical Report updated per Open Issues/Confirmatory Item responses.
Volume I Technical Report	Chapter 3.0 Figures 3-1, 3-2, 3-12	Chapter 3.0 Figures 3-1, 3-2, 3-12	Figures updated per Open Issues/Confirmatory Item responses.
Volume I Technical Report	Chapters 4.0 -7.0	Chapters 4.0-7.0, July 2010	Chapter 4.0 -7.0 of Technical Report updated per Open Issues/Confirmatory Item responses.
Volume I Technical Report	Chapters 8.0 - 11.0	Chapters 8.0 - 11.0, July 2010	Chapter 8.0 -11.0 of Technical Report updated per Open Issues/Confirmatory Item responses.
Volume II Technical Report	Addendum 6B	Addendums **3B**, **3C**, 6B, and **7D**	Revised Addendum 6B and added Addendums 3B, 3C, and 7D.
Volume Va, Technical Report	Exhibits D5-18 – D5-22	**Exhibits D5-17a** – D5-22, **D5-23, & D5-24**	Exhibits updated and created per Open Issues/Confirmatory Item responses.

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Volume VI, Appendix D6	TOC, pg D6-i, Aug 2009	TOC, pg D6-i, April 2010	Text revised per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6	Pg D6-5, Aug 2009	Pg D6-5 & **D6-5a**, April 2010	Text revised per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6	Pg D6-13, D6-13a, and D6-13b, Aug 2009	Pg D6-13, D6-13a, and D6-13b, April 2010	Text revised per Third Consolidated Review Comment 55-M.
Volume VI, Appendix D6	Table D6-2, Aug 2009, pg D6-16	Table D6-2, April 2010, pg D6-16	Table revised per Third Consolidated Review Comment 116-M to include new wells.
Volume VI, Appendix D6	Table D6-3, Aug 2009, pg D6-17	Table D6-3, April 2010, pg D6-17 & **pg D6-17a**	Table revised per Third Consolidated Review Comment 116-M to include new wells.
Volume VI, Appendix D6	Table D6-4, Aug 2009, pg D6-18	Table D6-4, April 2010, pg D6-18 & **D6-18a**	Table revised per Third Consolidated Review Comment 116-M to include new pump tests.
Volume VI, Appendix D6	Table D6-5, Aug 2009, pg D6-19	Table D6-5, April 2010, pg D6-19 & **pg D6-19a**	Table revised per Third Consolidated Review Comment 116-M to include new pump tests.
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Volume VI, Appendix D6, Addendum D6B	TOC pgs D6B-i through D6B-v, Aug 2009	TOC pgs D6B-i through **D6B-vi**, April 2010	Table of Contents revised per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6B		**Pgs D6B.5-1 through D6B.5-2, April 2010**	Text added per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6B		**Figures D6B.5-1 through D6B.5-7, April 2010, pgs D6B.5-3 through D6B.5-9**	Figures added per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6B		**Tables D6B.5-1 through D6B.5-6, April 2010, pgs D6B.5-10 through D6B.5-21**	Tables added per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6B		**Pgs D6B.6-1 through D6B.6-3, April 2010**	Text added per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6B		**Figures D6B.6-1 through D6B.6-13, April 2010, pgs D6B.6-4 through D6B.6-16**	Figures added per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6B		**Tables D6B.6-1 through D6B.6-8, April 2010, pgs D6B.6-17 through D6B.6-42**	Tables added per Third Consolidated Review Comment 116-M.
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Volume VI, Appendix D6, Addendum D6C	TOC pgs D6C-i through D6C-iv, Aug 2009	TOC pgs D6C-i through **D6C-v** & **D6C-vi**, April 2010	Table of Contents revised per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6C		**Pgs D6C.6-1 through D6C.6-3, April 2010**	Text added per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6C		**Figures D6C.6-1 through D6C.6-11, April 2010, pgs D6C.6-4 through D6B.6-14**	Figures added per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6C		**Tables D6C.6-1 through D6C.6-12, April 2010, pgs D6C.6-15 through D6C.6-59**	Tables added per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6C		**Pgs D6C.7-1 through D6C.7-2, April 2010**	Text added per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6C		**Figures D6C.7-1 through D6C.7-5, April 2010, pgs D6C.7-3 through D6C.7-7**	Figures added per Third Consolidated Review Comment 116-M.
Volume VI, Appendix D6, Addendum D6C		**Tables D6C.7-1 through D6C.7-6, April 2010, pgs D6C.7-8 through D6C.7-24**	Tables added per Third Consolidated Review Comment 116-M.
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Volume VI, Appendix D6, Addendum D6D	Figures D6D.1-1 through D6D.1-3, Aug 2009, pgs D6D.1-2 through D6D.1-4	Figures D6D.1-1 through D6D.1-3, April 2010, pgs D6D.1-2 through D6D.1-4	Figures revised to include updated and new water level information the Nichols Ranch Unit.
Volume VI, Appendix D6, Addendum D6D	Table D6D.1-1, Aug 2009, pgs D6D.1-5 through D6D.1-6	Table D6D.1-1, April 2010, pgs D6D.1-5 through D6D.1-6	Tables revised to included updated and new water level information.
Volume VI, Appendix D6, Addendum D6D	Figures D6D.2-1 through D6D.2-3, Aug 2009, pgs D6D.2-2 through D6D.2-4	Figures D6D.2-1 through D6D.2-3, April 2010, pgs D6D.2-2 through D6D.2-4	Figure revised to include updated and new water level information.
Volume VI, Appendix D6, Addendum D6D	Table D6D.2-1, Aug 2009, pgs D6D.2-7 through D6D.2-11	Table D6D.2-1, April 2010, pgs D6D.2-7 through D6D.2-11	Table revised to include updated and new water level information for the Hank Unit.
Volume VI, Appendix D6, Addendum D6D	Pg D6D.3-1a, Aug 2009	Pg D6D.3-1a, April 2010	Text revised per Third Consolidated Review Comment 49-M.
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Volume VI, Appendix D6, Addendum D6E	Table D6E.1-1, Aug 2009, pgs D6E.1-12 through D6E.1-21	Table D6E.1-1, April 2010, pgs D6E.1-12 through **D6E.1-22, D6E.1-23, D6E.1-24, D6E.1-25, & D6E.1-26.**	Table revised to include new and update water quality information for the Nichols Ranch Unit.
Volume VI, Appendix D6, Addendum D6E	Table D6E.2-1, Aug 2009, pgs D6E.2-11 through D6E.2-33	Table D6E.2-1, April 2010, pgs D6E.2-11 through D6E.2-33 & **D6E.2-34**	Table revised to include new and update water quality information for the Hank Unit.
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Volume VIa, Appendix D6, Addendums D6J, D6K, and D6L	Volume III, Appendix D6, Addendums D6J, D6K, and D6L	Volume IIIa, Appendix D6, Addendums D6J, D6K, and D6L	Addendums D6J, D6K, and D6L need to be moved from Volume III to Volume IIIa. This is necessary to accommodate the new responses associated with the 3rd Consolidated Technical Review. Also a new 4" binder is being provided to replace the current Volume IIIa
Volume VIa, Appendix D6, Addendum D6J	TOC pg D6J-i	TOC pg D6J-i, April 2010	Addendum was updated to include discussions on Neuman Equation and WTAQ methods.
Volume VIa, Appendix D6, Addendum D6J	Pg D6J.1-9	Pgs D6J.1-9, **D6J.1-10, D6J.1-11, D6J.1-12, D6J.1-13**, April 2010	Addendum was updated to include discussions on Neuman Equation and WTAQ methods.
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2.0 SITE CHARACTERIZATION

2.1 SITE LOCATION AND LAYOUT

The Nichols Ranch ISR Project is located in the Pumpkin Buttes Mining District of the Powder River Basin in Johnson and Campbell Counties Wyoming. The project is divided into two project units, the Nichols Ranch Unit and the Hank Unit. The Nichols Ranch Unit encompasses approximately 1,120 acres of land located in Township 43 North Range 76 West, Sections 7, 8, 17, 18, and 20. The Hank Unit encompasses approximately 2,250.53 acres of land located in Township 44 North Range 75 West, Sections 30 and 31 and Township 43 North Range 75 West, Sections 5, 6, 7, and 8. The Nichols Ranch Unit will be the site of the main processing facility consisting of the central processing plant (CPP), main office building, and a maintenance building. The Hank Unit will be a satellite operation consisting of a satellite ion exchange plant, an office building, and a maintenance building. Access to the Nichols Ranch ISR Project site is either via Wyoming State Highway 50 to Van Buggenum Road to T-Chair Livestock ranch roads, or from U.S. Highway 387 north on T-Chair Livestock ranch roads. Figure 2-1 (see map pocket) shows the general location and access to the project areas.

The current land surface ownership of the Nichols Ranch ISR Project includes approximately 3,090.53 acres of private ownership, mainly by the T-Chair Livestock Company, and approximately 280 acres of United States Government ownership administrated by the Bureau of Land Management (BLM).

Names and addresses of the surface and mineral owners of record within and adjacent (within 0.5 mi of each unit) to the project are provided in Appendix A and B of this application. Appendix A lists all surface and mineral owners located within the two project units. Appendix B lists all surface and mineral owners for lands located within 0.5 mi of the project units. The legal descriptions of the project units are contained in Appendix C including tabulations of all lands in the project units and tabulation of No Right to Mine lands.

2.2 USES OF ADJACENT LANDS AND WATERS

2.2.1 General

The lands within the Nichols Ranch ISR Project have historically been used for cattle grazing and wildlife habitat. Presently the lands are used for a variety of purposes. Livestock grazing, oil and gas extraction, coal bed methane extraction, and uranium recovery activities are all currently taking place on or near the project area. The immediate future land use for the project area and adjacent areas will be continued livestock grazing, in situ uranium recovery, coal bed methane extraction, and oil and gas extraction.

No residential sites are located within the two Unit permit areas. There are two ranches located near the Unit permit areas. The Pfister Ranch is located approximately 0.6 mi north of the Hank Unit in Township 44 North Range 75 West, Southwest Quarter of Section 19. The Dry Fork Ranch lies approximately 0.9 mi to the west of the Nichols Ranch Unit in Township 42 North Range 76 West, Northeast Quarter of Section 24. Other residential sites that are located near the Nichols Ranch ISR Project are listed in Table 2-1. All of these residents are located outside the Nichols Ranch ISR Project area. Figure D1-2 (see map pocket) of the attached Appendix D1 – Land Use shows the location of the residents listed in Table 2-1 in relation to the Nichols Ranch ISR Project.

Three NRC licensed in situ uranium recovery facilities are located within 50 mi of the Nichols Ranch ISR Project. COGEMA's Christensen Ranch ISR facility is located approximately 6.0 mi north of the Nichols Ranch Unit and approximately 4.0 mi to the northwest of the Hank Unit. Power Resources Inc. (PRI) licensed North Butte amendment area lays approximately 2.0 mi to the north of the Hank Unit and 5.0 mi to the northeast of the Nichols Ranch Unit. PRI's Smith-Highlands Ranch (SR-HUP) ISR facility is located approximately 45 mi to the southeast of the Nichols Ranch ISR Project. Two of the licensed facilities, Christensen Ranch and SR-HUP, currently have existing yellowcake processing plants with the SR-HUP being in operation. The current Christensen Ranch plant is currently idle, but is expected to be back in production in the near future. PRI's North Butte amendment area does not have any current

Table 2-1 Nearest Residents.

Nearest Residences	Number of Inhabitants	Nearest Permit Area	Distance From Permit Area (mi)	Direction
T-Chair (Rolling Pin) Ranch*	5	Nichols Ranch, Hank	1.9, 2.9	E, SW
Pfister Ranch	3	Hank	0.6	N
Pumpkin Buttes Ranch	2	Hank	1.1	E
Van Buggenum Ranch	0	Hank	4	E
Ruby Ranch	2	Hank	6.1	E
Dry Fork Ranch	3	Nichols	0.9	W
Christensen Ranch	1	Hank	3.5	NW

* T-Chair Ranch sits between the Nichols Ranch and Hank Unit areas.

processing or wellfield facilities. Figure 1-4 (see map pocket) of Chapter 1.0, Proposed Activities, shows the location of each facility in relation to Uranerz Energy Corporation's Nichols Ranch ISR Project.

After mining activities are completed, the land will be returned to the pre-mining land use of wildlife habitat and livestock grazing. Decommission and reclamation activities of the affected areas resulting from the uranium recovery activities are detailed in Chapter 6.0 of this application.

2.2.2 Agricultural

Livestock grazing is the main activity on the project area and adjacent lands. No known sources of mass food production for human consumption exist within 10 km of the project area. Hay was grown in the past on approximately 127.8 acres of the southern part of the Nichols Ranch Unit, but because of drought conditions over the last seven years, this crop has not been produced. The National Resources Conservation Service (NRCS) stocking rate for the Nichols Ranch ISR Project ranges from 1.0 to 3.0 animal units per acre, per month on range that varies from average to excellent as listed in the NRCS Technical Guides for the Northern Plains.

2.2.3 Recreation

Recreational activities within a 50-mi radius of the Nichols Ranch ISR Project are mainly outdoor activities such as camping, hiking, fishing, and hunting. Almost all of the land on and adjacent to the Nichols Ranch ISR Project area is private with limited access, but public lands such as the Thunder Basin National Grassland, located approximately 24 mi to the east/southeast of the Hank Unit, and the Bighorn Mountains, approximately 27 mi to the west, provide areas for recreational activities. The Powder River, located approximately 9.0 mi to the west of the project area, also provides recreational opportunities for public use.

2.2.4 Water Rights

Surface and groundwater rights on, adjacent to, and within 3.0 mi of the Nichols Ranch ISR Project are listed in Appendix D-6 (Hydrology) of this application. No adjudicated surface water rights are located in or adjacent (within 0.5 mi of the permit boundary) to the Nichols Ranch ISR Project. The surface water rights that do exist within the proposed Nichols Ranch ISR Project area are limited to stock/storage ponds and ephemeral creeks. Groundwater rights in the Nichols Ranch ISR Project area are mainly associated with old monitoring wells and stock wells. No other adjudicated water rights are in the project area and lands adjacent to the project area according to the Wyoming State Engineer's Office. Uranerz Energy Corporation also does not hold any adjudicated water rights in the project area. Most wells that are located within the Nichols Ranch ISR Project area were installed by prior uranium exploration companies, the T-Chair Livestock Company, or coal bed methane companies. Several additional wells have been completed in the project area by Uranerz Energy Corporation for use in collecting baseline groundwater quality data.

Wells in the area of the proposed Nichols Ranch ISR Project area are uniformly distributed over the area excluding monitoring/sampling wells that are permitted by Uranerz Energy Corporation. Most of the wells are used for livestock watering through the use of windmills or electric well pumps. Well depths vary from 180 ft to 1,000 ft in depth, most of which are completed in sands other than the ore zone sands. Those wells which are completed in the ore zone sand will either be abandoned using acceptable WDEQ methods will have the ore zone interval isolated, or will be used as monitoring wells if not completed in multiple sands. No wells in or adjacent to the project area are used for domestic water consumption. A domestic water supply well is found on the Pfister Ranch, located approximately 0.6 mi north of the northern boundary of the Hank Unit. This well is completed at a depth that is stratigraphically below the zones planned for the ISR extraction. Additionally, the well is located at a distant from any planned wellfields and in sandstone units that do not contain any uranium mineralization of economic significance. Any extraction activities that take place in the area are very unlikely to affect this well because the well is completed in a sandstone unit that is separated from the ore zone sandstone by an aquiclude consisting of mudstone. The extensive groundwater monitoring program utilized during the extraction phase should detect any problems prior to this well being adversely affected.

Any water wells that Uranerz Energy Corporation constructs in the project area will be completed in sands that are stratigraphically below or above the ore zone. The purpose of the wells will be for providing process and wash down water to the plant facilities along with supplying water for lavatories, safety showers, and change house shower water. Bottled water will be provided for drinking water.

Appendix D6, Hydrology, of this license application contains detailed hydrologic information for the Nichols Ranch ISR Project.

2.2.5 Industrial

2.2.5.1 General/Oil/Gas

Coal bed methane and oil and gas development have and will be taking place in the proposed project area and on the lands adjacent to the Nichols Ranch ISR Project area. The Hank Unit lies within the Hartzog/Pumpkin Buttes Oil Fields. Presently six oil/gas wells exist on the lands within and adjacent to the Hank Unit. No oil/gas wells are located within or adjacent to the Nichols Ranch Unit. According to the Wyoming Oil and Gas Conservation Commission, no further oil and gas development will take place in the Nichols Ranch ISR Project. The locations of the oil/gas wells for the Hank Unit are shown in Exhibit D6-5 (see map pocket) of the attached Appendix D6- Hydrology. Table 2A-1 of Addendum 2A lists all oil/gas wells found within a 3.0 mi radius of the project area.

The oil/gas wells located in the Hank Unit should not cause any issues with the proposed extraction activities. The location of the wells and the depths that they are drilled to (< 9,000 ft deep) will not interfere with the ISR extractions since the ore zone is much shallower than the oil/gas wells. None of the oil/gas wells penetrate the ore zones. Additionally the completion techniques used by the oil/gas companies are such that the wells will not cause any potential excursions to occur. The oil and gas wells in the project area are typically cemented from at least 1,000 ft deep to the surface. This amount of cement is sufficient to protect the oil/gas wells from acting as a conduit for any uranium recovery fluids. Pressure monitoring on the oil/gas wells also ensures that the oil/gas wells are working properly and that the wells integrity is intact.

2.2.5.2 Coal Bed Methane

Coal bed methane (CBM) activity is widespread throughout the Powder River Basin. The methane is produced at a depth of approximately 1,000 ft and greater which is approximately 400 ft deeper than the uranium mineralization found in the Nichols Ranch and Hank Units. Since the CBM activity and uranium mineralization are stratigraphically separated with layers of sandstone, mudstone, and clay, it is very unlikely that any of the CBM wells will be impacted by the extraction activity and vice versa.

Currently there are 24 permitted and completed CBM wells located in or adjacent to the Nichols Ranch Unit. Thirty-three permitted and completed CBM wells are found in the lands in and adjacent to the Hank Unit. The Nichols Ranch ISR Project will not impact any of the current or proposed CBM wells as none of the existing or purposed CBM wells are or will be located within the planned wellfield areas. Communication between the CBM producers and Uranerz Energy Corporation has been established with all parties working together to avoid conflicts. Maps of the CBM producers proposed well sites, access roads, water and gas pipeline routes, and utility corridors have been provided to Uranerz Energy Corporation for use in developing extraction activities.

CBM discharge water will not be impacted by extraction activities in the Nichols Ranch ISR Project area. Both CBM producers on the Nichols Ranch and Hank Units will be piping water produced by CBM drilling to locations out of the project area and adjacent lands. The CBM produced water will then be either discharged on the surface or stored in large storage tanks, pumped some thirty miles away, and then re-injected into the ground.

Exhibits D6-3 and D6-4 (see map pockets) of the attached Appendix D6 – Hydrology show all CBM wells on, adjacent to, and within three miles of the Nichols Ranch and Hank Units. Table's 2A-2 through 2A-5 of Addendum 2A details all CBM wells that are permitted and completed in the project area. Table 2A-6 of Addendum 2A defines the abbreviations used in Tables 2A-1 through 2A-5.

2.3 POPULATION DISTRIBUTION

The population within 50 mi (~80 km) of the Nichols Ranch ISR Project consists mainly of rural areas. The community of Gillette, Wyoming is the closest major urban area to the mine site located approximately 46 air mi away. Casper, Wyoming is the next closet major urban area to the mine site located approximately 61 air mi away. These two communities provide the major locations of public services such as schools, churches, medical care facilities, public parks, and commodities. Wright and Buffalo, Wyoming also provide public services near the mining site. Table 2-2 lists the cities located within a 50 mi (~80 km) radius of the Nichols Ranch ISR Project area. Table 2-3 also lists the estimated populations of all major towns and cities within Campbell, Johnson, and Natrona Counties. Figure 2-2 (see map pocket) shows the location of towns and cities within 50 mi (~80 kilometers) of the project area.

Casper, Wyoming is the County Seat of Natrona County and the second largest city in Wyoming. The city serves as the economic center of central Wyoming servicing a 150-mi radius that encompasses all or part of seven counties. Oil and gas, mining, and retail services are all found in the city. Casper also is home to the Casper Events Center which hosts many public events such as concerts, trade shows, and sporting events. The population of Casper is in an upward

Table 2-2 Cities Within a 50-mi Radius of the Nichols Ranch ISR Project Area.

City	Population[1]	Distance From Permit Area (mi)	Direction
Gillette	22,685	46	Northeast
Buffalo[2]	4,290	57	Northwest
Kaycee	273	35	West
Midwest	431	25	Southwest
Edgerton	173	23	Southwest
Wright	1,425	22	East
Casper[2]	51,738	61	Southwest

[1] Source: U.S. Census Bureau Population Division (2006).
[2] Major Wyoming cities just beyond 50 mi.

trend with the recent resurgence in oil and gas development and uranium mining. According to the U.S. Census Bureau, the estimated population in Casper has increased 4.0% from April 2000 to July 2005. The population of Casper is expected to continue to follow an upward trend with an average growth rate comparable to the state growth rate of 2.58%.

Gillette, Wyoming is the County Seat of Campbell County. The city has been experiencing major growth over the last few years. Coal bed methane, oil and gas development, and coal mining have played significant roles in expanding the city's population by almost 12% from April 2000 through July 2005. According to the Campbell County Economic Development Corporation, Campbell County Housing Needs Assessment of January 2005, Campbell County is projected to grow at a consistent pace between 7% and 11% for the next 15 years due to the expansion of the work force and natural population growth. With the influx of industry, Gillette also serves a regional center for oil and gas, mining, and CBM support services.

Table 2-3 Wyoming Population Data Campbell, Johnson, and Natrona Counties.

Place	Census 2000 Population	April 1, 2000 Population Estimates Base	July 1, 2001 Population	July 1, 2002 Population	July 1, 2003 Population	July 1, 2004 Population	July 1, 2005 Population	% Change July, 2004 to July, 2005	% Change April, 2000 to July, 2005
Wyoming	**493,782**	**493,782**	**494,045**	**499,045**	**501,915**	**505,887**	**509,294**	**0.7**	**3.1**
Campbell County	**33,698**	**33,698**	**34,670**	**36,155**	**36,423**	**36,654**	**37,405**	**2.0**	**11.0**
Gillette city	19,646	20,271	20,870	21,819	22,053	22,174	22,685	2.3	11.9
Wright town	1,347	1,347	1,379	1,426	1,418	1,408	1,425	1.2	5.8
Balance of Campbell County	12,705	12,080	12,421	12,910	12,952	13,072	13,295	1.7	10.1
Johnson County	**7,075**	**7,075**	**7,171**	**7,413**	**7,537**	**7,606**	**7,721**	**1.5**	**9.1**
Buffalo city	3,900	3,902	3,956	4,100	4,212	4,230	4,290	1.4	9.9
Kaycee town	249	249	253	261	265	269	273	1.5	9.6
Balance of Johnson County	2,926	2,924	2,962	3,052	3,060	3,107	3,158	1.6	8.0
Natrona County	**66,533**	**66,533**	**66,909**	**67,519**	**68,238**	**68,988**	**69,799**	**1.2**	**4.9**
Bar Nunn town	936	936	944	955	970	1,139	1,292	13.4	38.0
Casper city	49,644	49,737	49,867	50,236	50,770	51,223	51,738	1.0	4.0
Edgerton town	169	169	169	170	171	172	173	0.6	2.4
Evansville town	2,255	2,255	2,269	2,285	2,297	2,304	2,328	1.0	3.2
Midwest town	408	408	408	411	417	427	431	0.9	5.6
Mills town	2,591	2,632	2,739	2,830	2,866	2,873	2,898	0.9	10.1
Balance of Natrona County	10,530	10,396	10,513	10,632	10,747	10,850	10,939	0.8	5.2

Note: The April 1, 2000 Population Estimates Base reflects modifications to the Census 2000 population as documented in the Count Question Resolution program, updates from the Boundary and Annexation Survey, and geographic program revisions. An "(X)" in the Census 2000 field indicates a locality that was formed or incorporated after Census 2000 or was erroneously omitted from Census 2000. Additional information on these localities can be found in the Geographic Change Notes (see "boundary changes" under the Geographic Topics section of the Estimates page). Dash (-) represents zero or rounds to zero.

Source: Population Division, U.S. Census Bureau Release Date: June 21, 2006

Wright, Wyoming is the closest town to the project area located approximately 22 mi away. Like most towns in Wyoming, Wright has continued to grow with the development of coal bed methane, oil and gas, and coal mining in Campbell County. The town has experienced an estimated 5.8% growth from April 2000 to July 2005.

Several small communities exist in Johnson County, Wyoming. The county seat, Buffalo, is the largest town in Johnson County. Buffalo is located approximately 57 air mi to the northwest of the Nichols Ranch ISR Project area and houses the Bureau of Land Management office that oversees all federal land in Northeast Wyoming. The population of Johnson County is expected to grow at a rate of 1.5% to 1.7% from 2005 to 2012 according the Johnson County Comprehensive Land Use Plan of 2005. Much of the population growth is expected to come from the development of coal bed methane in Johnson County.

Several ranches are found within five miles of the Nichols Ranch ISR Project area. The closest inhabited dwelling is the Pfister Ranch. This ranch is located approximately 0.6 mi north of the Hank Unit. Currently three people reside at the ranch. The next closest inhabited dwelling is the Dry Fork Ranch located 0.9 mi to the West of the Nichols Ranch Unit. Three people also reside at this ranch. Four other ranches lie within 5.0 mi of the Nichols Ranch ISR Project area. The name of the ranches and the number of inhabitants are listed in Table 2-1. All together, the six ranches results in a total of 14 people residing within 5.0 mi of the Nichols Ranch ISR Project area. This results in an occupational density of 0.31 persons per square mile for the area within five miles of the project area. Figure 2-3 (see map pocket) shows the population density for Wyoming and for a 50 mi (~80 km area) surrounding the project area.

Because of the remote location of the Nichols Ranch ISR Project, visitation to the project location will be limited mainly to vendors, contractors, regulatory agency personnel, coal bed methane employees, and pre-arranged public tours.

Figures 2-4 through 2-6 (see map pockets) provides detailed information regarding the county profiles of Campbell, Johnson, and Natrona County. Included in this information are details about minority populations, county employment statistics, and landowners in the counties. Table 2-4 contains information on the minority populations in Campbell, Johnson, and Natrona Counties.

Table 2-4 Population By Place, By Minority: 1990 and 2000.

	Total			Non-Hispanic White			Total Minority			% of Total		Hispanic/Latino		
AREA NAME	1990	2000	% Chg	1990	2000	% Chg	1990	2000	% Chg	1990	2000	1990	2000	% Chg
Wyoming	**453,588**	**493,782**	**8.9**	**412,711**	**438,799**	**6.3**	**40,877**	**54,983**	**34.5**	**9.0**	**11.1**	**25,751**	**31,669**	**23.0**
COUNTY														
Campbell	29,370	33,698	14.7	28,074	31,701	12.9	1,296	1,997	54.1	4.4	5.9	882	1,191	35.0
Johnson	6,145	7,075	15.1	6,004	6,771	12.8	141	304	115.6	2.3	4.3	78	148	89.7
Natrona	61,226	66,533	8.7	57,888	61,023	5.4	3,338	5,510	65.1	5.5	8.3	2,252	3,257	44.6
PLACE														
Buffalo city	3,302	3,900	18.1	3,236	3,715	14.8	66	185	180.3	2.0	4.7	27	71	163.0
Casper city	46,742	49,644	6.2	44,002	45,334	3.0	2,740	4,310	57.3	5.9	8.7	1,843	2,656	44.1
Evansville town	1,403	2,255	60.7	1,335	1,964	47.1	68	291	327.9	4.8	12.9	55	190	245.5
Gillette city	17,635	19,646	11.4	16,802	18,350	9.2	833	1,296	55.6	4.7	6.6	558	774	38.7
Mills town	1,574	2,591	64.6	1,456	2,394	64.4	118	197	66.9	7.5	7.6	76	102	34.2
Wright town	1,236	1,347	9.0	1,169	1,298	11.0	67	49	-26.9	5.4	3.6	51	31	-39.2

Source: U.S. Census Bureau

2.4 HISTORIC, SCENIC, AND CULTURAL RESOURCES

2.4.1 General

The following reports attached as Addendum 2B and Addendum 2C and Exhibit 2-1 contain information that is considered confidential information under 10 CFR 2.390. This information must be withheld from public disclosure.

2.4.2 Cultural Resources

Class I Literature Search for Uranerz Energy Corporation's Nichols Ranch ISR Project Permit

File searches were conducted from November 2007 through January 2010, through the Cultural Records Office of the Wyoming State Historic Preservation Office (SHPO) for Sections 7, 8, 17, 18, and 20, T43N, R76W; Sections 30 and 31, T44N, R75W; and Sections 5-8, T43N, R75W. Uranerz Energy Corporation's proposed Nichols Ranch ISR Project occurs within these legal descriptions.

Twelve projects have been conducted within the sections listed above for nine block and three block/linear surveys (Table 2-5). A few recent projects have not been accessioned into the SHPO database; therefore, they do not have accession numbers in Table 2-5. Fifty-four sites have been recorded in the 11 sections listed above. Of these, 46 sites are prehistoric, five sites are historic, and three site are multicomponent prehistoric/historic. The sites are summarized in Table 2-6. Of the prehistoric sites, 17 are eligible for listing on the National Register of Historic Places (NRHP), 20 are not eligible, eight are not eligible with SHPO concurrence, and one (Site 48CA6153) is unevaluated with SHPO concurrence. The five historic sites are not eligible, one (Site 48JO2951) with SHPO concurrence. Of the three multicomponent sites, one (Site 48CA268, Pumpkin Buttes Traditional Cultural Property [TCP]) is eligible for the NRHP with SHPO concurrence, and two are not eligible with SHPO concurrence.

Table 2-5 Previous Cultural Resource Inventories Within or near Uranerz Energy Corporation's Nichols Ranch ISR Project Permit Area.

Accession No.	Project Name	Contractor [1]	Type [2]	Legal Location
76-352-0	Brown's Ranch Uranium Mine	OWSA	B	Section 6, T43N, R75W
77-1-0	Brown's Ranch Uranium Mine	OWSA	B	Section 30, T44N, R75W
79-680-0	Brown's Ranch Uranium Mine	PE	B/L	Section 6, T43N, R75W
80-1209-0	Fed BZ 1	AS	B/L	Section 7, T43N, R76W
81-2054-0	Fed B-R-1	AC	B	Section 6, T43N, R75W
81-2054-0	Parker Fed 34-6 Testing	AEC	B	Section 17, T48N, R71W
4-2191-0	East Bullwhacker CBM POD	SWCA	B	Section 20, T43N, R76W
6-1350-0	Dry Willow CBM POD #1	SWCA	B	Section 31, T44N, R75W
6-1350-2	Dry Willow POD 1 Supplement	SWCA	B	Section 31, T44N, R75W
6-1465-0	Dry Willow POD Block Survey	Arcadis	B	Section 20, T43N, R76W
n/a	80-Acre Parcel in Hank Unit	TRC	B	Section 5, T43N, R76W
n/a	Tex Draw	WLS	B	Sections 7, 8, 17, 18, 20 T43N, R76W

1 AC = Archeo Consultants; Arcadis = Arcadis U.S. Inc.; AEC = Archaeological Energy Consulting; AS = Archaeological Services; OWSA = Office of the Wyoming State Archaeologist; PE = Powers Elevation, TRC = TRC Environmental Corporation, WLS = Western Land Services

2 B = block; B/L = combination block/linear, n/a = Not applicable

Table 2-6 Previously Recorded Sites Within or near Uranerz Energy Corporation's Nichols Ranch ISR Project Permit Area.

	Legal Location							
Site No.	Township	Range	Section	Site Type	Landowner	NRHP Eligibility Status [1]	Time Period [2]	Accession No. [3]
48CA268 [4, 5]	43N, 44N	75W	6, 31	TCP	BLM/Private	E/SHPO	P/H	5-1851
48CA379 [5]	44N	75W	31	Lithic scatter	Private	NE/SHPO	P	6-1350
48CA5386 [5]	43N	76W	8	Lithic scatter	Private	NE	P	--
48CA5390 [5]	43N	76W	17	Lithic scatter	Private	E	P	--
48CA5391 [5]	43N	76W	17	Lithic scatter	Private	E	P	--
48CA5393 [5]	43N	76W	20	Inscription	Private	NE	P	--
48CA5392	43N	76W	20	Lithic scatter	Private	NE/SHPO	P	--
48CA5406 [5]	43N	76W	17	Lithic scatter	Private	NE	P	--

Table 2-6 (Continued)

Site No.	Legal Location Township	Range	Section	Site Type	Landowner	NRHP Eligibility Status [1]	Time Period [2]	Accession No. [3]
48CA6146 [5]	44N	75W	31	Open camp	BLM	NE/SHPO	P	6-1350
48CA6147 [5]	44N	75W	31	Open camp/trash scatter	BLM	NE/SHPO	P/H	6-1350
48CA6148 [5]	44N	75W	31	Lithic scatter	BLM	NE/SHPO	P	6-1350
48CA6149 [5]	44N	75W	31	Lithic scatter	BLM	NE/SHPO	P	6-1350
48CA6150	44N	75W	30	Lithic scatter	Private	NE/SHPO	P	6-1350
48CA6151 [5]	44N	75W	30	Lithic scatter	Private	NE/SHPO	P	6-1350
48CA6153	44N	75W	30	Open camp	Private	U/SHPO	P	6-1350
48CA6155	44N	75W	30	Lithic scatter	Private	NE/SHPO	P	6-1350
48CA6342 [5]	43N	75W	6	Open camp	BLM	NE	P	--
48CA6343 [5]	43N	75W	6	Open camp	BLM	NE	P	--
48CA6344 [5]	43N	75W	6	Open camp	BLM	NE	P	--
48CA6345 [5]	43N	75W	6	Open camp	BLM	NE	P	--
48CA6474	43N	75W	8	Rockshelter	Private	E	P	--
48CA6475 [5]	43N	75W	7	Open camp	Private	E	P	--
48CA6476	43N	75W	8	Open camp	Private	E	P	--
48CA6477	43N	75W	7	Lithic scatter	Private	NE	P	--
48CA6478	43N	75W	8	Open camp	Private	E	P	--
48CA6479	43N	75W	8	Open camp	Private	E	P	--
48CA6480	43N	75W	8	Open camp	Private	E	P	--
48CA6481	43N	75W	8	Open camp	Private	E	P	--
48CA6489	43N	75W	8	Open camp	Private	E	P	--
48CA6490 [5]	43N	75W	6, 7	Open camp	Private	E	P	--
48CA6491 [5]	43N	75W	7	Lithic scatter	Private	NE	P	--
48CA6498 [5]	43N	75W	8	Lithic scatter	Private	NE	P	--
48CA6499 [5]	43N	75W	6, 7	Lithic scatter	Private	NE	P	--
48CA6748 [5]	43N	75W	6	Open camp	BLM	E	P	--
48CA6749 [5]	43N	75W	6	Lithic scatter	Private	NE	P	--
48CA6750 [5]	44N	75W	31	Lithic scatter	BLM	NE	P	--
48CA6751 [5]	44N	75W	31	Open camp	BLM	E	P	--
48CA6752 [5]	44N	75W	31	Open camp	BLM	NE	P	--
48CA6753 [5]	44N	75W	31	Open camp	BLM	E	P	--

Table 2-6 (Continued)

	Legal Location							
Site No.	Township	Range	Section	Site Type	Landowner	NRHP Eligibility Status [1]	Time Period [2]	Accession No. [3]
48CA6754 [5]	44N	75W	31	Lithic scatter	BLM	E	P	--
48CA6926 [5]	43N	75W	5	Lithic scatter	Private	NE	P	--
48CA6927 [5]	43N	75W	5	Open camp	Private	E	P	--
48JO2944 [5]	43N	76W	8	Trash scatter	Private	NE	H	--
48JO2945	43N	76W	8	Trash scatter	Private	NE	H	--
48JO2946 [5]	43N	76W	7, 8	Open camp	Private	E	P	--
48JO2947	43N	76W	7	Lithic scatter	Private	NE	P	--
48JO2948 [5]	43N	76W	17	Lithic scatter	Private	NE	P	--
48JO2949 [5]	43N	76W	17	Trash scatter	Private	NE	H	--
48JO2950 [5]	43N	76W	17	Trash scatter	Private	NE	H	--
48JO2951	43N	76W	18	Homestead	Private	NE/SHPO	H	--
48JO2953 [5]	43N	76W	20	Lithic scatter/ building remains	Private	NE/SHPO	P/H	--
48JO2957 [5]	43N	76W	17	Lithic scatter	Private	NE	P	--
48JO2959	43N	76W	18	Lithic scatter	Private	NE	P	--
48JO2960 [5]	43N	76W	18	Lithic scatter	Private	NE	P	--

1 E = eligible; NE = not eligible; E/SHPO = eligible with SHPO concurrence; NE/SHPO = not eligible with SHPO concurrence; U/SHPO = unevaluated with SHPO concurrence.
2 H = historic; P = prehistoric; P/H = multicomponent prehistoric/historic.
3 -- = sites that are not yet accessioned with projects, sites associated with projects that have not yet been accessioned in the cultural records office, and sites with projects that do not extend into this section.
4 48CA268 was not listed in the SHPO database at the time of file search.
5 Site is located in the permit boundary and illustrated on Exhibit 3-1.

The entire area encompassed by the Nichols Ranch Unit permit boundary (within Sections 7, 8, 17, 18, and 20, T43N, R76W) was inventoried at the Class III level by Western Land Services, Sheridan, Wyoming, for the Tex Draw CBM POD, which has been approved by the BLM (personal communication, December 22, 2009, with Clint Crago, Archaeologist, BLM Buffalo Field Office).

Within the Hank Unit permit boundary, all of Section 30 and all but the SENE, NESE, and SESE of Section 31 were inventoried for the Dry Willow 1 POD, which has been approved by BLM (personal communication, November 21, 2007, with Clint Crago, Archaeologist, BLM Buffalo Field Office). The SENE, NESE, and SESE of Section 31 were inventoried in 2007 for the Uranerz Energy Corporation's Hank In Situ Uranium Project, but it has not been reviewed by BLM. All of Sections 6-8 T43N, R75W, were inventoried at the Class III level in 2006 by Arcadis U.S., Inc. for the Dry Willow Phase 4 POD.

Impact Assessment/Project Effect to Cultural Resources

Of the 54 sites previously identified within and near the Nichols Ranch and Hank Units, 37 of these sites are located within the permit boundary of the Nichols Ranch project area (13 sites are in the Nichols Ranch Unit and 24 sites are in the Hank Unit (see Table 2-6 and Exhibit 2-1). Of these 37 sites within the Nichols Ranch permit area, 11 sites are eligible for the NRHP: three within the Nichols Ranch Unit and 8 within the Hank Unit (see Table 2-6). They include multicomponent Site 48CA268 (Pumpkin Buttes TCP), which occurs within and adjacent to the east side of the Hank Unit (Exhibit 2-1).

Project Effects to Cultural Resource Sites within the Nichols Ranch Unit

There are three NRHP-eligible cultural resource sites within the Nichols Ranch Unit and there will be no adverse effects to any of the three NRHP-eligible cultural resources (Sites 48JO2946, 48CA5390, and 48CA5391). Uranerz will avoid these sites during ground disturbing activities and there will be no adverse effects to any of these sites. To provide further protection to the two eligible sites that are located within or near the projected wellfield (specifically sites 48JO2944 and 48CA5391), Uranerz will delineate these sites and will mark them with green colored plastic snow fence material. The fencing material will not be highly visible and no signs will be installed but the fencing material will protect these sites from inadvertent disturbance. Uranerz will also provide small openings (6 to 8 ft) in the fencing to allow livestock and wildlife to move freely in, out, and through the site.

In addition, the Nichols Unit will not adversely affect the setting, feeling, and association of Site 48CA268 because it occurs almost 5.0 mi west of the Pumpkin Buttes TCP (see

Exhibit 2-1). The Programmatic Agreement prepared for this site has determined that only ground disturbing activities within 2.0 mi of the appropriate base elevations of Site 48CA268 will have an adverse effect to the contributing setting surrounding the TCP. Therefore, project-related activities in the Nichols Ranch Unit will not have an adverse effect to Site 48CA268.

<u>Project Effects to Cultural Resources within the Hank Unit</u>

There are eight NRHP-eligible cultural resource sites within the Nichols Ranch Unit and there will be no adverse effects to any of the eight NRHP-eligible cultural resources (Sites 48CA268, 48CA6475, 48CA6490, 48CA6748, 48CA6751, 48CA6753, 48CA6754, and 48CA6927). Uranerz will avoid these sites during ground disturbing activities and there will be no adverse effects to any of these sites. To provide further protection to the two eligible sites that are located within the projected wellfield (specifically sites 48CA6754 and 48CA6727), Uranerz will delineate these sites and will mark them with green colored plastic snow fence material. The fencing material will not be highly visible and no signs will be installed but the fencing material will protect these sites from inadvertent disturbance. Uranerz will also provide small openings (6 to 8 ft) in the fencing to allow livestock and wildlife to move freely in, out, and through the site.

Additionally, Uranerz will comply with the mitigation measures stipulated in the 2009 Programmatic Agreement for in-situ uranium operations for the Pumpkin Butte TCP. Detailed information concerning specific mitigation measures is presented in Section MP 3.16. Therefore, there will be no adverse effect to the Pumpkin Butte TCP (Site 48CA268) from project-related activities in the Hank Unit. Table 2-6a summarizes the NRHP eligibility and project effect to the eight NRHP-eligible sites.

2.4.3 Paleontological Resources

A paleontological survey was conducted for the Nichols Ranch ISR Project. From the survey performed, the Nichols Ranch ISR Project was concluded to have no major impact to significant

Table 2-6a NRHP-eligible Sites within the Hank Unit.

Site Number	Time Period	NRHP Eligibility	Project Effects
48CA268	Prehistoric/Historic	Eligible	No adverse effect with avoidance
48CA6475	Prehistoric	Eligible	No adverse effect with avoidance
48CA6490	Prehistoric	Eligible	No adverse effect with avoidance
48CA6748	Prehistoric	Eligible	No adverse effect with avoidance
48CA6751	Prehistoric	Eligible	No adverse effect with avoidance
48CA6753	Prehistoric	Eligible	No adverse effect with avoidance
48CA6754	Prehistoric	Eligible	No adverse effect with avoidance
48CA6927	Prehistoric	Eligible	No adverse effect with avoidance

fossil remains because of the geology and poor exposures of fossil bearing sediments. One recommendation from the survey is to have a monitor present to oversee any major ground-disturbing events when more than a few feet of surface are removed. Uranerz Energy Corporation will comply with this recommendation when conducting any construction that will involve the removal of several feet of soil. Additionally, if any fossil remains are found during any construction activities, Uranerz Energy Corporation will immediately contact the appropriate state and federal agencies.

The complete paleontological survey is attached as Addendum 2C.

2.4.4 Cultural Resource Mitigation

Uranerz Energy Corporation will comply with the following cultural resource mitigation measures.

1. Uranerz will not conduct any ground disturbing work in areas that have not been previously inventoried and cleared for cultural resources.

2. Uranerz will protect all cultural properties that have been determined eligible to the National Register of Historic Places within the permit area from ground disturbing activities until appropriate cultural resource mitigation measures can be implemented as part of an approved mining and reclamation plan unless modified by mutual agreement in consultation with the SHPO and other regulatory agencies.

3. To protect a previously identified traditional cultural property, Uranerz will also not conduct any ground disturbing activities above the 5,500 foot elevation within the Hank Unit.

4. If cultural resources are discovered during operations, Uranerz will immediately stop ground disturbing activities in the area of the discovery and will immediately notify the WDEQ-LQD, the BLM, the SHPO, and any other appropriate regulatory agency.

2.4.5 Scenic Resources

Because the Nichols Ranch ISR Project is located almost entirely on private land in a remote location, the operations aesthetic impact is limited to only the landowner and those that have permission to be on the landowner's property. The 280 acres of BLM land near the Hank Unit is landlocked by private land limiting access to the land.

The Nichols Ranch Unit will be the site for central processing facility (CPP) along with an office building and a maintenance building. The plant and buildings would be the prominent features of the landscape since the area where they are to be located is mostly flat with little to no other cover. Even though the plant and buildings will stand out, their existence will not be seen by the public.

The Hank Unit will be the site of a satellite plant along with one maintenance building. These facilities will sit to the west of the Pumpkin Buttes on private land. Several oil/gas wells exist in the region, so the Hank Unit satellite plant will not be the only prominent feature in the area. Several transmission towers are completed outside of the Hank Unit permit boundary on top of South Middle Butte. Additionally coal bed methane development has and will take place in the Hank Unit area. Coal bed methane well houses will be present in the area. The Hank Unit will not be visible from the main T-Chair Livestock Company ranch road, but will be visible from the top of the Pumpkin Buttes. The Pumpkin Buttes have been recognized as a potential Traditional Cultural Property (TCP) by the Bureau of Land Management (BLM). Visual concerns from coal bed methane development and coal bed methane development in general were addressed in Environmental Assessments for Anadarko Petroleum Corporation Dry Willow Phase I and Dry Willow Phase II. These environmental assessments detail the agreement that was reached between the Bureau of Land Management and Anadarko Petroleum Corporation in regards to what mitigation steps would be taken to minimize the visual effects of coal bed methane in regards to the Pumpkin Buttes as a potential TCP. The main concerns that were voiced were to avoid development on the tops and sides of the Pumpkin Buttes, bury pipelines, power lines, etc, and to paint structures so that they will blend into the natural landscape. Uranerz Energy Corporation plans on doing these measures for both the Hank and Nichols Ranch plant sites. Pipelines running to and from the wellfield to the plants will be buried not only to mitigate a visual impact, but for freeze protection of the pipelines. No extraction activities will take place on top of North and South Middle Butte, and buildings, well head covers, and header houses will be painted a color that will allow the structures to blend in with the existing landscape. The following is an excerpt from the Dry Willow Phase II Environmental Assessment on the visual resource impact regarding the coal bed methane development in the same area that the Nichols Ranch ISR Project will take place in. Much of what is observed will be the same for the proposed Nichols Ranch ISR Project with the exception that the Hank Unit will sit at the base of North and South Middle Buttes. The Nichols Ranch Unit central processing plant will be located approximately 6.0 mi to the west of the Buttes.

> "Recently constructed oil and gas related facilities are visible from the base of the Buttes to approximately 15 miles westward. Modern visual distractions include conventional gas and oil wells, well pads, pump jacks, access roads (both crowned and ditched and two track), pipeline scars, reservoirs, fence lines, power lines, a large water storage facility, uranium mine facilities, ranch buildings and dust from vehicle traffic. The setting of the Pumpkin Buttes as they face the project area is nearly dominated by modern visual distractions.
>
> As excerpted from *Pumpkin Buttes Visual Assessment* by Gary D. Long, Outdoor Recreation Planner for the Wyoming BLM State Office:
>
>> Roads and Trails: Roads were readily visible at distances up to five miles. Roads were most visible where located in darker, sagebrush-dominated landscapes. This was because of the contrast created by a light colored linear feature in a dark colored landscape that was devoid of similar natural linear features.
>>
>> Coal Bed Natural Gas Development (CBM): While this could be seen, the structures associated with CBM are not readily seen at distances over one mile. What is seen are the roads and well site locations, particularly when cleared in sagebrush-dominated landscapes.
>>
>> Reservoirs: Reservoirs were readily seen at distances equal to or exceeding two miles.
>>
>> Power Lines: Several single pole power lines were noted. They could be seen but at distances exceeding a mile would not attract the attention of the casual observer.
>
> A few proposed wells and accesses are within 2 and 1/2 miles of North Middle and South Middle Buttes. The project area can be viewed from all the Buttes. At distances over two miles, the frost boxes associated with CBM wells will be painted to blend into the background and will not be visible. All major access roads (crowned and ditched roads) associated with the project are already constructed and are visible from the Buttes. Construction of pipelines

and parallel two track roads accessing wells are over two miles away, will re-vegetate and will not be visible from the Buttes. There is very little sage in the project area (mostly grass) and the construction and reclamation of new accesses or pipelines will not create a vegetation contrast. There are not any reservoirs or other large production related facilities associated with the project. The majority of the power lines associated with the project will be buried.

Overhead lines associated with the project will be well over 2 miles from the buttes.

It does not appear that the construction of the Dry Willow II POD will add visual distractions to the setting of Pumpkin Buttes, especially considering the existing developments that attract the viewers' attention. Additionally, the setting of the buttes is nearly compromised by modern oil and gas related activities. Construction of the project will result in "no effect" to Pumpkin Buttes (48CA268)."

2.5 METEOROLOGY

2.5.1 Introduction

The Nichols Ranch ISR Project area is located in northeastern Wyoming, where the climate is generally classified as having relatively low annual precipitation (10-20 inches per year) but it is sufficient for the growth of short sparse grass. This climate is due in part to the effective barrier to moisture from the Pacific Ocean offered by numerous mountain ranges that run primarily north and south throughout the state, perpendicular to the prevailing west winds. The topography in this portion of Wyoming tends to restrict the passage of storms and thereby restricts precipitation in eastern Wyoming (Curtis and Grimes 2004).

There are no current meteorological (met) stations within or immediately adjacent (within 20 mi) of the Nichols Ranch ISR Project area. However, meteorological data has been collected from the seven meteorological stations that surround the project area (between 25 and 62 mi) (Table 2-7 and Figure 2-7). These seven met stations encompass all existing met stations within 62 mi of the Nichols Ranch ISR Project area. Six of the stations are operated by the National Weather Service (NWS) and one station is operated by a private firm (Intermountain Laboratory (IML). The Antelope Coal Company Mine (Antelope) met station is operated and maintained in accordance and parallel two track roads accessing wells are over two miles away, will re-vegetate and will not be visible from the Buttes. There is very little sage in the project area (mostly grass) and the construction and reclamation of new accesses or pipelines will not create a vegetation contrast. There are not any reservoirs or other large production related facilities associated with the project. The majority of the power lines associated with the project will be buried.

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Table 2-7 Meteorological Stations Included in Climate Analysis.

Weather Station (ID Number)	Data Collected By	Distance from Nichols Ranch ISR Project Area (miles)	Direction from Nichols Ranch ISR Project Area (compass)	Elevation (ft above sea level)	Meteorological Parameters Used in this Report	Period of Records [2]
Antelope [3]	IML	48.5	ESE	4,675	Wind, temperature, precipitation	1987-2007
Buffalo (481165) [1]	NWS	58	NW	4,670	Wind, temperature, precipitation	1899-2007
Casper (481570) [1&4]	NWS	60	SSW	5,338	Wind, temperature, precipitation, humidity, evaporation	1948-2007
Dull Center 1 SE (482725) [1]	NWS	54	ESE	4,415	Temperature, precipitation	1926-2007
Gillette 9 ESE (483855) [1]	NWS	46.5	NNW	4,640	Wind, temperature, precipitation	1902-2006
Glenrock 5 ESE (483950) [1]	NWS	62	S	4,948	Temperature, precipitation	1941-2006
Midwest (486195) [1]	NWS	25	SW	4,860	Temperature, precipitation	1939-2006

1 Data was obtained from the western Regional Climate Center website http://www.wrcc.dri.edu/summary/Climsmwy.html. Temperature is measured 2 m Above Ground Level (AGL) anemometers are 20 ft AGL and precipitation is collected 2-3 ft AGL.

2 The period of record indicates the beginning and ending dates for which the station was open. IMPORTANT: The availability of data from any given station is not directly related to the period of record. Many stations do not provide data to NCDC. To determine what data is available for a given station, please check the station's Data Inventories. Please contact NCDC if confirmation of data availability is needed.

3 IML = Inter-Mountain Labs Temperature is measured 3 m AGL and anemometers are 10 m AGL.

4 Data was obtained Wyoming Climate Atlas Curtis and Grimes 2004.

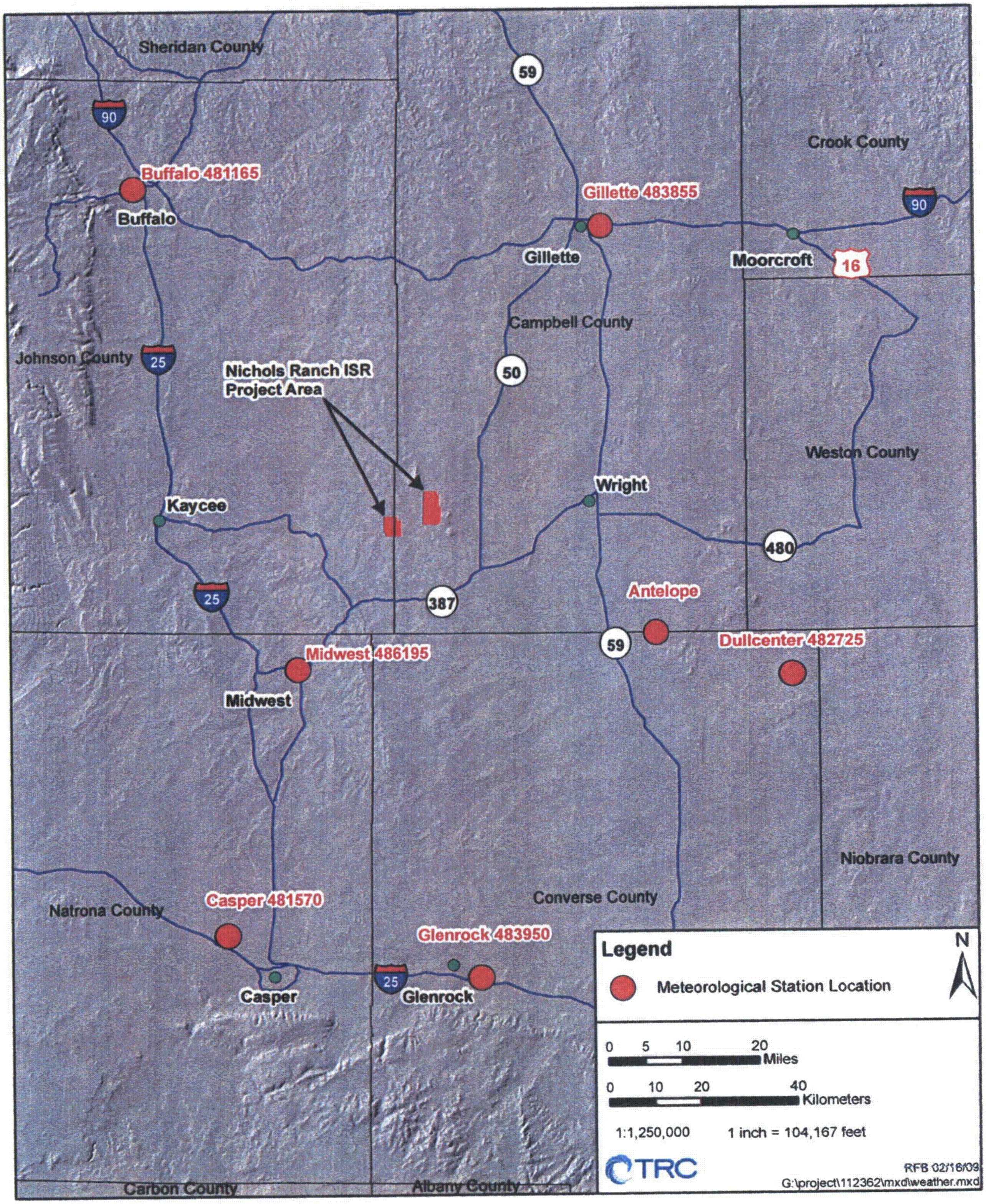


Figure 2-7 Location of Regional Meteorological Stations.

an air quality permit issued by the Wyoming Department of Environmental Quality/Air Quality Division and has been in operation since 1987. Data recovery for the Antelope met station is greater than 90% for all parameters. The NWS stations were selected because they are the closest meteorological stations to the Nichols Ranch ISR Project area and will be used to provide regional and local weather information that is relevant to the Nichols Ranch ISR Project area.

All of the selected meteorological weather stations provide temperature and precipitation data. Only the Casper, Antelope, Gillette, and Buffalo met stations provide wind data and only the Casper met station reports relative humidity and evaporation data.

The Antelope met station was chosen as a surrogate met station for the Nichols Ranch ISR Project area based on the meteorological parameters measured (e.g., wind speed and direction, temperature and precipitation), its relatively close proximity to the Nichols Ranch ISR Project area and most importantly its similarity of topography and vegetation to the Nichols Ranch ISR Project area. Specifically, the Nichols Ranch ISR Project area is characterized by rolling hills and it is located in a semi-arid or steppe climate and vegetation types are mainly native grasses with some sagebrush and sparse woody coverage. As documented in Table 2-7 and Figure 2-7, the Antelope met station is located approximately 48.5 mi east-southeast from the Nichols Ranch ISR Project area. The Antelope met station is located on gently rolling hills with native grasses and shrub plant communities (Knight 1994). There are no major topographic or vegetation differences between the meteorological conditions at the Nichols Ranch ISR and the Antelope met station site except for minor differences related to microclimates associated with each location.

The Casper, Gillette, or Buffalo met stations could also be used as the surrogate met station for the Nichols Ranch ISR Project area. However, a review of the physical location of these sites and the data collected from these sites indicated that these met stations would not be the most appropriate surrogate sites as discussed below.

The Casper met station is located approximately 60 miles southwest of the Nichols Ranch ISR project area. The Casper met station is also located approximately 5 miles north of Casper Mountain which is the north extend of the Laramie Mountain Range (Knight 1994). Casper Mountain rises about 2,700 ft above the city of Casper and about 2,500 ft above the elevation of the Casper met station. While winds at the Casper met station are predominately from the southwest the local weather patterns are likely affected to some degree by Casper Mountain which is a major local topographic feature and would likely result in more microclimate affects compared to those that would be expected at the Nichols Ranch ISR Project area. Therefore, based on the increased distance of the Casper met station to the Nichols Ranch ISR Project area and the microclimatic affects of Casper Mountain it is reasonable to hypothesize that the Antelope met station is a better surrogate met station.

The Gillette and Buffalo met stations are located approximately 46.5 miles north-northwest and 58 miles northwest of the Nichols Ranch ISR Project area, respectively. The wind pattern for these stations generally show a westerly pattern with a relatively strong component from the north that appears to be reflective of a stronger northern influence of Canadian weather systems that push down directly from northern latitudes or from pacific weather systems that move around the Big Horn Mountain Range and then south. Therefore, based on the microclimatic affects of Big Horn Mountain Range on these two met stations it is reasonable to postulate that the Antelope met station would be a better surrogate met station.

The Antelope station offers the most representative data for the generation of the monthly wind roses and seasonal diurnal temperature norms required by the NRC. The NRC also approved use of the Antelope met station for Energy Metals Corporation's Moore Ranch Uranium Project License Application that is located approximately 10 mi south of the Nichols Ranch ISR Project area. The other meteorological stations presented in Table 2-7 will be used in the discussion of regional climatology and meteorology.

Regarding maintenance, inspections, and service of the Antelope met station, it is important to remember that Uranerz did not collect data, operate, or maintain the Antelope met station. As noted above, the Antelope met station is operated and maintained by Intermountain Laboratories in accordance with an air quality permit issued by the Wyoming Department of Environmental Quality/Air Quality Division and has been in operation since 1987. Since this station is mandated by the Wyoming Department of Environmental Quality/Air Quality Division the Antelope met station is operated and maintained in accordance with the EPAs regulatory modeling application criteria and adheres within a strict set of operating and maintenance guidelines. These system/equipment accuracies and resolutions are generally more stringent than those of National Weather Service systems. In accordance with EPA guidelines, the Antelope met station is audited once every six months and calibrations and repairs are performed on an "as found" basis. It should also be noted that the Wyoming Department of Environmental Quality/Air Quality Division typically has not identified issues or concerns with the collection of data from this station. Had there been any problems with data collection from this met station the Wyoming Department of Environmental Quality/Air Quality Division would have required appropriate corrective action. All calibrations and repairs at this station are performed immediately after they are identified as the EPA minimum data recovery criteria is 75%. As stated in above, data recovery from this site is greater than 90% for all parameters.

2.5.2 Regional Overview

2.5.2.1 Temperature

Regional temperature information was collected from the seven meteorological stations listed in Table 2-8. Regional monthly average, monthly minimum, and monthly maximum temperatures is presented in Figures 2-8, 2-8a, and 2-8b respectively. The region has an average annual temperature between 45-50°F (Curtis and Grimes 2004) (Table 2-9), an average monthly maximum temperature between 85-90°F (which occurs in July), and an average monthly minimum temperature between 10-18°F (that occurs in January) (refer to Figures 2-8a and 2-8b).

Table 2-8 Annual Average Temperature for Select Stations.

Station	Average Annual Temperature (°F)
Antelope	46
Buffalo	46
Casper	45
Dull Center	46
Gillette	45
Glenrock	47
Midwest	46

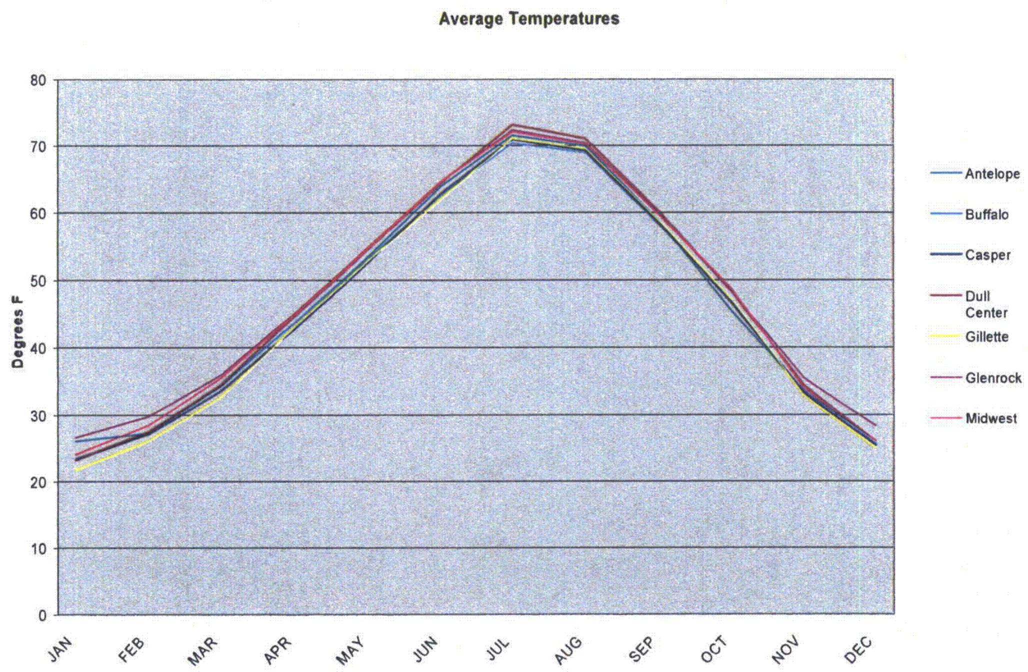


Figure 2-8 Average Monthly Temperatures for Select Meteorological Stations.

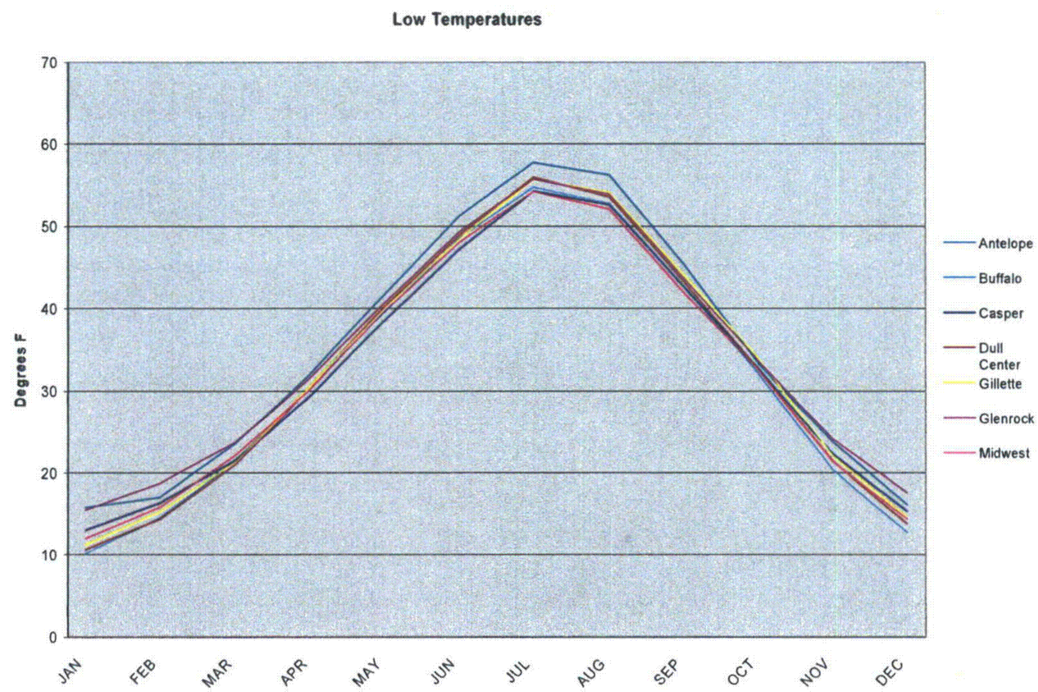


Figure 2-8a Average Monthly Minimum Temperatures for Select Meteorological Stations.

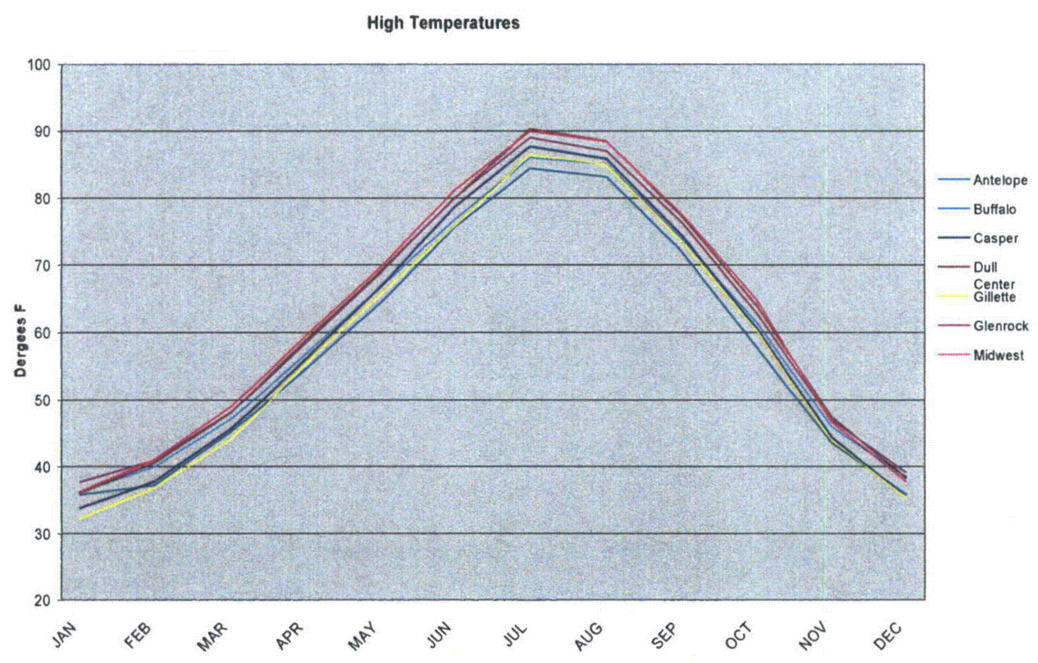


Figure 2-8b Average Monthly Maximum Temperatures for Select Meteorological Stations.

According to Curtis and Grimes (2004) there are approximately 101-120 frost-free days a year in the region, with the number of frost-free days decreasing with increasing elevation. Large diurnal temperature variations are found in the region due in large part, to its altitude and low humidity. Figure 2-8c depicts the seasonal diurnal temperature variations at the Antelope Station (Intermountain Laboratory 2009). As expected summer has the highest average diurnal temperature with winter and spring recording the lowest average diurnal temperatures. The highest daily temperatures occur between 12:00 noon and 6:00 pm local time. The coolest temperatures are in the early morning hours between 4:00 and 6:00 am.

2.5.2.2 Precipitation

The regional near the Nichols Ranch ISR Project area is representative of the high plains in Wyoming and receives an average of 11-15 inches of precipitation per year (Table 2-9) (Curtis and Grimes 2004). Of the seven stations used to report precipitation data, the Gillette Station has the highest annual average precipitation with 15.6 inches per year and the Antelope

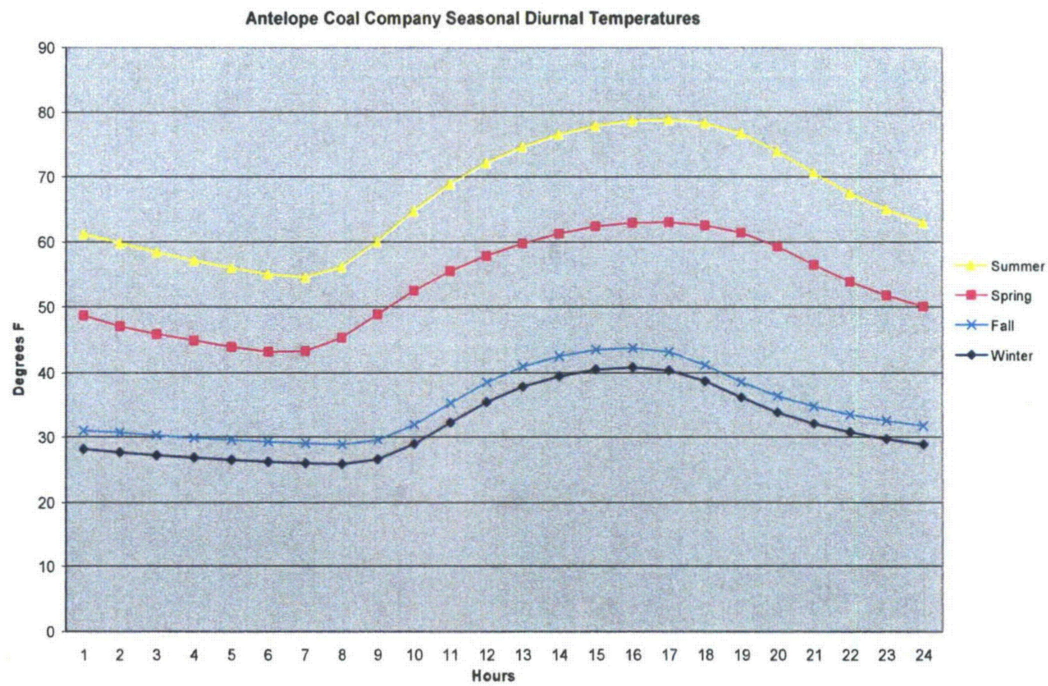


Figure 2-8c Seasonal Diurnal Temperature Variations at the Antelope Station.

Table 2-9 Average Annual Precipitation for Select Stations.

Station	Average Annual Precipitation (In)
Antelope	11.2
Buffalo	13.4
Casper Natrona County Airport	11.9
Dull Center	12.6
Gillette	15.6
Glenrock	12.5
Midwest	12.7

Station had the lowest annual average precipitation of 11.2 inches per year. Monthly average precipitation for the seven stations is presented in Figure 2-9. The average monthly maximum precipitation for all satiations ranges between 0.16 and 2.75 inches per month and the seven meteorological stations show a similar pattern of precipitation. Most precipitation occurs in May or June across the region and the least amount of precipitation occurs in the months of December, January, and February.

Monthly minimum and maximum precipitation for the selection meteorological stations is presented in Figures 2-9a and 2-9b respectively. Minimum precipitation amounts for the select stations are generally less than 0.10 of an inch, with only a few months for a few stations consistently having a minimum of more than 0.20 inches. The maximum monthly precipitation amounts for the select stations are much more variable with a majority of the stations recording a maximum between 1.0 and 8.0 inches per month and documents heavy thunderstorms that are common in the region during the late spring and summer months. Only the Gillette Station has ever recorded monthly maximum precipitation of more than 8.0 inches, and these were 10.0 and 11.0 inches.

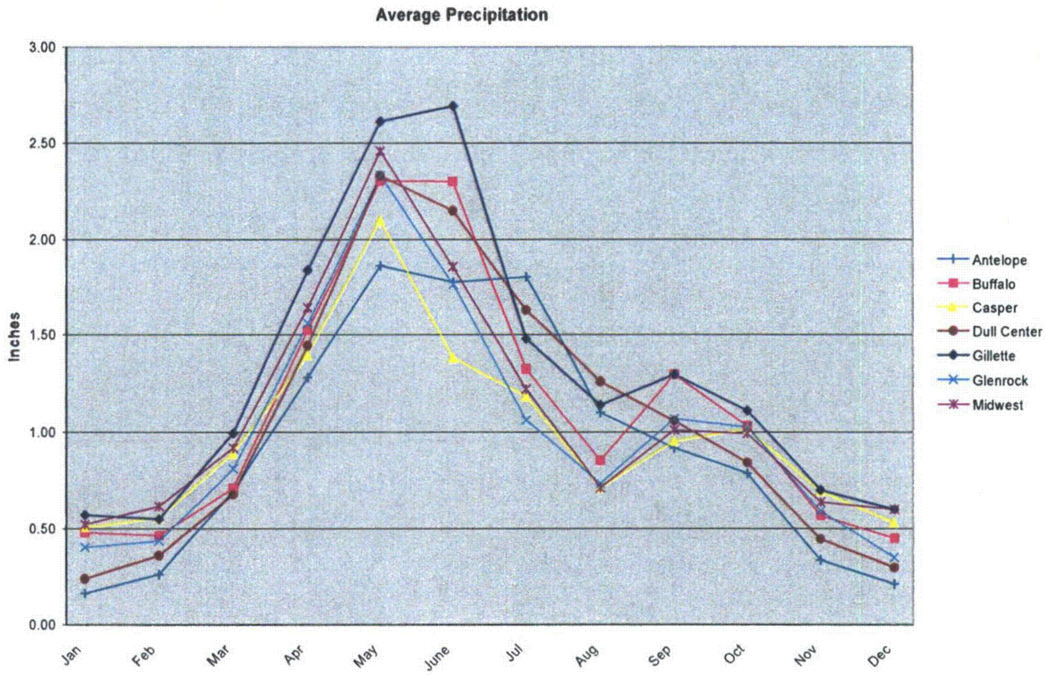


Figure 2-9 Monthly Average Precipitation (in inches) for Select Station.

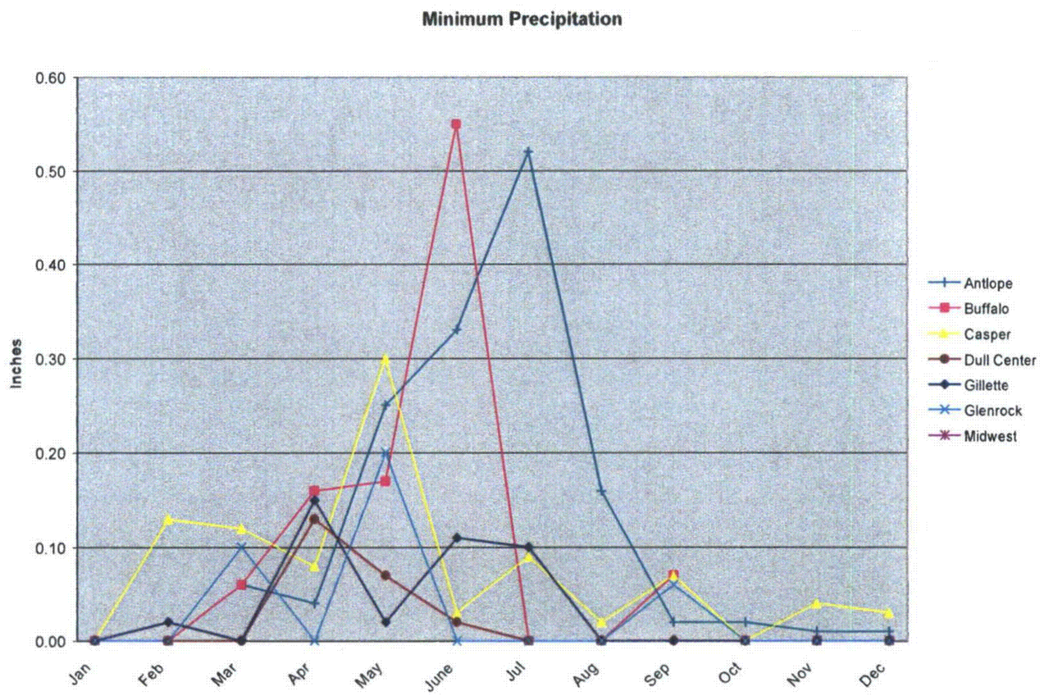


Figure 2-9a Monthly Minimum Precipitation (in inches) for Select Stations.

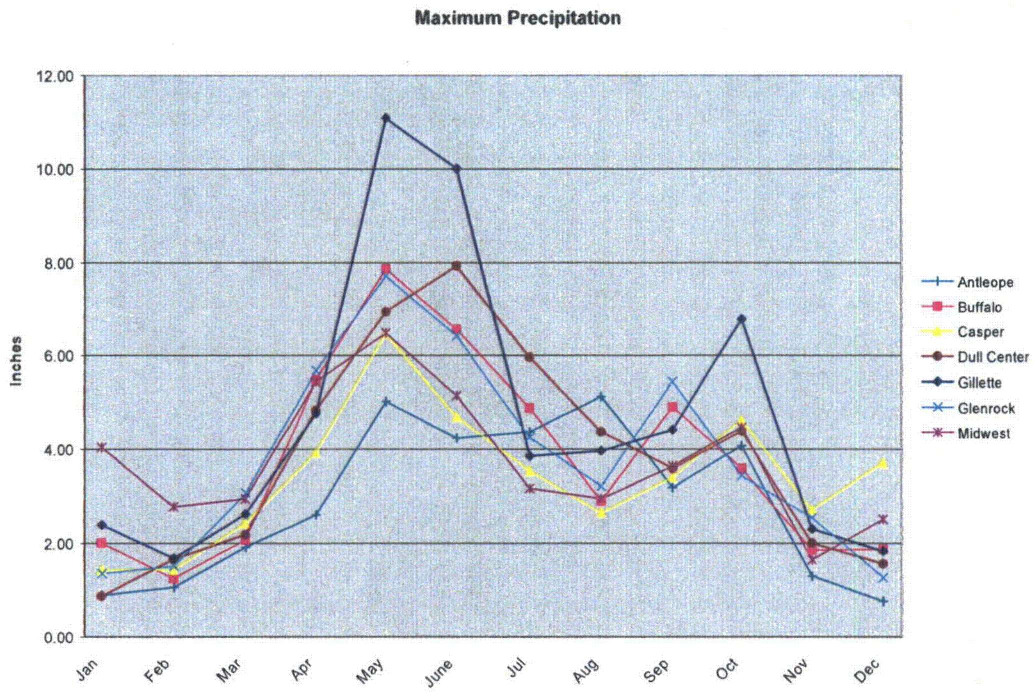


Figure 2-9b Monthly Maximum Precipitation (in inches) for Select Stations.

2.5.2.3 Wind

The entire state of Wyoming is windy and ranks 1st in the US with an annual average wind speed of 12.9 mph. During the winter there are frequent periods when the wind reaches 30 to 40 mph with gusts of 50 or 60 mph (Curtis and Grimes 2004). Of the meteorological stations used in this regional analysis only four stations have any wind data and these are the Antelope, Buffalo, Casper, and Gillette Stations. Both the Antelope Station and the Nichols Ranch ISR project area are located in open rolling hill country and it is closest to the project area. The Antelope Station is located approximately 48 mi southeast of the Nichols Ranch ISR project area and is slightly lower than the Nichols Ranch ISR project area. The Antelope Station is located at an elevation of 4,675 ft above mean sea level (AMSL) and the elevation within the Hank Unit ranges from 5,055 to 5,860 ft AMSL and the elevation within the Nichols Ranch Unit ranges 4,670 to 4,920 ft AMSL. Wind data from the Antelope meteorological station are reasonably representative of the climate in the general area and are consequently used as the basis for the following discussion. On-site analysis of wind is more in depth and will be discussed later on.

2.5.2.4 Wind Speed

Based on the Antelope Station, the annual average wind speed is approximately 11 mph and the maximum wind speed averages approximately 47 mph. Based on wind data from the four meteorological stations it appears that the winds are weakest in the pre-dawn hours and strongest in the mid-afternoons, tapering off again as night falls. Wind speeds are highest in the early spring and significantly reduced during winter months (Curtis and Grimes 2004).

2.5.2.5 Wind Direction

Based on the data from the four select stations, the regional wind directions are highly variable and are strongly influenced by local topography and general weather patterns. The wind pattern for the stations located in the northern portion of the region (Buffalo and Gillette) show a general westerly pattern with a relatively strong component from the north. Stations in the central and southern portion of the region (Antelope and Casper) also show a generally westerly pattern with a stronger west-southwestern component.

For the central and southern portion of the region (including where the Nichols Ranch ISR project is located), winter months show wind primarily from 200-230 degrees, roughly south southwest. Then by spring and into summer winds are from the south-southwest early in the day and become more southerly toward evening. By the fall, winds return to a south-southwest pattern for most of the day (Curtis and Grimes 2004).

2.5.2.6 Humidity

Wyoming's annual average relative humidity is quite low and is particularly low in the summer. In the project area, the mean annual relative humidity is between 52% and 60%. However, during the warmer part of the summer days, the humidity across the state can drop to about 25 to 30% and on a few occasions it will be as low as five to 10%. Late at night, when the temperature is lowest, the humidity will generally rise to 65 or 75%. This results in an average diurnal variation of about 40 to 45% during the summer, but in the winter the variation is much less (Curtis & Grimes 2004).

2.5.2.7 Evaporation

Wyoming's low humidity, abundant sunshine, and relentless winds contribute to a high rate of evaporation. Annually, statewide evaporation rates range from 30 to about 50 inches. In the Nichols Ranch ISR project area evaporation is likely 40 to 45 inches annually. Evaporation in Wyoming varies much less on a yearly basis than precipitation. Even extreme variations in annual total evaporation are within 25 percent of the long term annual average (Curtis and Grimes 2004).

2.5.2.8 Severe Weather

Information on severe weather in the region of interest is not available; however, severe weather in Wyoming is relatively uncommon in part because of the Rocky Mountains' ability to separate and block prevailing air flows from the Gulf of Mexico, north-central North America, and the Pacific Ocean thus minimizing clashes between contrasting air masses that produce severe weather (Curtis and Grimes 2004). Thunderstorms and hailstorms are the most common severe weather events in the state and region and hailstorms are the most destructive type of events. Severe hail (size 0.75 inch or larger) events occur about 29 times a year across the state with the greatest frequency by far occurring over the extreme southeast part of the state. The annual frequency of thunderstorms range from about 30 days per year on its western border; to about 50 days per year in the extreme northeast and southeast corners of the state (Curtis and Grimes 2004).

Tornados are not a common occurrence in the area and "significant" tornados are much rarer. Tornado intensity is measured by the Fujita (F-Scale) and range from the weakest intensity storms (F0) to the strongest storms (F5). Significant tornadoes are considered to be F2 intensity winds, between 113 and 157 mph or stronger, or if a weaker tornado kills a person. Significant tornadoes occur in about four out of 100 tornadoes in Wyoming (Curtis and Grimes 2004).

2.5.2.9 Mixing Height

Mixing height or inversion height data is limited for the Nichols Ranch ISR project region. The meteorological station at Lander Wyoming reports the only archived mixing height data for the state and it is available at http://www.epa.gov/scram001/mixingheightdata.htm. Mixing height for the state fluctuates widely. The extreme low, one meter and extreme high over 57,900 m were recorded in the same year. The average morning mixing height for the 5-year period at the Lander Station between 1987 and 1991 was 659 m. For the same period, the average afternoon mixing height was 4,074 m.

2.5.3 Site Specific Analysis

Due to the similar topography and proximity of the Nichols Ranch ISR Project area, the Antelope Station will be used to describe local weather conditions at the Nichols Ranch ISR Project area.

2.5.3.1 Temperature

Temperature data collected at the Antelope Station are illustrated on Figures 2-8, 2-8a, and 2-8b and present the monthly average, monthly minimum, and monthly maximum temperatures, respectively. Seasonal diurnal temperature data for the Antelope Station indicates large daily variations as expected in locations with high altitude and low humidity such as that in the Nichols Ranch ISR project area (see Figure 2-8c). This data indicates that average daily variations can be as much as 15° to 25° in dry summer months and the daily temperature varies only 10° to 15° during cooler, more humid times of year.

2.5.3.2 Precipitation

Precipitation data for the Antelope Station is presented in Figures 2-9, 2-9a, 2-9b and will not be repeated here. The Antelope Station recorded slightly less precipitation throughout the year compared to the other selected stations but it exhibits a seasonal trend that is comparable to other selected stations in the area.

2.5.3.3 Wind

Average wind speed data for the Antelope Station is presented in Figure 2-10. The annual average wind speed is approximately 11 mph and the maximum wind speed averages approximately 47 mph. Based on this data it appears that the winds are weakest in the pre-dawn hours and strongest in the mid afternoons, tapering off again as night falls. Wind speeds are highest in the early spring and significantly reduced during winter months.

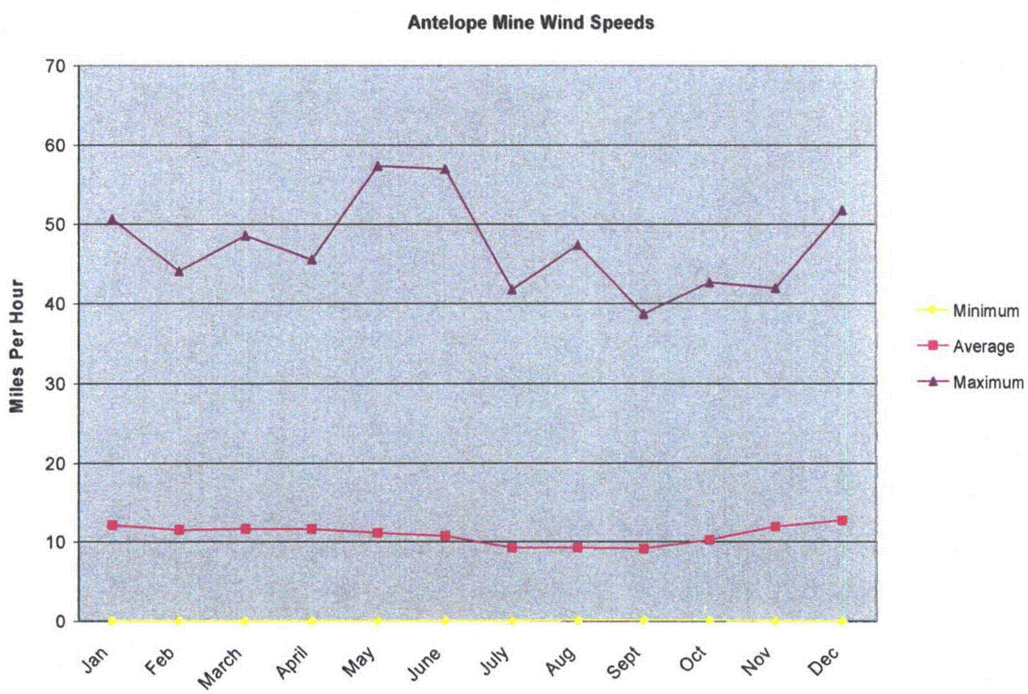


Figure 2-10 Average Monthly Wind Speeds (mph) at the Antelope Station.

The annual and monthly wind rose data for the Antelope Station is presented in Figure 2-10a through 2-10d. The annual wind rose indicates predominantly west and west-southwest winds for the area. Wind from those two sectors make up well over 20% of annual wind. These figures show a pronounced seasonal difference with still a strong west and west-southwest direction and a larger percentage of the wind during the spring coming from the northwesterly direction. The wind direction also shows a distinct increase in winds from the southeast and northwesterly direction during the summer, transitioning to a more westerly direction during the late summer through the fall. The prominent wind direction during the winter is strongly dominated by west and west south-west winds.

The Joint Frequency Distributions for the Antelope Station are included in the MILDOS section (see Addendum 7C) of this document. The distributions show the frequencies of average wind speed for each direction based on stability class. More than 55% of winds at the Antelope Station fall into stability class D which represents near neutral to slightly unstable conditions. The light winds which accompany stable environments can be seen by the stability Class F (stable) summaries.

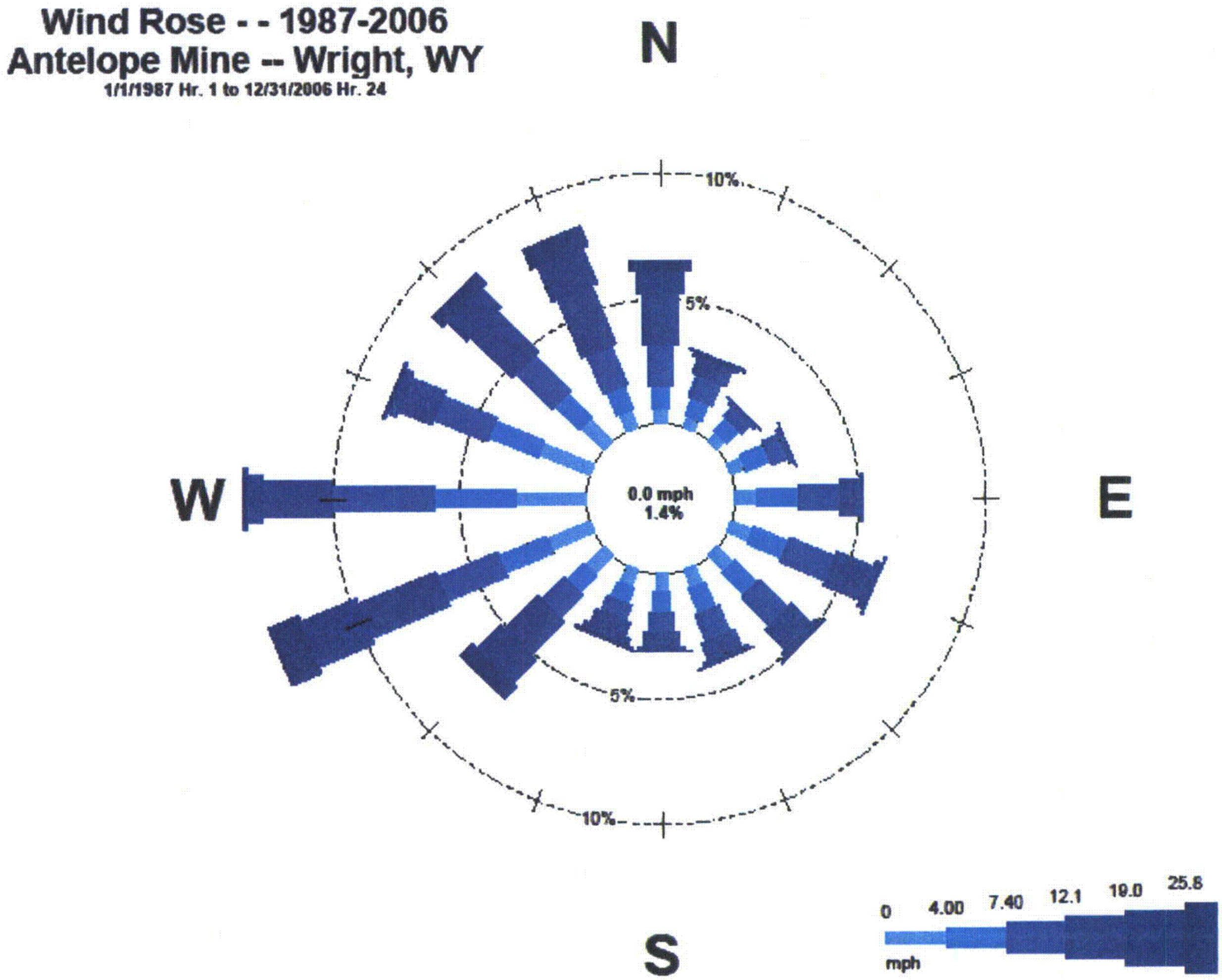


Figure 2-10a Annual Wind Rose 1987-2006 for Antelope.

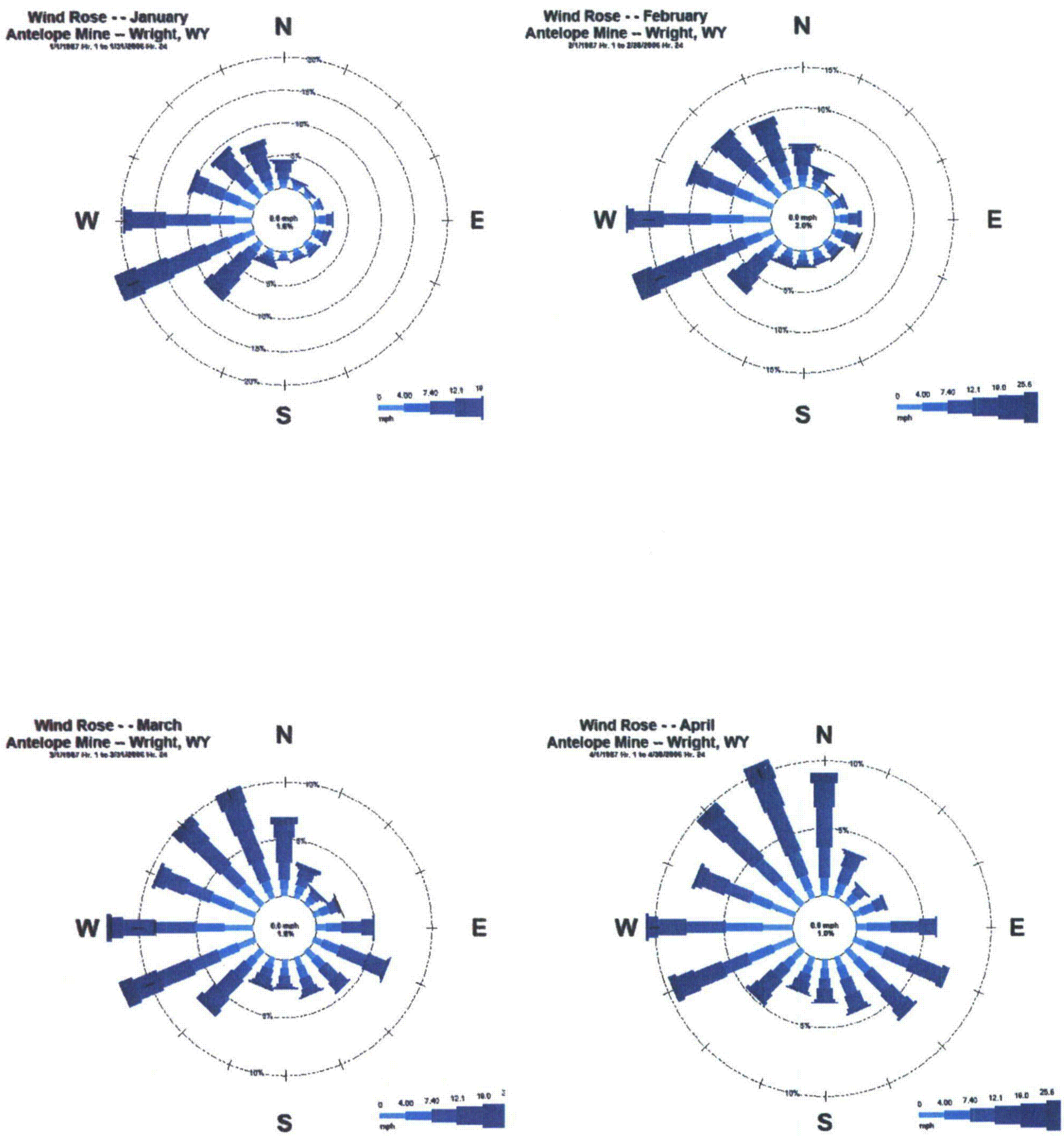


Figure 2-10b January through April Wind Roses.

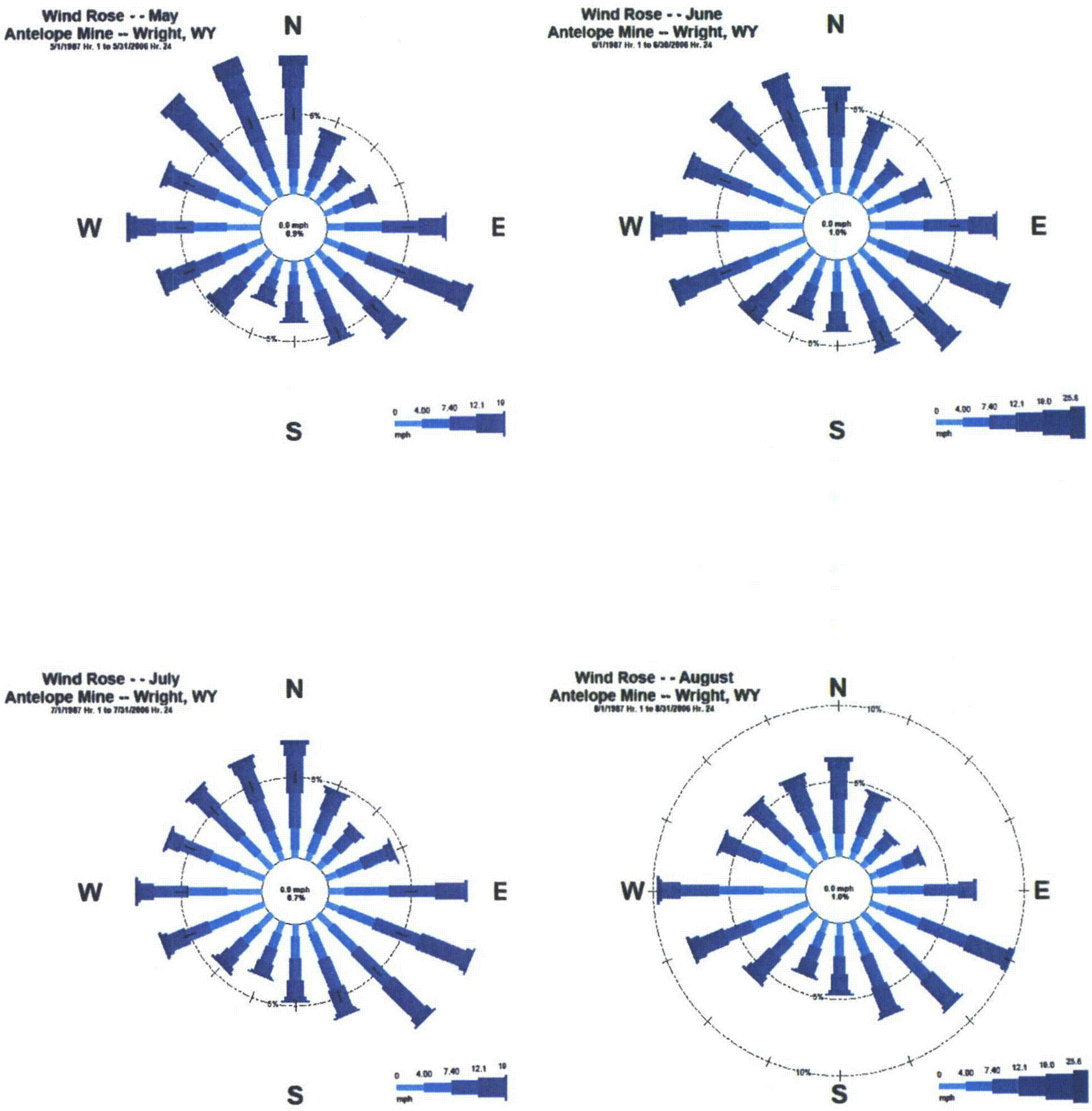


Figure 2-10c May through August Wind Roses.

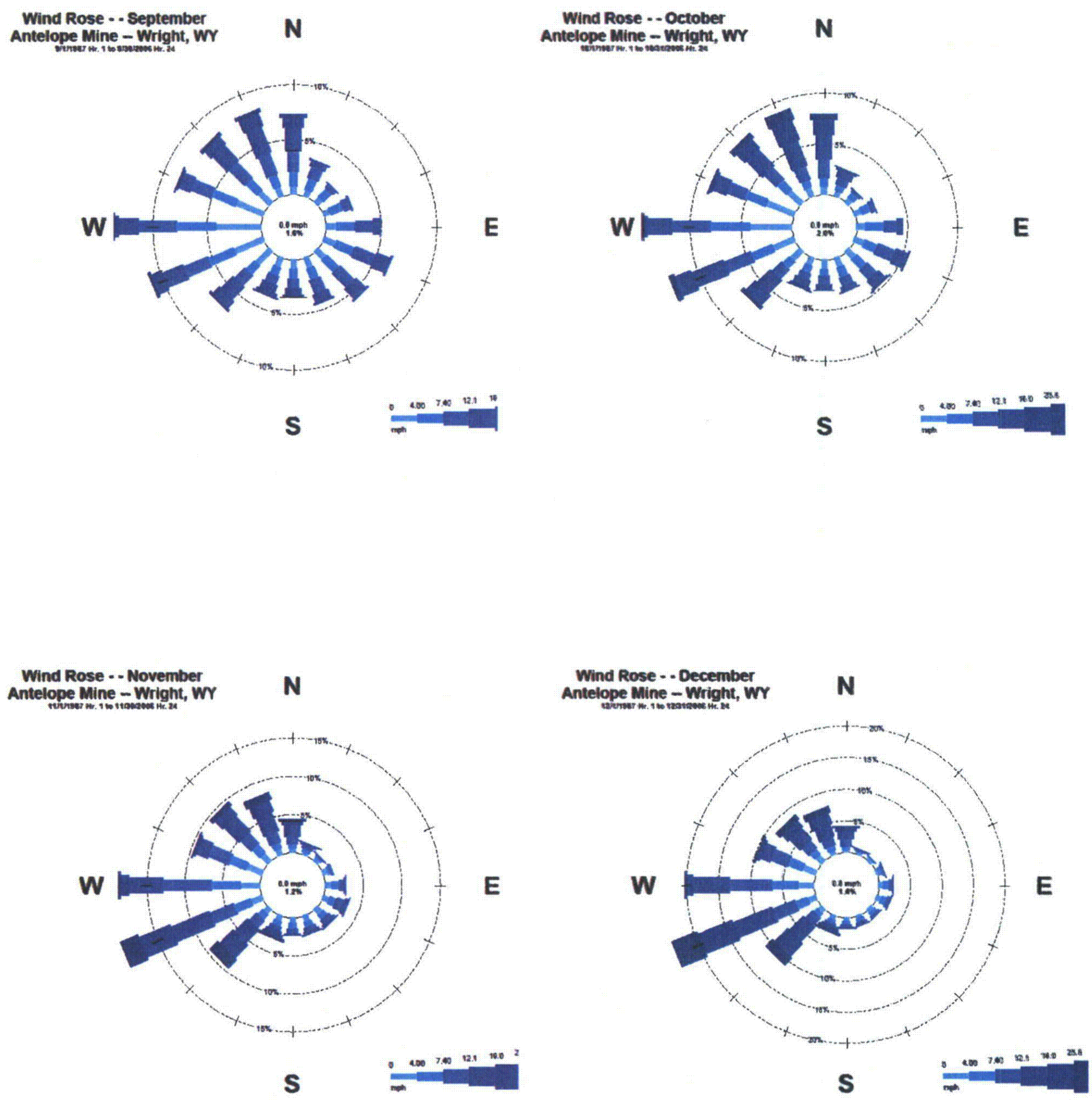


Figure 2-10d September through December Wind Roses.

2.5.3.4 Effects of Local Terrain

Immediately to the east of the Hank Unit and approximately 4 mi to the east of the Nichols Ranch Unit is a series of buttes known as Pumpkin Buttes. These buttes rise approximately 1,000 ft above the proposed project area of the Hank Unit and slightly more than that above the Nichols Ranch Unit. The proximity of the Pumpkin Buttes to the Nichols Ranch ISR project area cannot be ignored, but should have limited impacts on the climate surrounding the project area. Considering that the prevailing winds in the area are from the west and west-southwest, the change in elevation is relatively minor, temperature and relative humidity in the region are quite low, topographically generated weather systems are expected to be nominal. It is possible that the buttes do produce some micro climatic effects on the local precipitation pattern but these effects would be variable and diverse especially given the variable nature of summer precipitation events.

The along-slope wind systems, while certainly present, are expected to be insignificant since the daytime adabatic or upslope wind has just a few hundred meters to gather strength before reaching the apex of the buttes. Returning katabatic or down slope winds in the evening should also be minimal as winds in the area tend to decrease with nightfall. The potential for mountain-gap wind between North Butte and North Middle Butte exists but is expected to be negligible. First, the narrow dimensions of the buttes do not allow for a buildup of wind speed as would be expected in a true valley situation. Secondly, in general when air stratification is stable, the air flow tends to be from high to low pressure and wind could emerge through a gap as a "jet" known as mountain-gap wind. However, joint frequency distribution data shows stability class F winds, the most stable, to be quite light in the region. Therefore, while the buttes themselves are a striking visual characteristic of the landscape topographically speaking they are of little magnitude.

2.5.4 Air Quality

2.5.4.1 General

There is no known air quality permits required for the Nichols Ranch ISR Project area, and there are no known air quality permits near the project area. A meeting between Uranerz Energy Corporation and the Wyoming Department of Land Quality – Air Quality Division (WDEQ-AQD) was held to discuss the potential air quality permits that may be required for the Nichols Ranch ISR Project. After discussing the Nichols Ranch ISR Project, Uranerz Energy Corporation agreed to submit an emission inventory to the WDEQ-AQD in order to establish if any air quality permits are needed. Because of the minimal amount of emissions produced by the plant operations and the minimal surface disturbance and vehicular traffic associated with the operation Uranerz Energy Corporation believes that no air quality permits will be required. If any air quality permits are required by the WDEQ-AQD, then these permits will be obtained prior to beginning any construction activities for the Nichols Ranch ISR Project.

2.5.4.2 Impacts

Impacts on air quality associated with the operations of the Nichols Ranch ISR Project will be very minimal. Access to the project area will be via 8.5 mi of Campbell County maintained gravel road, then 8.5 mi of gravel ranch roads if accessing the project area from Wyoming Highway 50, or approximately 22.3 mi of gravel ranch roads if accessing the property from U.S. Highway 387. Both the county and ranch roads are currently used by numerous oil/gas and coal bed methane companies that are active in the region. These roads have been developed and range from 18 to 24 ft wide crowned-and-ditch roads. The closest residence to the access route is the Pfister Ranch located approximately less than a 0.25 mi to the west of the route and approximately 0.6 mi to the North of the Hank Unit. With the prevailing wind direction out of the southwest, dust produced by the mining operations and vehicular traffic will generally be blown to the northeast which should not affect ranching operations.

Particulate emissions associated with the Nichols Ranch ISR Project will also be minimal. Of the 3,370.53 acres within the project area, only approximately 300 acres or less of lands will be disturbed with stripping of topsoil occurring approximately 100 acres or less. In order to reduce particulate emissions in the wellfield by drilling equipment and wellfield maintenance vehicles, access roads will be maintained via motorized patrol. Natural vegetation will also be left undisturbed whenever possible to prevent wind erosion.

Vehicle traffic entering the Nichols Ranch ISR Project is estimated at eight passenger vehicles per day per week along with six tractor trailers per week. Fugitive dust emissions from this traffic are estimated at approximately 135.9 tons per year using the longer of the two access routes as a basis for the fugitive dust calculations. Wellfield fugitive dust emissions were not considered in calculating the overall fugitive dust emissions since the wellfield is not considered a major source of emissions. Estimated fugitive dust emissions during construction of the facilities of the Nichols Ranch ISR Project were also not included in the fugitive dust emission calculation since the amount of vehicular activity that will be taking place during the construction will be similar to the traffic of the actual operation. Figure 2-11 outlines the methods used to calculate the fugitive dust emissions.

From the above calculations, it is estimated that an emission rate of 135.9 tons per year can be expected for the Nichols Ranch ISR Project. As this is below the 250 tons per year threshold for PSD review, an analysis to determine air quality impact is considered unnecessary.

All other emissions from the Nichols Ranch ISR Project are minimal. Table 2-10 details the other potential operation emissions and their potential emission quantity.

Assumptions:

1. For the purpose of calculating fugitive dust emissions, the well field was not considered a significant emitting source.

2. Estimated daily vehicle traffic includes eight passenger/truck vehicles entering the Nichols Ranch ISR Project. Approximately six tractor trailers will also travel to the permit area per week.

3. Estimated disturbance within the 3370.53 acre Nichols Ranch ISR Project permit area is 300 acres or less.

4. All fugitive dust calculations were based on EPA AP-42 Chapter 13.2.2.

5. Calculation Data Givens:
   Wyoming Unpaved Road Surface Material Surface Silt Content = 4.2% (Source AP-42)
   Access road vehicle speed = 30 mph
   Access road length = 15 mi

Calculations:

<u>Access Road Vehicle Miles per Day</u>

$$\frac{8 \ vehicles}{day} \times 15 \ miles = \frac{120 \ miles}{day}$$

$$\frac{0.86 \ semi's}{day} \times 15 \ miles = \frac{12.9 \ miles}{day}$$

<u>Vehicle Miles per Year</u>

$$Passenger \ Vehicles \Rightarrow \frac{120 \ miles}{day} \times \frac{7 \ days}{week} \times \frac{52 \ weeks}{year} = \frac{43{,}680 \ miles}{year}$$

$$Semi's \Rightarrow \frac{12.9 \ miles}{day} \times \frac{7 \ days}{week} \times \frac{52 \ weeks}{year} = \frac{4{,}695.6 \ miles}{year}$$

Figure 2-11 Fugitive Dust Calculations (1 of 3).

Emissions for Unpaved Roads

$$E = \frac{\left[k\left(\frac{s}{12}\right)^{a}\left(\frac{S}{30}\right)^{b}\right]}{\left(\frac{M}{0.5}\right)^{c}} - C$$

Where:

E = size specific emission factor (lbs/vehicle mile traveled)
s = surface material silt content (%) from AP 42 Tables
W = mean vehicle weight (tons)
M = surface material moisture content (%)
S = mean vehicle speed (mph)
C = emission factor from AP 42 Tables

For PM-10:

k, a, b, and c are constants derived from AP 42 13.2.2
k = 1.5
a = 0.9
b = 0.45
c = N/A or 1

Correcting For Natural Mitigation:

$$E = \left[\frac{\left[k\left(\frac{s}{12}\right)^{a}\left(\frac{S}{30}\right)^{b}\right]}{\left(\frac{M}{0.5}\right)^{c}} - C\right]\left[\frac{(365 - P)}{365}\right]$$

Where: P = number of days in a year with at least 0.01 inches of precipitation from AP 42 charts

Figure 2-11 Fugitive Dust Calculations (2 of 3).

Therefore, using the following inputs:

s = 4.2
a = 0.9
b = 0.45
c = 1
S = 30 mph
M = 0.5
C = 0.0047
P = 100

E = 0.420 lbs/vehicle miles traveled

Total Fugitive Dust Emissions

Total Vehicle Miles Traveled Per Year = 47,375.6 mi per vehicle

9 vehicles total, so

$$\left(9 \text{ vehicles}\right) \times \left(47375.6 \text{ miles per year}\right) \times \left(0.42 \text{ lbs per VMT}\right) = 179{,}079.8 \text{ lbs per year or } 89.5 \text{ tons per year}$$

This is below the 250 tons per year standard established for PSD.

From the above calculations, it is estimated that an emission rate of 135.9 tons per year can be expected for the Nichols Ranch ISR Project. As this is below the 250 tons per year threshold for PSD review, an analysis to determine air quality impact is considered unnecessary.

Figure 2-11 Fugitive Dust Calculations (3 of 3).

Table 2-10 Emissions Inventory.

Emission	Estimated Emission (tons/yr)
CO_2	353.70
HCL	0.017
H_2O_2	0.003
NaOH	0.0003
Fugitive Dust	135.9

2.6 GEOLOGY AND SEISMOLOGY

2.6.1 Regional Geology

The Nichols Ranch ISR Project is located in the Powder River Basin (PRB) which is a large structural and topographic depression parallel to the Rocky Mountain trend. The basin is bounded on the south by the Hartville Uplift and the Laramie Range, on the east by the Black Hills, and the Big Horn Mountains and the Casper Arch on the west. The Miles City Arch in southeastern Montana forms the northern boundary of the basin.

The PRB is an asymmetrical syncline with its axis closely paralleling the western basin margin. During sedimentary deposition, the structural axis (the line of greatest material accumulation) shifted westward resulting in the basin's asymmetrical shape. On the eastern flank of the PRB, sedimentary rock strata dip gently to the west at approximately 0.5 to 3 degrees. On the western flank, the strata dip more steeply, 0.5 to 15 degrees to the east with the dip increasing as distance increases westward from the axis. The Nichols Ranch ISR Project site location within the PRB is shown in Figure 2-12 (see map pocket), Structural Map of Wyoming.

The PRB hosts a sedimentary rock sequence that has a maximum thickness of about 15,000 ft along the synclinal axis. The sediments range in age from Recent (Holocene) to early Paleozoic

(Cambrian - 500 million to 600 million years ago) and overlie a basement complex of Precambrian-age (more than a billion years old) igneous and metamorphic rocks. Geologically, the PRB is a closed depression in what was, for a long geologic time period, a large basin extending from the Arctic to the Gulf of Mexico. During Paleozoic and Mesozoic time, the configuration of this expansive basin changed as the result of uplift on its margins. By late Tertiary- Paleocene time, marked uplift of inland masses surrounding the Powder River Basin resulted in accelerated subsidence in the southern portion of the basin with thick sequences of arkosic (containing feldspar) sediments being deposited. Arkosic sediments were derived from the granitic cores of the Laramie and Granite Mountains exposed to weathering and erosion by the Laramide uplift. Near the end of Eocene time, northward tilting and deep weathering with minor erosion took place in the basin. Subsidence resumed in the late Oligocene and continued through the Miocene and into the Pliocene. A great thickness of tuffaceous sediments was deposited in the basin during at least a part of this period of subsidence. By the late Pliocene, regional uplift was taking place, leading to a general rise in elevation of several thousand feet. The massive erosion pattern that characterizes much of the PRB began with the Pliocene uplift and continues to the present.

Of particular interest in the project area are the Tertiary-age formations:

Formation	Age (Million Years)
White River (Oligocene)	25-40
Wasatch (Eocene)	40-60
Fort Union (Paleocene)	60-70

The White River Formation is the youngest Tertiary unit that still exists in the PRB. Locally, its only known remnants are found on top of the Pumpkin Buttes. Elsewhere the unit consists of thick sequences of buff colored tuffaceous sediments interspersed with lenses of fine sand and siltstone. A basal conglomerate forms the resistant cap rock on top of the buttes. This formation is not known to contain significant uranium resources in this area.

The Wasatch Formation consists of interbedded mudstones, carbonaceous shales, silty sandstones, and relatively clean sandstones. In the vicinity of the Pumpkin Buttes, the Wasatch Formation is known to be 1,575 ft thick (Sharp and Gibbons, 1964). The interbedded mudstones, siltstones, and relatively clean sandstones in the Wasatch vary in degree of lithification from uncemented to moderately well cemented sandstones, and from weakly compacted and cemented mudstones to fissile shales. The Wasatch contains significant uranium resources and hosts the ore bodies for which this application is subject to.

The Fort Union Formation in the PRB is lithologically similar to the Wasatch Formation. The Fort Union includes interbedded silty claystones, sandy siltstones, relatively clean sandstones, claystones, and coal. The degree of lithification is quite variable, ranging from virtually uncemented sands to moderately well cemented siltstones and sandstones. The total thickness of the Fort Union in this area is approximately 3,000 ft. The Fort Union contains significant uranium mineralization at various locations in the basin. The Fort Union is also the target formation for Coal Bed Methane (CBM) extraction activities. CBM target depths in the Nichols Ranch Unit are about 1,000 ft and 1,200 ft at the Hank Unit. A minimum of 300 ft of primarily mudstones and impermeable shales interspersed with fine-grained sands and siltstones separate the proposed uranium mining from CBM production horizons at both Nichols Ranch and Hank. Since CBM wells have their casings cemented to the surface, no interference, water loss, or water invasion is anticipated.

Maps of the surface and sub-surface geology of the Powder River Basin are depicted in Exhibits 5a and 5b (see map pockets) of Appendix D5 in Volume V.

2.6.2 Site Geology

The Nichols Ranch Unit site is located in the Eocene Wasatch Formation about eight miles west of the South Pumpkin Butte and straddles the Johnson and Campbell County lines. The mineralized sand horizons are in the lower part of the Wasatch, at an approximate average depth of 550 ft. The host sands are primarily arkosic in composition, friable, and contain trace amounts of carbonaceous material and organic debris. There are locally sandy mudstone/siltstone intervals within the sands and the sands may thicken or thin to the point of removal in some areas.

The Hank Unit site is also located in the Eocene Wasatch Formation about five miles east-northeast of the Nichols Ranch Unit central processing plant in Campbell County. The mineralized sand horizons are in the lower part of the Wasatch, at an approximate average depth of 365 ft. The host sands are similar in composition and material make-up to those found at Nichols Ranch.

There are three primary Wasatch Formation sand members in the Nichols Ranch Unit and one minor sand unit. The sand members have been identified as F, B, and A Sands and the 1 (one) Sand unit. The F Sand member is the shallowest and the 1 Sand unit is the deepest. The principle uranium ore zone sand member is the A Sand and is 60 to 100 ft thick. Within the Nichols Ranch Unit, all the sands have separating aquicludes.

There are four primary Wasatch Formation sand members at the Hank Unit and two minor sand units. The sand members have been identified as F, C, B, and A Sands and the G and H Sand units. The H Sand unit is the shallowest and the A Sand member is the deepest. The principle uranium ore zone sand member at Hank is the F Sand and it is 75 ft thick. Within the Hank Unit, all the sands have separating aquicludes.

The Nichols Ranch Unit A Sand ore zone is bounded above and below by impermeable layers. The upper and lower aquicludes are composed of shales or mudstones, silty shales and shaley lignite horizons. The B Sand has been designated the overlaying aquifer and the 1 Sand the underlying aquifer.

The Hank Unit F Sand ore zone is bounded above and below by impermeable layers. The upper and lower aquicludes are composed of shales or mudstones, silty shales and shaley lignite horizons. The G Sand has been designated the overlaying aquifer and the C or B Sand the underlying aquifer.

Site geology and stratigraphy are summarized in cross section Exhibits D5-1, D5-2, D5-10, D5-11, and D5-12 (see map pockets) located in Appendix D5 Volumes V and Va for the Nichols Ranch Unit and Exhibits D5-3, D5-4, D5-6, D5-7, D5-8, and D5-9 (see map pockets) also located in

Appendix D5 in Volumes V and Va for the Hank Unit. These cross sections each run north/south and east/west through their respective ore bodies. Exhibit D5-5 shows an electric cross section running from the Nichols Ranch Unit to the Hank Unit, a distance of approximately six miles. This cross section provides for correlation of the sand units, aquitards, and the nomenclatures utilized for each in the project areas. It also illustrates the gentle 0.5 to 1.0° westward dip of the Wasatch formation.

Isopach maps depicting the B Sand, A-B Shale, A Sand, 1-A Shale, and 1 Sand for Nichols Ranch are found as Exhibits D5-13 through D5-17 (see map pockets) located in Appendix D5 in Volume Va. The Hank isopach maps for the G-H Sand, G Sand, G-F Shale, F Sand, C-F shale, C Sand, and B Sand are depicted in Exhibits D5-17a though D5-24 (see map pockets). These isopach maps are also located in Volume Va of Appendix D5. The ore zones at the Nichols Ranch and Hank Units are typical Powder River Basin roll front deposits. Uranium ore, where present, is found at the interface of a naturally occurring chemical boundary between reduced and oxidized sandstone facies. Due to the nature of fluvial sandstone deposition, an individual sand member may have several vertically superimposed subsidiary roll fronts. This is due to small differences in sandstone permeability or the occasional vertical contact between sand members resulting in development of multiple roll fronts which overlay each other in complex patterns.

The Nichols Ranch and Hank Unit ore zones have uranium mineralization composed of amorphous uranium oxide, sooty pitchblende, and coffinite. The uranium is deposited upon individual detrital sand grains and within authigenic clays in the void spaces. The host sandstones are composed of quartz, feldspar, accessory biotite and muscovite mica, and locally occurring carbon fragments. Grain size ranges from very fine-grained sand to conglomerate. The sandstones are weakly to moderately cemented and friable. Pyrite and calcite are associated with the sands in the reduced facies. Hematite or limonite stain from pyrite, are common oxidation products in the oxidized facies. Montmorillonite and kaolinite clays from oxidized feldspars are also present in the oxidized facies. Figure 2-13 (see map pocket) details a typical stratigraphic column of the Nichols Ranch ISR Project area.

2.6.3 Seismology

The area of central Wyoming where the Nichols Ranch ISR Project site is located lies in a relatively minor seismic region of the United States. Although distant earthquakes (such as the western Wyoming area) may produce shocks strong enough to be felt in the Powder River Basin, the region is ranked as a one (1) seismic risk as shown in Figure 2-14 (see map pocket). Few earthquakes capable of producing damage have originated in this region.

The seismically active region closest to the site is the Intermountain Seismic Belt of the Western United States, which extends in a northerly direction between Arizona and British Columbia. It is characterized by shallow earthquake foci between 10 and 25 mi in depth, and normal faulting. Part of this seismic belt extends along the Wyoming-Idaho border, more than 350 km (approximately 200 mi) west of the Nichols Ranch ISR Project area. More detailed information can be found in the reports "Basic Seismological Characterization for Campbell County, Wyoming and Basic Seismological Characterization for Johnson County, Wyoming" by the Wyoming State Geological Survey, which is contained in Addendum 2D.

Table 2-11 lists the largest recorded earthquakes (greater than 4.0 magnitude on the Richter Scale) that have occurred within 200 km (120 mi) of the Nichols Ranch ISR Project sites and gives the maximum ground acceleration that could be realized at the site as a result of these disturbances from the period 1873 through 2006 (Sources – Wyoming State Geological Survey, 2002 and USGS, 2007). The earthquake of highest intensity recorded during that time interval was the Casper, Wyoming earthquake of 1897. This earthquake has been assigned a probable maximum Mercalli shaking intensity of VI -VII (5.7 on the Richter scale) based on accounts of damage incurred.

No surface faulting or fault traces in the project area has been reported, nor is any faulting evident from geophysical log interpretations. Based on historic data, the ground accelerations reported in Table 2-11 (.01g to .04g) are not considered to be of a magnitude that would disturb the operations or facilities in the event that an earthquake occurred.

Table 2-11 Maximum Expected Earthquakes Intensities and Ground Accelerations at the Nichols Ranch ISR Project Site.

Earthquake Location and Year	Epicenter Intensity (Mercalli)	Magnitude (Richter)	Distance From Nichols Ranch ISR Project	Ground Acceleration at Nichols Ranch ISR Project
Casper (1894)	V	4.5	65	0.01g
Casper (1897)	VI-VII	5.7	64	0.04g
Kaycee (1965)	V	4.7	30	0.02g
Pine Tree Jct. (1967)	V	4.8	10	0.04g
West of Gillette (1976)	IV-V	4.3	38	0.02g
SW of Gillette (1976)	V	4.8	18	0.03g
Bar Nunn (1978)	V	4.6	56	0.01g
West of Kaycee (1983)	V	4.8	65	0.01g
West of Gillette (1984)	V	5.1	30	0.03g
West of Gillette (1984)	V	5	28	0.03g
Laramie Mtns (1984)	VI	5.5	95	0.01g
Mayoworth (1992)	V-VI	5.2	52	0.02g
W Converse Co. (1996)	IV-V	4.2	54	0.01g

2.7 HYDROLOGY

2.7.1 Surface Water

The Section 2.7 Hydrology pages, tables, figures and exhibits are sequentially numbered in this section, such as 2-1. The addendums referenced in this section are presented in the attached Appendix D6 Hydrology, Volume VI and VIa, text.

2.7.1.1 Drainage Basin Description

The Nichols Ranch ISR Project areas exist in the Cottonwood and Willow Creek drainage areas. The Nichols Ranch Unit is located in the Cottonwood Creek drainage while the Hank Unit is located in the Willow Creek drainage.

The Nichols Ranch Unit is located near the confluence of the Cottonwood Creek drainage with the Dry Fork of the Powder River. Figure 2-15 (see map pocket) shows the Cottonwood drainage area. The majority of the Nichols Unit drains directly to Cottonwood Creek while a portion of the northern part of the area drains to Tex Draw which is a tributary to the Dry Fork of the Powder River. Cottonwood Creek is a tributary to the Dry Fork of the Powder River and its confluence is located approximately 0.5 mi downstream of the project area. Tex Draw also enters the Dry Fork of the Powder River approximately 2.0 mi downstream of the project area.

Area of the Cottonwood Creek drainage basin is 80.2 sq mi. Dry Fork of the Powder River is a tributary to Powder River which is a tributary to the Yellowstone River, which is a part of the Missouri River drainage basin. Land surface elevation in Cottonwood Creek drainage varies from 5,974 to 4,590 ft-msl at the mouth. The channel elevation varies from 4,622 to 4,660 ft-msl in the project area. Cottonwood Creek channel is flat at a gradient of approximately 0.003 ft/ft.

The Tex Draw drainage area is 5.2 sq mi and its elevation varies from a peak of 5,085 to an elevation of 4,540 ft-msl at its confluence with the Dry Fork of the Powder River. None of the Tex Draw channel exists within the Nichols Ranch Unit area but the northwestern portion of the project area drains to Tex Draw. Tex Draw has a much steeper gradient due to being a smaller ephemeral channel and has an approximate gradient of 0.01 ft/ft just north of the project area.

The local drainages in Cottonwood Creek in the Nichols Ranch Unit have been divided into six small drainage basins. These drainage basins are presented on Figure 2-15 and have been named NDA-1 through NDA-6. Table 2-12 presents the areas of these drainage basins. The slopes of these drainages vary from 1.5 to 2.9%.

The Hank Unit is located in the Dry Willow and Willow Creek drainages. Dry Willow is a tributary to Willow Creek which is a tributary of the Powder River. Dry Willow and a portion of Willow Creek drainage upstream of the Dry Willow confluence are shown in Figure 2-15 (see map pocket). The Hank Unit is roughly 16 mi upstream of the confluence of Willow Creek and the Powder River. Willow Creek is oriented in a westerly direction through the northern end of the unit.

The area of the Willow Creek drainage basin above the Dry Willow Creek confluence is approximately 13.2 sq mi. Elevation in the Willow Creek drainage varies from 6,052 - 4,795 ft msl at the confluence of Dry Willow Creek. The short reach of the Willow Creek channel within the unit boundary, ranges in elevation from 5,015 to 5,040 ft-msl. The gradient of the stream channel within the Hank Unit is about 0.008 ft/ft, and the active stream channel width varies from a few feet to several tens of feet.

The drainage area of Dry Willow Creek is 12.2 sq mi. The maximum elevation in this drainage basin is 6,018 ft and the elevation at the confluence is 4,795 ft. The elevation of the channel in the Hank Unit area of Dry Willow Creek varies from 4,995 ft to 5,085 ft-msl. The stream channel in this area has a gradient slightly greater than 0.01 ft/ft.

The local drainages in Dry Willow Creek at the Hank site have been divided into 8 sub-basins. These small sub-basins have been labeled HDA-1 through HDA-8 on Figure 2-15. Table 2-12 shows that the channel bottoms for these drainages vary from 2.8 to 4%.

2.7.1.2 Surface-Water Flow

Dry Willow, Willow and Cottonwood Creeks and Tex Draw are classified as ephemeral streams in the project area. Stream flows only occur in response to heavy snow melt and to large rainstorms. Runoff flows are typically intermittent in the spring and early summer and the stream channels are dry the remainder of the year except during major thunderstorms in the area.

The estimated peak flows for various recurrence intervals for Cottonwood, Tex, Dry Willow and Willow Creek drainages are presented in Table 2-12. The technique that was used to estimate the peak flows is presented in Lowham (1976).

Table 2-12 Surface Drainage Properties, Estimated Peak Flows, and Velocities.

SITE	DRAINAGE AREA (sq. mi)	ESTIMATED PEAK FLOWS (CFS) RECURRENCE INTERVAL (YRS) 2-YR	5-YR	10-YR	25-YR	50-YR	100-YR
Cottonwood Creek	80.2	454	1220	2150	3760	5420	7500
Tex Draw	5.2	170	456	782	1370	1970	2720
Dry Willow Creek	12.2	231	620	1070	1870	2700	3730
Willow Creek	13.2	231	638	1100	1930	2780	3840

10-YEAR VELOCITIES

Channel Station (ft)	Base Width (ft)	Side Slope (?H:1V)	Bottom Slope (ft/ft)	Discharge (cfs)	Normal Flow Depth (ft)	Flow Area (ft^2)
CTW CRK	100	2	0.0030	3760	4.768	522.3
Tex DRW	10	2	0.0100	1370	5.681	121.3
DRY WIL	20	2	0.0100	1870	5.211	158.5
WIL CRK	20	2	0.0080	1930	5.621	175.6

Channel Station (ft)	Wetted Perimeter (ft)	Hydraulic Radius (ft)	Flow Velocity (fps)	Top Width (ft)	Froude Number	Average Unit Discharge (cfs/ft)
CTW CRK	121.32	4.30	7.20	119.07	0.61	34.33
Tex DRW	35.40	3.43	11.29	32.72	1.03	64.14
DRY WIL	43.30	3.66	11.80	40.84	1.06	61.47
WIL CRK	45.14	3.89	10.99	42.49	0.95	61.77

The predicted peak flows in Table 2-12 vary from 454 cubic ft per second (cfs) for a two-year recurrence interval to 7,500 cfs for a 100-year recurrence interval for Cottonwood Creek drainage. The peak flows for Tex Draw vary from 170 to 2,720 cfs for the two and 100-year recurrence intervals.

The predicted peak flows for the Dry Willow Creek and Willow Creek above Dry Willow Creek vary from a low of 231 cfs for the two year recurrence interval for Dry Willow up to a peak of 3,840 for the 100-year recurrence interval. The estimates for Dry Willow and Willow Creek are very similar due to similarity in drainage area.

The smaller drainages at the Nichols unit were divided into drainages NDA1-NDA6. The Craig-Rankl method (1978) for small drainage basins in Wyoming was used to estimate the peak discharges for the small sub-basins. Each of these drainages drain to the north side of Cottonwood Creek. The 25-year peak flows from these drainages vary from a low of 172 to a high of 950 csf. Eight sub basins were divided for the Hank unit. These sub-basins are labeled HDA1-HDA8 and are shown on Figure 2-15 in Appendix D6. Table 2-12 in Appendix D6 presents the peak flows for these sub-basins with a ten-year flood varying from 109 to 384 csf using the Craig-Rankl method (1978).

The flow velocities for the 25-year peak discharges are calculated to present an estimate of the channel velocities during a significant runoff event. The bottom half of Table 2-12 presents the calculation of the flow velocities based on typical channel slope and the 25-yr peak discharge. The 25-year peak discharge was selected as representing a reasonable design period for the life of this operation. These 25-year peaks are calculated for the confluence of the drainages and therefore are a very conservative representation of the peak at the project location. The peak velocities for Cottonwood Creek are smaller due to the wide floodplain and the milder channel slope. Cottonwood Creek does have an incised pilot channel which has been dammed and; therefore, runoff flow during any significant event will be spread over a very significant width of the floodplain. The velocities in Tex Draw, Dry Willow and Willow Creek will be much greater due to the steeper channel slope and are near 10 ft/sec.

The flow velocity over the 25-year peak discharge for the smaller sub-basins is also presented in Table 2-12. The velocities for the Nichols Ranch unit vary from a low of 8.2 to a high of 12.1 ft/sec. Flow velocities were also calculated for the 8 sub basins for the Hank Unit and those flood velocities vary from 9.8 to 13.8 ft/sec.

The 25-five year peaks and conveyance from Table 2-12 were used to define the flood inundated areas for the Nichols Ranch permit areas. Figure 2-15a shows the Nichols Ranch Unit inundated areas. A pattern is shown over the Cottonwood Creek inundated area. This entire area should be flooded during the 25-year peak runoff event. The 25-year peak runoffs for the incised small tributaries within the Nichols Ranch Unit will be confined to these channels and the approximate flooded area is shown by the narrow channel lines presented on Figure 2-15a.

Figure 2-15b presents the 25-year flood inundated areas for the Hank Unit. This figure shows the areas where a 25-year flood will cause the inundation of the incised channels at the Hank Unit.

The upgradient side of the plant will contain a ditch and berm which will have the conveyance to drain the 25-year flood around the plant facility. Uranerz will also use the erosion practices presented for the Nichols Ranch Unit within areas of the 25-year flood for Cottonwood Creek and for the Hank Unit within the areas of the 25-year flood for Dry Willow Creek. The wellfield at the Hank Unit does not extend to the Willow Creek 25-year floodplain.

As a general rule, installation of injection, production and monitoring wells in drainages will be avoided. If an injection, production, and/or monitoring well must to be constructed in a drainage, appropriate erosion protection controls will be used to minimize the impact to the drainage. Protection controls that could be used, but not limited to, are: grading and contouring, placement of hay bales, culvert installation, rocked low water crossings, placement of water contour bars, and designated traffic routes. The drainage bottoms will be restricted to the work activities that are needed to construct and maintain the wells. If the wells are placed in a location in the drainage where runoff and/or flooding has the potential to impact the well, measures will be taken to protect the well and wellhead. Barriers surrounding the well such as cement blocks, protective steel casing around the wellheads, or other measures to protect the wells from damage will be utilized. Additionally, if a new road or any access roads have to cross an ephemeral drainage, efforts will be made to cross the drainage at right angles to minimize erosion with the appropriate sized culverts installed. Rocked low water crossings or culverts in combination with a low water crossing will be designed to pass a 25-year peak runoff event. The minimum culvert size of 18" will be used in diverting drainage from roads or for crossing small drainages. In the event that drainage has to be crossed, but cannot be crossed at a right angle or along elevation contours, appropriate measures for erosion control will be examined and implemented. All measures will use the best management practices (rock, riprap, etc.) in accordance to WDEQ-LQD Rules and Regulations, Chapter 3 or those stated in 10 CFR Part 40.

2.7.1.3 Surface-Water Quality

The surface water quality from the Cottonwood, Tex, Dry Willow and Willow Creek drainages is generally very good in the upper channel reaches of these areas. A typical TDS is 200 mg/l. Water quality generally deteriorates as the surface water flows further downstream and is in contact with the streambed for longer periods of time.

The U. S. Geological Survey has monitored the Dead Horse Creek drainage which is approximately 30 mi north of the confluence of the Dry Fork with the Powder River and roughly 20 mi north of the confluence of Willow Creek with the Powder River. Dead Horse Creek drainage area is 151 square mi, which is significantly greater than the local drainages of the mining area. Limited water quality data from this gauging station shows that ion concentrations are significant with conductivity of greater than 2,000 umhos/cm.

Table D6A.1-1 in Addendum D6A of Appendix D6 presents water quality data available from surface water samples within the drainages in the project. Figure 2-15 shows the location of surface water quality samples. These surface water results should be representative of conditions in 2007 because CBM discharges in this area have not started. Discharges to Tex Draw are expected to start in 2008 but a large portion of this area will not have CBM discharges because one of the major CBM producers is piping water to a deep injection well. The three surface water samples in early 2008 should also be representative of pre-CBM discharges because no CBM surface discharges have occurred in these drainages. The Dry Willow Reservoir which is upstream of the Hank Unit had a TDS of 174 mg/l. The Brown Water Pond also had a very low TDS due to the pond proximity to the drainage divide. This pond captures water after it has moved only a relatively short distance. The Dry Willow Reservoir and Brown Water Pond were dry in September of 2007 and early 2008. Additional samples on Dry Willow Creek and Cottonwood Creek show that the TDS can exceed 2,000 mg/l in the surface runoff. The spring of 2008 TDS from Dry Willow Creek and Cottonwood Creek downstream (D) of the Nichols Ranch Unit are much lower; while the TDS from the Cottonwood Creek upstream (U) of the Nichols Ranch Unit, which is similar to the late 1970 higher values. This data shows that the surface water quality can naturally vary greatly. Surface runoff water quality is generally dominated by bicarbonate concentrates, but increase concentrations of calcium and sulfate are observed with increasing exposure time in channels.

2.7.1.4 Coal Bed Methane Surface Water

Coal Bed Methane (CBM) or Coal Bed Natural Gas (CBNG) has and will occur in the region of the Nichols Ranch ISR Project. One aspect of the CBNG activity is the removal of water from the targeted coal seam and the pumping of the water from the coal seam to the surface to be discharged into a surface impoundment. The following information details locations where CBNG water will be or has been discharged to the surface within one mile of each license area and how the discharge CBNG water may or may not impact the surface water quality at the Nichols Ranch and Hank Units.

The coal bed methane water contains a high sodium and bicarbonate concentration while the sulfate concentration is very low. The Nichols Ranch G Sand water quality near the CBM wells has relatively low sodium and bicarbonate and higher sulfate concentrations. These three parameters should enable the effects of the CBM water on the surficial aquifer to be easily determined.

2.7.1.4.1 Permitted CBM/CBNG Discharge Facilities

Permitted Wyoming Pollution Discharge Elimination System (WYPDES) facilities within the Hank Unit permit boundary and a one-mile radius of the permit boundary are depicted on Exhibit 2-2 and detailed in Table 2-12a. Discharge monitoring reports (DMRs) submitted through June 30, 2008 indicate no discharge to the outfalls listed in Table 2-12a. Permitted WYPDES facilities within the Nichols Ranch Unit permit boundary and a one-mile radius of the permit boundary are depicted on Exhibit 2-3 and detailed in Table 2-12b. There are currently five permits active in the area; however, discharge has only occurred at five out of the seventeen permitted outfalls. These outfalls are denoted on the map and shaded in Table 2-12b.

Table 2-12a Outfalls Inside and Within a One-Mile Radius of the Hank Unit License Boundary.

Permit #	Permit Operator	Permit Name	Outfall Within 1.0-mi of Permit Boundary	Associated Reservoir(s) and WSEO Permit Number
WY0056171	Yates Petroleum Corporation	All Day POD, Cottonwood Creek	002	Ox Bar (P18329S)
WYG2900001*	Bill Barrett Corporation	Willow Creek Permit	001	Reservoir 16-1 (Not Permitted) and Davis Reservoir (P4479R)
WY0056774	Yates Petroleum Corporation	All Day POD, Dry Willow Creek	001	South Dry Willow #1 (P18282S)
			002	South Dry Willow #2 (P18283S)
			003	Westside (P18496S)

*Outfall and reservoirs beyond 1-mile radius but upstream of Permit Boundary.

Table 2-12b Outfalls Inside and Within a One-Mile Radius of the Nichols Ranch Unit License Boundary.

Permit #	Permit Operator	Permit Name	Outfall Within 1-mi of Permit Boundary	Associated Reservoir(s) and WSEO Permit Number
WY0051161	Williams Production RMT Company	T-Chair Unit	001	NA
WY0051241	Williams Production RMT Company	Bullwhacker Creek-Dry Fork Land	001	NA - Outfall not constructed
WY0054411	Williams Production RMT Company	East Bullwhacker Creek	002	Johnson 24-12-4377 Reservoir (P16121S)
			003	Johnson 23-19-4376 Reservoir (P17383S)
			004	Johnson 34-19-4376 Reservoir (P17384S)
			012	Johnson 11-29-4376 Reservoir (P17386S)
			018	Johnson 24-12-4377 Reservoir (P16121S)
WY0055824	Yates Petroleum Corporation	Blade POD CBM Facility	013	Stepanek (Pending)
			014	William (Pending)
			022	Ill Prepared (Pending)
			023	Backwards (Pending)
			024	Bull Pasture #2 (P18278S)
			025	Bull Pasture #1 (P18277S)
WY0056502	Yates Petroleum Corporation	Rolling Pin Spatula State	001	Bull Pasture #3 (P18653S)
			002	Bull Pasture #4 (P18733S)
			003	Dune (P18794S)
			004	Thumper (P18691S)
			005	Tex (P18615S)
			006	Zink (P18732S)

*Shading indicates outfalls that have received discharge water, per Wyoming Department of Environmental Quality discharge monitoring reports (DMRs).

2.7.1.4.2 CBM/CBNG Discharge Parameters

Effluent limitations for Yates Petroleum Corporation and Bill Barrett Corporation's WYPDES facilities near the Hank Unit are detailed in Table 2-12c. Notice that watershed based permits such as Bill Barrett Corporations permit on Willow Creek lacks a maximum flow; these permits are written such that the permittee is required to contain all produced waters during operating conditions. Yates' pending permit in the Willow Creek watershed will likely have similar language. Table 2-12d provides the WYPDES effluent limitations for William's T-Chair Unit (WY0051161), Bullwhacker Creek Unit (WY0051241), and East Bullwhacker Creek (WY0054411) as well as Yates' Blade POD CBM Facility (WY0055824) and Rolling Pin Spatula State Project (WY0056502).

Effluent limits are detailed in Tables 2-12c and 2-12d. The limits depict the end-of-pipe maximum concentrations for the selected parameters. None of the permits require containment unit sampling or the monitoring of the water quality directly from the impoundments.

2.7.1.4.3 CBM/CBNG Effect on Surface Water/Surficial Aquifer

With the exception of WY0051161, the WYPDES permits detailed previously are total containment. Any water discharged from WY0051161 would flow out of the Nichols Ranch License Boundary in less than a 0.25 mile. Additionally, permit WY0051161 is due to expire on March 31, 2009. Currently WDEQ requires that discharges be contained in non-discharging impoundments and that end of pipe effluent concentrations meet downstream irrigation standards. The permitted irrigation right on Cottonwood Creek is depicted on Exhibit 2-3.

For the remainder of the permits, discharge can only occur to non-discharging impoundments not directly to the ephemeral channels. Discharge from the impoundments is permitted only during significant runoff events, where the produced water is diluted by natural runoff. Any discharge beyond overtopping during heavy precipitation constitutes a violation of the permits. Based on the permit requirements and the necessity to maintain available freeboard in the impoundments, Uranerz believes that the CBNG produced water will not impact the surface water quality at either project in accordance with WDEQ permit stipulations.

Table 2-12c WYPDES Effluent Limitations for Permits within One Mile of the Hank Unit Project.

Operator, Project, Permit and Outfall	Effluent Characteristic	Daily Maximum
Yates Petroleum Corporation All Day POD, Cottonwood Creek WY0056171 Outfalls 001, 002 and 003	Chlorides, mg/L	150
	Dissolved Iron, ug/L	1,000
	pH, s.u.	6.5 - 9.0
	Specific Conductance, umhos/cm	2,800
	Sodium Adsorption Ratio, unitless	17
	Total Recoverable Arsenic, ug/L	8.4
	Total Recoverable Barium, ug/L	1,800
	Total Flow, MGD	1.52
Bill Barrett Corporation Willow Creek CBM Facility WYG290001 Outfall 001*	Chlorides, mg/L	230
	Dissolved Iron, ug/L	1,000
	Dissolved Cadmium, ug/L	4
	Dissolved Lead, ug/L	4
	Dissolved Copper, ug/L	10
	Dissolved Zinc, ug/L	90
	pH, s.u.	6.5 - 9.0
	Specific Conductance, umhos/cm	1,330
	Sodium Adsorption Ratio, unitless	7
	Sulfates, mg/L	3,000
	Total Arsenic, ug/L	7
	Total Barium, ug/L	1,800
	Total Dissolved Solids, mg/L	887
	Total Flow, MGD	N/A
Yates Petroleum Corporation All Day POD Willow Creek WY0056774 Outfalls 001, 002 and 003	N/A Permit Pending--Likely very similar to BBC's Watershed Based WYPDES Permit Detailed Above	N/A Permit Pending--Likely Very Similar to BBC's Permit Limits Detailed Above

*Outfall and reservoirs beyond 1-mile radius but upstream of Permit Boundary.

Table 2-12d WYPDES Effluent Limitations for Permits in or near the Nichols Ranch Project.

Operator, Project, Permit and Outfall	Effluent Characteristic	Daily Maximum
Williams Production RMT Company T-Chair Unit WY0051161 Outfall 001	Chlorides, mg/L	46
	Dissolved Iron, ug/L	1,000
	Dissolved Manganese, ug/L	646
	pH, s.u.	6.5 - 8.5
	Specific Conductance, umhos/cm	7,500
	Sulfates, mg/L	3,000
	Total Arsenic, ug/L	7
	Total Barium, ug/L	1,800
	Total Dissolved Solids, mg/L	5,000
	Total Petroleum Hydrocarbons, mg/L	10
	Total Radium 226, pCi/L	1
	Total Flow, MGD	0.057
Williams Production RMT Company Bullwhacker Creek WY0051241 Outfall 001	Chlorides, mg/L	150
	Dissolved Iron, ug/L	1,000
	pH, s.u.	6.5 - 9.0
	Specific Conductance, umhos/cm	7,500
	Total Arsenic, ug/L	8.4
	Total Barium, ug/L	1,800
	Total Flow, MGD	N/A
Williams Production RMT Company East Bullwhacker Creek WY0054411 Outfalls 002 and 018	Chlorides, mg/L	150
	Dissolved Iron, ug/L	1,000
	pH, s.u.	6.5 - 9.0
	Specific Conductance, umhos/cm	7,500
	Total Recoverable Arsenic, ug/L	8.4
	Total Recoverable Barium, ug/L	1,800
	Total Flow, MGD	N/A
Williams Production RMT Company East Bullwhacker Creek WY0054411 Outfalls 003-004 and 012	Chlorides, mg/L	150
	Dissolved Iron, ug/L	1,000
	pH, s.u.	6.5 - 9.0
	Specific Conductance, umhos/cm	3,570
	Total Recoverable Arsenic, ug/L	8.4
	Total Recoverable Barium, ug/L	1,800
	Total Flow, MGD	N/A
Yates Petroleum Corporation Blade POD CBM Facility WY0055824 Outfalls 001-025	pH, s.u.	6.5 - 9.0
	Specific Conductance, umhos/cm	2,800
	Sodium Adsorption Ratio, unitless	17
	Total Recoverable Arsenic, ug/L	8.4
	Total Recoverable Barium, ug/L	1,800
	Total Flow, MGD	1.66

Table 2-12d (Continued)

Operator, Project, Permit and Outfall	Effluent Characteristic	Daily Maximum
Yates Petroleum Corporation Blade POD CBM Facility WY0055824 Outfalls 001-025	Chlorides, mg/L	150
	Dissolved Iron, ug/L	1,000
	pH	6.5 - 9.0
	Specific Conductance, umhos/cm	2,800
	Sodium Adsorption Ratio, unitless	17
	Total Recoverable Arsenic, ug/L	8.4
	Total Recoverable Barium, ug/L	1,800
	Total Flow, MGD	1.66
Yates Petroleum Corporation Rolling Pin Spatula State WY0056502 Outfalls 001-004, 006	Chlorides, mg/L	150
	Dissolved Iron, ug/L	1,000
	pH, s.u.	6.5 - 9.0
	Specific Conductance, umhos/cm	2,800
	Sodium Adsorption Ratio, unitless	17
	Total Recoverable Arsenic, ug/L	8.4
	Total Recoverable Barium, ug/L	1,800
	Total Flow, MGD	N/A
	Chlorides, mg/L	150
Yates Petroleum Corporation Rolling Pin Spatula State WY0056502 Outfalls 005	Dissolved Iron, ug/L	1,000
	pH	6.5 - 9.0
	Specific Conductance, umhos/cm	7,500
	Total Recoverable Arsenic, ug/L	8.4
	Total Recoverable Barium, ug/L	1,800
	Total Flow, MGD	N/A

Additionally, anecdotal evidence provided by the WDEQ-WQD for surface water facilities permitted to receive CBNG produced water provides few instances in which water infiltrating from the facilities has impacted groundwater resources. Groundwater quality has been adversely affected and class of use has changed 16 out of 109 permitted impoundments due to infiltration from overlying reservoirs/infiltration pits. In these rare instances, the class of use has typically changed due to increases in the concentrations of selenium, TDS or sulfate. This data represents nearly four years of collection from 259 monitor wells installed at sites across the Powder River Basin. Based on the few sites that have received CBNG produced water and the limited duration of these discharges, it is exceedingly unlikely that the baseline water quality measured in the surficial aquifers has been compromised in any manner. Further, per WDEQ regulations, all containment reservoirs permitted after August 1, 2004 require groundwater monitoring that includes baseline characterization and quarterly monitoring of the down gradient well of a three-well network. Although groundwater impacts are unlikely in place monitoring will detect impacts to the surficial aquifers.

2.7.2 Groundwater Hydrology

The regional ground-water setting has been defined by Hodson and others, 1973, and Whitehead, 1996. The Nichols Ranch permit area is located in the south-central Powder River Basin, to the west of the Middle Pumpkin Butte. The regional Quarternary aquifers are alluvial aquifer adjacent to the major drainages in the area. The North Platte, Powder River, Belle Fourche, and Cheyenne are the major streams in this region. Hodson and others, 1973, indicates a large range in transmissivity and well yields in these alluvial aquifers with the poorest water quality in the Powder River alluvium. Geologic structure in the permit area is relatively flat with a gentle dip to the southwest toward the basin axis. The Wasatch Formation is the uppermost geologic unit in the area of the Nichols Ranch permit. The sands within the Wasatch Formation create regional aquifers in this area. Whitehead, 1996 also presents information relative to the regional groundwater setting in this area. Ground water in the Wasatch aquifers generally flows to the north and northwest in this area. The transmissivity and yield from the Wasatch Formation is also highly variable with the yield up to a few hundred gallons per minute when a large thickness of saturated sands are completed in a well. The water quality in these aquifers would also generally be good, with a TDS concentration typically from <1000 mg/l to <2,000 mg/l. The aquifers of interest in this area are sands within the Wasatch Formation. The confining units between the aquifers are also within the Wasatch Formation.

The sandstones and the coal seams form aquifers in the Fort Union Formation. The aquifers will be deeper than the Wasatch aquifers but the general flow in the aquifer would be expected to be in the similar direction as the flow in the Wasatch aquifers. Whitehead (1996) indicates that some of the flow between the aquifers is upwards in this region. Groundwater quality of the Fort Union aquifers would also be expected to be relatively good with TDS generally less than 2,000 mg/l.

The Lance Formation consists mainly of very fine to fine-grained sandstone shale and coal beds. The groundwater flow direction in the Lance Formation in this area is expected to be to the north. Water quality data is very limited on the Lance Formation in this area but the TDS would be expected to be >2000 mg/l based on the limited data. The TDS is less toward the outcrop area to the southwest. TDS concentrations near the outcrops have been reported to be <1000 mg/l.

The Foxhills Sandstone exists below the base of the Lance Formation. Foxhills is mainly a fine to medium-grained sandstone. The groundwater flow direction in the Foxhills would be expected to be to the north in this area based on a map presented in Whitehead (1996). The TDS of the Foxhills is likely to be >2000 mg/l in this area based on the limited data available for this aquifer. The TDS in the outcrop area to the southwest has been measured to be from 1000 to >2000 mg/l.

The Lewis Shale underlies the Foxhill aquifer and is mainly an aquitard. This shale contains some lenses of fine-grained sandstone but is generally not a very significant producer of water. The water quality in the Lewis Shale would be expected to be very poor. TDS in the Lewis Shale is likely to exceed 5000 mg/l in this area.

2.7.2.1 Hydrologic Setting and Well Construction

The Nichols Ranch ISR Project is located in the outcrop of the Wasatch Formation. The stratigraphy of the Wasatch at this site consists of alternating layers of sand and shale with lignite marker beds. The mineable ore exists in two sand members, designated as the A Sand at the Nichols Ranch Unit and F Sand at the Hank Unit. These two sand members are typically separated by the B and C Sands and adjacent aquitards.

The aquifer and aquitard sequence at the project area is shown in Figure 2-16 (see map pocket). This shows labeled sands from the 1, A, B, C, F, G, and H Sands. This figure also shows the aquitards that exist between the different sands and those aquitards are labeled by the combination of labels for the two adjacent sands. These sands are the same names that are used at Power Resources North Butte permit which exists just north of the Hank Unit site.

The majority of the wells completed in the Nichols Ranch Unit are completed in the A Sand because this is the ore bearing sand in this area. Figure 2-17 (see map pocket) shows the locations of the Nichols Ranch Unit wells and Exhibit D6-1 in Appendix D6 shows the locations of wells within three miles of the Nichols Ranch Unit. Table 2-13 presents the tabulation of the well data for the Nichols Ranch Unit wells. The wells used to define baseline water level (L) and water quality (Q) are indicated in the last column of the Tables 2-13 and 2-14. Table 2-13 shows that eight of the wells have been completed in the A Sand for definition of baseline water level and water quality with one well completed in the C Sand, B Sand, 1 Sand and the Cottonwood alluvium. Two wells are completed in the F and G Sands for baseline measurements. Additional ranch wells are presented in the table but not used for baselining. Wells MN-1, MN-2, URZNB-1 and URZN1-2 are completed as open-hole completions, while the remaining Nichols Ranch wells have well screens in their completion interval. Addendum D6L in Appendix D6 gives the Uranium Data Submission Spreadsheets which contain additional information on the wells.

Table 2-14 presents the basic well data for the Hank Unit wells, while Figure 2-18 shows the location of the Hank Unit wells. Exhibit D6-2 in Appendix D6 shows the locations of wells within three miles of the Hank Unit. Ten of these wells are completed in the F Sand for baselining of this aquifer because this is the ore bearing sand in this area. Four of the wells are completed in the overlying G Sand and two of the wells are completed in the underlying C Sand for baseline monitoring of these aquifers. In areas where the C Sand does not exist, the B Sand is the underlying aquifer and seven of the baseline wells in this area are completed in the B Sand. Three dry alluvial wells and five surficial aquifer H Sand wells are listed in Table 2-14. Hank wells C #1, Dry Willow #1, Hank 1, NBHW-13, URZHB-6, URZHC-2, URZNF-1, URZHF-5, URZHG-3, URZHG-4 and WC-MN1 are completed as open-hole completions while the remaining Hank wells have screens. Additionally, seven existing stock wells are listed in Table 2-14 but not used for baseline purposes.

Three new Nichols Ranch Unit wells were added in late 2009 and six new Hank Unit wells were drilled. Tables 2-13 and 2-14 have been updated with this new information.

Table 2-13 Basic Well Data for the Nichols Ranch Unit Wells.

WELL NAME	NORTH. COORD.	EAST. COORD.	MP ELEV. (ft-msl)	CASING DIA. (in)	STICK-UP ABOVE LSD	WELL DEPTH (ft-mp)	WATER LEVEL DATE	WATER LEVEL DEPTH (ft-mp)	WATER LEVEL ELEVATION (ft-msl)		SCREEN INTERVAL (ft-lsd)	AQUIFER
20-9	1102911	275410	4664.08	5.0	0.9	740	---	--	---		495 - 615	A
	1102911	275410	4664.08	5.0	0.9	740	---	--	---		635 - 655	A
CALVING #1	1100015	289109	4824.00	5.0	1.6	560	---	--	---		390 - 420	A
	1100015	289109	4824.00	5.0	1.6	560	---	--	---		440 - 500	A
Dry Fork #3	1100675	273123	4720.00		---	360	---	--	---		-	C
DW-4L	1112331	276856	4969.73	5.0	0.4	795	1/18/2010	307.67	4662.06		726 - 795	A
DW-4M	1112331	276769	4970.17	5.0	0.3	441	1/18/2010	285.20	4684.97		389 - 441	C
DW-4U	1111406	276812	4966.75	5.0	0.3	310	1/18/2010	230.60	4736.15		256 - 309	F
GARDEN	---	---	---		---	---	---	--	---		-	A
MN-1	1105710	273118	4715.14	4.5	1.3	556	2/3/2010	46.03	4669.11	#	479 - 556	A
MN-2	1108147	273844	4840.00	4.5	0.7	670	1/29/2010	176.40	4663.60	#	560 - 670	A
MN-3	1106960	275167	4764.64	4.5	0.7	585	1/18/2010	93.46	4671.18		479 - 585	A
MN-4	1109835	272220	4800.36	4.5	2.2	623	1/29/2010	142.73	4657.63		520 - 623	A
MN-5	1108755	272120	4883.28	4.5	2.3	727	1/29/2010	222.83	4660.45		628 - 727	A
MN-6	1107478	272220	4761.18	4.5	2.2	593	1/18/2010	98.30	4662.88		485 - 593	A
Nichols #1	1102532	269925	4622.33	2.0	0.0	310	---	--	---		191 - 310	F
NR#1	1107430	272265	4758.88	5.0	1.2	620	1/18/2010	94.75	4664.13		550 - 565	A
Pats #1	1102872	279812	4690.00		---	405	---	--	---		375 - 405	A
Pug #1	1102383	275338	4685.00		---	370	---	--	---		340 - 370	B
URZN1-2	1105691	273081	4714.31	4.5	1.1	645	2/3/2010	60.40	4653.91	#	600 - 645	1
URZNA-7	1106069	275761	4711.00	5.0	1.5	510	1/18/2010	42.67	4668.33	#	489 - 498	A
URZNA-8	1109220	272539	4962.12	5.0	1.1	645	4/13/2010	195.16	4766.96	#	628 - 636	A
URZNA-9	1109282	272604	4852.54	5.0	1.2	685	4/13/2010	186.57	4665.97	#	669 - 679	A
URZNB-1	1105725	273149	4716.36	4.5	1.3	375	2/3/2010	58.90	4657.46	#	330 - 375	B
URZNB-10	1109279	272522	4855.98	5.0	1.1	501	4/13/2010	193.63	4662.35	#	396 - 496	1
URZNF-3	1105992	273707	4728.87	4.0	2.3	173	1/26/2010	85.50	4643.37		153 - 173	F
URZNG-5	1109316	271149	4790.62	4.0	2.0	60	8/17/2009	49.78	4740.84		30 - 60	G
URZNG-6	1107845	277024	4785.15	4.0	2.0	105	1/18/2010	73.30	4711.85		70 - 100	G
URZNQ-4	1103219	272397	4638.44	4.0	1.5	35	2/3/2010	5.40	4633.04		15 - 35	ALL
W. of WW1	1116674	286130	5080.00	6.0	2.3	720	4/22/2009	358.16	4721.84		340 - 370	C
	1116674	286130	5080.00	6.0	2.3	720	4/22/2009	358.16	4721.84		540 - 720	A

NOTE: * = Abandoned
# = Open Hole Completion
ALL = Alluvial
W. of WW1 = West of Widow Women
MP = Measuring Point (at top of casing)
MSL = Mean Sea Level
LSD = Land Surface Datum
L = Baseline Water Level
Q = Baseline Water Quality

Table 2-14 Basic Well Data for the Hank Unit.

WELL NAME	NORTH. COORD.	EAST. COORD.	MP ELEV. (ft-msl)	CASING DIA. (in)	STICK-UP ABOVE LSD	WELL DEPTH (ft-mp)	WATER LEVEL DATE	WATER LEVEL DEPTH (ft-mp)	WATER LEVEL ELEVATION (ft-msl)		SCREEN INTERVAL (ft-lsd)	AQUIFER
BR-B	1129884	299194	5029.70	5.0	1.5	300	12/10/2009	139.04	4890.66		200 - 280	F
BR-F	1128473	302583	5082.25	5.0	1.6	160	12/10/2009	67.10	5015.15		60 - 100	G
BR-G	1125397	305568	5157.27	5.0	1.6	320	7/17/2009	147.89	5009.38		240 - 320	F
BR-H	1127077	293768	4957.56	5.0	1.6	200	12/14/2009	92.85	4864.71		140 - 180	G
BR-I	1128729	303971	5130.88	4.0	1.7	80	11/11/2008	59.16	5071.72		40 - 80	H
BR-K	1129697	306515	5193.00	4.0	1.7	124	11/3/2008	124.00	5069.00		84 - 124	H
Brown #5	1128252	301915	5061.76	5.0	1.3	540	9/26/2007	215.60	4846.16		460 - 540	B
Brown-WS	1125026	299713	5146.00	6.0	1.2	702	12/14/2009	264.00	4882.00		340 - 380	C
	1125026	299713	5146.00	6.0	1.2	702	12/14/2009	264.00	4882.00		425 - 465	B
	1125026	299713	5146.00	6.0	1.2	702	12/14/2009	264.00	4882.00		540 - 620	A
BR-Q	1125878	305553	5154.22	5.0	1.1	600	12/17/2007	291.61	4862.61		500 - 600	B
BR-T	1131333	300699	5033.00	5.0	---	496	3/11/1981	196.50	4836.50		390 - 470	B
BR-U	1128876	300158	4983.18	4.0	1.7	23	4/13/1982	11.86	4971.32		5 - 23	ALL
C #1	1100216	304090	5137.00	5.0	1.1	232	12/14/2009	191.20	4945.80	#	146 - 232	F
Connie #2	---	---	5310.00	6.0	---	350	---	--	---		-	F
DRYMW1	1121212	293031	4930.00	3.0	0.3	19	10/4/2007	> 19.20	< 4910.80		-	ALL
DRYMW3	1121635	292581	4920.00	3.0	0.5	19	10/4/2007	> 18.60	< 4901.40		-	ALL
DW#1	1112155	304041	5154.19	6.0	1.3	320	10/26/2009	220.88	4933.31	#	220 - 320	F
F. Brown #1	1108650	288324	4890.00	7.0	2.3	520	10/29/2009	191.43	4698.57		423 - 483	B
Hank 1	1122566	302568	5251.01	6.0	1.8	440	1/18/2010	355.08	4895.93	#	354 - 440	F
Means #1	1108983	301384	5259.86	6.0	1.1	700	10/26/2009	341.60	4918.26		320 - 330	F
	1108983	301384	5259.86	6.0	1.1	700	10/26/2009	341.60	4918.26		640 - 650	B
NBHW-13	1128356	295943	4969.86	4.5	1.7	470	12/14/2009	126.33	4843.53	#	424 - 446	B
North Dry Willo	1116100	303879	5205.00	6.0	0.3	1132	---	--	---		250 - 280	F
	1116100	303879	5205.00	6.0	0.3	1132	---	--	---		380 - 410	C
	1116100	303879	5205.00	6.0	0.3	1132	---	--	---		540 - 570	B
	1116100	303879	5205.00	6.0	0.3	1132	---	--	---		700 - 770	A
	1116100	303879	5205.00	6.0	0.3	1132	---	--	---		990 - 1100	1
Old Maid #1	1115480	292878	5080.00	6.0	2.3	300	7/17/2009	197.69	4882.31		250 - 300	F
OW43756	1115602	298221	5052.00	6.0	2.0	251	12/18/2009	142.30	4909.70		-	G
	1115602	298221	5052.00	6.0	2.0	251	12/18/2009	142.30	4909.70		-	F
Paden #1	1115635	304361	5195.85	5.0	1.8	650	12/18/2009	306.38	4889.47		400 - 440	C
	1115635	304361	5195.85	5.0	1.8	650	12/18/2009	306.38	4889.47		570 - 630	A
	1115635	304361	5195.85	5.0	1.8	650	12/18/2009	306.38	4889.47		570 - 630	B
RED WINDMILL	---	---	---	6.0	---	300	---	--	---		-	A

Table 2-14 (Continued)

WELL NAME	NORTH. COORD.	EAST. COORD.	MP ELEV. (ft-msl)	CASING DIA. (in)	STICK-UP ABOVE LSD	WELL DEPTH (ft-mp)	WATER LEVEL DATE	WATER LEVEL DEPTH (ft-mp)	WATER LEVEL ELEVATION (ft-msl)		SCREEN INTERVAL (ft-lsd)	AQUIFER
SS1-F	1129626	295559	4975.00	4.5	1.1	185	7/22/2009	113.71	4861.29		145 - 185	F
SS1-FPU	1129700	295428	4976.00	2.0	2.3	175	12/14/2009	199.30	4776.70		-	F
SS1-L	1129551	295690	4974.00	5.0	0.9	654	12/14/2009	136.95	4837.05		540 - 652	A
SS1-M	1129546	295602	4974.00	5.0	1.2	454	12/14/2009	136.00	4838.00		405 - 454	B
SS1-U	1129619	295647	4975.00	5.0	0.9	372	12/14/2009	134.45	4840.55		323 - 372	C
URZHB-6	1124299	302427	5213.78	4.5	1.1	650	12/18/2009	348.48	4865.30	#	536 - 650	B
URZHC-16	1122506	302466	5244.00	5.0	1.1	523	1/18/2010	364.00	4880.00	#	462 - 523	C
URZHC-2	1118511	302629	5234.76	4.5	1.3	485	12/14/2009	340.90	4893.86	#	440 - 450	C
URZHF-1	1118584	302588	5231.73	4.5	0.9	440	12/18/2009	328.00	4903.73	#	365 - 374	F
URZHF-11	1122685	301960	5232.00	5.0	1.0	420	1/18/2010	341.63	4890.37	#	330 - 420	F
URZHF-12	1122353	303021	5280.00	5.0	1.3	482	1/18/2010	381.28	4898.72	#	380 - 483	F
URZHF-13	1124729	301487	5179.00	5.0	1.0	330	2/1/2010	285.09	4893.91	#	317 - 325	F
URZHF-14	1124749	301408	5185.00	5.0	1.2	362	2/1/2010	291.61	4893.39	#	367 - 375	F
URZHF-5	1124265	302426	5217.67	4.5	1.7	410	2/1/2010	317.04	4900.63	#	369 - 386	F
URZHF-8	1122657	302570	5250.00	5.0	1.7	433	1/18/2010	354.77	4895.23		420 - 430	F
URZHG-15	1122559	302472	5244.00	5.0	1.3	314	1/18/2010	278.55	4965.45	#	255 - 314	G
URZHG-3	1118491	302556	5228.82	4.5	1.2	300	12/18/2009	273.88	4954.94	#	270 - 300	G
URZHG-4	1124257	302457	5215.78	4.5	1.1	290	12/17/2007	282.00	4933.78	#	270 - 290	G
URZHH-10	1122798	302044	5258.19	4.0	2.0	135	8/12/2009	131.18	5127.01		90 - 130	H
URZHH-7	1118639	301082	5169.37	4.0	2.2	135	12/18/2009	90.73	5078.64		115 - 135	H
	1118639	301082	5169.37	4.0	2.2	135	12/18/2009	90.73	5078.64		85 - 105	H
URZHH-9	1115596	302854	5157.68	4.0	2.0	155	8/13/2009	125.71	5031.97		135 - 150	H
WC-MN1	1121306	292653	4942.00	5.0	2.5	210	3/2/2009	92.93	4849.07	#	150 - 210	F

NOTE: * = Abandoned
# = Open Hole Completion
ALL = Alluvial
L = Baseline Water Level
Q = Baseline Water Quality

2.7.2.2 Summary of Aquifer and Aquitard Properties

Numerous single-well pump tests and multi-well pump tests were conducted at the Nichols Ranch and Hank Units to define the aquifer properties. The detailed hydrologic analyses and supporting data are contained in Addendums D6B and D6C in Appendix D6 for Nichols Ranch Unit and Hank Unit respectively. Three multi-well pump tests were conducted at the Nichols Ranch Unit site and are referred to in this report as the MN-1, MN-2 and MN-6 tests. Three multi-well tests were performed at the Hank Unit site. These tests are referred to as the URZHF-1, URZHF-5 and SS1F tests. Tables 2-13 and 2-14 present the basic well data for wells used to define the aquifer properties for the Nichols Ranch and Hank Units respectively. Addendum D6J in Appendix D6 presents the aquifer test theory used to analyze the pump tests.

Additional multi-well pump tests were conducted in early 2010. The aquifer properties obtained from tests have been added to Tables 2-15 and 2-16, respectively, for the Nichols Ranch and Hank Units.

2.7.2.2.1 Aquifer Properties

In addition to determining the aquifer properties from the multi-well test, numerous single-well tests were conducted to define the aquifer properties. Several pump tests were previously conducted by Cleveland-Cliffs and Uranerz and the results of these tests were analyzed and included in the general hydrologic analysis.

The aquifer property tables and discussion present the ore sand first, then the overlying and underlying aquifers and finally shallowest to deeper aquifer for the remaining aquifers.

Nichols Ranch Unit

Table 2-15 presents a summary of the aquifer properties for the Nichols Ranch Unit. This table shows a summary of the aquifer properties for the A, B and 1 Sands and then the Cottonwood Alluvium, F and C Sands for the Nichols Ranch Unit. For the A Sand, the single-well pump tests are presented first and then the results for the three multi-well pump tests are presented. Transmissivities for the A Sand aquifer vary from a low of 101 to a high of 460 gal/day/ft. A value of 350 gal/day/ft is thought to best represent the A Sand in the Nichols Ranch Unit area. The hydraulic conductivity (horizontal permeability) varies from 0.18 to slightly greater than 0.7 ft/day (0.08 to 0.36 Darcy), and a value of 0.5 ft/day is thought to best represent the A Sand. Average storage coefficient for the A Sand was 1.8E-4.

Table 2-15 Summary of Aquifer Properties for the Nichols Ranch Unit.

	TRANSMISSIVITY (GAL/DAY/FT)				HOR. HYDRAULIC CONDUCTIVITY		AQUIFER	STORAGE COEFFICIENT		
	RECOVERY	JACOB	THEIS OR WTAQ	BEST VALUE	(FT/DAY)	(DARCY)	THICKNESS (FT)	JACOB	THEIS OR WTAQ	BEST VALUE
SINGLE WELL TESTS					**A ORE SAND**					
MN-1	275	453	-	275	-	-	73	-	-	-
MN-1 (2nd test)	-	276	-	276	0.65	0.31	73	-	-	-
MN-3	454	465	-	460	0.57	0.27	107	-	-	-
MN-4	314	308	-	311	0.42	0.2	98	-	-	-
MN-5	284	747	-	-	-	-	104	-	-	-
MN-5 (2nd test)	322	357	-	322	0.41	0.20	104	-	-	-
DW-4L	53	101	-	101	0.18	0.084	77	-	-	-
MULTI WELL TESTS										
MN-1 TEST	303	355	-	329	0.6	0.29	73	-	-	-
MN-2 OBS	610	1034	180	180	0.33	0.16	73	1.5E-04	1.4E-04	1.4E-04
MN-3 OBS	471	1095	265	265	0.48	0.23	73	1.2E-04	1.2E-04	1.2E-04
NICHOLS 1 OBS	570	631	414	414	0.76	0.36	73	1.0E-04	1.7E-04	1.7E-04
MN-6 TEST	360	346	-	353	0.44	0.21	108	-	-	-
NICHOLS 1 OBS	369	384	359	371	0.46	0.22	108	2.8E-05	3.1E-05	-
MN-5 OBS	477	620	359	359	0.44	0.21	108	1.1E-04	1.5E-04	1.5E-04
MN-2 OBS	792	688	337	337	0.42	0.20	108	3.8E-05	3.8E-04	3.8E-04
MN-2 TEST	160	196	-	178	0.23	0.11	102			
MN-1 OBS	51	588	180	180	0.24	0.11	102	1.1E-04	1.0E-04	1.0E-04
URZNA-7 TEST	290	310	-	300	0.43	0.21	93	-	-	-
MN-1 OBS	-	-	260	260	0.37	0.18	93	-	1.1E-04	1.1E-04
MN-3 OBS	-	-	270	270	0.39	0.19	93	-	1.1E-04	1.1E-04
URZNA-9 TEST	310	350	-	310	0.41	0.2	100	-	-	-
URZNA-8 OBS	230	200	190	210	0.25	0.13	100	5.3E-04	1.3E-04	1.3E-04
MN-2 OBS	-	-	340	340	0.45	0.22	100	-	1.8E-04	1.8E-04
MN-4 OBS	-	-	320	320	0.43	0.2	100	-	1.1E-04	1.1E-04
MN-5 OBS	-	-	280	280	0.39	0.18	100	-	4.4E-05	4.4E-05
SINGLE WELL TESTS					**B OVERLYING SAND**					
URZNB-1	-	306	-	-	-	-	63	-	-	-
URZNB-1 (2nd test)	127	174	-	174	0.37	0.18	63	-	-	-
SINGLE WELL TESTS					**1 UNDERLYING SAND**					
URZN1-2	93	105	-	-	-	-	45	-	-	-
URZN1-2 (2nd test)	83	73	-	88	0.26	0.12	45	-	-	-
SINGLE WELL TESTS					**COTTONWOOD ALLUVIUM**					
URZNQ-4	9520	8670	-	8,670	39	18	30	-	-	-
SINGLE WELL TESTS					**F SAND**					
DW-4U	1460	1360	-	1410	3.6	1.7	52	-	-	-
DW-4U (2nd test)	-	1470	-	-	-	-	-	-	-	-
URZNF-3	-	470	-	470	1.4	0.68	44	-	-	-
SINGLE WELL TESTS					**C SAND**					
DW-4M	-	45	-	45	0.099	0.047	61	-	-	-

The one single-well pump test in the B Sand produced a transmissivity of 174 gal/day/ft and a horizontal permeability of 0.37 ft/day. The single-well pump tests for the 1 Sand produced a transmissivity of 88 and 101 gal/day/ft for the 1 Sand for the Cottonwood Alluvium. A significantly higher transmissivity was obtained from the single-well test for the F Sand well at 1,410 gal/day/ft and a hydraulic conductivity of 3.6 ft/day. A small transmissivity of 45 gal/day/ft and hydraulic conductivity of 0.099 ft/day were determined for the C Sand.

Hank Unit

Table 2-16 presents the summary of aquifer properties for the Hank Unit. This table presents results of aquifer properties testing for the F ore sand, G overlying aquifer, C and B underlying aquifers and finally the H and A Sands in the Hank Unit area.

The properties in the F Sand vary greatly in the Hank Unit area. The transmissivities vary from a low of 19 to a high of 6,670 gal/day/ft. Hydraulic conductivity varies from a low of 0.14 ft/day to a high of 9.4 ft/day (0.07 to 4.5 Darcy). A transmissivity of 400 gal/day/ft is thought to best represent the majority of the F Sand in the Hank Unit and the hydraulic conductivity of 0.6 ft/day is also thought to best represent the F Sand. A storage coefficient of 6.8E-5 was determined for the F Sand at the SS1-F site. The water level in the ore zone of the Hank Unit is near the top of the sand; therefore, the F Sand is not fully saturated and is an unconfined aquifer at the Hank Unit. The primary storage property for an unconfined aquifer is specific yield and a specific yield of 0.14 is thought to best represent the F Sand in this area.

Table 2-16 presents the summary of aquifer properties for the Hank Unit. This table presents results of aquifer properties testing for the F, A, B, C and G aquifers in the Hank Unit area.

The properties in the F Sand vary greatly in the Hank Unit area. The transmissivities vary from a low of 18 to a high of 6,670 gal/day/ft. Hydraulic conductivity varies from a low of 0.14 ft/day to a high of 9.4 ft/day (0.07 to 4.5 Darcy). A transmissivity of 400 gal/day/ft is thought to best represent the majority of the F Sand in the Hank Unit and the hydraulic conductivity of 0.6 ft/day

Table 2-16 Summary of Aquifer Properties for the Hank Unit.

	TRANSMISSIVITY (GAL/DAY/FT)				HOR. PERMEABILITY		AQUIFER	STORAGE COEFFICIENT		
	RECOVERY	JACOB	THEIS	BEST VALUE	(FT/DAY)	(DARCY)	THICKNESS (FT)	JACOB	THEIS	BEST VALUE
SINGLE WELL TESTS						F SAND				
HANK 1	2210	2210	-	2210	3.5	1.7	84	-	-	-
Dry Willow #1	7020	6670	-	6670	9.4	4.5	95	-	-	-
BR-B	2210	2530	-	-	-	-	88	-	-	-
BR-B (2nd Test)	-	1970	-	2240	3.4	1.6	88	-	-	-
BR-G	2.1	19	-	19	0.14	0.067	18	-	-	-
OW43756	-	18	-	18	-	-	-	-	-	-
MULTI WELL TESTS										
URZHF-5	-	470	-	470	0.69	0.33	91	-	-	-
HANK 1	-	-	-	-	-	-	91	-	-	-
BR-G	-	-	-	-	-	-	91	-	-	-
URZHF-1	149	-	-	149	0.28	0.13	71	-	-	-
SS1-F	-	1530	-	1530	6.4	3.1	32	-	-	-
SS1-FPU	1380	1530	-	1450	6.1	2.9	32	6.80E-05	-	6.80E-05
SINGLE WELL TESTS						G SAND				
BR-F	-	0.62	-	-	-	-	10	-	-	-
BR-F (2nd Test)	0.4	2.3	-	0.4	0.005	0.003	10	-	-	-
BR-H	-	2.7	-	-	-	-	18	-	-	-
BR-H (2nd test)	2.9	2.9	-	2.9	0.022	0.01	18	-	-	-
SINGLE WELL TESTS						C SAND				
URZHC-2	-	1.9	-	1.9	0.025	0.012	10	-	-	-
SINGLE WELL TESTS						B SAND				
BR-Q	264	176	-	264	0.38	0.18	93	-	-	-
NBHW-13	742	1300	-	1300	2.2	1.1	78	-	-	-
SINGLE WELL TESTS						A SAND				
SS1-L	954	1100	-	1030	1.1	0.52	126	-	-	-
SS1-L (2nd test)	-	843	-	843	0.89	0.43	126	-	-	-

is also thought to best represent the F Sand. A storage coefficient of 6.8E-5 was determined for the F Sand at the SS1-F site. The water level in the ore zone of the Hank Unit is near the top of the sand; therefore, the F Sand is not fully saturated and is an unconfined aquifer at the Hank Unit. The primary storage property for an unconfined aquifer is specific yield and a specific yield of 0.05 is thought to best represent the F Sand in this area.

Similar tests were conducted on two G Sand wells. The transmissivities of this G Sand varied from 0.4 to 2.9 gal/day/ft with hydraulic conductivities varying from 0.005 to 0.022 ft/day. The aquifer properties for the underlying sands were determined for the C and B underlying aquifer. The aquifer properties for the C Sand were a low transmissivity of 1.9 gal/day/ft and a hydraulic conductivity of 0.025 ft/day. The transmissivities for the B Sand varied over a much larger range from 264 to 742 gal/day/ft. Hydraulic conductivities for the B Sand varied from 0.38 to 2.2 ft/day.

Table 2-16 shows the hydraulic properties for the Hank Unit URZHH-7 well. This H Sand well has a best value transmissivity of 1.1 gallons/day showing that it contains a very low hydraulic conductivity of 0.006 ft/day.

The A Sand was tested at one site and the two tests for the A Sand produced transmissivities of 843 and 1,030 gallons/day/ft and yield hydraulic conductivities of 0.89 and 1.1 ft/day for the A Sand.

2.7.2.2.2 Aquitard Properties

The multi-well pump tests were used to define the confinement of the aquitards between the ore aquifer and the overlying and underlying aquifers. The MN-1 multi-well pump test had no indication of connection between the A Sand and the overlying B Sand and the underlying 1 Sand during this multi-well pump test. The MN-2 multi-well pump test showed that no indication of connection existed between the A Sand and the overlying B Sand and the underlying 1 Sand.

The multi-well pump test in the Hank Unit also did not show any indication of connection between the F Sand and the overlying and underlying aquifers. The multi-well pump test URZHF-5 did not show any indication of connection between the overlying and underlying observation wells indicating that the aquitards in this area adequately separate the ore sand from the overlying and underlying aquifers. The URZHF-1 multi-well pump test also did not show connections with the overlying and underlying aquifers during this pump test. This shows that the aquitards in this area adequately separate the overlying and underlying aquifers from the ore sand.

The most important parameter for confinement of the ore sand from the adjacent aquifers is the thickness of the aquitard. Experience has shown that the continuity of only a few feet of Powder River shale is needed to form an adequate confinement between the ore sand and adjacent aquifers. Exhibit D5-14 in Appendix D5 presents the aquitard thickness for the A-B Shale. This isopach map shows that the thinnest location observed is 13 ft with the majority of Mine Unit 1 consisting of an aquitard thickness of greater than 20 ft. Exhibit D5-16 in Appendix D5 presents the aquitard thickness between the 1-A Sand in the Nichols Ranch Unit area. These figures show that this aquitard has adequate thickness to function as a confinement between the A ore sand and B and 1 Sands. Exhibit D5-19 in Appendix D5 presents the aquitard thickness for the shale between the F-G Sands. This aquitard thickness is less than 30 ft in a small portion of the Hank Mine Unit 1 and generally much thicker than this amount. The overlying aquitard therefore should be adequate in the Hank mine area. Exhibit D5-21 in Appendix D5 presents the thickness of the shale between the F ore sand and the next underlying aquifer, which is the B Sand in some cases and C Sand in the northern portion of the mine area. This aquitard thickness also is slightly less than 30 ft in a portion of Mine Unit 1 with values significantly greater than this in the remainder of the mine unit. The underlying aquitard at the Hank Unit should be adequate for confinement between the F Sand and the underlying aquifer.

The vertical hydraulic conductivities of the aquitard in the Powder River Basin have been defined at numerous locations. These hydraulic conductivities have been measured in multi-well pump tests with the Neuman-Witherspoon (1972) method, determined from the results from the leaky aquifer pump test analysis with the modified Hantush (1960) method, and from laboratory measurements. This data has shown that the vertical hydraulic conductivity of these aquitards is low enough that site specific measurements of the aquitard hydraulic conductivity are not necessary. Aquitard hydraulic conductivity was measured in the area just north of the

Hank Unit in Power Resources North Butte permit. This permit presents aquitards evaluated with the Neuman-Witherspoon field test for the C-F aquitard between the F and C Sands. Table 2-16a presents the North Butte aquitard properties. The vertical hydraulic conductivity of this material was 3.4E-8 cm/sec (3.5E-2 ft/yr). A second multi-well test at the North Butte site defined the 1-A aquitard hydraulic conductivity between the A Sand and the 1 Sand. The results of this test were 4.1E-8 cm/sec (4.2E-2 ft/yr). Additional field tests were evaluated using the modified Hantush method to define the vertical hydraulic conductivity of the aquitard. These calculated hydraulic conductivities varied from a low of 6.7E-9 to a high of 6.9E-8 cm/sec (6.9E-3 to 7.1E-2 ft/yr). Laboratory hydraulic conductivities were also measured on two samples of the aquitards at the North Butte permit and these hydraulic conductivities varied from 6.4E-9 to 1.3E-8 cm/sec (6.6E-3 to 1.3E-2 ft/yr).

Additional test of aquitard properties have been made in this area at the Ruth and Ruby projects. The Ruth project located approximately 6.0 mi southwest of the Nichols Ranch project while the Ruby project is approximately 6.0 mi east of the Hank project. Table 2-16a presents additional field and laboratory aquitard properties for the Ruby and Ruth projects. The aquitards between the A-B Sands and 1-A Sands were measured at the Ruth project. The aquitards between the B-C Sands and A-B Sands were measured at the Ruby project. These aquitard properties show that the aquitards at both the Ruth and Ruby sites are similar to those that were measured at the North Butte site. This data shows that the aquitards in this area have sufficiently small vertical hydraulic conductivities to restrict the movement of ground water from one aquifer to the next. Aquifer confinement will be further defined for each of the wellfields during the wellfield multi-well pump test.

2.7.2.3 Groundwater Flow

Water levels have been measured in the wells in the Nichols Ranch ISR Project area to define the direction and gradient of the groundwater movement and define water-level changes in the aquifers in this area. Addendum D6D in Appendix D6 presents the water-level plots and tabulation of groundwater levels. Addendum D6L in Appendix D6 also presents a tabulation of the water levels in the Uranium Data Submission Spreadsheets.

Table 2-16a Summary of Aquitard Properties at North Butte, Ruth and Ruby.

	NEUMAN-WITHERSPOON VERTICAL HYDRAULIC CONDUCTIVITY		
AQUITARD	(ft/day)	(ft/yr)	(cm/sec)
NORTH BUTTE			
C-F	9.60E-05	3.50E-02	3.40E-08
1-A	1.20E-04	4.20E-02	4.10E-08
RUTH			
A-B	2.00E-04	7.20E-02	7.00E-08
1-A	2.80E-04	1.00E-01	1.00E-07
RUBY			
B-C	9.95E-05	3.60E-02	3.50E-08
A-B	7.10E-05	2.60E-02	2.50E-08

	MODIFIED HANTUSH VERTICAL HYDRAULIC CONDUCTIVITY		
AQUITARD	(ft/day)	(ft/yr)	(cm/sec)
NORTH BUTTE			
C-F	2.00E-04	7.30E-02	6.90E-08
C-F	1.30E-04	4.70E-02	4.50E-08
C-F	7.80E-05	2.80E-02	2.70E-08
C-F	1.70E-04	6.20E-02	6.00E-08
C-F	8.20E-05	3.00E-02	2.90E-08
C-F	1.90E-05	6.90E-03	6.70E-09

	LABORATORY				
AQUITARD	VERTICAL HYDRAULIC CONDUCTIVITY		COEFFICIENT OF COMPRESSIBILTY	POROSITY	SPECIFIC STORAGE
	(ft/day)	(cm/sec)	(sq. ft/lb)		(1/ft)
NORTH BUTTE					
C-F	1.80E-05	6.40E-09	3.80E-07	0.222	1.94E-05
1-A	3.70E-05	1.30E-08	3.30E-07	0.233	1.67E-05
RUTH					
C-F	4.00E-05	1.40E-08	4.20E-07	0.216	2.16E-05
1-A	4.30E-06	1.50E-09	3.90E-07	0.243	1.96E-05
RUBY					
B-C	1.10E-04	3.90E-08	1.18E-06	0.382	5.30E-05
A-B	1.10E-05	4.00E-09	3.92E-07	0.194	2.10E-05

The historical and current water-level elevation maps for the aquifers in this area are essentially the same. Water-level plots show that historically only small changes have occurred in these water levels since the late 1970s. Also, the coal bed methane production in the immediate area has not started and therefore the 2007 piezometric surface maps can be used as historical water-level elevations. The CBM production has caused large drawdown in the coal aquifer but these drawdowns have not been observed in the aquifer adjacent to the production zones. The drawdowns in the sands above the CBM production aquifers have generally been observed in some of the sands closer to the coal aquifer. These drawdowns should generally be relatively small and decrease in sands with greater distances from the coal aquifer.

Nichols Ranch Unit

The water-level elevation for the A Sand, which is the production sand at the Nichols Ranch Unit, is presented in Figure 2-19. This water-level elevation map shows that the groundwater in the A Sand is flowing to the northwest with an average gradient of 0.0033 ft/ft. This gradient, an effective porosity of 0.05 and an average hydraulic conductivity of 0.5 ft/day indicates that the groundwater in the A Sand is flowing at an average rate of 0.033 ft/day (12 ft/yr).

The regional piezometric surface of the A Sand aquifer is developed from the Nichols Ranch Unit A Sand wells and from three additional A Sand wells in this region. Figure 2-19a presents the regional water-level elevation map for the A Sand. This map shows that the regional groundwater flow direction is the same as that in the Nichols Ranch Unit area. The regional groundwater velocity would be expected to be similar to the local groundwater velocity in the Nichols Ranch Unit area.

An F Sand well was added at the Nichols Ranch Unit to define the shallow groundwater at this site. Figure 2-20 (see map pocket) shows the water-level elevation for F Sand well URZNF-3. The water-level elevation of this shallow sand is roughly 25 ft higher than the water-level elevation than the A Sand at this location. An additional shallow monitoring well was installed at the Nichols Ranch Unit in the Cottonwood alluvium. This monitoring well is located on the downstream edge of the Nichols Ranch Unit area (refer to Figure 2-17 for location [see map pocket]). Completion information for this well is presented in Table 2-10 and the well has a water-level elevation of 4,629 ft-msl.. This water-level elevation is approximately 35 ft below the water-level elevation of the A Sand in this area.

Figure 2-20 (see map pocket) shows the water-level elevation for the F Sand for the Nichols Ranch ISR Project area. This map includes wells in both the Nichols Ranch and Hank Units. The groundwater elevation shows that the water in the F Sand is flowing west with an average gradient of 0.005 ft/ft. This gradient, along with an average hydraulic conductivity of 0.6 ft/day and an effective porosity of 0.014, indicates that the groundwater velocity is moving at 0.02ft/day (8 ft/yr). Groundwater in the F Sand flows into the Cottonwood alluvium in the area of the Nichols Ranch Unit.

A water-level elevation for the 1 Sand, the underlying aquifer to the Nichols Ranch A Sand production, is presented in Figure 2-20a. This water-level elevation map shows that the groundwater flow in the 1 Sand is mainly to the northwest. The gradient of the 1 Sand piezometric surface is 0.006 ft/ft and this gradient, and a hydraulic conductivity of 0.26 ft/day and an effective porosity of 0.05 indicates groundwater in the 1 Sand is moving at 0.03 ft/day (11ft/yr).

Figure 2-21 presents the water-level elevations for wells that are completed in the B and C Sands. The water-level elevations in these sands indicate that the gradient is to the west in the Nichols Ranch ISR Project area for both the Nichols Ranch and Hank Units (see Figure 2-21). The piezometric gradient in the ground-water systems has a north-northwest gradient further to the north of the Hank Unit. Similar gradients are observed in the B and C Sand aquifers as in the A and F Sand aquifers.

The depth to water in the surficial aquifer for the Nichols Ranch Unit is presented in Figure 2-21a. This figure shows a pattern the cottonwood alluvial area where the depth to water is less than 10 ft. The green contours present the depth to water in the F Sand. The F Sand is the surficial aquifer in the southern portion of the wellfields. This figure shows that the depth to water gets to greater than 100 ft in the F Sand in the central portion of the Nichols Ranch wellfields. The F Sand is the surficial aquifer in the southern third of the Nichols Ranch Unit while the G Sand is the surficial in the remainder of the unit. Estimated depths to water in the G Sand are presented with the red contours based on depths to water in the two G Sand wells. The G Sand is the surficial aquifer north of the 50 foot contour for the G Sand in areas where the sand is adequately developed. The G Sand may not be the surficial aquifer in some of this area due to the sand pinching out. Two G Sand wells were added to define the G Sand in the northern portion of the Nichols Ranch. The G Sand wells are shown on Figure 2-21a.

Hank Unit

The water-level elevation for the F Sand in the area of the Hank Unit is presented in more detail in Figure 2-20b. The gradient of the F Sand in the Hank wellfield area is generally 0.005 ft/ft. This gradient steepens to the east of the wellfield to a gradient of 0.01 ft/ft.

The H Sand is the surficial aquifer in the area of the Hank Unit. The BLM has monitored the Dry Willow alluvial wells which have recently been dry. The one alluvial well in Willow Creek is also dry; therefore, the alluvial aquifer is not considered the surficial aquifer in any of the Hank Unit. Figure 2-21b presents the depth to water for the H Sand. This shows that the H Sand depth to water is typically 100 ft in the wellfield area. The depths get less than 50 ft in the southwestern portion of the Hank Unit and greater than 200 ft in the eastern portion of the Hank Unit. Two additional H Sand wells were installed at the Hank Unit to further define the H Sand as the surficial aquifer in this area.

The shallow sands in the Hank Unit area are more likely to be affected by local topography changes than the deeper sands. Figure 2-21c presents a water-level elevation map for the G Sand which is the overlying sands for the F Sand in the Hank Unit. These piezometric contours are for the G Sand and show a much steeper gradient of 0.014 ft/ft to the west. This gradient, an average hydraulic conductivity of 0.005 ft/day and an effective porosity of 0.05 indicate that the ground water in these sands is moving at an average rate of 0.0014 ft/day (0.5 ft/year).

The head in the H Sand wells URZHH-7, URZHH-9 and URZHH-10 are shown on Figure 2-22 with water-level elevations of 5032 to 5127 ft-msl. H Sand well URZHH-7 was installed to define the shallow groundwater at the Hank Site. These wells are completed in the H Sand which is above the G Sand. The H Sand has a water-level elevation approximately 150 ft higher than the G Sand in the northern area of the Hank Unit.

Nichols Ranch Unit Aquitard Flow

Table 2-16b presents the gradient calculations through the aquitards based on the heads in the adjacent aquifers and the thickness of the aquitard. The head in the A Sand is 14 ft higher than the head in the B Sand at the Nichols Ranch Unit at well MN-1. These head differences indicate a gradient of 0.2 ft/ft across the 70 ft of aquitard at this location. The actual gradient in the aquitard is expected to be mainly controlled by the higher head in the A Sand and therefore, based on observation of head measurements in aquitards in the Powder River Basin the actual gradient in the overlying aquitard at the Nichols Ranch Unit is likely to be roughly 0.1 ft/ft. The head in the underlying aquifer 1 Sand in this location is approximately 15 ft less than the head in the A Sand; therefore, a downward gradient exists between the A Sand and the underlying 1 Sand. This indicates a gradient across the aquitard that is greater than 0.3 ft/ft. The higher head in the A Sand is expected to mainly control the head in the aquitard until within a very few feet adjacent to the 1 Sand. Therefore, the gradient in the underlying aquitard is expected to be near 0.1 ft/ft at the Nichols Ranch Unit.

Hank Unit Aquitard Flow

The head in the overlying G Sand at the Hank Unit is greater than 50 ft higher than the head in the F Sand at URZHF-1. This head difference indicates a gradient of greater than 1 ft/ft in the overlying aquitard. The actual head in the overlying aquitard will be mainly governed by the higher head in the G sand and therefore the actual gradient in the overlying aquitard is expected to be near 0.1 ft/ft. A downward gradient exists in the lower aquitard at the Hank Unit where the head at URZHF-1 is 11 ft higher than the head in the underlying C Sand. These head differences

Table 2-16b Vertical Hydraulic Gradients through the Adjacent Aquitards.

AQUITARD	CALCULATED GRADIENT (ft/ft)	ESTIMATED GRADIENT (ft/ft)
	Nichols Ranch Unit	
A-B	0.2	0.1
1-A	0.3	0.1
AQUITARD	CALCULATED GRADIENT (ft/ft)	ESTIMATED GRADIENT (ft/ft)
	Hank Unit	
F-G	1.1	0.1
C-F	0.37	0.1

indicate a downward gradient of greater than 0.3 ft/ft in the underlying aquitard. The actual gradient in the underlying aquitard is expected to be controlled by the head in the F Sand at the Hank Unit; therefore, the actual gradient in the aquitard is expected to be near 0.1 ft/ft.

2.7.2.3.1 Nichols Ranch Unit Water-Level Changes

The water-level elevations have been measured on the Nichols Ranch ISR Project wells and are presented in Addendum D6D. Table D6D.1-1 in Addendum D6D presents the water-level data tabulation for the Nichols Ranch Unit wells while Table D6D.2-1 in Addendum D6D presents the water-level data collected for the Hank Unit wells. Figures D6D.1-1 through D6D.1-3 in Addendum D6D present the water-level elevations; versus time for the Nichols Ranch Unit wells. Water levels for the A Sand wells for 2007 were fairly steady with a gradual rise observed in 2008. The limited data in the late 1970s and early 1980s indicate the water levels in the A Sands were roughly 20 ft higher than the recent levels. This change is thought to be due to the drought in recent years or possibly some affect from the ISR operation to the north of Nichols Ranch. The recent data indicates that this previous decline is not due to CBM drawdowns.

Water-level elevations for the B Sand well URZNB-1 and the 1 Sand well URZN1-2 are slightly less than the water level elevation in adjacent A Sand well MN-1. The vertical head difference between these two aquifers and the A Sand is approximately 10 ft. Water levels have varied similarly in the B Sand and 1 Sand in the Nichols Ranch Unit area to those in the A Sand.

Water-level changes in the DW-4 cluster of wells to the northeast of the Nichols Ranch Unit have also been fairly steady. These water levels were also measured in 1978 and 1979 and were slightly lower than the recent water levels. The comparison in head between the F Sand, C Sand and A Sand and a comparison of the historical 1978 and 1979 data to the recent data are presented for the DW-4 site. Water levels are about 55 ft higher in the F Sand than those observed in the C and A Sands.

Figure D6B.1-3 in Addendum D6B of Appendix D6 also presents water-level plots for the Nichols Ranch new F Sand well URZNF-3 and the Cottonwood Alluvium monitoring well URZNQ-4. Their water levels show a gradual water-level rise in 2008.

2.7.2.3.2 Hank Unit Water-Level Changes

The water-level changes for the Hank Unit wells are presented in Figures D6A.2-1 through D6D.2-5 in Addendum D6D in Appendix D6, while Table D6D.2-1 in Addendum D6D lists the water levels. The water-level changes for the Hank 1, Dry Willow #1, URZHF-1, URZHC-2, and URZHG-3 and URZHF-8 wells are presented in Figure D6A.2-1 Addendum D6D in Appendix D6. The recent water levels in the F Sand in Hank 1 and Dry Willow #1 wells have been fairly steady with a small increase in 2008. The recent water levels in the Hank 1 well are approximately 14 ft higher than the 1979 measurement. Water levels in the Dry Willow well are five to seven feet higher than they were in 1979.

Figure D6D.2-2 in Addendum D6D in Appendix D6 presents the water levels measured for the second new well cluster including, G Sand well URZHG-4, F Sand well URZHF-5 and B Sand well URZHB-6. The head in the G Sand in this area is approximately 35 ft higher than the head in the F Sand while the F Sand head is similarly higher than the B Sand head.

The BR wells are presented in Figure D6D.2-3 in Addendum D6D in Appendix D6 and these wells are located on the northern side of the Hank Unit. These wells were monitored in the early 1980s for a period of slightly more than two years. Recent water levels in F Sand wells BR-B and BR-G are similar to those that were measured in the early 1980s. Water-level plots for H Sand well URZHH-7 are also presented in Figure D6D.2-3. Water levels have gradual risen since monitoring began in mid-2007.

Figure D6D.2-4 in Addendum D6D in Appendix D6 presents the plot of water levels for F Sand well WC-MN1. This well is monitored continuously by the BLM in conjunction with to their coal bed methane monitoring program. A plot of data for this well shows that in 1999 through early 2000 the water level was rising in this well and then gradually declined for the next 6-7 years. During late 2006 the water levels in well WC-WN1 declined at a faster rate than the previous years. The monitoring in the last three quarters, of 2007, and early 2008 show a gradual water-level rise. This plot also shows two data points that were measured in 1979 and 1981 which are several feet lower than the present water level.

The BLM has also monitored three alluvial wells in the Dry Willow alluvial system. The water levels for these wells are shown in Figure D6D.2-5 in Addendum D6D in Appendix D6 with alluvial wells DRYMW1 showing saturation in portions of 2000 through 2001 and well DRYMW3 having some saturation in late 2003. Both of these wells were dry in August of 2007 and through the majority of the monitoring period.

2.7.2.3.3 Coal Bed Production Effects on Water-Levels

This section presents the potential effects of the coal bed water production on the ore sands. Coal bed methane (CBM) production has been underway for more than 10 years in the Powder River Basin. The CBM production in this uranium in-situ recovery (ISR) project area is presently in the process of being developed. The CBM wells typically produce a few tens of gallons per minute (gpm) and then production rates significantly decrease with time. This water production has typically resulted in several hundred feet of drawdown in the coal aquifer. The potential effect of the drawdowns on the ISR operation is discussed in this section.

Exhibit D6-5 in Appendix D6 shows the spacing from the base with the A Sand at the Nichols Ranch Unit to the top of the coal which is 765 ft. The base of the F Sand to the top of the coal of the Hank Unit is 1,160 ft (see Exhibit D6-5). The fluvial deposition of the sandstones creates areas where a sandstone has direct connection with other sandstones. The thickest layer of sandstone that has been observed from the logs in the Powder River Basin is approximately 150 ft. Therefore, the large zone between the ore sands and the first major coal seam should always contain some layers of shale where drawdowns from the coal should be greatly attenuated and unlikely to reach the sandstones in the interval of the coal.

Artificial connections through the shales above the first major CBM coal seam could be developed through deep exploration drill holes or deep wells which penetrate the coal seam. Typically, drill holes in the Nichols Ranch permit area are drilled only down into the 1 Sand. A few deeper exploration drill holes were drilled and a very few penetrated the coal seam. Figure D6-8a in Appendix D6 presents the location of the deep drill holes in this area that extend below 800 ft deep. This figure presents the ID name of the drill hole and the total depth for each of the holes. Drill hole CC-4-6 is the only exploration hole that extends down to the first major coal seam. The seal in drill hole CC-4-6 and drill holes CC-65 through CC-68, CC-74, CC-78 and CC-79 in the northeast portion of the wellfield will be evaluated to determine if these holes are adequately abandoned. The remainder of the other deep drill holes; are far enough from the well field that they should not create a potential problem relative to ISR containment of solutions.

The State Engineer's records have been searched for permitted wells and all wells that exceed a total depth of 800 ft and not an oil and gas well are posted on Figure D6-8a in Appendix D6. The majority of wells in this area that are greater than 800 feet depth are oil and gas wells. Figure D6-8a in Appendix D6 shows the location of eight deep permitted wells that are not oil and gas wells. The total depth of these deep wells is shown on Figure D6-8a in Appendix D6 adjacent to the well name. All of these wells are shallow enough that they would not penetrate the CBM coal seam, but two of these wells may be within a couple hundred feet of the coal seam. If the CBM drawdowns propagate up into deeper sand which is within the completion interval of one of these wells, there is a potential for further propagation of drawdown to shallower sands depending on the well completions. Some shales should be present between the Nichols Ranch ore sands and the completion top of the most of these wells. These shales should still retard drawdowns and prevent impacts on the ore sand aquifer water levels. However, the North Dry Willow #1 well will allow the drawdowns that reach the lower sands in this well to propagate up to the ore sand at Hank. This well will be abandoned or at a minimum, the ore zone sand of the well will be sealed off prior to ISR operation in this area.

This portion of this section presents water-level changes that have been observed relative to CBM drawdowns.

The BLM has monitored water levels in the coal aquifers and sand aquifers above the coal for the last several years. The network of monitoring wells is used to define the effects of water extraction from the coal bed production zone on water levels in the coal and overlying aquifer. The monitoring well locations, drawdown and footage between the bottom of the sand completion and the top of the CBM completion is presented on Figure D6-8b in Appendix D6. The nearest monitoring site to the Hank Unit is a Wasatch Sand well which is called the Dry Willow Well. Water-level data for this well is presented in Section 2.7.2 with the Hank water levels. This sand well is completed 100 feet above the major coal seam. The next closest well is the Fourmile monitoring well which is approximately 4.0 mi to the east of Hank. Water levels for this monitoring well are discussed later in this section. The Pistol coal well is located approximately 5.0 mi due north of the northern boundary of the Hank Unit. Figure D6D.3-1 of Addendum D6D in Appendix D6 presents the water-level elevations of the Pistol Coal Well. Water levels in this coal aquifer well started to greatly decline in 2007 and had only varied over a range of slightly greater than 10 ft for the previous ten years. This well did not show a significant effect from the production of water from the coal aquifer until 2007. The drawdown in early 2009 in the Pistol coal well was 710 ft.

The Bullwacker Sand and Coal wells, which are located approximately 6.0 mi southwest of the Nichols Ranch Unit, have been monitored since 2002. Figure D6D.3-2 in Addendum D6D in Appendix D6 presents the water-level changes for the 2 Bullwacker wells. The sand well, which is completed 100 ft above the coal, has had approximately 195 ft of water level decline through early 2009. The coal well, which has also been monitored over this same period of time, shows a decline in water level starting in 2002 with a drop of approximately 600 ft by early 2008. This indicates that, at the Bullwacker site, the coal has had a large amount of drawdown and the sand water level appears to be declining steadily with the coal. This sand unit must be hydraulically connected with the coal or some well completion is allowing connection between the coal and this sand.

The coal and sand are monitored by the BLM at a location 10 mi west of the Nichols Ranch Unit at the Streeter site. Figure D6D.3-3 in Addendum D6D in Appendix D6 presents the water-level elevation for the Streeter Sand and Coal wells. This figure shows that the water level in the Streeter Sand well has been steady in the last three years. This sand is 621 ft above the top of the coal. The water levels from the Streeter Coal well were fairly steady from late 2004 through mid 2005 when water levels started to gradually decline. Water levels from this well have declined approximately 111 ft from mid 2005 through early 2009. The early change in the water level from the Streeter Sand well is unusual because the water level initially declined and then became steady. The recent steady water levels in the sand well indicate that the sand aquifer has not been affected by the CBM production.

The sand well in the All Night Creek area is completed 124 ft above the coal. These two wells (completed in the sand and coal) are approximately 10 mi to the southwest of the Hank Unit. Figure D6D.3-4 in Addendum D6D in Appendix D6 presents the water level changes for the All Night Creek wells. The water level changes in the coal are greater than 600 ft, while the water levels have very gradually declined approximately 5.0 ft over the last few years. This small decline could be natural change.

The Beaver Federal Sand and Coal wells are located approximately 19 mi north-northeast of the Hank Unit. Figure D6D.3-5 in Addendum D6D of Appendix D6 presents the water levels for the Beaver Federal Sand and Coal wells. The water level has not changed appreciably in the Beaver Federal Sand well, while the coal's water level has declined greater than 450 ft. This sand is 561 ft above the coal, similar to the A Sand completion above the coal. The response of the ore sand water levels in the Nichols Ranch project to coal bed production should be similar to the response in this well.

The sixth cluster of CBM monitoring wells is located to the northwest of the Nichols Ranch ISR project. The Juniper well group water-level changes are presented on Figure D6D.3-6 in Addendum D6D of Appendix D6. The water-level elevations do not show a significant change in the sand well which is completed 418 feet above the top of the coal. The coal water-level declines are greater than 600 ft in this area.

An additional CBM monitoring location was started in late 2007 approximately 4.0 mi east of the Hank site which is called the Fourmile monitoring site. Figure D6D.3-7 in Addendum D6D of Appendix D6 presents the water-level data for the Fourmile Coal and Fourmile Wasatch Sand well. The Wasatch Sand well is located approximately 534 ft above the top of the coal seam. Figure D6D.3-7 in Addendum D6D of Appendix D6 shows that no water-level declines have been observed in the sand well and shows fairly steady water levels for the Fourmile Coal well during this monitoring period. The water-level drawdowns are estimated to be approximately 100 ft in the coal sand based on pre-CBM coal water-level elevations.

An additional CBM monitoring site was also added in late 2007 approximately less than 6.0 mi south of the Nichols Ranch Unit. This monitoring site is called the West Pine Tree site. Figure D6D.3-8 in Addendum D6D of Appendix D6 shows that the water levels in the Wasatch Sand, which is 782 ft above the coal, have been fairly steady after the initial variable measurements. Therefore, no drawdown in the Wasatch Sand, 782 ft above the coal have occurred at this location. This sand is located at a similar footage above the coal as the A Sand. The coal drawdown at this location is greater than 436 ft because some drawdown very likely occurred at this location prior to the start of monitoring.

The CBM water-level monitoring shows that sand wells completed a few hundred feet above the coal in this area have not exhibited drawdowns. The exception to this is the drawdowns observed in the Bullwhacker Sand well which is completed only 100 ft above the top of the coal.

It is likely that the drawdown in this sand well is caused by some artificial connection between the sand and the coal in this area.

The drawdown in the coal seam(s) for CBM production has the potential to cause hydrologic impacts in adjacent stratigraphic layers. The magnitude of drawdown in the coal for CBM production can be large, and thus the propagation of this drawdown into and through adjacent layers is of concern for other water or mineral extraction operations within these potentially affected strata. For uranium ISR operations in the vicinity of CBM activities, both the well field operation and lixiviant control could potentially be affected by significant water level changes due to external stresses.

In the Powder River Basin (PRB), the uranium production sand/sandstones are within the Wasatch Formation and are separated from the CBM production coal seams by a substantial thickness of sand/sandstone and silt/shale sequences. The fine-grained silt or shale layers act as aquitards and greatly restrict or preclude the vertical movement of ground water. This in turn limits the vertical propagation of drawdown. In order to evaluate the potential hydrologic impacts of CBM production on the uranium ore-bearing sands in the PRB, a multi-layer MODFLOW model was constructed to represent a typical stratigraphic column at the Nichols Ranch project area. The modeled 13 layer stratigraphic column extends from the coal seam up through sandstone representing a likely uranium production sand in order to evaluate the hydrologic impacts on the sequence of layers from the coal to the uranium production sand. The horizontal modeled area was set as a rectangle 15,000 ft x 5,000 ft. This quasi-strip configuration facilitated the placement of a separate constant head boundary for each layer at one end of the strip to represent the regional supporting aquifer system. The boundary condition at the other end of the strip was set as a variable head boundary. Well extraction stresses were placed in the coal seam layer approximately one-third of the total strip dimension from the variable head boundary end of the strip. In order to evaluate drawdown impacts, the resulting drawdown in the coal and overlying layers was analyzed for a location directly over the area where the well stresses were applied.

All layers in the model were established as confined aquifers with a uniform storage coefficient of 1.0 E-05. The top layer was a 40 foot thick sand layer with a transmissivity of 424 gal/day/ft which corresponds to a hydraulic conductivity of 5.0 E-04 cm/sec. Shale/silt intervals were broken into two layers for modeling purposes to further refine estimates of drawdown within the finer grained material where large gradients could potentially develop. Layers 2 and 3 were 50 foot thick shale layers with a transmissivity of 0.5 gal/day/foot. Layers 4, 5, and 6 repeated the thickness and properties sequence of layers 1 through 3. Layers 7, 8, and 9 also repeated this sequence. Layer 10 was modeled as 40 foot thick sand with a modest transmissivity of 21 gal/day/foot. Layers 11 and 12 were 20 ft thick shale intervals with a transmissivity of 0.5 gal/day/foot. Layer 13 was a 40 foot thick coal seam with a transmissivity of 21 gal/day/foot. The total sequence thickness is 500 ft and can generally be described as the uranium production ore sand (top) and CBM production coal seam (bottom) separated by an alternating sequence comprised of four shale layers and three intermediate sand layers.

The initial water level elevation (hereafter termed head) for each layer was scaled in a generally linear manner from an arbitrary value of 500 ft for the coal seam (layer 13) to 560 ft for the upper sand aquifer (layer 1). The difference between the head in the upper and lower layers represents the likely condition of progressively higher head in overlying aquifers. A simulation was also conducted with a much larger differential in initial head between upper and lower aquifers and the results were generally similar to those presented in the following discussion.

The model simulation period was 20 years in 15 stress periods. The stress period intervals were selected to provide complete definition of the transient drawdown response for the coal and adjacent layers. The magnitude of the wells stresses in the coal seam was varied to produce a large drawdown in the coal at the end of the simulation. The vertical conveyance between layers (termed Vcont in MODFLOW) was set as a uniform value for the interface between all layers and was then varied to produce total drawdown in layers 12 and 11 that was similar in magnitude to that predicted by the Neuman-Witherspoon (1972) method. This method allows calculation of drawdown in an adjacent aquitard based on the predicted drawdown in an aquifer.

The results of the MODFLOW simulation are presented for a selected model cell in Figure D6-8c in Appendix D6. Only the results for layers 7 through 13 are presented because there were no significant changes in head for layers 1 through 6. A large degree of drawdown (493 ft) was produced in the coal seam (layer 13). Layers 12 and 11 are shale layers directly above the coal and the magnitude of predicted drawdown in these layers is still large at 291 ft and 154 ft, respectively. These drawdowns compare favorably with those predicted by the Neuman-Witherspoon (1972) method and were used in evaluating the Vcont. The predicted drawdown in the sand layer nearest to the coal seam (layer 10) was greatly muted at 32 ft. The progressively diminishing drawdown the shale/sand sequences in general reflects the very small quantities of ground water that are actually conveyed vertically in the very low permeability shales. This tiny vertical conveyance produces only a very small stress on the sand aquifer (layer 10), and thus the magnitude of drawdown rapidly decreases with increasing distance from the coal seam.

The predicted drawdown in layers 9 and 8 (shale layers overlying the deepest sand in the sequence) is 19 ft and 9.1 ft respectively, which continues the trend of rapidly diminishing drawdown while moving upward through the strata sequence. The predicted drawdown in the next sand aquifer (layer 7) is an insignificant 0.1 ft. As mentioned previously, there were no significant predicted changes in head for layers above layer 7.

A summary of the model results is that a large drawdown in the coal seam resulting from CBM production may cause significant drawdown in the adjacent aquitard(s). This drawdown may also propagate into and through aquifers located in close vertical proximity to the coal seam, but will be greatly muted by even modestly transmissive layers within the sequence. For multiple shale/sand sequences above the coal, the drawdown is progressively attenuated and will not propagate beyond one or two alternating sequences above the coal seam. The attenuation of drawdown within a shale layer is very large, so the presence of even thin continuous aquitards above the coal will greatly dampen the propagation of drawdown to overlying layers. However, any strata that have a permeability similar to or greater than that in the coal, and are in direct contact with the coal, will exhibit a drawdown response that is similar to that of the coal. With the typical lithology present in the Nichols Ranch project area, the CBM induced drawdown will not have a measurable impact on ore sand water levels unless there is an artificial connection through an improperly completed well or improperly abandoned bore hole.

The CBM drawdowns in the coal aquifer should not increase the potential for vertical excursions. The numerous aquitards between the coal and the ore sands should prevent the occurrence of significant drawdowns in the ore sands from CBM production. An artificial connection between the ore sand and the coal aquifer through a deep drill hole or deep well is the most likely pathway for a vertical excursion and thus the potential for such a connection should be evaluated.

CBM drawdowns could potentially cause drawdown in an ore sand if there are artificial connections with the production coal. In most cases, this CBM induced drawdown is not expected to appreciably affect gradients within a mine unit; therefore, will not significantly increase the potential for horizontal excursions. Unless the artificial connection is directly within a mine unit, the changes in the piezometric surface should affect the mining in a relatively uniform manner. If drawdown occurs within a mine unit it is due to an artificial connection, this actually reduces the potential for horizontal excursion while, as previously noted, raising concerns for vertical excursion.

The modeling of the vertical propagation of CBM drawdown through the shale and sand layers shows that the first continuous shale will greatly dampen the drawdowns in the aquifers above the shale. Some drawdown is likely to occur in the first aquifer above the coal aquifer but drawdowns should be very small beyond the first sand. Some of the sands near the coal aquifer may have direct connection with the coal at some locations; therefore, significant drawdown may develop in these connected aquifers. Ore sands, which are several hundred feet above the top of the coal, should not exhibit drawdown from the coal bed production unless artificial connections between the sand and the coal aquifer. It will be very important to determine if artificial connections exist within an ISR well field area and to correct any potential connections. Artificial connections that exist at some distance from the well field should not affect the potential for vertical or horizontal excursions.

2.7.2.4 Groundwater Quality

The groundwater quality at the Nichols Ranch ISR Project areas has been defined by sampling numerous wells in several aquifers in this area. Addendum D6E in Appendix D6 contains a tabulation of all groundwater quality. Addendum D6L in Appendix D6 also presents the water quality data in the Uranium Data Submission Spreadsheets. Some of the older water quality results were deemed not representative of the aquifer and are not used in the summary calculations of water quality. A criterion was established whereby the largest measured constituent concentration was deemed an outlier if it was greater than five times the next highest value in the data set. These outlier water quality results are highlighted in the water quality table in Addendum D6E in Appendix D6. Addendum D6E in Appendix D6 also presents Stiff and Piper plots and a discussion of the water quality for each aquifer.

Table 2-17 presents the summary of the ground-water quality. These summaries are grouped for the A Sand, F Sand, B and C Sands together, then the G and H Sands and finally the 1 Sand. The values in Addendum D6E in Appendix D6 that are highlighted are not included in Table 2-17 calculations. Only wells listed in Tables 2-13 and 2-14 for baseline water quality are included in the summary water quality. Three sets of parameters are listed in the upper half of the first page in Table 2-17.

The A Sand wells MN-1, MN-2, MN-3, MN-4, MN-5, MN-6 and DW-4L were used to calculate the average concentrations for the A Sand. The first row presents the number of samples followed by the average of those samples for that particular constituent. The maximum, mean and standard deviation are also given in the summary tabulations. The number of samples that have a concentration above the DEQ Class I standard is presented in the last row. The A Sand water typically has very low TDS, (less than 500 mg/l), with its major components being sodium, sulfate and bicarbonate.

Table 2-17 Summary of Groundwater Quality.

A SAND WELLS: MN-1, MN-2, MN-3, MN-4, MN-5, MN-6 and DW-4L

	Ca	Cl	CO3	HCO3	K	Mg	Na	SO4	Fe	Temp	TDS	Cond	Cond(f)	pH
No. of Samples	30	30	30	30	30	30	30	30	30	26	30	25	27	25
Average	7.573	7.993	4.317	139.667	2.227	0.567	113.500	132.433	0.067	14.869	333.000	557.780	575.704	8.467
Maximum	11	16	24	168	5.7	1	130	183	0.65	20	370	643	720	8.74
Minimum	5.3	4	0.5	80	1.7	0.4	84	85	0.005	7.4	289	450	507	7.41
Standard Deviation	1.472	2.919	5.043	20.767	0.764	0.160	8.901	24.349	0.127	2.624	22.734	43.106	55.579	0.270
No. of Samples above Class I	-	0	-	-	-	-	-	0	1	-	0	-	-	13

	pH(f)	Mn	NH3	NO3+NO2	F	Al	As	Ba	Cr	Cu	B	Cd	Hg	Mo
No. of Samples	29	29	30	25	30	29	29	29	29	29	29	29	30	28
Average	8.38897	0.0075	0.0845	0.05	0.2453	0.05	0.00186	0.05	0.0224	0.005	0.077586	0.002931	0.000478	0.05
Maximum	9.5	0.03	0.57	0.05	0.3	0.05	0.0085	0.05	0.025	0.005	0.5	0.005	0.0007	0.05
Minimum	7.26	0.005	0.02	0.05	0.1	0.05	0.0005	0.05	0.005	0.005	0.05	0.0025	0.00015	0.05
Standard Deviation	0.45776	0.0059	0.1239	1.416E-17	0.0651	2.1E-17	0.00153	2.1E-17	0.0066	2E-18	0.104014	0.000961	9.71E-05	2E-17
No. of Samples above Class I	10	0	1	0	0	-	0	0	0	0	0	0	0	-

	Ni	Pb	Se	Unat	V	Zn	Ra226	Ra228	Ra226+ Ra228	Alpha	Beta
No. of Samples	29	30	30	30	29	30	29	24	29	24	24
Average	0.02224	0.0064	0.0007	0.0078567	0.05	0.00675	5.80862	0.86875	6.5276	26.229	29.5
Maximum	0.025	0.08	0.0015	0.027	0.05	0.04	36.3	4.2	38.2	131	145
Minimum	0.005	0.0005	0.0005	0.00015	0.05	0.005	0.1	0.5	0.1	0.5	1
Standard Deviation	0.00702	0.0158	0.0003	0.0077016	2E-17	0.00686	9.94523	0.865	10.116	32.248	41.63694
No. of Samples above Class I	-	4	0	-	-	0	-	-	5	13	-

F SAND WELLS: DW-4U, HANK 1, DRY WILLOW #1, WC-MN1, BR-B, C #1, SS1-F, URZHF-1, URZHF-5, URZHF-8 and URZNF-3

	Ca	Cl	CO3	HCO3	K	Mg	Na	SO4	Fe	Temp	TDS	Cond	Cond(f)	pH
No. of Samples	43	43	34	43	43	42	43	43	43	37	42	31	40	32
Average	103.112	5.560	0.759	168.791	7.247	23.938	189.698	612.767	0.284	12.086	1042.071	1465.323	1562.975	7.885
Maximum	293	33	6	421	16	96	261	981	3.9	17.1	1860	1910	3370	9.94
Minimum	44	0.5	0	10	5	6	94	418	0.005	8	710	994	995	7.16
Standard Deviation	47.260	4.932	1.137	78.964	2.244	15.622	35.150	142.870	0.686	2.090	244.805	236.297	427.013	0.474
No. of Samples above Class I	-	0	-	-	-	-	-	51	17	-	50	-	-	1

	pH(f)	Mn	NH3	NO3+NO2	F	Al	As	Ba	Cr	Cu	B	Cd	Hg	Mo
No. of Samples	41	43	42	26	43	40	40	38	40	40	43	40	40	39
Average	7.73854	0.069	0.0468	0.0538462	0.1467	0.05788	0.00626	0.04658	0.0194	0.0173	0.091163	0.003288	0.000468	0.05
Maximum	10.4	0.26	0.13	0.1	0.5	0.4	0.188	0.05	0.03	0.33	0.8	0.014	0.0013	0.05
Minimum	6.47	0.005	0.005	0.05	0.01	0.025	0.0005	0.015	0.005	0.005	0.005	0.001	0.00015	0.05
Standard Deviation	0.77619	0.0584	0.0291	0.0135873	0.0913	0.05627	0.02957	0.01021	0.0091	0.053	0.139961	0.00213	0.000198	3E-17
No. of Samples above Class I	8	34	0	0	0	-	1	0	0	0	0	5	0	-

	Ni	Pb	Se	Unat	V	Zn	Ra226	Ra228	Ra226+ Ra228	Alpha	Beta
No. of Samples	40	40	40	43	40	42	41	24	41	24	24
Average	0.0195	0.0063	0.0162	0.1665721	0.0469	0.02012	45.4659	0.79583	45.932	416.68	161.3708
Maximum	0.025	0.05	0.574	5.25	0.05	0.32	562	4	566	5090	1540
Minimum	0.005	0.0005	0.0005	0.0005	0.025	0.005	0.1	0.2	0.6	7.6	5
Standard Deviation	0.00838	0.0106	0.0905	0.8101593	0.0084	0.05049	95.8739	0.84054	96.454	1103.5	362.2063
No. of Samples above Class I	-	9	0	-	-	0	-	-	22	18	-

Table 2-17 (Continued)

B SAND WELLS: BR-Q, BR-T, F. Brown #1, Brown #5, NBHW-13, SS1-M, URZNB-1 and URZHB-6

	Ca	Cl	CO3	HCO3	K	Mg	Na	SO4	Fe	Temp	TDS	Cond	Cond(f)	pH
No. of Samples	46	46	35	46	46	46	35	45	45	34	44	30	37	37
Average	61.891	7.763	2.943	125.000	7.259	11.991	184.714	477.067	0.128	13.179	812.886	1206.233	1214.892	8.084
Maximum	117	80	26	242	41	22	250	620	1	18	958	1450	2100	9.63
Minimum	5	3	0.5	84	3	0.5	85	121	0.005	3	278	537	535	7.16
Standard Deviation	26.076	11.834	5.938	33.143	5.680	4.508	42.396	140.009	0.217	3.195	181.178	275.393	326.546	0.551
No. of Samples above Class I	-	0	-	-	-	-	-	44	7	-	42	-	-	6

	pH(f)	Mn	NH3	NO3+NO2	F	Al	As	Ba	Cr	Cu	B	Cd	Hg	Mo
No. of Samples	34	45	45	21	42	45	45	45	44	45	44	45	44	34
Average	7.95088	0.0306	0.8028	0.05	0.1529	0.10456	0.00228	0.05067	0.0174	0.0137	0.091477	0.0042	0.000649	0.075
Maximum	9.62	0.09	26	0.05	0.88	0.7	0.007	0.15	0.025	0.2	0.5	0.02	0.00475	0.5
Minimum	6.84	0.005	0.02	0.05	0.01	0.025	0.0005	0.015	0.0025	0.005	0.005	0.0005	0.0001	0.05
Standard Deviation	0.6692	0.0236	3.999	7.11E-18	0.1646	0.12941	0.00207	0.02736	0.0094	0.0307	0.123602	0.003348	0.000947	0.0963
No. of Samples above Class I	4	8	2	0	0	-	0	0	0	0	0	6	2	-

	Ni	Pb	Se	Unat	V	Zn	Ra226	Ra228	Ra226+ Ra228	Alpha	Beta
No. of Samples	45	45	45	44	45	44	42	21	42	21	21
Average	0.02089	0.0094	0.0022	0.0728523	0.0416	0.29023	16.3738	0.75238	16.75	72.757	33.38095
Maximum	0.07	0.13	0.025	2.16	0.2	3.19	128	2	128	404	169
Minimum	0.005	0.0005	0.0005	0.0005	0.0025	0.005	0	0.5	0	6.6	1
Standard Deviation	0.01062	0.0208	0.0038	0.3248452	0.03	0.66384	31.4438	0.4665	31.458	120.26	52.62517
No. of Samples above Class I	-	12	0	-	-	0	-	17	0	0	-

C SAND WELLS: DW-4M, SS1U and URZHC-2

	Ca	Cl	CO3	HCO3	K	Mg	Na	SO4	Fe	Temp	TDS	Cond	Cond(f)	pH
No. of Samples	17	17	16	17	16	17	17	17	17	16	17	10	16	12
Average	32.876	6.400	2.906	103.765	5.869	7.876	190.647	414.765	0.042	12.863	713.941	1009.100	1241.063	8.489
Maximum	49	11	13	193	13	13	240	514	0.24	17	920	1282	2010	9.68
Minimum	7	1	0	26	4	1	110	219	0.005	3	387	629	670	7.65
Standard Deviation	13.282	2.876	3.804	49.054	2.269	4.222	39.721	115.284	0.056	3.526	186.198	253.730	362.402	0.713
No. of Samples above Class I	-	0	-	-	-	-	-	15	0	-	13	-	-	5

	pH(f)	Mn	NH3	NO3+NO2	F	Al	As	Ba	Cr	Cu	B	Cd	Hg	Mo
No. of Samples	16	17	17	6	17	17	17	17	17	17	17	17	17	17
Average	8.39875	0.0109	0.0553	0.05	0.2247	0.06618	0.00132	0.05353	0.015	0.0065	0.157059	0.003588	0.000376	0.0529
Maximum	10.4	0.04	0.19	0.05	0.52	0.2	0.0025	0.15	0.025	0.03	0.7	0.006	0.0005	0.1
Minimum	7.2	0.005	0.025	0.05	0.05	0.025	0.0005	0.015	0.005	0.005	0.005	0.001	0.00015	0.05
Standard Deviation	0.93835	0.0116	0.0449	7.601E-18	0.1683	0.04995	0.00079	0.03928	0.0094	0.0061	0.216254	0.001593	0.000137	0.0121
No. of Samples above Class I	4	0	0	0	0	-	0	0	0	0	0	1	0	-

	Ni	Pb	Se	Unat	V	Zn	Ra226	Ra228	Ra226+ Ra228	Alpha	Beta
No. of Samples	17	17	17	16	17	17	14	6	14	6	6
Average	0.01735	0.0093	0.0017	0.008225	0.0471	0.03088	8.35714	0.675	8.6464	14.933	10.73333
Maximum	0.03	0.04	0.008	0.024	0.1	0.18	54	1.9	54	57.7	32.4
Minimum	0.005	0.0005	0.0005	0.00015	0.025	0.005	0.1	0.15	0.35	0.5	1
Standard Deviation	0.00868	0.0117	0.0019	0.006926	0.0174	0.04884	14.3368	0.61624	14.213	21.956	11.48419
No. of Samples above Class I	-	3	0	-	-	0	-	-	6	2	-

Table 2-17 (Continued)

G SAND WELLS: BR-F and BR-H

	Ca	Cl	CO3	HCO3	K	Mg	Na	SO4	Fe	Temp	TDS	Cond	Cond(f)	pH
No. of Samples	12	12	12	12	12	11	12	12	12	9	12	11	10	12
Average	34.667	8.167	10.900	133.833	6.250	5.773	127.917	236.333	0.337	11.400	485.583	738.091	828.500	8.659
Maximum	78	27	48	194	13	10	190	400	2.04	14.8	696	1080	1886	10.9
Minimum	8	3	0.5	13	3	0.5	74	79	0.015	6.8	236	334	414	7.1
Standard Deviation	22.952	7.590	16.602	57.887	3.079	3.587	48.391	142.551	0.601	2.328	208.249	306.943	467.752	1.146
No. of Samples above Class I	-	0	-	-	-	-	-	6	4	-	6	-	-	4

	pH(f)	Mn	NH3	NO3+NO2	F	Al	As	Ba	Cr	Cu	B	Cd	Hg	Mo
No. of Samples	9	12	12	8	11	11	11	11	11	11	11	11	11	8
Average	8.47222	0.055	0.0571	0.05625	0.2791	0.27273	0.00277	0.04318	0.0232	0.0064	0.218182	0.002818	0.0005	0.05
Maximum	10.24	0.22	0.16	0.1	0.4	0.8	0.007	0.05	0.025	0.01	1	0.005	0.0005	0.05
Minimum	7.06	0.005	0.025	0.05	0.2	0.05	0.0005	0.025	0.005	0.005	0.05	0.001	0.0005	0.05
Standard Deviation	0.93209	0.0667	0.0422	0.0176777	0.0837	0.3077	0.00242	0.01168	0.006	0.0023	0.315652	0.001168	1.14E-19	7E-18
No. of Samples above Class I	4	4	0	0	0	-	0	0	0	0	1	0	0	-

	Ni	Pb	Se	Unat	V	Zn	Ra226	Ra228	Ra226+ Ra228	Alpha	Beta
No. of Samples	11	11	11	11	11	10	8	8	8	8	8
Average	0.02364	0.0142	0.0018	0.0010591	0.0432	0.008	0.125	0.5875	0.7125	1.2125	2.925
Maximum	0.025	0.1	0.005	0.009	0.05	0.02	0.3	1	1.1	3.9	5.6
Minimum	0.02	0.0005	0.0005	0.00015	0.025	0.005	0.1	0.5	0.6	0.2	1
Standard Deviation	0.00234	0.0301	0.0021	0.0026397	0.0117	0.00483	0.07071	0.18077	0.21	1.1886	1.858379
No. of Samples above Class I	-	4	0	-	-	0	-	-	0	0	-

H SAND WELLS: BR-I and URZHH-7

	Ca	Cl	CO3	HCO3	K	Mg	Na	SO4	Fe	Temp	TDS	Cond	Cond(f)	pH
No. of Samples	6	6	6	6	6	6	6	6	6	4	6	5	4	6
Average	80.500	4.500	0.500	190.333	5.283	20.833	91.667	308.333	0.581	12.650	618.000	1023.800	990.500	7.648
Maximum	107	8	0.5	270	8	29	180	610	2.16	16.7	1010	1430	1578	8.01
Minimum	47	3	0.5	112	2	13	8	9	0.015	5.7	225	400	420	7.1
Standard Deviation	25.821	1.761	0	85.090	2.994	7.627	88.953	325.735	0.904	4.909	420.020	551.835	506.405	0.362
No. of Samples above Class I	-	0	-	-	-	-	-	3	2	-	3	-	-	0

	pH(f)	Mn	NH3	NO3+NO2	F	Al	As	Ba	Cr	Cu	B	Cd	Hg	Mo
No. of Samples	3	6	6	3	6	6	6	6	6	6	6	6	6	3
Average	7.28333	0.0392	0.1558	0.05	0.1683	0.51667	0.00275	0.075	0.0217	0.0075	0.2	0.00375	0.000433	0.05
Maximum	8.8	0.17	0.66	0.05	0.2	1.6	0.005	0.25	0.025	0.01	0.5	0.005	0.0005	0.05
Minimum	6.49	0.005	0.025	0.05	0.1	0.05	0.0005	0.025	0.005	0.005	0.05	0.0025	0.0001	0.05
Standard Deviation	1.31394	0.0649	0.2482	8.498E-18	0.0402	0.72915	0.00214	0.0866	0.0082	0.0027	0.232379	0.001369	0.000163	8E-18
No. of Samples above Class I	1	1	0	0	0	-	0	0	0	0	0	0	0	-

	Ni	Pb	Se	Unat	V	Zn	Ra226	Ra228	Ra226+ Ra228	Alpha	Beta
No. of Samples	6	6	6	6	6	6	5	3	5	3	3
Average	0.02333	0.0281	0.0034	0.0268167	0.0304	0.035	1.76	1.13333	2.44	78.933	26.7
Maximum	0.025	0.117	0.005	0.0462	0.05	0.1	2.1	2.9	5	89	29.9
Minimum	0.02	0.0005	0.002	0.007	0.0025	0.005	1	0	1	71.5	23.8
Standard Deviation	0.00258	0.0452	0.0013	0.0178729	0.0228	0.03768	0.43932	1.55027	1.511	9.0423	3.061046
No. of Samples above Class I	-	3	0	-	-	0	-	-	0	0	-

Table 2-17 (Continued)

1 SAND WELL: URZN1-2

	Ca	Cl	CO3	HCO3	K	Mg	Na	SO4	Fe	Temp	TDS	Cond	Cond(f)	pH
No. of Samples	4	4	4	4	4	4	4	4	4	2	4	4	4	4
Average	3.75	5	15.75	233.75	2.25	0.5	99.5	1.5	0.015	15.2	232	411.5	416	8.63
Maximum	4	6	24	246	3	0.5	104	2	0.015	16.3	248	425	421	9.39
Minimum	3	4	12	209	2	0.5	92	1	0.015	14.1	204	393	409	7.07
Standard Deviation	0.500	0.816	5.560	16.820	0.500	0	5.260	0.577	0.000	1.556	20.331	13.379	5.033	1.054
No. of Samples above Class I	-	0	-	-	-	-	-	0	0	-	0	-	-	3

	pH(f)	Mn	NH3	NO3+NO2	F	Al	As	Ba	Cr	Cu	B	Cd	Hg	Mo
No. of Samples	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Average	8.935	0.005	0.07	0.05	0.65	0.05	0.0005	0.05	0.025	0.005	0.05	0.0025	0.0005	0.05
Maximum	9.15	0.005	0.09	0.05	0.7	0.05	0.0005	0.05	0.025	0.005	0.05	0.0025	0.0005	0.05
Minimum	8.78	0.005	0.05	0.05	0.6	0.05	0.0005	0.05	0.025	0.005	0.05	0.0025	0.0005	0.05
Standard Deviation	0.1698	0	0.0183	0	0.0577	0	0	0	0	0	0	0	0	0
No. of Samples above Class I	4	0	0	0	0	-	0	0	0	0	0	0	0	-

	Ni	Pb	Se	Unat	V	Zn	Ra226	Ra228	Ra226+ Ra228	Alpha	Beta
No. of Samples	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Average	0.025	0.0005	0.0005	0.00015	0.05	0.005	0.1	0.5	0.6	0.5	1.325
Maximum	0.025	0.0005	0.0005	0.00015	0.05	0.005	0.1	0.5	0.6	0.5	2.3
Minimum	0.025	0.0005	0.0005	0.00015	0.05	0.005	0.1	0.5	0.6	0.5	1
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0.65
No. of Samples above Class I	-	0	0	-	-	0	-	-	0	0	-

COTTONWOOD ALLUVIUM: URZNQ-4

	Ca	Cl	CO3	HCO3	K	Mg	Na	SO4	Fe	Temp	TDS	Cond	Cond(f)	pH
No. of Samples	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Average	507.5	30.75	0.5	483	9.25	144.5	415.75	2392.5	1.4625	9.4	3902.5	4325	4100	7.31
Maximum	543	33	0.5	499	11	152	430	2500	3.31	11.3	3980	4440	5110	7.4
Minimum	480	28	0.5	467	8	136	403	2340	0.68	4.7	3820	4170	2710	7.19
Standard Deviation	32.419	2.062	0.000	16.833	1.258	8.185	14.245	72.744	1.248	3.143	65.511	113.284	1004.191	0.088
No. of Samples above Class I	-	0	-	-	-	-	-	4	4	-	4	-	-	0

	pH(f)	Mn	NH3	NO3+NO2	F	Al	As	Ba	Cr	Cu	B	Cd	Hg	Mo
No. of Samples	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Average	6.84	1.895	0.2525	0.5	0.1925	0.05	0.0045	0.05	0.025	0.005	0.075	0.0025	0.0005	0.05
Maximum	6.95	1.95	0.34	0.5	0.2	0.05	0.006	0.05	0.025	0.005	0.1	0.0025	0.0005	0.05
Minimum	6.65	1.84	0.2	0.5	0.17	0.05	0.002	0.05	0.025	0.005	0.05	0.0025	0.0005	0.05
Standard Deviation	0.13711	0.0493	0.0618	0	0.015	0	0.00173	0	0	0	0.028868	0	0	0
No. of Samples above Class I	0	4	0	0	0	-	0	0	0	0	0	0	0	-

	Ni	Pb	Se	Unat	V	Zn	Ra226	Ra228	Ra226+ Ra228	Alpha	Beta
No. of Samples	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Average	0.025	0.0005	0.001	0.087225	0.05	0.01375	0.65	0.875	1.525	115.9	33.775
Maximum	0.025	0.0005	0.002	0.0946	0.05	0.04	0.9	1.4	2.2	164	61.9
Minimum	0.025	0.0005	0.0005	0.0832	0.05	0.005	0.4	0.3	0.9	72.6	19.6
Standard Deviation	0	0	0.0007	0.0051266	0	0.0175	0.20817	0.55603	0.5852	37.419	19.07221
No. of Samples above Class I	-	0	0	-	-	0	-	-	0	0	-

For the thirty samples, the TDS varies from a minimum of 289 to 370 mg/l with a standard deviation of 23 mg/l. The sulfate concentrations for the thirty samples vary from 85 to 183 mg/l while the chloride concentrations vary from 4 to 16 mg/l. Variations are 84 to 130 mg/l for sodium and 5.3 to 11 mg/l for calcium. The variation of uranium concentrations are over a small range from less than detection values to a maximum 0.027 mg/l. These A Sand wells are fully penetrating wells; therefore, the uranium and radium concentrations will be significantly less for the average of the aquifer than within the ore zone. Radium concentrations from the A Sand vary from less than detection to 36.3 pCi/l. The radium-226 concentrations would likely be in a few hundred pCi/l for a partially penetrating well completed only in the ore zone.

The second group of three sets of summary parameters is for the F Sand wells DW-4U, Hank 1, Dry Willow #1, WC-MN1, BR-B, C #1, SS1F, URZHF-1, URZHF-5 and URZNF-3. F Sand wells BR-G and OW43756 were not included in summary calculations because their water level elevations indicate that they are receiving water from an aquifer with a higher head. Forty-five samples have been collected from the F Sand wells, with the average TDS concentration greater than 1,000 mg/l. The range in TDS concentration is from 710 to 1,860 mg/l. Sodium, calcium, bicarbonate and sulfate are the major dissolved constituents in this water. The number of times the F Sand aquifer water exceeds the Class I standard for sulfate, iron, TDS, manganese, lead and radium-226+228 are 51, 17, 50, 34, 9 and 22 times respectively.

The sulfate concentrations varied over a large range from 418 to 981 mg/l while the chloride concentrations are low in the F Sand water with a variation of less than detection to 33 mg/l. The cations with the largest concentrations are sodium with a variation from 94 to 261 mg/l and calcium which varies from 44 to 293 mg/l. Uranium concentrations varied from less than detection to a high of 5.25 mg/l in this ore bearing sand. Radium concentrations have varied from less than detection to 566 pCi/l.

The two sands that are typically between the A and F production sands are the B and C Sands. The water quality data for these two sands were tabulated on the second page of Table 2-17 with the water quality for the B Sand on the top of the page and the C Sand on the bottom. The B Sand analysis includes wells BR-Q, BR-T, F. Brown #1, Brown #5, NBHW-13, SS1-M, URZNB-1 and URZHB-6. TDS concentrations for this aquifer are typically above 600 mg/l with the larger major constituent concentrations being those of sodium, bicarbonate and sulfate.

The TDS of this water ranges from 278 to 958 mg/l. Sodium is the major cation in this water with concentration variations of 85 to 250 mg/l. Sulfate is a major anion with concentrated variation from 121 to 620 mg/l. These sands do show low concentrations of uranium in some areas that is attributed to limited mineralization. The radium 226+228 concentrations in the B aquifer vary from less than detection to a maximum of 128pCi/l. Sulfate, TDS and radium are the main parameters that exceed the Class I use standards in the B Sand. The water quality for the C Sand is summarized on the bottom half of the second page of Table 2-17. Wells DW-4M, SS1-U and URZHC-2 were used to develop a summary of the C Sand water quality. TDS concentrations in the C Sand vary from a minimum of 387 to 920 mg/L. The major cation in this water is sodium and the major anions are sulfate and bicarbonate. Sulfate concentrations vary from a maximum of 514 to a minimum of 219 mg/L. Fifteen of the sulfate concentrations exceed the Class I standard, while thirteen of the TDS samples exceed the Class I TDS standard. Radium-226+228 exceeds the Class I standard in six of the C Sand samples.

The group of parameters on the third page of Table 2-17 is for the G and H Sands which are the overlying and surficial sands for the F Sand in the Hank Unit area. The G Sand summary was made from water quality from BR-F and BR-H wells. This tabulation shows that, on average, the TDS is near 500 mg/l with a range of 236 to 696 mg/l. The major constituents with the highest concentrations are sodium, sulfate and bicarbonate.

The uranium and radium concentrations in these two G Sand wells were small. This data indicates that the wells completed in the G Sand are not near mineralized areas.

The summary of the water quality for the H Sand was developed using data from H Sand wells BR-I and URZHH-7. The H Sand water quality varies significantly with the major anion being sulfate in one of the wells and bicarbonate in the other. The major cation is sodium in one well and calcium in the other well. The TDS varies from a maximum of 1,010 to a minimum of 225 mg/L. Table 2-17 shows that three of the sulfate and TDS values exceed the Class I standard for the H Sand. Three of the lead concentrations also exceed the Class I use standard. Uranium concentration in the H Sand samples varied from very low values up to 0.046 mg/L.

The fourth page of Table 2-17 presents the summary of water quality for the 1 Sand well URZN1-2 in the Nichols Ranch Unit area. This data shows that the TDS is slightly greater than 200 mg/l with sodium and bicarbonate being the major components of this water quality. The sulfate and chloride concentrations for the 1 Sand vary over a very small range. Sodium concentrations vary from 92 to 104 mg/l. Bicarbonate is the major anion in this water with very low levels of uranium and radium indicating no mineralization near this 1 Sand well. No other constituent concentrations are significant in the water from the 1 Sand.

A summary of the Cottonwood Alluvial water quality is developed from the data collected from well URZNQ-4. The TDS from the Cottonwood Alluvial ground-water is high with all values greatly exceeding the Class I use standard. The average value is 3,902 mg/L. Sulfate concentrations are also high with the maximum value being 2,500 mg/L. The high TDS and sulfate concentrations in the Cottonwood Alluvium are natural and are due to the effects of this aquifer being a very shallow aquifer and a discharge point for other aquifers. Transpiration of ground water is significant relative to increasing the TDS in this shallow ground-water system. All four of the samples from the Cottonwood Alluvial well significantly exceed the iron and manganese concentrations. These two constituents naturally exist at significant levels in groundwater. The gross alpha concentrations all significantly exceed the Class I standard for gross alpha.

All groundwater sampled for the Nichols Ranch ISR Project was analyzed for the constituents found in Table 2-17a.

Table 2-17a Baseline Water Quality Monitoring Parameters.

Table 2-17a Baseline Water Quality Monitoring Parameters*	
Parameter	*Units*
Carbonate as CO3	mg/L
Bicarbonate as HCO3	mg/L
Calcium	mg/L
Chloride	mg/L
Fluoride	mg/L
Magnesium	mg/L
Nitrogen, Ammonia as N	mg/L
Nitrogen, Nitrate+Nitrate as N	mg/L
Potassium	mg/L
Silica	mg/L
Sodium	mg/L
Sulfate	mg/L
Conductivity	umhos/cm
pH	s.u.
Total Dissolved Solids	mg/L
Dissolved Aluminum	mg/L
Dissolved Arsenic	mg/L
Dissolved Barium	mg/L
Dissolved Boron	mg/L
Dissolved Cadmium	mg/L
Dissolved Chromium	mg/L
Dissolved Copper	mg/L
Dissolved Iron	mg/L
Dissolved Lead	mg/L
Dissolved Manganese	mg/L
Dissolved Mercury	mg/L
Dissolved Molybdenum	mg/L
Dissolved Nickel	mg/L
Dissolved Selenium	mg/L
Dissolved Uranium	mg/L
Dissolved Vanadium	mg/L
Dissolved Zinc	mg/L
Total Iron	mg/L
Total Manganese	mg/L
Gross Alpha	pCi/L
Gross Beta	pCi/L
Radium-226	pCi/L
Radium-228	pCi/L

*Parameters from WDEQ-LQD Guideline No. 8, Hydrology, March 2005

2.7.2.4.1 Coal Bed Methane Groundwater Quality

CBM extraction has not yet begun in the Nichols Ranch Unit. CBM wells are being drilled and CBM infrastructure (pipelines, power, etc.) is being developed, but no surface discharge has occurred except in the far western edge of the license area. Maps supplied to Uranerz by a CBM producer do show the construction of one other CBM reservoir being located in the Northeast part of the Nichols Ranch Unit license area with a proposed reservoir size of 15.6 acre-ft. To date, no water has been discharged into this reservoir. Uranerz will continue to work with CBM producers in the area to monitor progress of CBM develop and to keep inform when, if any, CBM water will be discharged to surface reservoirs within the license area.

CBM activity at the Hank Unit is also in the developmental stage. Some wells have been drilled and have started pumping in 2008, but no surface discharge has occurred. The CBM producer who is developing the CBM in the Hank Unit license boundary will not have any surface water discharge. Any water that is produced from the CBM will be pumped to a large storage unit and then pumped some 35 mi away to be re-injected into a different underground formation. However, another CBM producer outside of the Hank Unit license area will be surface discharging into a reservoir outside of the Hank Unit license area. This reservoir could then discharge into Dry Willow Creek, but as explained at the end of this section, the CBM water should not have any effect on the Hank Unit groundwater. Additionally, if any new CBM ponds or basins are installed in or within a 0.25 mi of the Hank Unit, Uranerz will notify the NRC of these developments.

There are currently two outfalls located within the Nichols Ranch Unit license boundary. The location of each outfall is summarized in Table 2-18.

To date, only outfall 001 of permit WY0051161 has discharged to the surface within the license area at the Nichols Ranch Unit. Discharge monitoring report (DMR) data for the outfall is provided in Table 2-19. This table shows that the sulfate concentration is very low at 33 mg/l for this discharge. Water quality results are also presented in Table 2-19 for permit WY 0054411-10 which had a sulfate concentration less than detection. The very low sulfate concentration in the CBM water should be detectable in the surficial aquifers if the CBM water ever affects the surficial aquifer.

Table 2-18 Outfalls Located Within Nichols Ranch Unit License Boundary.

Operator, Project, Permit	Outfall	Quarter Quarter	Section	Township	Range
Williams Production RMT Company T-Chair Unit WY0051161	001	NWSE	18	43N	76W
Yates Petroleum Corporation Rolling Pin Spatula State WY0056502	002	NENE	17	43N	76W

Table 2-19 Williams Production RMT Company (WY0051161 and WY0054411-10) Average Water Quality and Discharge Rates.

Parameter	Unit		WY0051161	WY0054411-10
		Permit Limit	Average Historical Data	Water Quality 2/13/07
Bicarbonate	mg/L		1170	773
Chlorides	mg/L	46	7.5	6
Dissolved Calcium	me/L		9	1.09
Dissolved Iron	ug/L	1000	862	<30
Dissolved Magnesium	me/L		3.5	1.48
Dissolved Manganese	ug/L	646	33	12
Dissolved Sodium	me/L		14.8	9.54
pH	s.u.	6.5-8.5	7.4	7.91
Sodium Absorption Ratio	calculated		6.1	8.4
Specific Conductance	micromhos/cm	7500	2390	1120
Sulfates	mg/L	3000	33	<1
Total Alkalinity	mg/L as CaCO3		956	634
Total Arsenic	ug/L	7	1	7.9
Total Barium	ug/L	1800	2270	744
Total Flow (MGD)	MGD	0.057	0.018	-
Total Petroleum Hydrocarbons	mg/L	10	Non-Detect	-
Total Radium 226	pCi/L	1	0.9	0.9

Table 2-20 presents the estimated water quality of Yates Petroleum Corporation's WY0056502 Outfall 002. These data represent the water quality of an outfall targeting the same coal seam, located within 6.0 mi of outfall 002. The water quality analysis was included with the WYPDES permit application submitted to the WDEQ.

The impoundments and surface discharges in the Nichols Ranch Unit may infiltrate a few gallons per minute of water into the surficial aquifer in areas where the surface is very sandy. This water will likely take a very long time to affect the water quality in the F Sand or in the Cottonwood Alluvium in this area. The location of impoundments upgradient of the F Sand monitoring well URZNF-3 are greater than 4,000 ft away; therefore, the travel time is estimated to be greater than 100 years to reach well URZNF-3. It is doubtful that the water quality changes from the CBM discharges will be detected during the operation of the Nichols Ranch Unit. The most likely area to be affected is the Cottonwood Alluvium and its natural water quality has a significantly higher TDS than the CBM discharge water. Therefore, some decrease in concentration may possibly be observed in the Cottonwood Creek alluvial water.

Table 2-20 Yates Petroleum Corporation (WY0056502) Estimated Water Quality and Discharge Rate.

Parameter	Unit	Permit Limit	Estimated Concentrations
Chlorides	mg/L	150	8
Dissolved Iron	ug/L	1,000	<30
pH	s.u.	6.5 – 9.0	8.09
Sodium Adsorption Ratio	calculated	17	11
Specific Conductance	micromhos/cm	2,800	1,840
Total Arsenic	ug/L	8.4	1.8
Total Barium	ug/L	1,800	1,280
Total Flow (MGD)	MGD	N/A	N/A

The sulfate concentration in the CBM water is very low and should cause significant decline in this constituent if the CBM water has affected the surficial aquifer water quality. Typically, infiltration is most pronounced in the shallow, unconsolidated materials overlying the Wasatch Formation bedrock. Uranerz anticipates little to no infiltration through the claystones and siltstones that dominate the near surface bedrock stratigraphy. In addition, infiltration rates at CBM impoundments tend to decrease during the first six months of operation as native clays swell and disperse as the soil SAR increases. The swelling and dispersion of the clays leads to soil sealing and a reduction in the hydraulic conductivity.

The CBM produce water has not been discharged into the majority of the Nichols Ranch Unit license area prior to defining baseline water quality in the surface water and overlying aquifers; therefore, CBM has not affected the baseline water quality.

2.7.3 Water Rights

Surface and groundwater rights on, adjacent to, and within 3.0 mi of the Nichols Ranch ISR Project are listed in Table D6F.1-1 in Addendum D6F of Appendix D6 and Table D6F.2-1 for the surface water and Tables D6G.1-1, D6G.1-2, D6G.2-1 and D6G.2-2 in Addendum D6G of Appendix D6 for the Nichols Ranch Unit and Hank Unit permitted water wells. Table D6G.1-1 in Addendum D6G of Appendix D6 lists the wells within the Nichols Ranch Unit while Table D6G.1-2 in Addendum D6G of Appendix D6 lists wells in and within 3.0 mi of the Nichols Ranch Unit. Table D6F.1-2 in Addendum D6F of Appendix D6 lists the abbreviations used by the State Engineers Office for both the surface and groundwater rights. Figures 2-23 and 2-24 present the locations of the Nichols Ranch Unit and Hank Unit surface rights respectively. Exhibits D6-1 and D6-2 in Appendix D6 show the locations of the permitted wells within 3.0 mi of the Nichols Ranch and Hank Units respectively. No adjudicated surface water rights are located in or adjacent to (within 0.5 mi of the project unit) the Nichols Ranch ISR Project. The surface water rights that do exist within the proposed mining project area are limited to stock/storage ponds and ephemeral creeks. Groundwater rights in the Nichols Ranch ISR Project area are mainly associated with the old monitoring wells and stock wells. No other adjudicated water rights are in the project area and lands adjacent to the project area according to the

Wyoming State Engineers Office. Uranerz Energy Corporation also does not hold any adjudicated water rights in the project area. Most wells that are located within the Nichols Ranch ISR Project area were previously installed by uranium exploration companies, the T-Chair Livestock Company, or coal bed methane companies. Several additional wells have been completed in the project areas by Uranerz Energy Corporation for use in collecting baseline groundwater quality data.

The current regional groundwater use in this area is mainly wells for wildlife and livestock. A few domestic wells exist at the ranch houses. The production of water from coal bed methane has been occurring in the region for slightly greater than 10 years but is expected to start in the permit area in the near future.

Wells in the area of the proposed project area are uniformly distributed over the area excluding monitoring/sampling wells that are permitted by Uranerz Energy Corporation. Most of the wells are used for livestock watering through the use of windmills or electric well pumps. Well depths vary from 180 to 1,000 ft in depth, and most wells are completed in sands other than the ore bearing sands. Those wells that are completed in the ore bearing sand will be abandoned using acceptable WDEQ methods or will be used as monitoring wells if not completed in multiple sands. No wells in or adjacent to the project area are used for domestic water consumption. A domestic water supply well is found on the Pfister Ranch (BR-T), located approximately 0.6 mi north of the northern boundary of the Hank Unit. This well is completed at a depth that is stratigraphically below the zones planned for the ISR mining at the Hank Unit. Additionally, the well is located at a large distance from any Hank planned wellfield areas and in the B Sand. It is unlikely that any mining activities that take place in the Hank area will affect this well because of the physical separation of the well from the ore zone. The extensive groundwater monitoring program utilized during the mining project will detect any problems prior to this well being adversely affected by mining activity.

Six permitted wells exist within 0.5 mi of the Hank Unit area. These wells consist of the Connie #2 well which is nearly 0.5 mi east of the project area. This well is used to supply water for stock and has a depth of 350 ft. This well is thought to be in the top portion of the F Sand.

The Paden #1 and North Dry Willow #1 wells are very near the mineralized areas near the Hank Unit. The North Dry Willow #1 well is completed in the F Sand through sands down below the 1 Sand and will have to be abandoned before a wellfield pump test in this area. The Paden #1 well is also very near the ore zone in this area and is completed in the C, B and A Sands. This well will have to be monitored during pump testing to determine if it has any connection with the F Sand. If the Paden #1 well has connection with the F Sand it will also need to be replaced. The Brown-WS well is completed in the C, B and A Sands. It is located greater than 1,000 ft west of the mineralized area in Hank Unit. The Brown #5 stock well is located just north of the northern edge of the Hank Unit area. This well has a depth of 540 ft and is completed in the B Sand. The distance of the ISR operation from this well makes it unlikely that mining operations will affect its water-level or water quality. The sixth permitted well at the Hank Unit is the Means #1 well, which is used for stock watering and is 700 ft deep and also likely extends down to the A Sand.

Six permitted wells that are not related to the mining operations also exist within 0.5 mi of Nichols Ranch Unit. The Red Spring Artesian #1 well is located just north of the northwest corner of the project area. This well is completed to 740 ft deep and was a flowing well. The well was not flowing in August of 2007. This well likely extends to sands below the A Sand.

The other five wells are in the southern portion of the project area. The Brown 20-9 well is within the Nichols Ranch Unit and flows at approximately one gpm. This well is thought to be completed in the A Sand and has a total depth of 740 ft with perforations from 495 to 695 ft.

The Dry Fork #3 well is completed to a depth of 360 ft and was not flowing in October of 2007. With this depth, the well completion interval should be significantly shallower than the A Sand.

The Nichols #1 well, which is located in Section 19, is completed down to a depth of 310 ft. This well is likely completed in the C Sand and flows at approximately one gpm.

Based on a conversation with the current owner of the property where the Nichols Ranch once stood, the source of water was a well which was located approximately 200 yards from the old ranch house towards Cottonwood Creek and was thought to be artesian in nature. The depth of the well was not known but it was likely hand dug and fed off the waters of Cottonwood Creek.

The water source for the Pumpkin Buttes Ranch, located approximately 1.1 mi east of the Hank Unit permit area, is currently being supplied by a new well that was drilled sometime in 2008/2009 according to the landowner. This well is approximately 500 ft deep and completed between 400 and 480 ft placing it in the G Sand. The landowner also stated that there is another well present at the ranch near the current well that can be used as a backup well. The landowner did not know the depth of the well, it is not listed in the SEO database, and the landowner did not remember when it was drilled, but did state that the well had been there for some time.

2.7.4 Coal Bed Methane Wells and Oil/Gas Wells

Wells permitted for coal bed methane production is presented on Exhibits D6-3 and D6-4 in Appendix D6 for the Nichols Ranch and Hank Units respectively. The tabulation of the coal bed methane wells is presented in Addendum D6H of Appendix D6. Exhibit D6-5 in Appendix D6 shows the distance between the base of the ore sand for each of the two sites and the top of the coal bed methane coal.

The coal bed methane wells in the area of the Nichols Ranch are expected to start water production in 2008. Presently no coal bed methane water is being discharged to the stream channels, but it is expected to start in 2008 into Tex Draw. The majority of the coal bed methane wells in this area are planned to be pumped to a deep injection well.

Oil/Gas wells are shown on Exhibit D6-6 in Appendix D6 for the combined Nichols Ranch Project. Tabulation of the oil/gas wells is presented in Addendum D6H of Appendix D6.

2.7.5 Exploration Drill Holes

A search of the drill hole database maintained by Uranerz Energy Corporation along with drill holes provided by WDEQ-LQD resulted in a total of 841 abandoned exploration drill holes located within the Nichols Ranch ISR Project boundaries. Historically, 103 exploration drill holes were drilled and abandoned by companies other than Uranerz in the Nichols Ranch Unit license area. There were 218 historic drill holes drilled and abandoned by companies other than Uranerz in the Hank Unit license area. Holes drilled from 1997 through year to date 2009 have been plugged in accordance with current State of Wyoming regulations. A reasonable inspection of the project area showed that these abandoned holes were marked with a stake or pin flag after plugging was completed. To the best of Uranerz Energy Corporations knowledge, all holes drilled prior to 1997 were sealed and surface plugged in compliance with the State of Wyoming regulations in effect at the time of drilling. Additionally, visual inspection conducted during current drilling and reclamation operations from 2006 through 2009 in the two permit areas have found no historic drill holes that were not abandoned properly. Also there has not been any evidence of historic drill holes causing cross contamination between aquifers when conducting pump tests or when reviewing historic versus current water levels and water quality in monitor wells that are present in the permit areas. Furthermore, since the historic drill holes have been released by the WDEQ, an assumption can be made that the holes were properly abandoned according to the rules and regulations in place at the time the drill holes were abandoned. No problems are anticipated with past abandoned drill holes impacting the production zone confinement.

Again, to the best of Uranerz knowledge holes drilled prior to 1997 were drilled with natural mud and bentonite as necessary. Current exploration drilling techniques also employ drilling with natural mud, then abandoning the holes with a bentonite plug gel. This method is in compliance with Wyoming Statue §35-11-404 and Wyoming Noncoal Rules and Regulations Chapter 8 drill hole abandonment requirements. Uranerz experience in drilling exploration drill holes in 2006, 2007, 2008, and 2009 has also shown that exploration drill holes tend to seal themselves off because of the natural swelling of clays. Uranerz has experienced this natural sealing on several occasions. If during the course of performing wellfield pump testing a discovery is made that a historic exploration hole is impacting the production zone, Uranerz will take the necessary steps to find the exploration hole, re-enter the drill hole, and properly abandoned it so that the drill hole will not impact the production zone.

All known abandoned drill holes are listed in Tables D6I.1-1, D6I.1-2, D6I.2-1 and D6I.2-2 in Volume VI, Appendix D6 and the location and density is shown on Exhibits D6-7 and D6-8 (see map pockets) in Volume VIa, Appendix D6.

2.8 ECOLOGY

2.8.1 Topography

The Nichols Ranch ISR Project area is located in the Powder River Basin in northeast Wyoming (Knight 1994). The project area is composed of two noncontiguous units located west and southwest of the North Middle Butte in the Pumpkin Butte area. The Hank Unit is located near the western flank of the North Middle Butte and is located in southwest Campbell County. Topography of the Hank Unit includes gently rolling hills and low ridges, as well as steep terrain near North Middle Butte and some steeply eroded areas associated with Dry Willow Creek (an ephemeral stream) located in the southern portion of this unit. Elevations in the Hank Unit range from 5,055 to 5,209 ft AMSL and the area is dissected by a series of unnamed ephemeral drainages that generally drain west and southwest toward Dry Willow Creek.

The Nichols Ranch Unit is located approximately 4.2 mi southwest of the Hank Unit on the border between Johnson and Campbell Counties. Topography in this area is relatively flat with gently rolling hills and low ridges that drain south toward Cottonwood Creek (an intermittent stream) that is located in the southern portion of the unit. Elevations in the Nichols Ranch Unit range from 4,670 to 4,900 ft AMSL.

2.8.2 Soils

Soils within the Hank and Nichols Ranch Units were inventoried and mapped based on standards of a National Cooperative Soil Survey (U.S. Department of Agriculture 1993) and include an inventory of soil types (soil map units) and soil series based on an Order 2 soil survey conducted in 2006. A soil map delineating the soil types was prepared and as directed by the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD), soil samples from potential disturbance areas were collected and analyzed. Physical and chemical characteristics of the topsoil within the potential disturbance areas and estimated depths of salvageable topsoil from the potential disturbance areas for future reclamation purposes were also estimated.

Soils occurring in the Hank and Nichols Ranch Units are generally fine-textured throughout with patches of sandy loam on upland areas and fine-textured soils occurring in or near drainages. The project area contains deep soils on lower toeslopes and flat areas near drainages with shallow and moderately deep soils located on upland ridges and shoulder slopes.

Based on the results of the soil sampling, there are no factors that will limit the suitability of topsoil as a plant growth medium during the reclamation phase. All laboratory values were compared to Table I-2 of WDEQ/LQD Guideline No. 2 (1994) and the results were determined to be within the suitable range, except for marginal soil texture for four soil profiles from three samples collected in the Hank Unit. These four soil profiles were determined to have clay soil textures. Additionally, based on a reconnaissance survey conducted by Natural Resource Conservation Service, no prime farmland was identified within the Nichols Ranch ISR project area.

Detailed soils information for the Nichols Ranch ISR Project area is presented in Appendix D-7 of the WDEQ/LQD Permit to Mine Application and includes a literature review, results and interpretations of the soil survey, analytical results of soil sampling, and an evaluation of soil suitability as a plant growth medium.

2.8.3 Vegetation

Baseline vegetation studies of the Nichols Ranch ISR Project area were conducted in June and July 2006 in accordance with a vegetation study plan approved by the Wyoming Department of Environmental Quality, Land Quality Division (WDEQ/LQD) for noncoal permit areas. The sampling design and methods used for the vegetation study followed Rule 1-V (revegetation performance standards): Noncoal Rules, Chapter 3 (WDEQ/LQD, amended April 25, 2006), WDEQ/LQD Guideline Number 2 (WDEQ/LQD 1997), and WDEQ/LQD Draft Guideline 2 Rewrite (WDEQ/LQD 2004).

The Nichols Ranch Project area is composed of eight vegetation/habitat types, with approximately 88% of the project area composed of two vegetation types (sagebrush shrubland and mixed grasslands) (see Table 2-21). One wetland area was found, and this will be avoided by project activities. No federal threatened, endangered, candidate, or proposed plant species were found, and none are known to occur in the project area. Only one designated noxious weed species (Canada thistle) and one selenium indicator species (two-groove milk vetch) were found during surveys; both were found in small numbers in disturbed areas. Table 2-21 presents the results of vegetation studies conducted in June and July 2006.

Detailed vegetation information for the Nichols Ranch ISR Project area is presented in Appendix D8 of the WDEQ/LQD Permit to Mine Application and includes results of vegetation mapping and a description of the vegetation communities, results of cover sampling, a species list, and a discussion of threatened and endangered species, noxious weeds, and selenium indicator species.

Table 2-21 Vegetation/Habitat Types, Number of Acres, and Sampling Intensity, Nichols Ranch ISR Project, 2006.[1]

Vegetation/Habitat Type	Premine No. of Acres	Percent of Project Area	Estimated Affected Acres	Minimum Sample Size[1]	Adequate Sample Size (Nmin)[2] for Vegetative Cover
Sagebrush shrubland	1,905.4	56.8	7	20	6.3
Mixed grassland	1,061.7	31.4	5	20	10.2
Juniper outcrop	148.3	4.4		20	28.2
Bottomland	125.1	3.7		20	16.5
Greasewood shrubland	64.4	1.9		15	12.2
Wetland	1.1	<0.1		Not sampled	--
Rock outcrop	17.5	0.5		Not sampled	--
Disturbed lands[3]	42.3	1.2		Not sampled	--
Total	3,370.53	100	12[4]		

1 Based on WDEQ/LQD (2004) and on approved sampling plan for the project submitted WDEQ/LQD prior to sampling.

2 Includes 8.3 acres of previously disturbed lands as evident by annual grasses and weeds and 8.8 mi (32.0 acres) of roads (30-ft wide disturbance).

3 Estimated disturbance from the two production plants. Disturbance from wells, pipelines, and additional access roads is unknown.

2.8.4 Wildlife

2.8.4.1 General

The Nichols Ranch ISR Project area is located within the 10- to 14-inch Northern Plains (10-14NP) zone of Northeastern Wyoming (Natural Resources Conservation Service 1988) and the project area provides habitat for wildlife that is typical for the region. The study area has the potential to provide habitat for mule deer, elk, pronghorn antelope, jackrabbit, cottontail rabbit, coyote, bobcat, mountain lion, red fox, badger, raccoon, skunk, chipmunk, rodents, songbirds, waterfowl, eagles, hawks, owls, sage grouse, chukar, wild turkey, Hungarian partridge, mourning dove, magpie, and crow. Most species are yearlong residents; however, some species such as elk, eagles, songbirds, and waterfowl are more abundant during migration periods (Cerovski et al. 2004).

Mammal and bird species found during site specific surveys of the project area included pronghorn, mule deer, bobcat, coyote, badger, desert cottontails, white-tailed jackrabbits, greater sage-grouse, and gray partridge. Small mammals included black-tailed prairie dogs and thirteen-lined ground squirrels. Raptors confirmed breeding included great horned owl, long-eared owl, golden eagle, red-tailed hawk, and prairie falcon; wintering raptors included bald eagle, golden eagle, red-tailed hawk, and rough-legged hawk.

Detailed wildlife information for the Nichols Ranch ISR Project area is presented in Appendix D9 of the WDEQ/LQD Permit to Mine Application and includes a complete species list, methods and results of site-specific species surveys, potential wildlife impacts and mitigation measures, and information concerning threatened and endangered species.

2.8.4.2 Federal Threatened, Endangered, Proposed and Candidate Species

Two federal threatened, endangered, proposed, and candidate (TEPC) animal species have been identified by the U.S. Fish and Wildlife Service (USFWS) to have the potential to occur within or in the vicinity of the Nichols Ranch ISR Project area. These species include black-footed ferret (endangered) and bald eagle (threatened).

Prairie dogs are the main food of the endangered black-footed ferrets (BFF) and several black-tailed prairie dog colonies occur in and adjacent to the Nichols Ranch and Hank Units. However, specific surveys for BFF were not conducted because the USFWS has determined that BFF surveys are no longer required in black-tailed prairie dog towns statewide. The area has been block-cleared for the black-footed ferret; therefore, the project will have no affect on black-footed ferrets.

The USFWS defines communal roosts as six or more birds at one site; the BLM defines roosts as areas that bald eagles show consistent use. Consistent use areas are areas where eagles are seen two or more times within a given winter or multiple winters (personal communication, February 22, 2007, with Thomas Bills, biologist, BLM Buffalo Field Office). The BLM is moving away from the USFWS roost concept and protecting the "consistent use areas" because it is seldom that six or more birds are observed roosting in one area (personal communication, February 22, 2007, with Thomas Bill, biologist, BLM Buffalo Field Office). Based on the BLM database (2006), two roost sites have been recorded on the south side of North Pumpkin Butte and two roost sites have been recorded in Middle North Butte. No communal roosts, as defined by the USFWS, were observed; however, several bald eagles exhibited an affinity for certain areas adjacent the Nichols Ranch Project area by either flying or roosting in the survey area. One adult bald eagle was observed perched in a cottonwood tree along Dry Willow Creek, just north of the Hank Unit during two of the three winter surveys.

Bald eagles were observed flying over or in the vicinity of the Nichols Ranch Unit during two of the three winter surveys. Two adult bald eagles were observed soaring above the Nichols Ranch Unit during the January 6th survey and one bald eagle was observed flying adjacent the Nichols Ranch Unit during the January 17th survey.

The nearest known bald eagle winter roost site is located 4.5 mi Southwest of the Nichols Ranch Unit. The closest bald eagle nest is located along the Powder River in Johnson County approximately 10 mi west of the Nichols Ranch ISR Project area (personal communication, February 22, 2007, with Thomas Bill, biologist, BLM Buffalo Field Office).

While a few bald eagles may hunt or forage in the Nichols Ranch Project area there are no defined communal roosts or consistent use areas within or immediately adjacent to the project area. Therefore, the Nichols Ranch ISR Project is expected to have no affect on bald eagles.

Based on the results of site specific surveys and other available data, the Nichols Ranch ISR Project is expected to have no affect on any federal TEC&P species.

2.8.4.3 BLM Special Status Species

The Bureau of Land Management (BLM), Buffalo Field Office also monitors and manages nonlisted (under the federal Endangered Species Act) special status (SS) species (i.e., species of concern) that could occur on federal lands to reduce potential impacts that might lead to their listing by the USFWS. The BLM list of SS species included six mammals, 15 birds, two amphibians, and one fish species.

No mountain plovers were seen during the two surveys or during opportunistic observations throughout the 2006 field season. In addition, there are no records that mountain plovers exist within the wildlife study area (BLM 2006; WNDD 2006). The closest BLM sighting of mountain plover is approximately 4.0 mi from the project area (BLM 2006). Therefore, the Nichols Ranch ISR Project is expected to have minimal impacts to mountain plovers.

One swift fox, a BLM SS species, was observed crossing the Van Buggen road approximately 5.0 mi east of the Nichols Ranch Project area during the 2006 field season. It is likely that swift fox inhabit the wildlife survey area because of the suitable short mixed grassland habitat. Therefore, the Nichols Ranch ISR Project is expected to have minimal impacts to swift foxes.

The greater sage-grouse, a BLM SS species, is a year-long resident in the project area and ten greater sage-grouse leks occur within the wildlife study area. All of the leks were active in 2006. Direct potential impacts to greater sage-grouse from project activities would include habitat loss and fragmentation from mine, road, pipeline, and power line construction; alteration of plant and animal communities; increased human activity that could cause the birds to avoid an area; increased noise that could cause the birds to avoid an area or reduce breeding efficiency;

increased motorized access by the public leading to legal and illegal harvest; direct mortality from increased vehicular traffic; and an increase in mortality from raptors if power poles are placed in occupied greater sage-grouse habitat.

To minimize impacts to breeding greater sage-grouse, Nichols Ranch Project activities and vehicular traffic would be minimized in areas within 0.25 mi of an active lek between the hours of 8:00 pm and 8:00 am during the greater sage-grouse strutting period (March 1-May 15), and Nichols Ranch ISR Project activities (i.e., drilling and construction) would be minimized within 2.0 mi of an active lek between March 15 and July 15. To reduce raptor predation on greater sage-grouse, the construction of overhead power lines, permanent high-profiled structures such as storage tanks, and other perch sites would not be constructed within 0.25 mi of an active lek. To minimize impacts to greater sage-grouse and other upland bird species (i.e., Hungarian partridge), removal and disturbance of vegetation will be kept to a minimum through the use of existing roads for travel and for the placement of pipelines. All lands disturbed by Nichols Ranch Project activities will be revegetated as soon as practical following the project disturbing activities following approved reclamation practices.

Therefore, with implementation of the mitigation measures described above, the Nichols Ranch ISR Project will have minimal impacts to greater sage-grouse.

The WNDD and BLM have occurrence records of several BLM SS species in the vicinity of the Nichols Ranch Project area including sage sparrow, Brewer's sparrow, loggerhead shrike, sage thrasher, burrowing owl, ferruginous hawk, and northern leopard frog. Based on the lack of any observations and existing data, the Nichols Ranch ISR Project is expected to have minimal impacts on these species. In addition, these are no occurrence records or observations of any of the remaining BLM SS species; therefore, the Nichols Ranch ISR Project is expected to have no impacts on any of the remaining BLM SS species.

2.9 BACKGROUND RADIOLOGICAL CHARACTERISTICS

2.9.1 Surface Soil, Subsurface Soils and Sediment

2.9.1.1 Purpose and Procedure

In June of 2007, an extensive soil and sediment sampling program was completed for the Nichols Ranch and Hank Units of the Nichols Ranch ISR Project. The purpose of the effort was to develop a representative radiological baseline for surface and subsurface soils and sediments.

Prior to conducting a field reconnaissance and collecting the samples, a map was prepared on a large-scale U.S. Geological Survey (USGS) topographic base showing the license boundary, plant site location and ore zone footprint (as much as it was known at the time). Because of their importance in an assessment such as this, the location of cultural features (residences, ranches, water wells, water impoundments, roads, etc.) with respect to the future process facility, production areas and license boundary were considered in the sampling design.

After completing the base map described above, a field reconnaissance was conducted to visually inspect the project area. All of the features just noted were considered in terms of their respective locations to the license boundary. Following the reconnaissance, a sample site map was prepared. Coordinates for each sample site were included with the map.

In determining the number, type (surface, subsurface and sediment) and areal distribution of sampling locations, pertinent NRC documents were used, along with judgment based on many years of experience developing pre-operational and operational environmental monitoring programs for in situ recovery (ISR) operations. The primary documents included: (1) NRC Regulatory Guide 4.14, "Radiological Effluent and Environmental Monitoring at Uranium Mills," USNRC, April 25, 1980; (2) NUREG-1569, Standard Review Plan for In Situ Leach Uranium Extraction License Applications," Final Report, USNRC, June 2003; and (3) NUREG-1748 "Environmental Review Guidance for Licensing Actions Associated with NMISS Programs," Final Report, USNRC, August 2003 Regulatory Guide 4.14.

is the document that outlines the specifics of a pre-operational radiological monitoring program. Table 1 in the guide, for example, lists the suggested number, type, location and frequency of samples. Because of the age of the guide, and because it primarily addresses conventional mills, Uranerz employed a modified baseline sampling program designed for a modern ISR facility. From a standpoint of physical disturbance and radiological alteration, it is widely recognized that a modern-day ISR operation has minimal impact on surface and subsurface soils.

There are three major reasons why the impacts are insignificant: (1) the recovery technique does not require the removal of overburden nor does it require the physical removal of the ore zone; (2) it is a wet process up to the stage of drying and packaging; and (3) modern dryers and packaging systems do not have significant particulate discharges. Thus in the absence of significant particulate sources, radiological impacts on soils and sediments through aerial dispersal and subsequent deposition are not associated with modern ISR operations. Experience shows that potential radiological impacts are almost exclusively associated with accidental spills from pipe leaks or ruptures that occur off of the process facility pad (i.e., within the wellfields and between the wellfields and the process facility). Spills occurring on the process pad are fully contained by the curbed volume of the pad and its sump system. It should be noted that an accidental spill from a pipe break in a wellfield does not necessarily result in a major impact on soils or sediments. Engineering controls and a management program based on the principles of ALARA provide a high degree of assurance that impacts will be minimal. To illustrate, a pipeline break would cause a loss in pressure and this would be quickly detected by the monitoring system. In addition to engineering controls, employees who are in the wellfields on a daily basis are trained to observe routinely the condition pipelines and wellheads. Leaks or breaks would be reported immediately. In the event of a break, the wetted area would be surveyed, sampled and recorded on a spill map. Soils with significantly elevated levels of uranium and radium-226 would be removed and disposed at a licensed site.

Knowing that potential impacts are attributed to pipeline ruptures and leaks, the pre-operational sampling program was designed to thoroughly characterize radiological baseline conditions in the areas most likely to experience potential impacts. A review of Exhibit D11-1(see map pocket), Nichols Unit-Soil and Sediment Sample Location Map, and Exhibit D11-2 (see map pocket) Hank Unit Soil and Sediment Sample Location Map in the attached Appendix D11 clearly shows that the focus of the baseline characterization was on the wellfield areas and the intermittent/ephemeral streams passing through the license area. A close examination of the map shows that sediment samples were collected from upstream and downstream locations in all of the streambeds. In addition to thoroughly sampling the wellfields and water courses, the radiological baseline was supplemented by including samples from areas within the license area (see sample sites labeled LAS on the map), the process facility location and the Rn-222/Gamma monitoring stations. Again, using Regulatory Guide 4.14 for general guidance, all soils and sediments were analyzed for Ra-226 and a large percentage of the total number of samples included analyses for U, Pb-210 and Th-230. In brief, the extensive coverage of the sampling effort provides a representative radiological baseline against which operational activities can be measured.

2.9.1.2 Sampling Methodology

The sample site map and coordinates described above, guided field personnel to the sample site locations. Surface and subsurface soils were collected with a 3-inch diameter bucket auger. Surface soils were collected from surface to a depth of 6-inches, and subsurface soils were collected in 12-inch increments to a total depth of 36 inches. The depth increments generally follow Regulatory Guide 4.14.

To avoid cross-contamination, the sampler and other tools were cleaned after each use using paper towels and de-ionized water. Samples were placed in 1-gallon plastic freezer bags and stored in ice chests prior to delivery to the laboratory. While collecting the soil samples, gamma measurements were taken using a Ludlum Model 19 μR Survey Meter. The calibration date on the meter for the June 2007 survey was June 8, 2007. While holding the meter at waist level, the area at and proximate to the sample point was surveyed for approximately two minutes. Gamma levels were recorded along with the GPS coordinates for each site.

The procedure for collecting sediment samples varied slightly from the soil sampling methodology. Instead of a single incremental sample, several samples were taken around each site to form a composite sample. As with the soil samples, sediments were placed in 1-gallon plastic freezer bags and placed in ice chests prior to delivery to the laboratory. Gamma measurements were taken following the protocol just described.

2.9.1.3 Nichols Ranch Unit Results

Table 2-22, Radiological Background in Surface and Subsurface Soil-Nichols Ranch Unit, provides a summary of the analyses for each sample point as well as some basic statistical measures (minimum, maximum, average and standard deviation).

Most of the surface soil sample and all of the subsurface samples have typical background radiological characteristics (approximately 1 pCi/g or less). For comparison purposes, normal soils typically have a Ra-226 content of 1 pCi/g (NCRP Report No.78). With the exception of one site, (LAS-5), which had a Ra-226 level of 26 pCi/g, the table shows normal background levels. The elevated level at LAS-5 might be attributed to old exploration activities.

With respect to sediment, Table 2-23 Radiological Background in Sediment - Nichols Ranch Unit shows that 40% of the samples exceed normal background levels of 1 pCi/g for Ra-226. Elevated levels were detected at sample sites SD-1, 8, 9 and 10. A possible explanation for this departure could be that earlier exploration activities may have left ore zone cuttings on the surface because a significant percentage of the sites have elevated Ra-226, the average value 9.6 pCi/g is well in excess of normal background. Pb-210 was also detected at higher than normal background levels at two of the sites, resulting in a slightly higher than normal average.

Table 2-22 Radiological Background in Surface and Subsurface Soil - Nichols Ranch Unit.

Sample Site	Depth Inches	Uranium mg/kg*	Pb-210 pCi/g	Precision Plus/Minus	Ra-226 pCi/g	Precision Plus/Minus	Th-230 pCi/g	Precision Plus/Minus
R-1	0-6	1.85	2.1	0.3	0.8	0.2	0.7	0.1
R-2	0-6	1.42	0.9	0.2	0.8	0.2	ND	
R-3	0-6	1.93	1.1	0.2	0.7	0.2	ND	
R-4	0-6	2.58	1.1	0.2	1.2	0.2	ND	
R-5	0-6	1.66	0.1	0.1	0.6	0.1	ND	
SS-6	0-6				0.8	0.2		
SS-7	0-6				1.3	0.2		
SS-8	0-6	1.12	0.7	0.1	0.6	0.2	ND	
SS-9	0-6				0.8	0.2		
SS-10	0-6				0.9	0.2		
SS-11	0-6	1.39	ND		0.9	0.2	ND	
SS-12	0-6				0.3	0.2		
SS-13	0-6				0.8	0.2		
SS-14	0-6				0.9	0.2		
SS-15	0-6				0.6	0.2		
SS-16	0-6				1.5	0.2		
SS-17	0-6				0.8	0.2		
SS-18	0-6				0.8	0.2		
SS-19	0-6	1.64	ND		1.4	0.2	0.1	0.1
SS-20	0-6				0.8	0.1		
SS-21	0-6				2.4	0.2		
SS-22	0-6	1.89	ND		0.9	0.1	0.8	0.6
SS-23	0-6				0.6	0.1		
SS-24	0-6				0.4	0.1		
SS-25	0-6				0.5	0.1		
SS-26	0-6				0.7	0.1		
SS-27	0-6				0.7	0.1		
SS-28	0-6				0.7	0.1		
SS-29	0-6				0.8	0.1		
SS-30	0-6				1.2	0.1		
LAS-1	0-6	0.97	ND		0.4	0.1	0.3	0.1
LAS-2	0-6	2.96	ND		0.9	0.2	0.7	0.1
LAS-3	0-6	2.58	ND		0.8	0.2	0.3	0.1
LAS-4	0-6	1.37	ND		1.0	0.2	0.7	0.1
LAS-5**	0-6	4.72	ND		26.4	3.9	0.6	0.1
LAS-6	0-6	2.19	ND		1.3	0.2	0.6	0.1
LAS-7	0-6	1.73	1.0	0.4	1.0	0.2	0.5	0.1
LAS-8	0-6	1.51	ND		1.0	0.2	0.5	0.1
Plant Site								
Center	0-12	1.43	ND		1.0	0.2	0.5	0.1
	12-24	1.22	0.5	0.4	1.0	0.2	0.4	0.1

Table 2-22 (Continued)

Sample Site	Depth Inches	Uranium mg/kg*	Pb-210 pCi/g	Precision Plus/Minus	Ra-226 pCi/g	Precision Plus/Minus	Th-230 pCi/g	Precision Plus/Minus
Plant Site								
Center	24-36	1.37	ND		0.7	0.2	0.6	0.1
NW	0-6	1.43	0.4	0.1	1.2	0.2	ND	
NE	0-6	1.42	0.6	0.1	0.9	0.2	ND	
SE	0-6	1.2	0.3	0.1	1.1	0.2	ND	
SW	0-6	1.45	1.0	0.2	1.0	0.2	1.1	0.6
SB-4	0-12	2.7	ND		1.0	0.1	0.5	0.1
	12-24	3.95	ND		1.0	0.1	0.6	0.1
	24-36	2.34	ND		0.8	0.1	0.4	0.1
SB-5	0-12	1.00	ND		0.7	0.1	0.4	0.1
	12-24	1.35	1.6	0.4	0.6	0.1	0.4	0.1
	24-36	1.91	0.7	0.3	0.7	0.1	0.2	0.1
SB-6	0-12	1.29	ND		0.8	0.2	0.5	0.1
	12-24	1.8	0.5	0.4	1.6	0.2	0.4	0.1
	24-36	2.05	0.4	0.4	0.8	0.2	0.5	0.1
SB-7	0-12	1.01	ND		0.8	0.1	0.3	0.1
	12-24	1.45	ND		0.9	0.2	0.4	0.1
	24-36	1.73	ND		0.9	0.2	0.6	0.1
SB-8	0-12	1.88	ND		1.1	0.2	0.7	0.1
	12-24	2.23	ND		1.0	0.1	0.7	0.1
	24-36	2.59	ND		1.0	0.1	0.5	0.1
Sample Site		Uranium mg/kg*	Pb-210 pCi/g	Precision Plus/Minus	Ra-226 pCi/g	Precision Plus/Minus	Th-230 pCi/g	Precision Plus/Minus
Surface Soil:								
Minimum		**0.97**	**0.1**		**0.3**		**0.1**	
Maximum		**4.72**	**1.1**		**26.4**		**1.1**	
Average		**1.69**	**0.7**		**0.9**		**0.6**	
Standard Deviation		**0.52**	**0.3**		**0.4**		**0.2**	
Subsurface Soil:								
Minimum		**1.00**	**0.4**		**0.6**		**0.2**	
Maximum		**3.95**	**1.6**		**1.6**		**0.7**	
Average	**0-12**	**1.55**	**ND**		**0.9**		**0.5**	
	12-24	**2.00**	**0.4**		**1.0**		**0.5**	
	24-36	**2.00**	**0.2**		**0.8**		**0.5**	

Notes: R-1: Nearest Residence. R-1 through R-4: Rn-222 and Gamma Monitoring Locations. *Reporting Limit: 0.50, SS: Surface Soil, SB: Subsurface Soil, LAS: License Area Sample, ND: Not Detected, See Exhibit D11-1 for sample site locations. **U and Ra-226 values for LAS-5 appear to be anomalies and were not used in the statistics. Radionuclide Methods are as follows: Radium 226-E903.0, Uranium-SW6020, Lead 210-NERHL-65-4, Thorium 230-E907.0

Table 2-23 Radiological Background in Sediment - Nichols Ranch Unit.

Sample Site	Uranium mg/kg*	Pb-210 pCi/g	Precision Plus/Minus	Ra-226 pCi/g	Precision Plus/Minus	Th-230 pCi/g	Precision Plus/Minus
SD-1	2.1	ND		16.2	3.0	0.5	0.1
SD-2	2.02	ND		0.6	0.1	0.5	0.1
SD-3	1.84	0.7	0.3	0.7	0.1	0.5	0.1
SD-4	1.77	ND		0.7	0.1	0.4	0.1
SD-5	1.96	2.0	0.4	1.0	0.2	0.4	0.1
SD-6	0.95	ND		0.5	0.1	0.2	0.1
SD-7	3.07	0.5	0.4	1.0	0.2	0.6	0.1
SD-8	2.67	1.8	0.4	32.2	4.2	1.0	0.2
SD-9	3.03	ND		23.5	3.6	0.6	0.1
SD-10	4.02	ND		19.4	3.3	0.9	0.1
Minimum	**0.95**	**ND**		**0.5**		**0.2**	
Maximum	**4.02**	**2.0**		**32.2**		**1.0**	
Average	**2.34**	**1.3**		**9.6**		**0.6**	
Standard Deviation	**0.87**	**0.8**		**12.1**		**0.2**	

Notes:
SD: Sediment.
*Reporting Limit: 0.50.
ND: Not Detected.
See Exhibit D-11-1 for sample site locations.
Radionuclide Methods are as follows: Radium 226-E903.0, Uranium-SW6020, Lead 210-NERHL-65-4, Thorium 230-E907.0

2.9.1.4 Hank Unit Results

Table 2-24 Radiological Background in Surface and Subsurface Soil - Hank Unit provides a summary of the analyses for each sample point as well as some basic statistical measures (minimum, maximum, average and standard deviation). With just a few exceptions, the values in the table are within the expected ranges. Briefly, the average value for Ra-226 is 1.1 pCi/g, and this nearly matches the reference radium concentration of 1 pCi/g in normal soil (NCRP Report No. 78). Similarly, values for U, Th-230 and Pb-210 also fall within expected background ranges. One site, LAS-2, had the highest values for uranium (8.4 mg/kg), Pb-210 (1.2 pCi/g), Ra-226 (3.8 pCi/g) and Th-230 (2.5 pCi/g).

Table 2-24 Radiological Background in Surface and Subsurface Soil - Hank Unit.

Sample Site	Depth Inches	Uranium mg/kg*	Pb-210 pCi/g	Precision Plus/Minus	Ra-226 pCi/g	Precision Plus/Minus	Th-230 pCi/g	Precision Plus/Minus
R-1	0-6	1.26	3.9	0.4	1.3	0.2	0.9	0.2
R-2	0-6	1.71	ND		0.5	0.1	ND	
R-3	0-6	1.04	ND		0.4	0.1	ND	
R-4	0-6	2.77	0.3	0.2	0.3	0.1	ND	
R-5	0-6	2.46	ND		1.0	0.2	ND	
SS-6	0-6				1.5	0.1		
SS-7	0-6	2.19	ND		1.7	0.2	1.2	0.6
SS-8	0-6				1.2	0.1		
SS-9	0-6				1.1	0.1		
SS-10	0-6				2.1	0.1		
SS-11	0-6				1.1	0.1		
SS-12	0-6				1.0	0.1		
SS-13	0-6				0.9	0.1		
SS-14	0-6				1.3	0.1		
SS-15	0-6				1.1	0.1		
SS-16	0-6	1.37	ND		1.3	0.2	ND	
SS-17	0-6				1.3	0.1		
SS-18	0-6				0.8	0.1		
SS-19	0-6				0.9	0.1		
SS-20	0-6				1.2	0.1		
SS-21	0-6				1.1	0.2		
SS-22	0-6				1.3	0.2		
SS-23	0-6				0.9	0.2		
SS-24	0-6				1.1	0.2		
SS-25	0-6	1.81	ND		1.0	0.2	1.2	0.6
SS-26	0-6				0.7	0.1		
SS-27	0-6				0.7	0.1		
SS-28	0-6				0.9	0.2		
SS-29	0-6				1.1	0.2		
SS-30	0-6				1.2	0.2		
SS-31	0-6				0.7	0.2		
SS-32	0-6				1.2	0.2		
SS-33	0-6				0.9	0.2		
SS-34	0-6	2.10	ND		1.3	0.2	1.2	0.5
SS-35	0-6				1.1	0.2		
LAS-1	0-6	1.60	0.5	0.1	0.9	0.1	0.3	0.1
LAS-2**	0-6	8.40	1.2	0.1	3.8	0.1	2.5	0.1
LAS-3	0-6	1.40	ND		0.8	0.1	0.4	0.1
LAS-4	0-6	1.00	ND		0.8	0.1	0.2	0.1
LAS-5	0-6	1.60	0.6	0.1	1.1	0.1	0.5	0.1
LAS-6	0-6	1.50	ND		0.9	0.1	0.4	0.1
LAS-7	0-6	1.00	0.3	0.1	0.6	0.1	0.3	0.1
LAS-8	0-6	1.10	ND		0.6	0.1	0.5	0.1
LAS-9	0-6	1.39	ND		1.3	0.2	0.7	0.2
LAS-10	0-6	1.47	ND		1.2	0.2	0.7	0.2
LAS-11	0-6	2.35	ND		1.0	0.2	0.5	0.2
LAS-12	0-6	2.40	ND		1.3	0.1	0.6	0.1
LAS-13	0-6	1.90	ND		1.2	0.1	0.8	0.1
LAS-14	0-6	1.50	0.3	0.1	1.0	0.1	0.5	0.1
SB-4	0-12	2.30	0.9	0.1	1.6	0.1	0.9	0.1
	12-24	2.00	0.7	0.1	1.1	0.1	0.5	0.1
	24-36	1.70	ND		0.8	0.1	0.4	0.1

Table 2-24 (Continued)

Sample Site	Depth Inches	Uranium mg/kg*	Pb-210 pCi/g	Precision Plus/Minus	Ra-226 pCi/g	Precision Plus/Minus	Th-230 pCi/g	Precision Plus/Minus
SB-5	0-12	1.30	ND		0.9	0.1	0.5	0.1
	12-24	ND	0.7	0.1	1.1	0.1	0.4	0.1
	24-36	1.80	0.6	0.1	1.1	0.1	0.4	0.1
SB-6	0-12	1.60	0.3	0.1	1.2	0.1	0.5	0.1
	12-24	1.40	0.2	0.1	1.2	0.1	0.7	0.1
	24-36	1.60	ND		1.2		0.7	0.1
SB-7	0-12	3.11	ND		0.9	0.1	0.4	0.1
	12-24	2.33	ND		0.9	0.2	0.6	0.1
	24-36	3.62	ND		1.1	0.2	0.7	0.2
SB-8	0-12	1.43	ND		1.3	0.2	0.4	0.1
	12-24	1.42	ND		1.2	0.2	0.4	0.1
	24-36	1.60	ND		0.8	0.2	0.6	0.2
SB-9	0-12	1.13	ND		0.9	0.2	0.5	0.3
	12-24	1.30	ND		0.8	0.2	0.2	0.1
	24-36	1.43	ND		1.0	0.2	0.6	0.3
Plant Site								
Center	0-12	1.35	ND		1.0	0.2	0.5	0.1
	12-24	1.28	ND		0.9	0.2	0.7	0.1
	24-36	1.57	0.7	0.04	0.9	0.2	0.5	0.1
NW	0-6	1.83	ND		1.0	0.2	ND	
NE	0-6	2.18			1.0	0.2	0.9	0.5
SE	0-6	1.82	ND		1.2	0.2	ND	
SW	0-6	1.67	0.3	0.2	1.0	0.2	ND	
Surface Soil:								
Minimum		**1.00**	**0.3**		**0.3**		**0.2**	
Maximum		**8.40**	**0.6**		**2.1**		**1.2**	
Average		**1.73**	**0.4**		**1.0**		**0.6**	
Standard Deviation		**0.48**	**0.1**		**0.3**		**0.3**	
Subsurface Soil:								
Minimum					**0.8**		**0.2**	
Maximum					**1.6**		**0.9**	
Average	**0-12**	**1.75**	**0.2**		**1.1**		**0.5**	
	12-24	**1.39**	**0.2**		**1.0**		**0.5**	
	24-36	**1.90**	**0.2**		**0.8**		**0.6**	

Notes:
R-1: Nearest Residence. R-1, 2, 3, 4 and 5: Rn-222 and Gamma Monitoring Locations.
*Reporting Limit: 0.50.
SS: Surface Soil.
SB: Subsurface Soil.
LAS: License Area Sample.
ND: Not Detected
See Exhibit D11-2 for sample site locations.
**Values for LAS-2 appear to be anomalies and were not used in the statistics.
Radionuclide Methods are as follows: Radium 226-E903.0, Uranium-SW6020, Lead 210-NERHL-65-4, Thorium 230-E907.0

Radiological background levels were measured at 26 different sediment sample sites at the Hank Unit. Table 2-25 Radiological Background in Sediment - Hank Unit summarizes the individual values and provides basic statistical information (minimum, maximum, average and standard deviation). Sample site SD-25 has a Pb-210 value (2.5 pCi/g) that is a few times higher than normal background but the rest of the sites are typical of what one would normally expect to find.

2.9.2 Baseline Gamma Survey

2.9.2.1 Purpose and Procedure

The purpose of a gamma survey is the same as it is for establishing other radiological levels; namely to characterize baseline conditions. Baselines serve as a backdrop against which operational impacts can be measured.

The gamma survey that was performed for the project site differs in pattern from the survey described in Regulatory Guide 4.14. The layout of the pattern given in the guide is based on a conventional mine and mill, which have significant particulate source terms. Particulate sources at ISR facilities are negligible. Because of the vast difference between ISR and conventional mining and milling, a procedure was developed to measure baseline gamma levels in a more concentrated pattern in the areas where operational activities will occur. Since the operational areas are the most likely targets for potential impacts, these areas were given a higher degree of sampling. Referring back to the discussion in the soils section, it was noted that potential impacts on soils and sediments from ISR operations is attributed to accidental spills from pipeline breaks or leaks.

This aspect of potential impact played a major part in the baseline sampling pattern for soils, sediments and gamma. In addition to the large number of gamma readings taken throughout the future production area and process site, readings were also taken in the drainages passing through the license area; at the nearest residence; and near the license boundary. Exhibit D11-3 (of the attached Appendix D11) Nichols Ranch Unit – Gamma Sample Location Map, shows the sample sites within and near the license boundary.

Table 2-25 Radiological Background in Sediment - Hank Unit.

Sample Site	Depth Inches	Uranium mg/kg*	Pb-210 pCi/g	Precision Plus/Minus	Ra-226 pCi/g	Precision Plus/Minus	Th-230 pCi/g	Precision Plus/Minus
SD-1		2.8	ND		1.3	0.2	0.7	0.1
SD-2		3.5	ND		1.1	0.2	0.5	0.1
SD-3		2.5	0.4	0.2	1.0	0.2	0.6	0.1
SD-4		1.3	0.5	0.2	1.1	0.2	0.6	0.1
SD-5		1.8	1.8	0.3	1.0	0.2	0.6	0.1
SD-6		1.8	0.7	0.2	1.6	0.2	0.8	0.1
SD-7		2.6	ND		1.4	0.2	0.8	0.1
SD-8		3.1	0.6	0.1	1.4	0.2	0.7	0.1
SD-9		2.7	0.9	0.1	1.6	0.2	1.0	0.2
SD-10		2.6	0.6	0.1	0.8	0.2	0.5	0.1
SD-11		2.5	ND		1.1	0.2	0.5	0.1
SD-12		2.1	ND		1.2	0.2	0.7	0.1
SD-13		1.91	ND		0.9	0.2	0.5	0.2
SD-14		2.80	ND		1.4	0.2	0.6	0.2
SD-15		2.92	ND		2.2	0.2	0.6	0.2
SD-16		2.52	ND		1.0	0.2	0.3	0.1
SD-17		1.98	ND		1.0	0.2	0.5	0.1
SD-18		3.46	ND		1.2	0.2	0.9	0.2
SD-19		2.23	ND		0.9	0.2	0.3	0.1
SD-20		1.85	ND		0.8	0.2	0.2	0.1
SD-21		2.17	ND		1.2	0.2	0.4	0.1
SD-22		3.74	ND		1.9	0.2	1.1	0.2
SD-23		1.91	ND		1.3	0.2	1.0	0.2
SD-24		2.08	ND		0.9	0.2	0.3	0.1
SD-25		1.18	2.5	0.5	1.0	0.2	0.6	0.1
SD-26		1.79	ND		1.0	0.2	0.4	0.2
Minimum		**1.18**	**ND**		**0.8**		**0.2**	
Maximum		**3.74**	**2.5**		**2.2**		**1.1**	
Average		**2.38**	**1.0**		**1.2**		**0.6**	
Standard Deviation		**0.65**	**0.7**		**0.3**		**0.2**	

Notes:
SD: Sediment.
*Reporting Limit: 0.50.
ND: Not Detected.
See Exhibit D11-2 for sample locations.
Radionuclide Methods are as follows: Radium 226-E903.0, Uranium-SW6020, Lead 210-NERHL-65-4, Thorium 230-E907.0

2.9.2.2 Survey Methodology

A Ludlum Model 19 μR Survey Meter was the instrument used in the gamma survey. The calibration date on the meter for the June 2007 survey was June 8, 2007. As described in the soils section of the application, a sample site map was developed prior to conducting the survey. Gamma measurements were recorded by holding the meter at waist level and slowly passing it over each soil/sediment sample point and over the area proximate to the sample location.

2.9.2.3 Nichols Ranch Unit Results

Table 2-26 summarizes the gamma readings and cross-references the gamma sites with the soil and sediment sample locations. A total of 57 gamma measurements were taken over an area of approximately 116 acres. The 116 acre-area consisted of the future production areas (113 acres) and the plant site (3.0 acres). On a per acre basis, the density of the survey was 1 reading per 2.0 acres.

As can be readily seen from Table 2-26, gamma readings are for the most part tightly grouped between 12 to 13 μR/hr. The average, minimum and maximum values are not unusual for this part of the U.S. To illustrate, the values recorded at the Nichols Ranch Unit are very much in line with earlier surveys completed at nearby North Butte. In brief, the detailed gamma survey completed at the North Butte ISL project site in 1979 was compared to a verification survey conducted by Uranerz in 1992. The mean gamma reading in the verification study was 11.7 μR/hr and the range was 11 to 13 μR/hr. These values were consistent with the North Butte survey. When compared to the average natural background range for the U.S. (8 to 15 μR/hr), it can be seen that the Nichols project site falls near the high end of the average.

There are a few sites with slightly elevated gamma levels of 15 μ R/hr. Some of the 15 μ R/hr values correspond with some of the soil and sediments sites that had elevated levels of Ra-226. For example, SS-21 has a radium value of 2.4 pCi/g; SD-8 radium is 32 pCi/g; and SD-9 radium is 23.5 pCi/g.

Table 2-26 Nichols Ranch Unit Gamma/Soil and Sediment Sample Locations.

Sample Site	μR/hr	Gamma Site
R-1 Dry Fork Ranch	13	G-54
R-2	14	G-55
R-3	12	G-56
R-4	13	G-57
SS-6 Nichols URZ	15	G-45
SS-7 Nichols URZ	15	G-40
SS-8 Nichols URZ	12	G-36
SS-9 Nichols URZ	12	G-32
SS-10 Nichols URZ	13	G-20
SS-11 Nichols URZ	13	G-17
SS-12 Nichols URZ	14	G-14
SS-13 Nichols URZ	13	G-12
SS-14 Nichols URZ	13	G-11
SS-15 Nichols URZ	13	G-8
SS-16 Nichols URZ	13	G-7
SS-17 Nichols URZ	13	G-5
SS-18 Nichols URZ	13	G-4
SS-19 Nichols URZ	14	G-1
SS-20 Nichols URZ	12	G-2
SS-21 Nichols URZ	15	G-6
SS-22 Nichols URZ	13	G-9
SS-23 Nichols URZ	12	G-13
SS-24 Nichols URZ	11	G-16
SS-25 Nichols URZ	12	G-18
SS-26 Nichols URZ	13	G-24
SS-27 Nichols URZ	13	G-33
SS-28 Nichols URZ	12	G-37
SS-29 Nichols URZ	14	G-41
SS-30 Nichols URZ	13	G-47
LAS-1 Nichols URZ	12	G-21
LAS-2 Nichols URZ	11	G-23
LAS-3 Nichols URZ	13	G-35
LAS-4 Nichols URZ	13	G-44
LAS-5 Nichols URZ	13	G-51
LAS-6 Nichols URZ	13	G-46
LAS-7 Nichols URZ	14	G-38
LAS-8 Nichols URZ	13	G-25

Table 2-26 (Continued)

Sample Site	µR/hr	Gamma Site
SB-4 Nichols URZ	12	G-3
SB-5 Nichols URZ	11	G-26
SB-6 Nichols URZ	12	G-43
SB-7 Nichols URZ	13	G-42
SB-8 Nichols URZ	13	G-22
Plant Site:		
Center	13	G-29
Northwest	13	G-27
Northeast	13	G-28
Southeast	13	G-31
Southwest	13	G-30
Minimum	**11**	
Maximum	**15**	
Average	**13**	
Standard Deviation	**1**	
SD-1 Nichols URZ	13	G-53
SD-2 Nichols URZ	13	G-10
SD-3 Nichols URZ	12	G-15
SD-4 Nichols URZ	13	G-19
SD-5 Nichols URZ	13	G-39
SD-6 Nichols URZ	11	G-34
SD-7 Nichols URZ	14	G-48
SD-8 Nichols URZ	15	G-49
SD-9 Nichols URZ	15	G-50
SD-10 Nichols URZ	13	G-52
Minimum	**11**	
Maximum	**15**	
Average	**13**	
Standard Deviation	**1**	

Notes:
R-1through R-4 are the locations of the baseline Rn-222 and Gamma monitors.
SS: Surface Soil Site.
SB: Subsurface Soil Site.
SD: Sediment Sample Site.
LAS: License Area Sample.
See Exhibits D11-1 and D11-3 for sample site locations.

Although it is well known that gamma readings taken with a general survey-type meter do not have a high degree of correspondence with chemically-measured radium content, a higher-than-background gamma reading (usually 2.5 to 3 times background) can serve as a first level screening test for detecting sites that might have elevated levels of radionuclides. In summary, the density of the survey and its consistent values provide reasonable assurance that a representative baseline was established.

2.9.2.4 Hank Unit Results

Table 2-27 summarizes the gamma readings and cross-references the gamma sites with the soil and sediment sample locations. A total of 86 gamma readings were recorded across the site (see Exhibit D11-4 [of the attached Appendix D11]). Although the survey was designed to thoroughly characterize baseline conditions in the areas where activities will occur (production areas and process facility site), it also provided background levels for sites at the license boundary, nearest residence and numerous stream courses passing through and near the site. Based on the approximate 156 acres in the production areas and the 3-acre process facility site, the resulting survey density is 1 reading per 2.0 acres.

As can be seen from Table 2-27, gamma readings do not vary significantly across the area. However, there are a few sites with elevated gamma (16 to 18 μ R/hr levels). Comparing the elevated gamma levels with the soil and sediment analyses show some correspondence. Sample site LAS-2, for example, has the highest gamma level of 18 μ R/hr and it also has the highest U (8.4 mg/kg), Pb-210 (1.2 pCi/g), Ra-226 (3.8 pCi/g) and Th-230 (2.5 pCi/g) values.

As shown below, the minimum, maximum and average values recorded at the Hank Unit compare favorably with those measured at the Nichols Ranch Unit.

	Nichols Ranch Unit (μR/hr)	Hank Unit (μR/hr)
Minimum	11	11
Maximum	15	18
Average	13	13

Table 2-27 Hank Unit Gamma/Soil and Sediment Sample Locations.

Sample Site	μR/hr	Gamma Site
R-1 Pfister Ranch Hank URZ	13	G-82
R-2	13	G-83
R-3	12	G-84
R-4	11	G-85
R-5	14	G-86
SS-6 Hank URZ	15	G-5
SS-7 Hank URZ	15	G-7
SS-8 Hank URZ	12	G-9
SS-9 Hank URZ	12	G-10
SS-10 Hank URZ	14	G-11
SS-11 Hank URZ	13	G-14
SS-12 Hank URZ	13	G-15
SS-13 Hank URZ	13	G-20
SS-14 Hank URZ	13	G-21
SS-15 Hank URZ	13	G-23
SS-16 Hank URZ	13	G-28
SS-17 Hank URZ	12	G-32
SS-18 Hank URZ	13	G-40
SS-19 Hank URZ	13	G-41
SS-20 Hank URZ	14	G-44
SS-21 Hank URZ	14	G-48
SS-22 Hank URZ	14	G-50
SS-23 Hank URZ	12	G-52
SS-24 Hank URZ	14	G-53
SS-25 Hank URZ	12	G-81
SS-26 Hank URZ	13	G-57
SS-27 Hank URZ	12	G-61
SS-28 Hank URZ	13	G-62
SS-29 Hank URZ	14	G-64
SS-30 Hank URZ	13	G-66
SS-31 Hank URZ	13	G-67
SS-32 Hank URZ	14	G-68
SS-33 Hank URZ	15	G-71
SS-34 Hank URZ	13	G-75
SS-35 Hank URZ	13	G-76
LAS-1 Hank URZ	14	G-17
LAS-2 Hank URZ	18	G-25
LAS-3 Hank URZ	13	G-18
LAS-4 Hank URZ	12	G-24
LAS-5 Hank URZ	13	G-30
LAS-6 Hank URZ	13	G-31

Table 2-27 (Continued)

Sample Site	µR/hr	Gamma Site
LAS-7 Hank URZ	11	G-46
LAS-8 Hank URZ	12	G-42
LAS-9 Hank URZ	14	G-59
LAS-10 Hank URZ	13	G-47
LAS-11 Hank URZ	15	G-55
LAS-12 Hank URZ	13	G-43
LAS-13 Hank URZ	14	G-34
LAS-14 Hank URZ	14	G-29
SB-4	16	G-6
SB-5	12	G-16
SB-6	13	G-33
SB-7	14	G-51
SB-8	12	G-65
SB-9	13	G-77
Plant Site:		
Center	13	G-37
Northwest	15	G-35
Northeast	13	G-36
Southeast	13	G-39
Southwest	13	G-38
Minimum	**11**	
Maximum	**18**	
Average	**13**	
Standard Deviation	**1**	
SD-1 Hank URZ	14	G-1
SD-2 Hank URZ	16	G-3
SD-3 Hank URZ	14	G-2
SD-4 Hank URZ	11	G-4
SD-5 Hank URZ	13	G-12
SD-6 Hank URZ	13	G-13
SD-7 Hank URZ	15	G-8
SD-8 Hank URZ	15	G-19
SD-9 Hank URZ	14	G-22
SD-10 Hank URZ	14	G-27
SD-11 Hank URZ	15	G-26
SD-12 Hank URZ	14	G-80
SD-13 Hank URZ	16	G-49
SD-14 Hank URZ	13	G-45
SD-15 Hank URZ	18	G-54
SD-16 Hank URZ	17	G-58

Table 2-27 (Continued)

Sample Site	µR/hr	Gamma Site
SD17 Hank URZ	15	G-60
SD-18 Hank URZ	17	G-56
SD-19 Hank URZ	16	G-63
SD-20 Hank URZ	15	G-70
SD-21 Hank URZ	17	G-72
SD-22 Hank URZ	16	G-73
SD-23 Hank URZ	14	G-69
SD-24 Hank URZ	14	G-74
SD-25 Hank URZ	13	G-79
SD-26 Hank URZ	13	G-78
Minimum	**11**	
Maximum	**18**	
Average	**15**	
Standard Deviation	**2**	

Notes:
R-1 through R-5 are the locations of the baseline Rn-222 and Gamma monitors.
SS: Surface Soil Site.
SB: Subsurface Soil Site.
SD: Sediment Sample Site.
LAS: License Area Site.
See Exhibits D11-2 and D11-4 for sample site locations.

Between the Hank Unit and the Nichols Ranch Unit, there are 143 gamma sample points. With a combined area of 275 acres (production areas and plant site areas), the overall survey density is one sample per 2.0 acres. This density, coupled with the close agreement between the measurements taken at both sites, provides a good baseline for gamma levels.

2.9.3 Baseline Radon-222 and Direct Gamma Exposure Rates

2.9.3.1 Purpose and Procedure

As noted in the discussion on soil and sediment baseline sampling, ISR operations do not generate significant levels of particulates, but they do have Rn-222 emissions, which include radon daughter products with varying half-lives. For this reason, ambient baseline Rn-222 levels should be established. In establishing the baseline, the monitoring procedure outlined in Regulatory Guide 4.14 was followed, and it involved deploying Rn-222 detectors and gamma dosimeters at suggested locations.

2.9.3.2 Survey Methodology

The detectors that were used in the one-year monitoring program were Landauer Extra Sensitive Outdoor Rn-222 Detectors and X-9 Gamma Dosimeters. Prior to installing the detectors, the prevailing wind direction was obtained from the National Climatic Data Center for Gillette. The data covered a period from 1996 through 2005. Data from this period was compared to data from Casper and to a data collected between 1978 and 1979 by AeroVironment for Cleveland Cliffs Iron Company (CCI), who operated a meteorological station near North Butte (Pathfinder Mines Corporation, 1988). CCI's baseline data was used in support of their NRC license application for the North Butte ISL Project. A comparison of the databases showed that Casper has a stronger southwest/west-southwest/south-southwest component, while North Butte and Gillette have a component from the south/southwest/southeast. A third site, the Antelope Coal Company (ACC) meteorological station was also used in January 2009 to verify that the prevailing wind direction at the Nichols Ranch ISR Project site was from the south/southwest.

The detectors were deployed and retrieved at the same time for each location. Exposure time was on a quarterly basis. Detector locations included: (1) the nearest residence or structure that could be occupied; (2) locations at or near the license boundary; and (3) a control point to reflect background (upwind of the site). Figures 2-25 and 2-26 (see map pockets) and Exhibits D11-3 and D11-4 (of the attached Appendix D11) show the locations of the Rn-222 and gamma dosimeters.

Given that the prevailing wind direction is from the south-southwest, two monitoring stations were placed in the northern parts of both sites see previously referenced Figures 2-25 and 2-26 and Exhibits D11-3 and D11-4 (of the attached Appendix D11). In contrast, control detectors were placed in the extreme southern parts of the license areas. During operations, the downwind monitors will reflect the maximum change from baseline while the control detectors will measure the minimum change. In addition to these placements, two monitors were placed near the license boundary on the east and west side of the Hank Unit and one was placed at a nearest residence (Dry Fork Ranch), which is approximately 1.3 mi to the southwest of the process facility location.

2.9.3.3 Nichols Ranch Unit Results

The one-year monitoring results are given in Table 2-28. A comparison of the values shows background levels to be within the expected range. When compared to historical radon levels measured over a one year period (1988-1989) at the nearby North Butte Project site, it can be seen that values at Nichols are not surprisingly different. North Butte's annualized average was 0.8 pCi/l compared to Nichols' 1.2 pCi/l average. Because radon levels are known to vary widely from place to place, the difference between 0.8 pCi/l and 1.2 pCi/l is not significant. It must also be remembered that some of difference between the two annual averages can be attributed to the detectors. Significant improvements have been made in this area over the past 10 years. As noted above, Extra Sensitive detectors were used in the monitoring program at the Nichols and Hank Units. Differences in the prevailing weather conditions at the two sites would also play a role in the background concentrations.

Table 2-28 Ambient Radon-222 Levels - Nichols Ranch Unit.

		Fourth Quarter (10/06 to 1/07) pCi/l	First Quarter (1/07 to 3/07) pCi/l	Second Quarter (4/07 to 7/07) pCi/l	Third Quarter (7/07 to 10/07) pCi/l
R-1	Nearest Residence	1.2	0.7	0.9	1.1
R-2	Upwind Control	0.9	0.8	1.1	1.7
R-3	Downwind Boundary	0.6	27.7*, 0.9**	2.3	1.4
R-4	Downwind Boundary	0.7	0.8	1.9	1.4
	Site Averages	0.9	0.8	1.6	1.4

1. *The adhesive that holds the detector within the protective housing failed and the detector was found on the ground. The anomalous value was not used in the average.
2. The annualized average for all sites combined is 1.2 pC/l.
3. The annualized average measured between 1988 and 1989 at the nearby North Butte; Project was 0.8 pCi/l.
4. The U.S. average outdoor Rn-222 level is 0.4 pCi/l (U.S. EPA).
5. **Additional reading was collected in the 4th Quarter of 2008, value was not used in average.
6. An additional monitoring site, NR-5, was added to the Nichols site in March 2009. Background levels for the past year are as follows: 3/4/009 to 6/26/09 = 1.2 pCi/l; 7/9/09 to 10/2/09=1.9 pCi/l; 102/09 to 1/4/10=0.9 pCi/l; and 1/4/10 to 4/5/10 = 0.9 pCi\l. The annualized average at NR-5 is 1.2 pCi\l, and this matches the annualized average of 1.2 pCi\l reported for sites R-1 through R-4.

Both sites have ambient radon levels that are much above the U.S. average. According to EPA, the U.S. outdoor average radon concentration is 0.4 pCi/l. The higher-than-background levels are not surprising given that with the exception of two counties, Weston and Platte, the predicted average indoor screening radon levels in Wyoming are at or above the EPA Action Level of 4 pCi/l (epa.gov/radon/zonemap). The indoor average for the U.S. is 1.3 pCi/l, and this puts Wyoming at three times the average.

Background gamma exposure rates from the one year monitoring program are summarized in Table 2-29. The averages range from 35 mrem to 48 mrem. When compared to the gamma survey results from the North Butte Project mentioned earlier, the values are similar. The North Butte quarterly averages ranged from 32.3 mrem to 39.7 mrem. To put these values into perspective, the following exposure rates are given.

- Average dose to the U.S. Public from natural sources: 300 mrem.
- Background radiation (total) in the Colorado Plateau: 75 to 140 mrem.
- Terrestrial background (Rocky Mountains): 40 mrem.
- Average dose to the public from all sources: 360 mrem.

Table 2-29 Background Gamma Exposure Rate - Nichols Ranch Unit.

		Fourth Quarter (10/06 to 1/07) mrems	First Quarter (1/07 to 3/07) mrems	Second Quarter (4/07 to 7/07) mrems	Third Quarter (7/07 to 10/07) mrems
R-1	Nearest Residence (Dry Fork Ranch)	34.7	41.1	49.3	37.4
R-2	Upwind Control (South)	36.4	41.9	48.2	38.0
R-3	Downwind Boundary (Northeast)	35.2	49.4	41.1	39.1
R-4	Downwind Boundary (Northwest)	33.6	57.6	52.8 (LP)	44.0
Site Averages		35.0	47.5	47.9	39.6

Notes: LP: Low energy photon.
Gamma exposure rate was also monitored at NR-5 for a one year period. The results are as follows: 4/1/09 to 7/10/09=51.7 mrem; 7/10/09 to 10/14/09=38.1 mrem; 10/14/09 to 1/19/10=38.0 mrem; and 1/19/10 to 4/20/10=40.9 mrem. The annualized average for NR-5 is 42.2 mrem, and this falls within the range of averages shown above for sites R-1 through R-4.

2.9.3.4 Hank Unit Results

Not unexpectedly, Rn-222 levels measured at the Hank Unit match up well with those just discussed for the Nichols Ranch Unit. The one high value (9.2 pCi/l) was caused by the detector being on the ground for some unknown period of time. This value was not used in calculating the average shown on Table 2-30. Background gamma exposure rates from the one year monitoring program are summarized in Table 2-31. The averages range from 34.4 mrem to 55 mrem. Once again these results are very similar to the Nichols Ranch Unit results and those of the historic North Butte results.

2.9.4 Flora and Fauna

2.9.4.1 Purpose and Procedure

The purpose of establishing baseline radiological conditions prior to initiating operations is to have a reference for comparing potential impacts. When designing a pre-operational baseline sampling program, the operational features of the activity should be kept in mind. In other words, particular attention should be given to the pathways through which contaminants could enter the environment. In developing the baseline sampling program, pathways were considered in conjunction with guidance given in Regulatory Guide 4.14.

According to Section 2.1.4 in Regulatory Guide 4.14, vegetation, food and fish samples should be collected if, in individual licensing cases, a significant pathway to man is identified. As discussed in Sections 2.9.1.1 and Section 7.3 of Chapter 7.0 of this report, pathways for radiological contaminants to enter the environment from modern ISR operations have been markedly reduced or virtually eliminated. ISR operations do not have fluid discharges nor do they generate significant particulate emissions. The main avenue for radiological constituents to enter the environment is limited to the emission of Rn-222. Because emissions are restricted to nearly-particulate-free Rn-222, significant build up of radionuclides in soil, vegetation and other media is not likely to occur. The minimal accumulation of radionuclides is supported by MILDOS modeling results, and is borne out in operational monitoring data that had been collected at various ISR facilities over the past 25 years.

Table 2-30 Ambient Radon-222 Levels - Hank Unit.

		Fourth Quarter (10/06 to 1/07) pCi/l	First Quarter (1/07 to 3/07) pCi/l	Second Quarter (4/07 to 7/07) pCi/l	Third Quarter (7/07 to 10/07) pCi/l
R-1	Nearest Residence	1.2	1.2	1.4	2.2
R-2	Downwind Boundary	0.4	0.6	0.7	3.4
R-3	Boundary	0.5	0.3	0.9	1.4
R-4	Upwind Control	0.3	9.2*, 0.6**	1.0	1.0
R-5	Boundary	0.4	0.5	0.8	1.7
Site Averages		0.6	0.6	1.0	1.9

Notes:

1. *The adhesive that holds the detector within the protective housing failed and the detector was found on the ground. The anomalous value was not used in the average.
2. The annualized average for all sites combined is 1.0 pC/l.
3. The annualized average measured between 1988 and 1989 at the nearby North Butte; Project was 0.8 pCi/l.
4. The U.S. average outdoor Rn-222 level is 0.4 pCi/l (U.S. EPA).
5. **Additional reading was collected in the 4th Quarter of 2008, value was not used in average.

Table 2-31 Background Gamma Exposure Rate - Hank Unit.

		Fourth Quarter (10/06 to 1/07) mrems	First Quarter (1/07 to 3/07) mrems	Second Quarter (4/07 to 7/07) mrems	Third Quarter (7/07 to 10/07) mrems
R-1	Nearest Residence (Pfister Ranch)	33.5	39.0	45.1	H*, 30.9**
R-2	Downwind Boundary (North)	33.5	50.0 (LP)	49.9	H *, 32.9**
R-3	Boundary (Northwest)	33.5	40.5	53.9	44.0
R-4	Upwind Control (South)	34.1	114.5 (LP)	51.8	39.1
R-5	Boundary (Southeast)	37.5	31.3	52.0	41.4
Site Averages		34.4	55.0	50.5	41.5

Notes:

*H – Not Read (Fault with dosimeter)

** Additional readings were collected in the 4th Quarter of 2008 in order to obtain 4 quarters of data.

LP- Low Energy Photon

The baseline sampling program was modified somewhat from the guidance given in Regulatory Guide 4.14. Departure from the guide is discussed in the Methods Section below. While developing the pre-operational baseline studies, it was understood through experience and through the evolution of ISR, that pathways to flora and fauna and hence to human populations are not significant. The reasons supporting this assertion were given above and are discussed in other sections of this application.

Even though potential impacts from ISR operations on flora, fauna and the food chain have been shown to be insignificant, good baseline characterizations continue to be an important part of a NRC license application. Measured baseline values can be compared to values during actual operations to validate the minimal to no-impact prediction of the MILDOS model. Additionally, having baseline data to compare with values recorded during operations, underscores the fact that modern ISR activities do not have a significant impact on human health and the environment. Following is a description of the baseline sampling program that was performed at the Nichols Ranch Unit and the Hank Unit.

2.9.4.2 Methods

Regulatory Guide 4.14 suggests that vegetation, crops, livestock and fish samples should be collected and analyzed for Ra-226 and Pb-210. According to the field reconnaissance, no permanent surface water exists at or immediately adjacent to the sites. Given the absence of water, fish too are absent. The sites were surveyed for the presence a crop-growing areas and none was found. Agricultural activities appear to be limited to cattle grazing. Although the guide suggests sacrificing livestock to obtain samples, it is Uranerz's opinion that this is not necessary for ISR operations. To reiterate, ISR operations do not cause significant build up of radionuclides in soil or vegetation and therefore a significant pathway for exposure does not exist. In addition, since operational monitoring will include routine sampling of vegetation, food crops (if they are grown in the area) and grazing/forage foods, a mechanism will be in place to monitor this pathway to local fauna.

Given this setting, baseline sampling included samples from grazing areas and vegetation from the nearest residences and Rn-222/gamma monitoring locations (shown on Figures 2-25 and 2-26). The vegetation sampled consisted mainly of sagebrush shrubland and mix grassland communities. Grab samples were collected in mid-August. While collecting the samples, care was taken to clip the vegetation approximately one inch above the ground to avoid mixing with surface soil. Samples were placed in large plastic bags and transported to the laboratory within 24 hours of collection. All samples were analyzed for Ra-226, Pb-210, Po-210, Th-230, Uranium, Arsenic and Selenium.

2.9.4.3 Nichols Ranch Unit Results

Table 2-32 summarizes the radiological and nonradiological (arsenic and selenium) background concentrations found in the samples. Although there is the usual variation in concentrations for the radiometric parameters, the values are within normal background ranges. The same generalization can be made for the arsenic and selenium values.

2.9.4.4 Hank Unit Results

Background values for the Hank Unit are given in Table 2-33. A comparison of the concentrations with those reported for the Nichols Ranch Unit shows a great deal of consistency. In brief, the values are not unusual for baseline conditions.

2.9.5 Radon Flux

Regulatory Guide 4.14 indicates that radon flux measurements should be conducted at eight locations within 1.5 km of the site. Because there will be no tailings impoundments or evaporation ponds at the Nichols Ranch ISR Project, radon flux is not an applicable radiological parameter for baseline characterization. Radon flux measurements have not been collected in support of this project and none are planned in association with future monitoring schedules.

Table 2-32 Radiological and Nonradiological Background Levels in Vegetation Nichols Ranch Unit.

	Radiological Elements				
Sample Location	Ra-226 (μCi/kg)	Pb-210 (μCi/kg)	Po-210 (μCi/kg)	Th-230 (μCi/kg)	Uranium (μCi/kg)
R-1 Dry Fork Ranch	3.7E-04	4.2E-04	9.3E-05	3.7E-06	1.1E-04
+/-	5.1E-06	2.9E-05	2.7E-05	1.8E-06	4.6E-07*
R-2 Control Upwind	8.8E-05	4.5E-04	1.5E-04	2.8E-06	6.6E-05*
+/-	6.0E-06	2.3E-05	2.3E-05	4.2E-06	3.0E-07*
R-3 Downwind NE	1.4E-04	7.5E-04	1.1E-04	3.6E-05	9.5E-05*
+/-	8.0E-06	3.0E-05	2.3E-05	4.4E-04	3.3E-07*
R-4 Downwind NW	2.7E-04	6.6E-04	9.9E-05	1.4E-04	2.4E-04*
+/-	1.1E-05	2.6E-04	2.2E-05	9.9E-06	2.8E-07*
Grazing Area	6.7E-05	4.3E-04	7.2E-05	2.4E-05	8.3E-05*
+/-	4.2E-06	1.8E-05	1.7E-05	3.6E-05	2.1E-07*

	Non-radiological Elements			
Sample Location	Arsenic (mg/kg-dry)	RL*	Selenium (mg/kg-dry)	RL*
R-1 Dry Fork Ranch	ND	0.5	ND	0.5
R-2 Control Upwind	ND	0.5	ND	0.5
R-3 Downwind NE	1.0	0.5	0.7	0.5
R-4 Downwind NW	0.7	0.5	1.3	0.5
Grazing Area	ND	0.5	1.2	0.5

Table 2-33 Radiological and Nonradiological Background Levels in Vegetation Hank Unit.

	Radiological Elements				
Sample Location	Ra-226 (µCi/kg)	Pb-210 (µCi/kg)	Po-210 (µCi/kg)	Th-230 (µCi/kg)	Uranium (µCi/kg)
R-1 Pfister Ranch	7.5E-05	4.0E-04	4.1E-05	2.3E-06	4.5E-05
+/-	5.7E-06	2.1E-05	1.3E-05	3.6E-06	2.8E-07*
R-2 Downwind	4.6E-05	5.8E-04	2.9E-05	2.0E-05	4.9E-05*
+/-	2.0E-06	2.1E-05	8.5E-06	4.5E-06	2.1E-07*
R-3 West Boundary	6.3E-05	2.5E-04	1.5E-04	6.8E-06	1.5E-05*
+/-	6.1E-06	2.1E-05	2.9E-05	2.1E-06	3.9E-07*
R-4 Control South	7.3E-05	2.6E-04	4.9E-05	2.4E-05	4.5E-05*
+/-	5.4E-06	1.8E-05	1.3E-05	4.2E-06	2.8E-07*
R-5 East Boundary	9.6E-05	5.9E-04	1.1E-04	3.5E-05	7.1E-07*
+/-	6.9E-06	2.8E-05	2.8E-05	4.9E-06	3.4E-07
Grazing Area	6.7E-05	2.5E-04	5.9E-05	8.1E-06	4.0E-05*
+/-	7.0E-06	2.4E-05	2.3E-05	2.7E-06	4.5E-07*

	Non-radiological Elements			
Sample Location	Arsenic (mg/kg-dry)	RL*	Selenium (mg/kg-dry)	RL*
R-1 Pfister Ranch	ND	0.5	0.8	0.5
R-2 Downwind	ND	0.5	0.6	0.5
R-3 West Boundary	1.0	0.5	ND	0.5
R-4 Control South	ND	0.5	ND	0.5
R-5 East Boundary	ND	0.5	1.7	0.5
Grazing Area	ND	0.5	1.0	0.5

Notes: *RL is the reporting limit for U.
+/- is the counting error.

2.9.6 Air Particulates

2.9.6.1 Purpose and Procedure

Baseline air particulate radionuclide concentration monitoring for the Nichols Ranch ISR Project was conducted from the 2nd Quarter 2009 through the 1st Quarter 2010 (June 2009–March 2010). The continuous monitoring was conducted at 4 different locations at both the Nichols Ranch and Hank Units as depicted on Figures 2-28 and 2-29 (see map pockets).

All air particulate sampling was conducted based on Regulatory Guide 4.14. Sampling locations were selected based on prevailing wind direction, CPP/Satellite plant location, practical access to samplers, and nearest residents. Each sampler was powered by solar panels with battery back-up since line power was not available.

2.9.6.2 Methods

To collect the baseline radiological air particulate data, F&J Specialty Products, Inc. Model DF-40L-AC air samplers were used (Figure 2-25). These samplers were calibrated by the manufacturer and programmed to draw approximately 30 liters per minute of air through a 47 mm glass fiber air sampling filter. Each air sampler was housed in a protective metal enclosure with the air intake/sampler filter holder assembly positioned approximately 5.0 ft above the ground surface (Figure 2-26).

Air particulate filters were collected on a weekly basis to help prevent dust loading. Once collected, the samples were composited on a quarterly basis to provide respective estimates of average radionuclide concentration as stated in Regulatory Guide 4.14. After collection, the quarterly composited batch of filters from each of the eight samplers (4 Nichols Ranch, 4 Hank) were submitted to Energy Laboratories in Casper, Wyoming for analysis of Uranium (natural), Thorium 230 (Th-230), Radium 226 (Ra-226), and Lead 210 (Pb-210).

Figure 2-27 F&J Air Particulate Sampler.

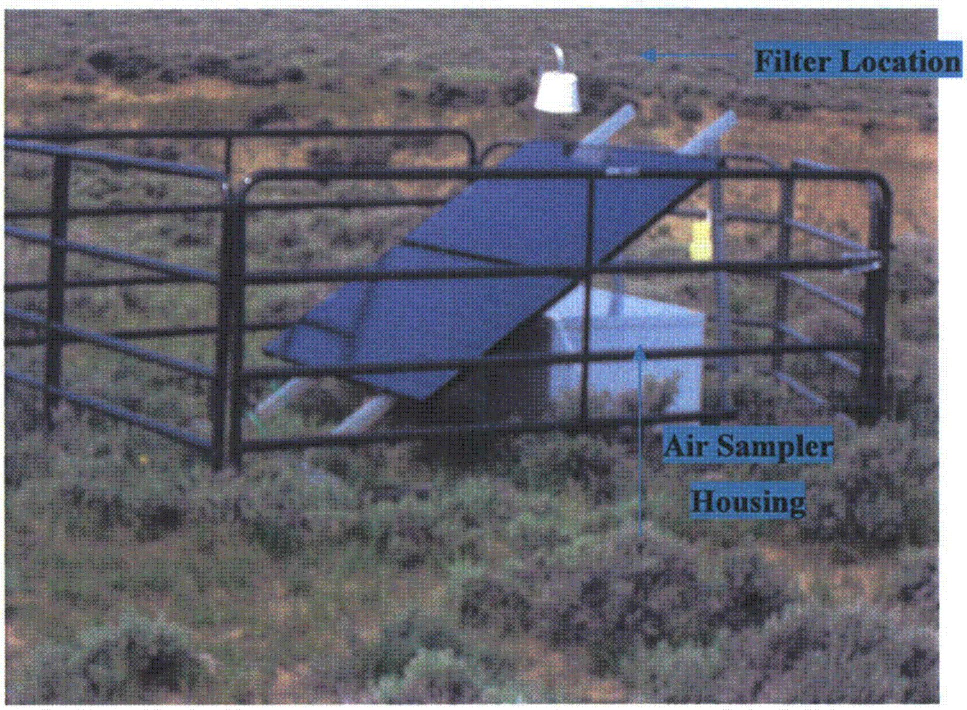


Figure 2-28 Air Particulate Sampling Station.

2.9.6.3 Results

A summary of the baseline radiological concentration air particulate results for both the Nichols Ranch and Hank Units is provided in Table 2-33a. Tables 2-33b through 2-33e provide additional details such as lower limits of detection from Reg. Guide 4.14; counting precision and reference to figures (maps) that depict monitoring site locations. Referring again to Table 2-33a, one can see the general consistency in the baseline values between the individual monitoring locations and between the two sites (Hank and Nichols). For the most part, concentrations are quite similar for all parameters at both sites and from season to season. For example, the combined average uranium values for Hank and Nichols are as follows: second quarter = 1.51E-16; third quarter = 1.21E-16; fourth quarter = 2.12E-16; and first quarter 2010 = 6.62E-16. Two values reported for sites NR-1 and NR-3 caused the first quarter 2010 average to be higher than the previous three quarters: the reported values for NR-1 and NR-3 are 1.30E-15 and 2.69E-15, respectively. The overall consistency of uranium concentrations throughout the one-year monitoring period for both sites can be seen from the summary below.

Monitoring Period	**Hank Unit**	**Nichols Ranch Unit**
Uranium (natural) Average		
2nd Quarter 2009	1.56E-16	1.46E-16
3rd Quarter 2009	1.14E-16	1.28E-16
4th Quarter 2009	1.83E-16	2.40E-16
1st Quarter 2010	2.51E-16	1.07E-15
Annual Average	**1.76E-16**	**3.96E-16**

Units: µCi/ml

Table 2-33a Summary Comparison of Radiological Concentrations for 1 Year (Second Quarter 2009 through First Quarter 2010).

	Second Quarter 2009 Hank				Second Quarter 2009 Hank			
	HPS	**HR-1**	**HR-2**	**HR-4**	**NRPS**	**NR-1**	**NR-2**	**NR-3**
µCi/ml								
U	1.43E-16	1.36E-16	1.07E-16	2.37E-16	1.44E-16	1.59E-16	1.50E-16	1.32E-16
Th-230	1.73E-16	9.15E-17	-6.76E-16	-5.71E-17	1.46E-16	-1.55E-17	-1.32E-16	9.88E-17
Ra-226	-6.10E-17	-1.21E-17	-9.03E-17	-1.46E-16	2.86E-17	3.56E-17	2.71E-16	2.29E-17
Pb-210	8.41E-15	-1.36E-15	8.69E-15	1.18E-14	5.46E-15	1.65E-15	1.10E-15	6.44E-15
	Third Quarter 2009 Hank				**Third Quarter 2009 Nichols Ranch**			
	HPS	**HR-1**	**HR-2**	**HR-4**	**NRPS**	**NR-1**	**NR-2**	**NR-3**
µCi/ml								
U	1.27E-16	1.44E-16	1.03E-16	8.28E-17	1.50E-16	9.72E-17	1.26E-16	1.39E-16
Th-230	5.50E-18	-2.27E-17	-4.71E-17	1.49E-18	-5.60E-17	-1.47E-17	-1.09E-16	6.53E-17
Ra-226	-2.96E-17	-4.91E-17	2.12E-18	-8.76E-17	1.39E-16	-6.86E-17	-1.43E-16	-6.22E-17
Pb-210	1.28E-14	1.35E-14	1.07E-14	1.32E-14	1.28E-14	1.25E-15	9.36E-15	6.67E-15
	Fourth Quarter 2009 Hank				**Fourth Quarter 2009 Nichols Ranch**			
	HPS	**HR-1**	**HR-2**	**HR-4**	**NRPS**	**NR-1**	**NR-2**	**NR-3**
µCi/ml								
U	2.65E-16	1.93E-16	1.93E-16	8.28E-17	1.63E-16	1.80E-16	3.61E-16	2.56E-16
Th-230	-3.94E-18	2.20E-16	2.72E-16	1.49E-18	1.23E-19	8.39E-17	4.91E-17	7.21E-18
Ra-226	-5.62E-18	3.65E-17	2.62E-17	-8.76E-17	-4.98E-17	1.27E-17	5.45E-17	1.50E-17
Pb-210	6.31E-15	7.21E-15	8.06E-15	1.32E-14	3.94E-15	1.40E-14	1.12E-14	5.12E-15
	First Quarter 2010 Hank				**First Quarter 2010 Nichols Ranch**			
	HPS	**HR-1**	**HR-2**	**HR-4**	**NRPS**	**NR-1**	**NR-2**	**NR-3**
µCi/ml								
U	3.84E-16	2.66E-16	1.68E-16	1.86E-16	1.49E-16	1.30E-15	1.51E-16	2.69E-15
Th-230	-5.98E-18	1.71E-17	-7.46E-17	-3.35E-17	-2.75E-17	9.30E-18	3.58E-18	2.42E-17
Ra-226	2.47E-17	5.57E-17	8.02E-17	5.98E-17	6.50E-17	1.06E-17	8.17E-17	1.77E-17
Pb-210	1.12E-14	8.85E-15	5.33E-15	8.04E-15	1.04E-14	1.71E-14	2.01E-14	9.14E-15

Table 2-33b Baseline Radionuclide Concentrations in Air (Second Quarter 2009).

	U µCi/ml	Th-230 µCi/ml	Ra-226 µCi/ml	Pb-210 µCi/ml
Hank				
Monitoring Site*				
HPS	1.43E-16	1.73E-16	-6.10E-17	8.41E-15
Counting Precision	N/A	2.17E-16	5.38E-17	9.83E-15
HR-1	1.36E-16	9.15E-17	-1.21E-17	-1.36E-15
Counting Precision	N/A	2.99E-16	6.07E-17	9.70E-15
HR-2	1.07E-16	-6.76E-16	-9.03E-17	8.69E-15
Counting Precision	N/A	4.73E-16	9.10E-17	1.67E-14
HR-4	2.37E-16	-5.71E-17	-1.46E-16	1.18E-14
Counting Precision	N/A	3.42E-16	7.78E-17	1.67E-14
Nichols Ranch				
	U µCi/ml	Th-230 µCi/ml	Ra-226 µCi/ml	Pb-210 µCi/ml
Monitoring Site*				
NRPS	1.44E-16	1.46E-16	2.86E-17	5.46E-15
Counting Precision	N/A	1.70E-16	3.62E-17	5.97E-15
NR-1	1.59E-16	-1.55E-17	3.56E-17	1.65E-15
Counting Precision	N/A	1.26E-16	3.66E-17	5.93E-15
NR-2	1.50E-16	-1.32E-16	2.71E-16	1.10E-15
Counting Precision	N/A	1.01E-16	5.67E-17	5.93E-15
NR-3	1.32E-16	9.88E-17	2.29E-17	6.44E-15
Counting Precision	N/A	1.67E-16	3.62E-17	6.01E-15
Effluent Concentration 10 CFR Part 20 Appendix B, Table 2	**9.00E-14**	**3.00E-14**	**9.00E-13**	**6.00E-13**

Notes: *See Figures 2-25 and 2-26 for Monitoring Site Locations
LLD (µCi/ml): U, Th-230 and Ra-226 = 1.00E-16; Pb-210 = 2.00E-15 (Reg. Guide 4.14).

Table 2-33c Baseline Radionuclide Concentrations in Air (Third Quarter 2009).

Hank

	U µCi/ml	Th-230 µCi/ml	Ra-226 µCi/ml	Pb-210 µCi/ml
Monitoring Site*				
HPS	1.27E-16	5.50E-18	-2.96E-17	1.28E-14
Counting Precision	N/A	9.81E-17	7.33E-17	3.05E-15
HR-1	1.44E-16	-2.27E-17	-4.91E-17	1.35E-14
Counting Precision	N/A	8.22E-17	7.88E-17	3.07E-15
HR-2	1.03E-16	-4.71E-17	2.12E-18	1.07E-14
Counting Precision	N/A	7.52E-17	8.88E-17	3.05E-15
HR-4	8.28E-17	1.49E-18	-8.76E-17	1.32E-14
Counting Precision	N/A	7.69E-17	8.37E-17	3.07E-15

Nichols Ranch

	U µCi/ml	Th-230 µCi/ml	Ra-226 µCi/ml	Pb-210 µCi/ml
Monitoring Site*				
NRPS	1.50E-16	-5.60E-17	1.39E-16	1.28E-14
Counting Precision	N/A	8.60E-17	9.46E-17	3.07E-15
NR-1	9.72E-17	-1.47E-17	-6.86E-17	1.25E-15
Counting Precision	N/A	1.10E-16	7.15E-17	3.07E-15
NR-2	1.26E-16	-1.09E-16	-1.43E-16	9.36E-15
Counting Precision	N/A	7.23E-17	5.30E-17	3.03E-15
NR-3	1.39E-16	6.53E-17	-6.22E-17	6.67E-15
Counting Precision	N/A	9.90E-17	7.12E-17	3.00E-15
Effluent Concentration 10 CFR Part 20 Appendix B, Table 2	**9.00E-14**	**3.00E-14**	**9.00E-13**	**6.00E-13**

Notes: *See Figures 2-25 and 2-26 for Monitoring Site Locations
LLD (µCi/ml): U, Th-230 and Ra-226 = 1.00E-16; Pb-210 = 2.00E-15 (Reg. Guide 4.14).

Table 2-33d Baseline Radionuclide Concentrations in Air (Fourth Quarter 2009).

	U µCi/ml	Th-230 µCi/ml	Ra-226 µCi/ml	Pb-210 µCi/ml
Hank				
Monitoring Site*				
HPS	2.65E-16	-3.94E-18	-5.62E-18	6.31E-15
Counting Precision	N/A	5.82E-17	2.69E-17	1.39E-15
HR-1	1.93E-16	2.20E-16	3.65E-17	7.21E-15
Counting Precision	N/A	8.40E-17	3.06E-17	1.40E-15
HR-2	1.93E-16	2.72E-16	2.62E-17	8.06E-15
Counting Precision	N/A	1.06E-16	2.96E-17	1.40E-15
HR-4	8.28E-17	1.49E-18	-8.76E-17	1.32E-14
Counting Precision	N/A	7.69E-17	8.37E-17	3.07E-15

	U µCi/ml	Th-230 µCi/ml	Ra-226 µCi/ml	Pb-210 µCi/ml
Nichols Ranch				
Monitoring Site*				
NRPS	1.63E-16	1.23E-19	-4.98E-17	3.94E-15
Counting Precision	N/A	6.04E-17	2.01E-17	1.36E-15
NR-1	1.80E-16	8.39E-17	1.27E-17	1.40E-14
Counting Precision	N/A	8.39E-17	2.72E-17	1.47E-15
NR-2	3.61E-16	4.91E-17	5.45E-17	1.12E-14
Counting Precision	N/A	7.64E-17	3.72E-17	1.67E-15
NR-3	2.56E-16	7.21E-18	1.50E-17	5.12E-15
Counting Precision	N/A	6.65E-17	2.63E-17	1.37E-15
Effluent Concentration 10 CFR Part 20 Appendix B, Table 2	**9.00E-14**	**3.00E-14**	**9.00E-13**	**6.00E-13**

Notes: *See Figures 2-25 and 2-26 for Monitoring Site Locations
LLD (µCi/ml): U, Th-230 and Ra-226 = 1.00E-16; Pb-210 = 2.00E-15 (Reg. Guide 4.14).

Table 2-33e Baseline Radionuclide Concentrations in Air (First Quarter 2010).

	U	Th-230	Ra-226	Pb-210
Hank				
	µCi/ml	µCi/ml	µCi/ml	µCi/ml
Monitoring Site*				
HPS	3.84E-16	-5.98E-18	2.47E-17	1.12E-14
Counting Precision	N/A	7.16E-17	3.79E-17	1.50E-15
HR-1	2.66E-16	1.71E-17	5.57E-17	8.85E-15
Counting Precision	N/A	6.64E-17	3.92E-17	1.47E-15
HR-2	1.68E-16	-7.46E-17	8.02E-17	5.33E-15
Counting Precision	N/A	6.16E-17	4.09E-17	1.43E-15
HR-4	1.86E-16	-3.35E-17	5.98E-17	8.04E-15
Counting Precision	N/A	6.25E-17	4.68E-17	1.69E-15
Nichols Ranch				
	U	Th-230	Ra-226	Pb-210
	µCi/ml	µCi/ml	µCi/ml	µCi/ml
Monitoring Site*				
NRPS	1.49E-16	-2.75E-17	6.50E-17	1.04E-14
Counting Precision	N/A	6.59E-17	4.04E-17	1.49E-15
NR-1	1.30E-15	9.30E-18	1.06E-17	1.71E-14
Counting Precision	N/A	7.30E-17	3.67E-17	1.56E-15
NR-2	1.51E-16	3.58E-18	8.17E-17	2.01E-14
Counting Precision	N/A	6.31E-17	3.92E-17	1.58E-15
NR-3	2.69E-15	2.42E-17	1.77E-17	9.14E-15
Counting Precision	N/A	7.51E-17	3.75E-17	1.47E-15
Effluent Concentration 10 CFR Part 20 Appendix B, Table 2	**9.00E-14**	**3.00E-14**	**9.00E-13**	**6.00E-13**

Notes: *See Figures 2-25 and 2-26 for Monitoring Site Locations
LLD (µCi/ml): U, Th-230 and Ra-226 = 1.00E-16; Pb-210 = 2.00E-15 (Reg. Guide 4.14).

The overall combined annual average for Hank and Nichols is 2.86E-16 µCi/ml. To add some additional perspective to this value, a comparison can be made to the average concentration of 6.52E-16 µCi/ml recorded at Energy Metals' Moore Ranch Project from February 6, 2007 through January 9, 2008. Although it is not within the scope of this report to examine reasons for regional variability in air concentrations, suffice it to say that slight differences can be expected as a result of physical site characteristics, instrument exposure period, and instrument location with respect to land use activities, to mention a few.

As previously noted, air concentrations were monitored for Th-230, Ra-226 and Pb-210. A review of the summary provided in Table 2-33a shows that Th-230 concentrations are very low. To illustrate this point, of the 32 samples collected at both sites for a one year period only 4 values (12.5%) were greater than the LLD of 1.00E-16 µCi/ml given in Reg. Guide 4.14. Moreover, the few values that were slightly above the LLD occurred as follows: once at site HPS during the 2nd Quarter of 2009; once at HR-1 and HR-2 during the 4th Quarter of 2009; and once at NRPS during the 2nd Quarter of 2009. The low Th-230 background is further illustrated by the fact that 14 samples (approximately 44% of the total values) were measured at levels well below the LLD of 1.00E-16 µCi/ml (see positive values in Table 2-33a with exponents of E-17 and E-18), and 14 values were reported with negative values. The negative values that were reported, of course, do not imply that a negative concentration exists; instead, negative values occur when a sample has fewer counts that the QC instrument blank, which sets the "zero" point. Using the reported positive numbered values, the average Th-230 concentration for the Hank/Nichols Project area is 7.33E-17 µCi/ml. To compare, the Moore Ranch Project average is 1.18E-15. In brief, 88% of the values reported for the Hank/Nichols Project area are below the LLD of 1.00E-16 µCi/ml and only 12% slightly exceed the LLD. The Moore Ranch Project shows a very similar pattern in terms of having a high percentage of the values being less than the LLD. To illustrate, 11 of the 16 values reported at the Moore Ranch Project were less than the LLD.

With respect to Ra-226 concentrations, its baseline profile is quite similar to the description provided above on Th-230: namely, only 6% of the samples have values slightly above the LLD of 1.00E-16 µCi/ml; 53% are less that the LLD (positive values with exponents of E-17 and

E-18); and 41% with negative values. Using only values equal to or above the LLD, the average Ra-226 concentration (Hank and Nichols combined) of 5.84E-17 µCi/ml. By comparison, the average concentration measured at the Moore Ranch Project of 5.29E-16 µCi/ml is somewhat lower than the value at the Hank/Nichols site, and this is consistent with the uranium values noted above. In summary, 94% of the Ra-226 values are less than the LLD and only 2 values (6% of the total number of samples) are just above the LLD. The two values that slightly exceeded the LLD were from NR-2 and NRPS.

The profile for Pb-210 is somewhat different than that for Th-230 and Ra-226 in that many more values were above the LLD of 2.00E-15 given in Reg. Guide 4.14. For example, 28 of the 32 values were greater than the LLD and only one site (HR-1) had a negative value. As can be seen in the table below, Pb-210 concentrations are very much the same at both the Hank and Nichols Ranch sites. Some variation is evident at the Hank site during the 3rd Quarter 2009 and at the Nichols Ranch site during the 1st Quarter 2010 but the overall averages are quite close. Again, for a little more perspective a comparison can be made to the nearby Moore Ranch Project, which reported an average Pb-210 concentration of 1.51E-14 µCi/ml. As with uranium and Ra-226 values, the Moore Ranch Project area also has higher Pb-210 concentrations than the Hank/Nichols Ranch Project area. Like the Hank/Nichols Ranch area, a large number of the Pb-210 values at the Moore Ranch Project were above the LLD (87%). In summary, the one year monitoring program appears to have established a representative baseline for the Hank and Nichols Ranch Project area.

Monitoring Period	**Hank Unit**	**Nichols Ranch Unit**
Average Pb-210		
2nd Quarter 2009	9.63E-15	3.66E-15
3rd Quarter 2009	1.26E-14	7.52E-15
4th Quarter 2009	8.70E-15	8.57E-15
1st Quarter 2010	8.36E-15	1.42E-14
Annual Average	**9.82E-15**	**8.49E-15**

Units: µCi/ml

2.10 BACKGROUND NONRADIOLOGICAL CHARACTERISTICS

2.10.1 Nonradioactive Airborne Effluents

Nonradioactive airborne effluents associated with the Nichols Ranch ISR Project are those discussed in Section 2.5.4 Air Quality. Since the effluents will be generated during construction and operation of the Nichols Ranch ISR Project, no baseline information was collected or could be collected. Estimates of the airborne effluents associated with the operation Nichols Ranch ISR Project processing facilities, such as CO_2, HCL, H_20_2, NaOH, and Fugitive Dust, are found in Table 2-10.

2.10.2 Nonradioactive Liquid Effluents

Nonradioactive effluents will not be discharged to the environment during the operation of the Nichols Ranch ISR Project. The processing plants will be zero discharge facilities as all nonradioactive effluents will be sent to the deep disposal well. Because of this, no background information was obtained or necessary.

2.10.3 Nonradioactive Baseline Studies

Baseline studies were conducted for soils, vegetation, and groundwater for the Nichols Ranch ISR Project. All studies were conducted based upon consultation and approval of the Wyoming Department of Environmental Quality.

2.10.3.1 Soils

A baseline detailed soil inventory was conducted for the Nichols Ranch ISR Project to inventory the pre-operational soil characteristics with the project area. The attached Appendix D7 contains all of the information that was collected during the baseline survey. The information includes an inventory of soil types (soil map units) and soil series based on the Order 3 soil survey, a base map delineating the soil types, physical and chemical characteristics of the topsoil for potential disturbance areas, and estimated depths of salvageable topsoil from the potential disturbance areas for future reclamation purposes.

2.10.3.2 Vegetation

Baseline vegetation studies of the Nichols Ranch ISR Project were conducted to establish a detailed inventory of the pre-operational vegetation characteristics within and adjacent to the proposed project area. The study was also use to provide baseline vegetative information for evaluating future reclamation success with the project area. The attached Appendix D8 contains all information collected during the baseline study including a description of the vegetation types and their distribution, species diversity, and composition, percent vegetative and percent total ground cover, and existing disturbances with the project area.

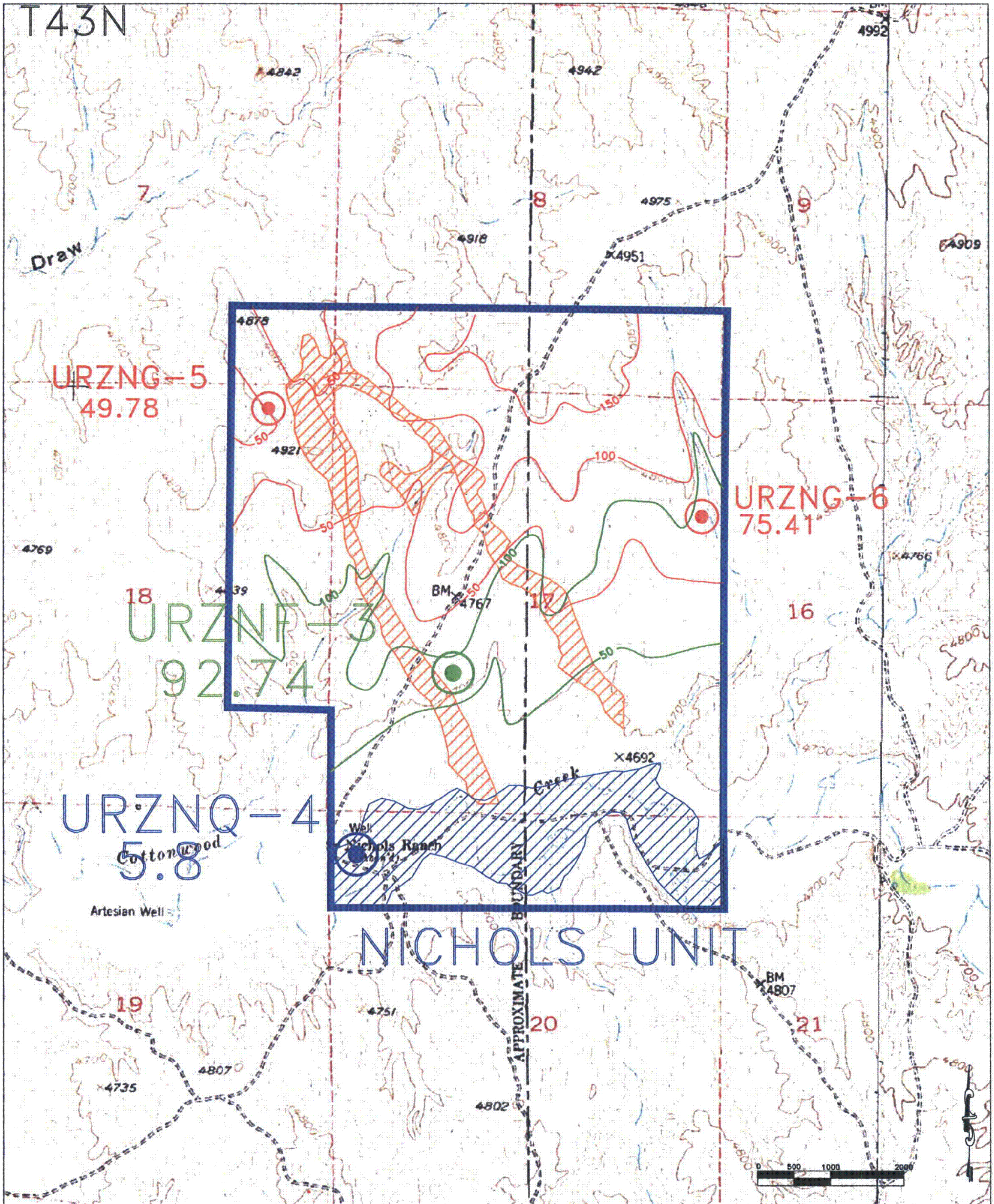
2.10.3.3 Groundwater

A pre-operational regional groundwater baseline water quality survey was conducted for the Nichols Ranch ISR Project. The regional groundwater quality was defined by the sampling of numerous wells in several aquifers in the area surrounding the Nichols Ranch ISR Project. The baseline study included collecting samples from the numerous regional wells once a calendar quarter for a year and having them analyzed for the constituents found in Table 2-34. These samples were collected to determine the regional groundwater characteristics in order to aid in evaluating future restoration success and for excursion detection in the event that one were to occur. The attached Appendix D6 contains detailed information on the regional baseline water quality results. Section 2.7 of this chapter also contains information regarding the results of the baseline study.

Table 2-34 Groundwater Baseline Water Quality Parameters.

Parameter*	Analytical Method
Ammonia Nitrogen as N	EPA 350.1
Nitrate + Nitrite as N	EPA 353.2
Bicarbonate	EPA 310.1/310.2
Boron	EPA 212.3/200.7
Carbonate	EPA 310.1/310.2
Fluoride	EPA 340.1/340.2/340.3
Sulfate	EPA 375.1/375.2
Total Dissolved Solids (TDS) @ 180°F	EPA 160.1/SM2540C
Dissolved Arsenic	EPA 206.3/200.9/200.8
Dissolved Cadmium	EPA 200.9/200.7/200.8
Dissolved Calcium	EPA 200.7/215.1/215.2
Dissolved Chloride	EPA 300.0
Dissolved Chromium	EPA 200.9/200.7/200.8
Total and Dissolved Iron	EPA 236.1/200.9/200.7/200.8
Dissolved Magnesium	EPA 200.7/242.1
Dissolved Manganese	EPA 200.9/200.7/200.8/243.1/243.2
Dissolved Molybdenum	EPA 200.7/200.8
Dissolved Potassium	EPA 200.7/258.1
Dissolved Selenium	EPA 270.3/200.9/200.8
Dissolved Sodium	EPA 200.7/273.1
Dissolved Zinc	EPA 200.9/200.7/200.8
Radium-226 (pCi/L)	DOE RP450/EPA 903.1/SM7500-R-AD
Radium-228 (pCi/L)	SM7500-R-AD
Gross Alpha (pCi/L)	DOE RP710/CHEM-TA-GP B1/EPA 900
Gross Beta (pCi/L)	DOE RP710/CHEM-TA-GP B1/EPA 900
Uranium	DOE MM 800/EPA 200.8
Vanadium	EPA 286.1/286.2/200.7/200.8

* All parameters measured in mg/L unless otherwise denoted.



By: RTS	Date: 08/10/09
Contour Interval:	Revision Date: 8/09
DWG: C:\PROJECTS\2009-14\SANDS-EDITED	

LEGEND:
- URZNQ-4 ALLUVIAL WELL
- URZNF-3 F SAND WELL
- URZNG-6 G SAND WELL
- COTTONWOOD ALLUVIAL AQUIFER < 10 FT.
- 50 F SAND-DTW
- 100 G SAND-DTW

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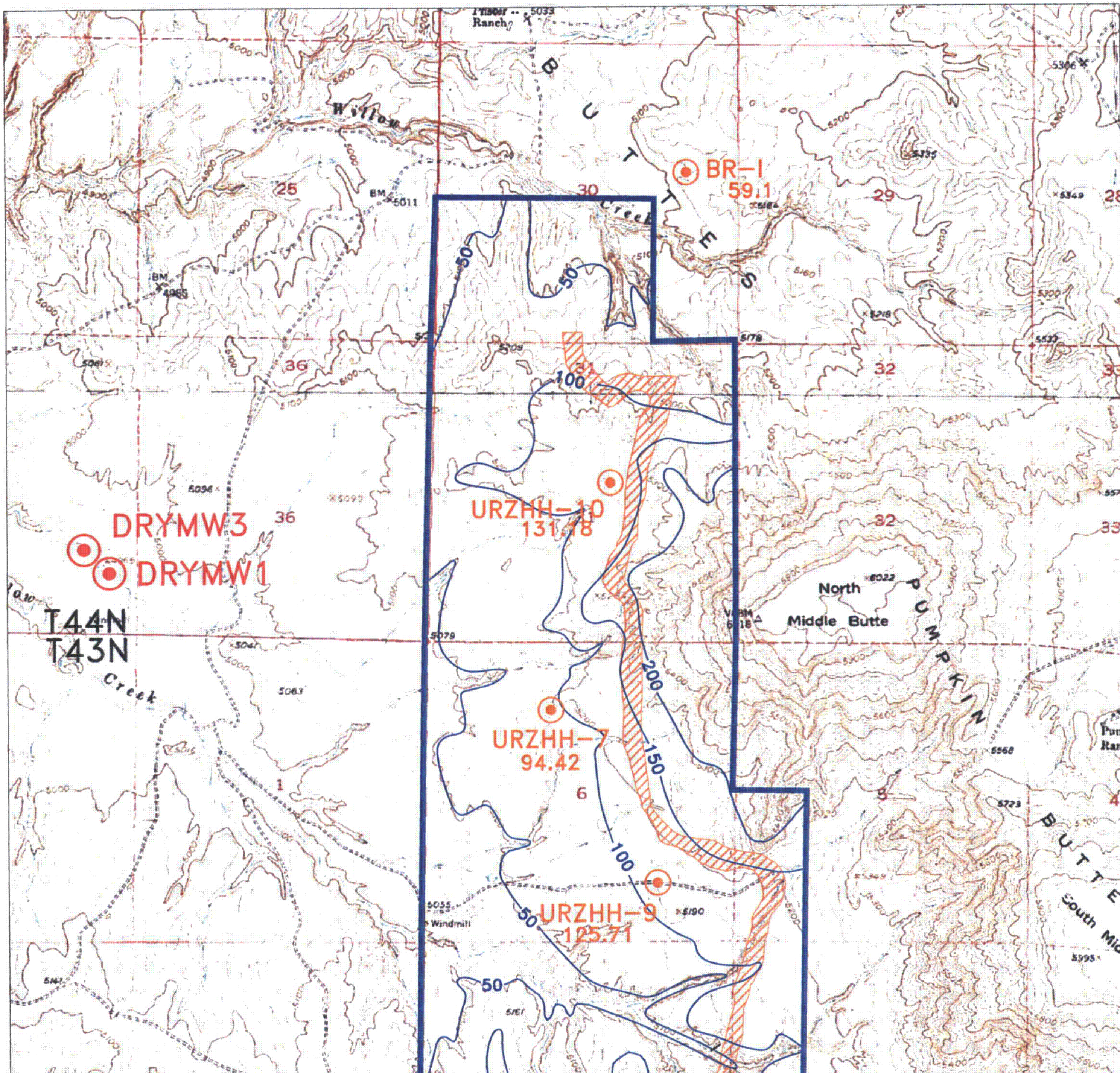
Casper, Wyoming
USA 82605-0850

FIGURE 2-21a. DEPTH TO WATER IN THE F & G SANDS AND COTTONWOOD ALLUVIAL AT THE NICHOLS RANCH UNIT, 2009, IN FT



By: RTS	Date: 10/10/07	LEGEND:
Contour Interval:	Revision Date: 8/09	WELLFIELD
DWG:		—100— H SAND - DTW
C:\PROJECTS\2009-14\SANDS-EDITED		URZHH-7 H SAND WELL

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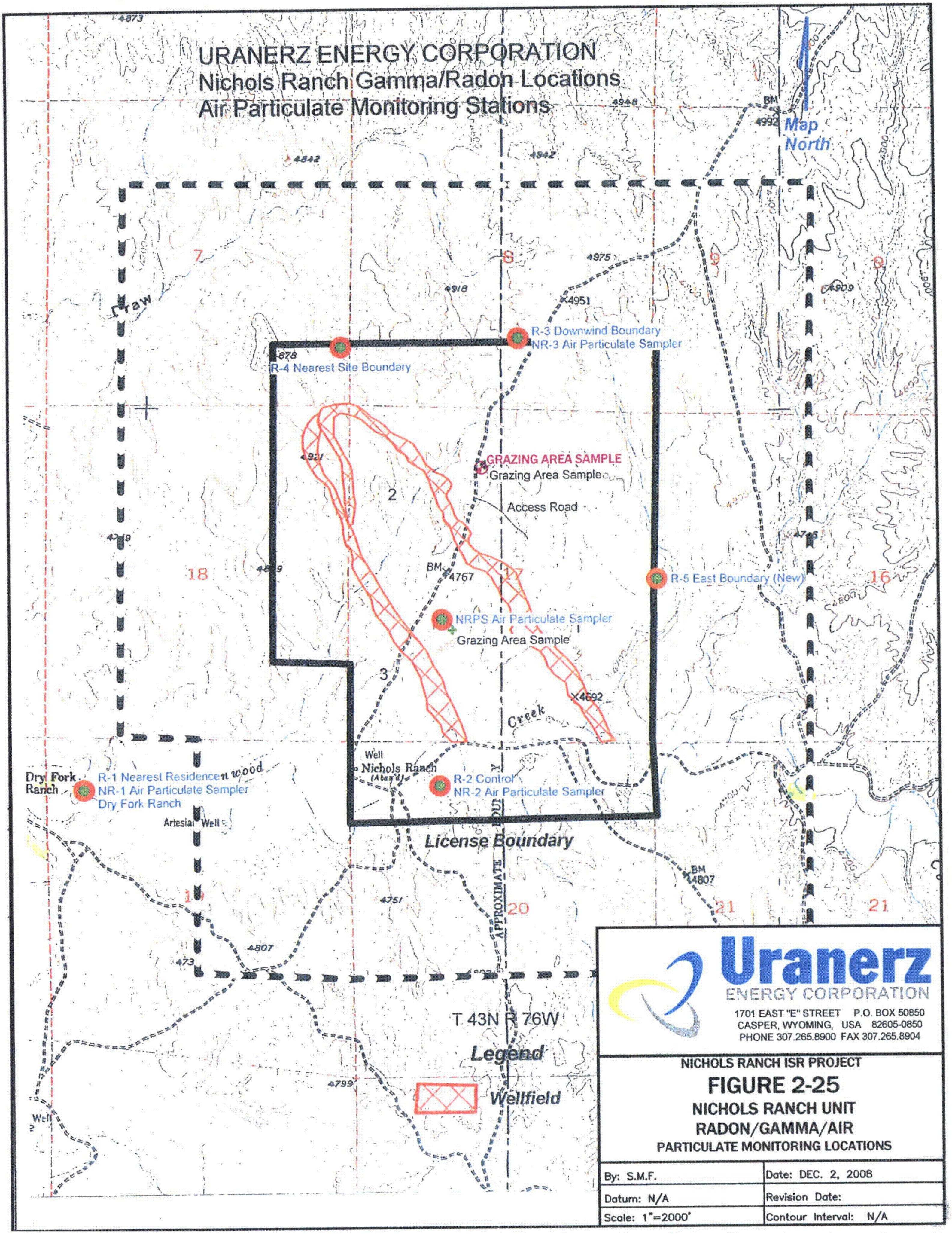
P.O. Box 50850
Casper, Wyoming
USA 82605-0850

FIGURE 2-21b. WATER-LEVEL WATER IN THE H SAND AQUIFER AT THE HANK UNIT, 2009, IN FT



URANERZ ENERGY CORPORATION
Nichols Ranch Gamma/Radon Locations
Air Particulate Monitoring Stations
Map North
R-3 Downwind Boundary
NR-3 Air Particulate Sampler
R-4 Nearest Site Boundary
GRAZING AREA SAMPLE
Grazing Area Sample
Access Road
R-5 East Boundary (New)
NRPS Air Particulate Sampler
Grazing Area Sample
Creek
Draw
Well
Nichols Ranch
R-2 Control
NR-2 Air Particulate Sampler
Dry Fork Ranch
R-1 Nearest Residence
NR-1 Air Particulate Sampler
Dry Fork Ranch
Artesian Well
License Boundary
APPROXIMATE
T 43N R 76W
Legend
Wellfield
7
8
9
18
17
16
20
21
2
3
4873
4948
4992
4842
4942
4975
4918
4951
4909
4767
4692
4807
4751
BM
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ENERGY CORPORATION
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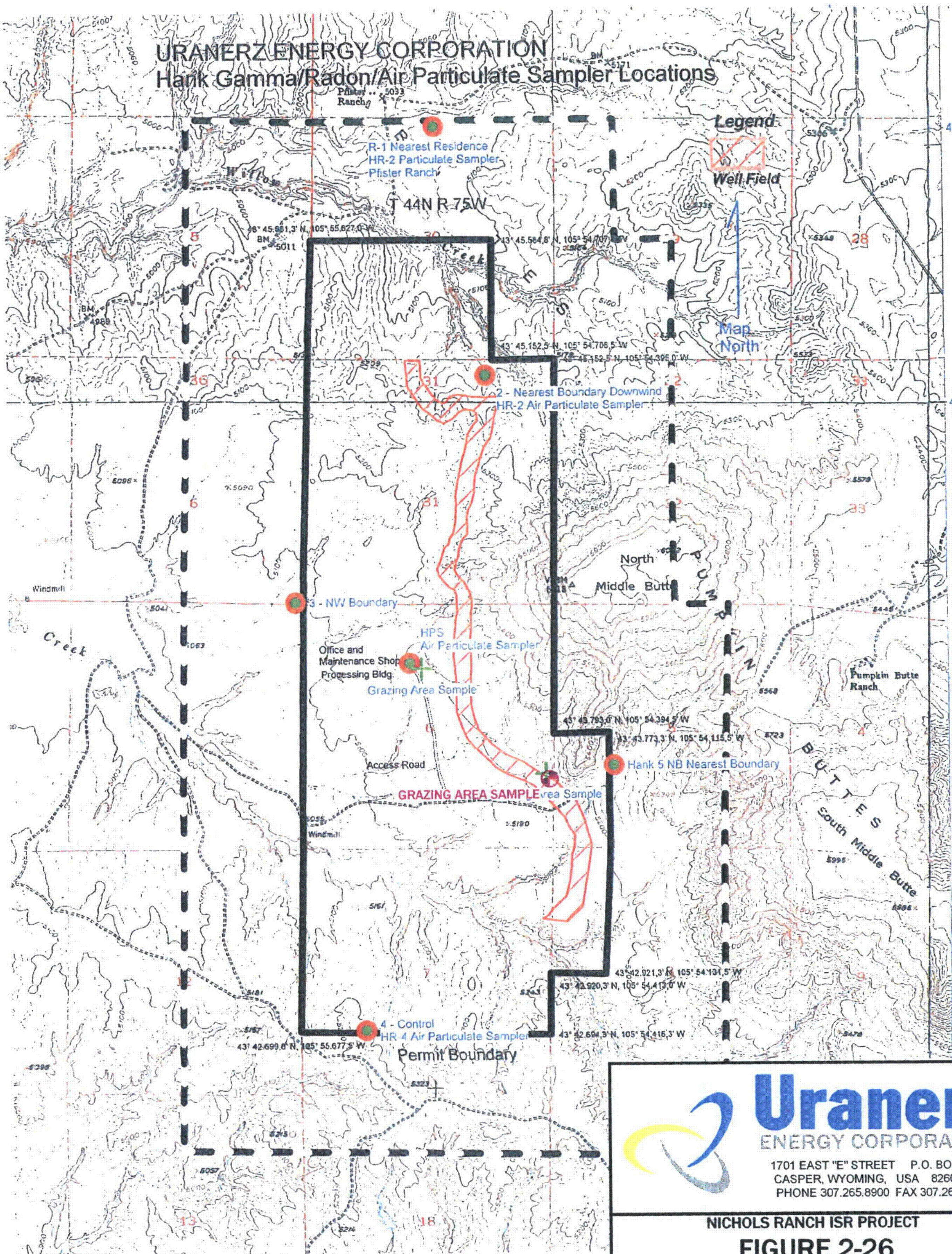
NICHOLS RANCH ISR PROJECT
FIGURE 2-25
NICHOLS RANCH UNIT
RADON/GAMMA/AIR
PARTICULATE MONITORING LOCATIONS
By: S.M.F.
Date: DEC. 2, 2008
Datum: N/A
Revision Date:
Scale: 1"=2000'
Contour Interval: N/A



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NICHOLS RANCH ISR PROJECT

FIGURE 2-26

HANK UNIT RADON/GAMMA/AIR PARTICULATE MONITORING LOCATIONS

By: S.M.F.	Date: DEC. 2, 2008
Datum: N/A	Revision Date:
Scale: 1"=3000'	Contour Interval: N/A

3.0 DESCRIPTION OF THE FACILITIES

The Nichols Ranch In-Situ Recovery (ISR) Project is divided into two units, the Nichols Ranch Unit and the Hank Unit. The Nichols Ranch Unit encompasses approximately 1,120 acres of land, and the Hank Unit area encompasses approximately 2,250 acres of land. The project units will contain all of the proposed operations. The major surface facilities include the central processing plant, satellite plant, wellfields, and deep disposal wells. The injection and production proposed wellfield and disturbance area for Nichols Ranch Unit will contain approximately 113 acres, and Hank Unit will contain approximately 155 acres. The deep disposal wells will be designed for at least 100 gpm flow rate each and have a maximum injection pressure less than the fracture pressure of the formation.

3.1 IN SITU RECOVERY PROCESS AND EQUIPMENT

Uranerz plans to mine the Nichols Ranch Unit (Township 43N, Range 76 West, Sections 7, 8, 17, 18, and 20) and Hank Unit (Township 44N, Range 75 West, Sections 30 and 31; Township 43N, Range 75 West, Sections 5, 6, 7 and 8) ore zones using the in-situ recovery (ISR) extraction method. This is the same method that is used by Power Resources Inc. (PRI) at the Smith-Highland mine in the southern Powder River Basin and is the same method used by COGEMA (AREVA) at the nearby Christensen Ranch site.

The ore zones at the Nichols Ranch Unit and the Hank Unit will be divided into individual production areas where injection and recovery wells will be installed. As typical with the above mentioned commercial operations, the wells will be arranged in 4-spot, 5-spot or 7-spot patterns. In some situations, a line-drive pattern or staggered line-drive pattern may be employed. Horizontal and vertical excursion monitor wells will be installed at each wellfield as dictated by geologic and hydro-geologic parameters, and as approved by the Wyoming Department of Environmental Quality - Land Quality Division and the United States Nuclear Regulatory Commission. The facilities will be constructed according to acceptable engineering practices.

3.2 SITE FACILITIES LAYOUT

The Nichols Ranch Unit will consist of a complete processing plant including auxiliary facilities such as office, change room, laboratory, maintenance and deep disposal well. The processing plant will have the capability of concentrating the wellfield recovery solution obtained from wells installed in the Nichols Ranch Unit ore zone. Figure 3-1 (see map pocket) is a site facility diagram of the Nichols Ranch Unit. This figure shows the location of the major surface facilities.

In addition, the Nichols Ranch Unit processing facility will have excess installed capacity to process uranium loaded resin or yellowcake slurry from the Hank Unit Satellite plant. The accumulated uranium values from both ore zones will then be processed into a dry yellowcake concentrate, packaged in approved 55 gallon steel drums, and trucked off site for conveyance to the licensed uranium conversion facility of choice. At the Hank Unit there will be a plant building, maintenance building, and deep disposal well. A site facility diagram showing the major surface buildings for the Hank Unit is presented in Figure 3-2 (see map pocket).

3.2.1 Nichols Ranch Unit – Central Processing Plant

At the Nichols Ranch Unit processing facility, most of the process equipment will be housed in an approximate 150 x 250 ft metal building with eave heights less than 50 ft. The major process equipment is shown in Figure 3-3 (see map pocket), with some of the bulk chemical storage tanks located outside of the process building. The major equipment inside the process building will be the ion exchange circuit, the lixiviant make-up circuit, the elution/ precipitation circuit, and the yellowcake drying facility. During restoration, the water treatment system for aquifer restoration will also be located in the process building.

The yellowcake drying and drumming facilities will be located at one end of the process building. Due to the height of the dust abatement equipment, the building's eave height is approximately 40 ft at this end. A yellowcake storage area will be located adjacent to the yellowcake drying and packaging area. This will be an enclosed, heated area approximately

60 x 60 ft. By storing the drummed yellowcake within an enclosed area, employee safety will be improved (no snow or ice to work around) and the packaged product will be secured under locked conditions.

An office building, now planned to be approximately 150 x 60 ft, will be located adjacent to the process building. The office will be near the process building to allow use of a centralized lunch room and restroom facilities. In addition to office spaces for professional staff; a central security monitoring room, computer server room and the on-site laboratory will be located in the office building.

A second auxiliary building (maintenance building) will house the vehicle, electrical, and rotating equipment maintenance area, as well as provide an area for additional office spaces for field and operating personnel. The first aid area may be located in the maintenance building.

3.2.2 Hank Unit – Satellite Facility

The Hank Unit Satellite facility will consist of an ion exchange circuit and lixiviant make-up circuit, bleed treatment and disposal well. Most of the process equipment will be housed in an approximate 80 x 160 ft metal building with eave heights less than 40 ft. The process equipment layout is shown in Figure 3-4 (see map pocket) with some of the bulk chemical storage tanks located outside of the process building. Carbon dioxide will be added to the lixiviant as the fluid exits the Hank Unit satellite facility and returns to the header houses where oxygen and/or sodium bicarbonate could be added prior to injection into the wellfield.

3.2.3 Process Description

3.2.3.1 Uranium Recovery

The proposed uranium in-situ recovery (ISR) process has been successfully tested at the Ruth R & D project and at a commercial scale at other uranium ISR extraction properties in Wyoming including the nearby Christensen Ranch Mine. This process, involving the dissolution of the water soluble uranium compound from the mineralized host rock at neutral pH ranges, consists of two steps. First, the uranium is oxidized from the tetravalent to the hexavalent state with an oxidant such as oxygen or hydrogen peroxide. Second, a chemical compound such as a baking soda ($NaHCO_3$) is used to complex the uranium in the solution if needed. The uranium rich solution (typically 20 mg/l to 250 mg/l, but may be higher or lower) is transferred from the production wells to the processing facility nearby for uranium concentration with ion exchange resin. Figure 3-5 (see map pocket) shows a general flow process schematic.

3.2.3.2 Lixiviant Composition

The lixiviant for the in-situ uranium recovery process is a dilute carbonate/ bicarbonate aqueous solution that is fortified with an oxidizing agent. During the injection of lixiviant, oxygen or hydrogen peroxide will be added to oxidize the uranium underground. A small amount of chlorine or sodium hypochlorite, approximately 3 mg/l as chlorine, may be added to the injection solution to prevent bacterial plugging of the injection wells. Carbon dioxide is provided to lower the pH to about neutral. Additionally, carbon dioxide dissolved in water provides another source of the carbonate/ bicarbonate ions. Finally, sodium carbonate/ bicarbonate may be used to adjust the carbonate/ bicarbonate concentration.

The barren solution that leaves the uranium ion exchange system will be refortified with chemicals prior to the re-injection into the ore zone aquifer. The process continues until the economics become unfavorable.

3.2.3.3 Process Plant Circuits

The proposed Nichols Ranch Unit processing plant will have three major solution circuits: 1) the recovery/ extraction circuit, 2) the elution circuit, and typically 3) a yellowcake slurry production circuit. The system is designed to recycle and reuse most of the solutions inside each circuit. A small bleed will be taken from each circuit to prevent buildup of undesirable ions. This bleed solution will be routed to the deep disposal well.

The recovery/extraction circuit includes the flow of lixiviant from the wellfield to the sand filters, or directly to the ion exchange columns and back to the wellfield. The uranium, that is liberated underground, is extracted in the ion exchange system of the process plant. The bleed from the circuit is permanently removed from the lixiviant flow to create a "cone of depression" in the wellfield's static water level and ensure that the lixiviant is contained by the inward movement of groundwater within the designated recovery area. The bleed is disposed of by means of injection into Class I – Non Hazardous approved deep disposal wells. The volume of the concentrated bleed is approximately 0.5% to 1.5% of the circulating lixiviant flow for the Nichols Ranch Unit and 2.5% to 3.5% for the Hank Unit.

The Nichols Ranch Unit elution circuit is designed to release the uranium from the loaded ion exchange resin by applying an aqueous solution of salt and sodium carbonate or sodium bicarbonate to the loaded ion exchange resin. The uranium concentration in the eluate will be built up at a controlled concentration range of between 20 to 40 grams per liter. This uranium rich eluate is ready for the de-carbonation process that occurs in the uranium precipitation circuit.

The yellowcake production circuit starts when the eluate is treated with acid to destroy the carbonate portion of the dissolved uranium complex. In addition to adding the acid slowly, a common defoamer may be used to reduce the foaming activity. The precipitation reagents, hydrogen peroxide and sodium hydroxide, or ammonia are added to the eluate to precipitate uranium yellowcake. The yellowcake slurry is then filtered, washed, dried, and drummed.

A bleed from the elution and the yellowcake precipitation circuits is used to control the concentration of undesirable ions such as sulfates. The chemical strength is refortified during each cycle.

3.2.4 Chemical Reactions

3.2.4.1 Underground Recovery

Oxidation of tetravalent uranium is achieved by using oxygen or hydrogen peroxide. For economic reasons, oxygen is widely used in commercial applications. Uranerz will utilize oxygen as the primary oxidant; however, hydrogen peroxide may be used if needed to increase the oxidation potential in the lixiviant.

The end product of the carbonate/bicarbonate complexing process can be identified as uranyl-dicarbonate, $[UO_2(CO_3)_2]^{2-}$ (UDC), at neutral pH ranges and as uranyl-tricabonate, $[UO_2(CO_3)_3]^{4-}$ (UTC), at more alkaline pH ranges.

The chemical reactions for the alkaline recovery process are listed as follows:

Oxidation:

$$UO_2 + \tfrac{1}{2}\,O_2 = UO_3$$
$$UO_2 + H_2O_2 = UO_3 + H_2O$$

Complexing:

$$UO_3 + 2HCO_3- = [UO_2(CO_3)_2]^{2-} + H_2O$$
$$UO_3 + 2HCO_3- + CO_3- = [UO_2(CO_3)_3]^{4-} + H_2O$$

3.2.4.2 Ion Exchange

A strong base resin will be used for the ion exchange of either the uranyl-dicarbonate complex, $[UO_2(CO_3)_2]^{2-}$ (UDC), or the uranyl-tricarbonate complex, $[UO_2(CO_3)_3]^{4-}$ (UTC), in the process plant.

The chemical reactions are listed as follows:

$$[UO_2(CO_3)_2]^{2-} + R^{2+} = R[UO_2(CO_3)_2]$$
$$[UO_2(CO_3)_3]^{4-} + 2R^{2+} = R_2[UO_2(CO_3)_3]$$

R denotes the active site on the ion exchange resin.

The barren lixiviant will be reconstituted to the proper bicarbonate strength if needed prior to wellfield injection. Sesqui-carbonate, soda ash, and/or carbon dioxide will be used, if needed, to maintain proper sodium bicarbonate strength. Carbon dioxide may also be used to adjust the pH.

3.2.4.3 Elution Process and Resin Handling

The resin is ready for elution when it is fully loaded with uranium. The elution process reverses the loading reactions for the ion exchange resin and strips the uranium from the resin. The eluant will be an aqueous solution containing salt and sodium carbonate and/or sodium bicarbonate.

The chemical reactions are listed as follows:

$$R\,[UO_2(CO_3)_2] = [UO_2(CO_3)_2]^{2-} + R^{2+}$$
$$R_2[UO_2(CO_3)_3] = [UO_2(CO_3)_3]^{4-} + 2R^{2+}$$

The elution circuit at the Nichols Ranch Unit facility will be designed to also accept and elute uranium loaded resin from other satellite operations. A DOT approved trailer will be used to transport the resin to and from satellite facilities. The resin will be hydraulically removed from the trailer and screened to remove formation sand and other debris. Once screened, the resin will flow by gravity into a dedicated elution vessel where the resin will be contacted with eluant.

3.2.4.4 Yellowcake Production

Yellowcake will be produced from the rich eluates that are processed at the Nichols Ranch Unit. The eluate from the elution circuit will be de-carbonated by lowering the pH below 2 with acid. The yellowcake product will be precipitated with hydrogen peroxide and a base such as sodium hydroxide or ammonia.

De-carbonation:

$$[UO_2(CO_3)_2]^{2-} + 4H^+ = UO_2^{2+} + 2CO_2 + 2H_2O$$
$$[UO_2(CO_3)_3]^{4-} + 6H^+ = UO_2^{2+} + 3CO_2 + 3H_2O$$

Precipitation:

$$UO_2^{2+} + H_2O_2 + 4H_2O = UO_4{\cdot}4H_2O + 2H^+$$

The precipitated yellowcake slurry will be transferred to a filter where excess liquid will be removed. Following a fresh water wash step that will flush the dissolved chlorides, the resulting product cake will be transferred to the yellowcake dryer which further reduces the moisture content, yielding the final dried free flowing product.

The yellowcake drier will operate under a vacuum. The use of vacuum conditions lowers the temperature at which the yellowcake solids are dried (typically 165 F to 190 F). At these temperatures, water soluble uranium oxides and other compounds are not formed. In addition, the vacuum draws solids and water vapor toward the system's interior preventing unwanted dust releases. This type of dryer is the same design that has been successfully used by Power Resources Inc. (PRI) at the Smith-Highland mine in the southern Powder River Basin.

3.2.5 Flow and Material Balance

The ion exchange system for the Nichols Ranch Unit is designed to accommodate flow rates up to 3,500 GPM. In order to contain the lixiviant within the designated wellfield recovery area, a small portion of the barren solution is withdrawn from the ion exchange circuit. The amount of bleed is estimated to be in the average range of 1% of the overall flow rate or equivalent to about 35 GPM.

The ion exchange system for the Hank Unit is designed for flow rates up to 2,500 GPM. The average bleed rate for Hank Unit is estimated to be 3% or equivalent to about 75 GPM. The bleed rate estimates are discussed in detail in Section 3.4.8 of this Chapter.

The bleed solution is to be used to rinse and clean-up freshly eluted resin, make-up fresh eluant in the elution circuit, back wash sand filters, and wash yellowcake if necessary. A flow and material balance for the two Units is presented nominally in Figure 3-6 (see map pocket). The flow shown is an example capacity for the facilities and does not represent any design or regulatory limits. A water balance is shown in Figure 3-7 (see map pocket).

3.2.6 Sources of Plant Liquid Effluents and Disposal Methods

Liquid effluents are expected to be generated from well development water, pumping test water, process bleed, process solutions, wash-down water, and restoration water. The water generated during well development and pumping tests is expected to satisfy WDEQ-WDQ Class IV (Livestock) standards at a minimum and has minimal potential radiological impact on soils or surface water. No alternate handling or disposal method is required allowing water to be pumped onto the ground.

The process bleed and wash down water will be transferred to a deep disposal well. This deep disposal well will be equivalent in design and depth to existing deep disposal wells at similar *in situ* uranium recovery sites. This deep disposal well will be permitted through the WDEQ and operated according to permit requirements. Uranerz will demonstrate UIC approval from WDEQ for the deep disposal wells prior to injection.

The restoration water will be treated by reverse osmosis or other purification technology. The treated restoration water will be re-injected into the process with the restoration water bleed transferred to the deep disposal well.

Uranerz plans to use two Type I – Non Hazardous deep disposal wells. As required, the disposal wells will be completed in approved formations. A typical deep disposal well is depicted in Figure 3-8 (see map pocket).

To ensure that Uranerz can maintain acceptable bleed rates if a problem arises with a deep disposal well, a number of items were considered. Uranerz commits to having two deep disposal wells drilled prior to starting up Nichols Ranch. Uranerz also commits to having critical spare parts on site for the deep disposal well injection system. Uranerz investigated timing for deep disposal well emergency maintenance. The work over is estimated to be an average of 5 days. Frac tank availability and tank rental information was obtained. Frac tanks are readily available in Wyoming from the petroleum industry, and can be mobilized quickly. The tanks are capable of holding 16,800 gallons of water each.

Uranerz also conducted an analysis regarding shutting in the wellfield and not having a bleed during the time the deep disposal well is down. A cone of depression is in place, and Uranerz wanted to determine the amount of time the groundwater would migrate without a bleed.

A depression in the piezometric surface will exist during operation of the wellfields. If the wellfield operation had to be shut-in for a short period of time the water levels would gradually recover with flow inward to the wellfield on the down gradient side initially, then becoming a very flat gradient with very little flow and finally recovery to a outward gradient that is flatter than the natural gradient for the aquifer. The use of the natural gradient to estimate the movement of the ground water outward during a shut-in period is therefore very conservative. The use of the natural gradient in the ground-water movement rate should account for the variability in the ground-water velocity due to variability in aquifer properties.

The natural ground-water velocity for the A Sand aquifer at Nichols Ranch Unit is 12 ft/yr. This ground-water velocity was used to estimate the movement of ground-water at Nichols Ranch Unit for 45 days of non-operation which indicates that the ground-water would move less than two feet from its position prior to the shut-off period. This analysis demonstrates adequate containment of the ISR solution during a significant shut-in period of 45 days at the Nichols Ranch Unit.

The natural ground-water velocity for the F Sand aquifer at Hank Unit is 8 ft/yr. The use of this ground-water velocity to estimate the travel distance of the ISR solution during a 45 day shut-in period indicates that the solution would move roughly one foot during the non-operation period. This indicates that the Hank Unit solution should adequately be contained during a significant shut-in period of 45 days.

For the Nichols Ranch Unit there are three types of liquid effluent that will constitute the bleed that can be up to 35 GPM: 1) the wellfield bleed, 2) the elution circuit bleed, and 3) the general plant waste (resin wash, filter backwash, etc). A small quantity of water, about 1 to 2 GPM, may be introduced from a permitted water well for plant wash down and yellowcake wash.

Nichols Ranch Unit 1% Bleed

Production Only

Deep Disposal Well (DDW) Flow	+100	GPM
Production Flow to DDW	(-)40	GPM
Other	(-)1-2	GPM
Remaining Balance	+58	GPM

Production and Restoration

Deep Disposal Well (DDW) Flow	+100	GPM
Production Flow to DDW	(-)40	GPM
Restoration Flow to DDW	(-)57	GPM
Other	(-)1-2	GPM
Remaining Balance	+1	GPM

Restoration Only

Deep Disposal Well (DDW) Flow	+100	GPM
Restoration Flow to DDW	(-)90	GPM
Other	(-)1-2	GPM
Remaining Balance	+8	GPM

Hank Unit 3% Bleed

Production Only

Deep Disposal Well (DDW) Flow	+100	GPM
Production Flow to DDW	(-)75	GPM
Other	(-)1-2	GPM
Remaining Balance	+23	GPM

Production and Restoration

Deep Disposal Well (DDW) Flow	+100	GPM
Production Flow to DDW	(-)75	GPM
Restoration Flow to DDW	(-)22	GPM
Other	(-)1-2	GPM
Remaining Balance	+1	GPM

Restoration Only

Deep Disposal Well (DDW) Flow	+100	GPM
Restoration Flow to DDW	(-)90	GPM
Other	(-)1-2	GPM
Remaining Balance	+8	GPM

It should be noted that the previous numbers are estimates only. Uranerz plans to permit four (4) disposal wells at each site. If the flow estimates for one disposal well prove to be inadequate, additional wells will be added to accommodate the disposal requirements.

For the restoration operation, reverse osmosis or other purification technologies will be used to treat the recovery solution from the spent production areas. The ground-water restoration plan is discussed in detail in Chapter 6.0. For a typical restoration schedule, the anticipated liquid effluent flow rates are:

Pore Volume	Gross Water Withdrawn	Net Water Consumption
1st	50 GPM	50 GPM
2nd to 5th	200 GPM	50 GPM
6th	50 GPM	50 GPM

The average annual net water consumption from the ore zone aquifer during restoration activities is anticipated to be approximately 50 GPM.

The potential effluents that will need to be controlled for the Nichols Ranch ISR Project include radon, radioactive particulates in air, and radionuclides in liquid streams. The effluent control for gaseous and airborn particulates and liquid and solid wastes are discussed in detail in Chapter 4.0. For solid waste Uranerz will obtain an agreement with a licensed and approved 11e.(2) by product disposal facility. Uranerz will notify the NRC in writing within 7 days if the agreement expires or is terminated, and Uranerz will submit a new agreement for NRC approval within 90 days of the expiration of the termination. Uranerz commits to provide the NRC with the details of the waste disposal agreement for 11e(2) byproduct disposal at an NRC or Agreement State licensed facility. Uranerz plans to have readily available the most current safety equipment and personal protective equipment at the Nichols Ranch Unit and Hank Unit.

The storage of contaminated equipment, including wastes, will be in the fenced-plant boundary for the Nichols Ranch and the Hank Units. The amount of 11e(2) byproduct material stored at the Nichols Ranch Unit and Hank Units will be kept to a minimum. The byproduct material from the plants will be placed into 55-gallon drums with drum liners. The drums will be located in designated signed areas inside the plants. After a drum is full it will be moved to the plant's 11e(2) byproduct storage area, and the contents placed in a strong tight roll-off container. If material such a pipe is too large to fit in the drum, the large material will be placed in the specific plant's byproduct storage area. The storage areas are shown on the revised diagrams: Figure 3-1 Site Facility Diagram Nichols Ranch Unit and Figure 3-2 Site Facility Diagram Hank Unit. The areas will have concrete pads and appropriate signage. The strong tight containers will follow DOT regulations, and typically be covered roll-off containers with an estimated capacity of 20 cubic yards. After a roll-off container is filled, it will be transported to an approved 11e(2) byproduct storage facility.

In the wellfields outside the plant areas there will be some temporary storage of equipment and supplies that are needed for wellfield construction. Equipment and materials that are not releasable for unrestricted use and are not amenable to placement in a container will be stored to prevent dispersion and migration of contamination; e.g. decontamination of removable or covering to prevent weathering. The wellfield sites will be minimized, have appropriate signage, and will be within the wellfield fenced boundary.

3.3 CHEMICAL STORAGE FACILITIES

Uranerz plans to use chemicals to extract uranium, process waste water, and restore groundwater. The Nichols Ranch Unit and the Hank Unit will store chemicals that are both hazardous and non hazardous. The different types of chemicals will be stored in separate locations. Any bulk hazardous materials that could impact the radiological safety of the facility will be isolated and stored in accordance with regulatory agency requirements. Chemicals that are considered nonhazardous and will not affect radiological safety can be stored inside the main buildings. A list of possible chemicals to be used at the facilities include: hydrochloric acid, hydrogen peroxide, sodium chloride, sodium hydroxide, sodium hypochlorite, ammonia, oxygen, carbon dioxide, sodium carbonate, and sodium bicarbonate. Material Safety Data Sheets (MSDS) for each of the chemicals will be reviewed for facility safety and for radiological effects and the sheets will be located at the Nichols Ranch Unit and the Hank Unit.

3.3.1 Process Related Chemicals

Chemicals that are considered hazardous and have the potential to effect radiological safety are ammonia (pH adjustment), hydrogen peroxide (uranium precipitation and oxidant in lixiviant), and hydrochloric acid (pH adjustment). These chemicals will be located outside of the main processing building. They will be separated from inside the process area until their addition point. The outside storage location may have a concrete curbed secondary containment basin for the tanks.

Oxygen (oxidant in lixiviant), sodium hydroxide (pH adjustment), sodium hypochlorite, carbon dioxide (carbonate complexing), sodium carbonate/bicarbonate (carbonate complexing and resin regeneration), and sodium chloride (resin regeneration) are the other bulk chemicals used for processing the uranium. The carbon dioxide is typically stored outside and is added to the lixiviant before the flow leaves the ion exchange facilities. Oxygen can also be stored centrally so that it can be added to the injection stream in each header house or if necessary the oxygen can be added down hole with individual spargers. A down hole sparger is typically constructed of approximately two feet of three quarter inch diameter weighted PVC pipe capped on the lower end. One sixteenth inch diameter holes are drilled throughout the two feet of pipe. The perforated pipe acts as a sparger and diffuses the oxygen for dissolution into the injection fluid.

Due to the possibility of gas locking problems in the ore bearing formation, Uranerz commits to not using hydrogen peroxide at the Hank Unit. In addition, Uranerz will monitor the recovery solution to insure excess oxygen does not become evident so no possibility of gas locking can occur. Periodic testing of the oxygen levels will be performed on the recovery solution to insure the solubility limit is not exceeded. Special care will also be taken to control the amount of oxygen added to the injection solution in areas of low hydrostatic pressure to insure off gassing of oxygen does not present a problem. An additional corrective action that may be taken is to cycle wells from injection to extraction duty during the mining sequence. Pressure gauges and oxygen flow meters on the injection solution will be used during oxygen addition to insure no excess of oxidant occurs. If necessary, a limited number of ore body wells will be installed with completion of the wells being just below the upper aquitard to relieve any build up of gas in that area.

The sodium hydroxide, sodium carbonate/bicarbonate, and sodium chloride will be stored inside the main processing plant near the point of addition.

Chemicals that could be located at the Nichols Ranch Unit include: hydrochloric acid, hydrogen peroxide, sodium chloride, sodium hydroxide, sodium hypochlorite, ammonia, oxygen, carbon dioxide, sodium carbonate, and sodium bicarbonate. Chemicals that could be located at the Hank Unit include: oxygen, sodium bicarbonate and carbon dioxide. During groundwater restoration activities, hydrochloric acid may be located at the Hank Unit. The hydrochloric acid will be located in a secondary containment basin. Sodium carbonate and/or sodium bicarbonate could be located at the Hank Unit for leaching. Figures 3-1 and 3-2 (see map pocket) show the storage locations of chemicals for the Nichols Ranch Unit and the Hank Unit, respectively.

Standards for transporting, handling, storing, and managing hazardous chemicals have been developed by regulatory agencies. Uranerz conducted detailed design work for chemical usage and chemical storage areas. The detailed design calculations were based upon using sodium hydroxide and not ammonia, and then hydrochloric acid and not sulfuric acid. Uranerz confirms compliance with NUREG-6733, Chapter 4 for Chemical Hazard Consequence Analysis. The following list summarizes the specific regulations for the proposed chemicals.

3.3.2 Nonprocess Related Chemicals

Chemicals that are nonprocess related materials are stored at the Nichols Ranch Unit and the Hank Unit. The materials include gasoline, diesel and propane. Since these materials are considered flammable and/or combustible, the bulk quantities are stored outside of the main buildings. The storage tanks are located above ground and within secondary containment basins in compliance with local code.

Chemical	Name	Regulation	Minimum Reporting
NH_3	Ammonia	Threshold Quantity(TQ) from Clean Air Act for 40 CFR part 68 RMP	10,000 lb
		TQ for OHSA 29 CFR part 1910.119 Process Safety Management	10,000 lb
		TPQ (planning) for 40 CFR part 355 Emergency Response (ERP)	500 lb
		Reportable for CERCLA from 40 CFR 302.4	100 lb
H_2SO_4	Sulfuric Acid	TPQ for 40 CFR 355 ERP	1,000 lb
H_2O_2	Hydrogen Peroxide	TPQ for 40 CFR 355 ERP (conc > 52%)	1,000 lb
		TQ for OSHA 29 CFR 1910.119 PSM (conc > 52%)	7,500 lb
O_2	Oxygen	Not listed in any of the 4 regulations	NA
CO_2	Carbon Dioxide	Not listed in any of the 4 regulations	NA
Na_2CO_3	Sodium Carbonate	Not listed in any of the 4 regulations	NA
NaCl	Sodium Chloride	Not listed in any of the 4 regulations	NA
HCl	Hydrochloric Acid	TQ from CAA for 40 CFR Part 68 RMP (conc >37%)	15,000 lb
		TQ from OSHA for 29 CFR 1910.119 PSM (anhydrous HCl)	5,000 lb
		RQ for CERCLA from 40 CRF 302.4	5,000 lb
NaOH	Sodium Hydroxide	RQ for CERCLA from 40 CRF 302.4	1,000 lb

3.4 WELLFIELDS

3.4.1 Ore Zone

The ore zones for the Nichols Ranch Unit are 300-700 ft below the surface and occur in two long narrow trends meeting at the nose. The nose is the northwest corner of the ore zone where the two narrow trends meet to form the tip of the geochemical front. The Hank Unit's ore zones are approximately 200-600 ft below the surface. The depths of the two units depend on the topography, the changes in the levels of the formation and the stratigraphic horizon. The host sand for the Nichols Ranch Unit is designated as the A Sand and the Hank Unit host sand is designated as the F Sand. The average grade of the two units is above 0.1%, the average thickness is above seven feet, and the combined areal distribution is near 100 acres.

3.4.2 Wellfield Areas

Wellfields are designated areas above the ore zone that are sized to reach the desired production goals. The ore zone is the geological sandstone unit where the leaching solutions are injected and recovered in an in situ recovery wellfield and it is bounded between impermeable aquatards. Production areas are the individual areas that will be mined in the wellfield. The injection and recovery wells are completed in the ore zone intervals of the production sand. Horizontal monitor wells are located in a ring around the wellfields. Vertical monitor wells for overlaying and underlying aquifers are installed accordingly for one monitor well for every 4 acres of wellfield area. The distance between the monitor wells in the same aquifer shall not exceed 1,000 ft, and all monitor wells are installed within the production area unit. The final locations of the horizontal and vertical monitor wells will be submitted in the Production Area Pump Test Document as described in Section 5.7.8. This is because the actual locations might need to be changed because of topography, access, etc. The screened intervals for the excursion monitor wells are across the entire production zone.

3.4.3 Wellfield Injection and Recovery Patterns

The patterns for the injection and recovery wells follow the conventional 5-spot pattern. Depending on the ore zone shape, 7-spot or line drive patterns may be used. A typical 5-spot pattern is shown in Figure 3-9 (see map pocket) and contains 4 injection wells and 1 recovery well. The dimensions of the pattern vary depending on the ore zone, but the injection wells will likely be between 50 and 150 ft apart. In order to effectively recover the uranium and also to complete the groundwater restoration, the wells will be completed so that they can be used as either injection or recovery wells. The leaching solution will be injected into the injection wells, and the solution will be recovered through the recovery wells. To create a cone of depression in the wellfield, a greater volume of water is recovered than injected. The excess water or wellfield bleed will be disposed of in a Class I deep disposal well. With the cone of depression being created, the natural groundwater movement from the surrounding areas is toward the wellfield providing an additional control of the leaching solution.

Wellfield bleed is defined as the difference between the amount of solution injected and produced. The bleed rate is anticipated to average 1% of the total production rate for the Nichols Ranch Unit and up to 3% for the Hank Unit. Over- production can be adjusted to guarantee the horizontal ore zone monitor wells are influenced by the cone of depression from the wellfield bleed.

Depending on the oxidation requirement of the formation, the injection wells may be equipped with down-hole oxygen spargers with oxygen being metered through individual rotometers so that each well can be controlled as to the amount of oxygen concentration it receives, or a header house oxygen manifold distributor will be installed. Header houses are small buildings that contain the manifolds that connect to the individual injection and recovery wells. The header houses will contain the electrical closures, flow metering, possible oxygen rotometers, and/or sock injection filtration.

The pipelines transport the wellfield solutions to and from the ion exchange columns. The flow rates and pressures are monitored to the individual lines. Automatic valves are installed for control of the flow. High density polyethylene (HDPE), Polyvinyl chloride (PVC), and/or stainless steel piping are used in the wellfield. The piping will be designed for operating pressure of 150 psig. However, the equipment will be operated at pressures less than or equal to the designed piping and other equipment ratings. If higher operating pressures are needed, the overall system will be evaluated and materials of construction with appropriate pressure ratings will be used.

Some of the lines from the ion exchanges facilities, header houses, and individual well lines may be buried to prevent freezing. Other ISR sites in Wyoming have successfully buried pipelines to protect them from freezing.

3.4.4 Wellfield Operations – Production Areas

To plan production, develop extraction schedules, establish baseline data, comply with monitoring requirements and complete restoration, the Nichols Ranch Unit will be divided into two production areas. The Nichols Ranch Unit contains the central processing plant with two production areas, NR Production Area #1 and NR Production Area #2. As the productivity or head grade of some patterns for the NR Production Area #1 decrease below the economic limit, replacement patterns for the NR Production Area #2 will be placed into operation in order to maintain the desired flow rate and head grade to the processing plant. Eventually, all the patterns in NR Production Area #1 will reach their economic limit and all production flow in that area will cease. At that time, all production flow will be coming from NR Production Area #2, and restoration activities will commence at NR Production Area #1. Figure 3-10 (see map pocket) shows the two Production Areas for Nichols Ranch. A characteristic flow rate for each of the two Nichols Ranch Unit Production Areas will range from 1,000-3,500 gallons per minute (GPM).

The Hank Unit is a remote satellite facility with two production areas, Hank Production Area #1 and Hank Production Area #2. The Hank Production Areas will follow a similar developmental, production, and restoration schedule as outlined in the above section for the Nichols Ranch Production Areas. The two Hank Production Areas are shown in Figure 3-11 (see map pocket). A characteristic flow rate for each of the Hank Unit Production Areas will range from 1,000-2,500 (GPM).

A Gantt chart showing Nichols Ranch and Hank Production Areas is shown in Figure 3-12 (see map pocket). The chart shows the proposed plan for production, groundwater restoration, and decommissioning of each production area. However, the plan is subject to change due to extraction schedules, variations with production area recoveries, production plant issues, economic conditions, etc. The exact annual extraction schedules will be updated in the Annual report to the WDEQ. The proposed plan incorporates an adequate water balance calculations so that the deep disposal well can process the proposed production and restoration efforts at any given time.

The amount of time for restoration shown in Figure 3-12 is based on the current estimate of deep disposal well capacity and the restoration methods outlined in Chapter 6.0 of the Technical Report. As stated in Chapter 6.0, Section 6.1, Uranerz will adhere to 10 CFR 40.42. When decommissioning and/or restoration begin, the NRC will be notified and a plan submitted for review or approval. If, at that time, groundwater restoration is estimated to take longer than 24 months based on items such as deep disposal well capacity, Uranerz will request an alternate schedule as allowed under 10 CFR 40.42(i). p.

After each production area is completed, aquifer restoration will begin as soon as practical. If a completed production area is near a unit that is currently being mined, a portion of the first production area's restoration may be delayed to limit interference with the current extraction production area. The exact production area size and location may change based on the final delineation results of the ore zone and the actual production performance of the particular ore zone.

3.4.5 Well Completion

Pilot holes for monitor, production, and injection wells are drilled through the target completion interval with a small rotary drilling unit using native mud and a small amount of commercial drilling fluid additive for viscosity control. The hole is logged, reamed, casing set, and cemented to isolate the completion interval from all other aquifers. The cement will be placed by pumping it down the casing and forcing it out the bottom of the casing and back up the casing-drill hole annulus. The drill holes will be large enough in diameter for adequate sealing and, at any given depth, at least three inches greater in nominal diameter than the diameter of the outer casing at that depth.

Typical well completion schematics for production wells (recovery and injection wells), and monitor wells are shown on Figures 3-13 (see map pocket) and 3-14 (see map pocket), respectively. Production zone ring monitor wells, overlying monitor wells, and underlying monitor wells are completed with the entire aquifer sand exposed to open hole. Screens are installed in these wells and open slots are adjacent to the sand for the entire thickness of the aquifer. Production zone monitor wells do not have screens installed in them. Some of these wells have the entire thickness of the production sand exposed. The remainder of this type of well is under reamed for better contact with the mineralization but collectively cover the full thickness of the production aquifer.

The well casing will be fiberglass, PVC, or HDPE. The fiberglass casing has a standard joint length of 30 ft and is rated for at least 950 pounds per square inch operating pressure. PVC well casing is typically 4 to 6 inches in diameter and SDR·17 to SDR·26 (or equivalent). The PVC casing joints normally have a length of approximately 20 ft each. When PVC casing is used, each joint is connected by a water tight o-ring seal. The casing for the well completions will be joined using an O-ring and spline locking system. Screw and glue joints will not be used for well completions. Products that typically are used include CERTA-LOK and SureFIT.

Casing centralizers, located approximately every 40 ft along the casing, are normally placed around the casing to ensure it is centered in the drill hole. Effective sealing materials shall consist of neat cement slurry and/or sand-cement grout meeting Wyoming State requirements described in Section 6, Chapter 11 of the LQD Non Coal Rules and Regulations unless a variance is obtained from the LQD Administrator. The purpose of the cement is to stabilize and strengthen the casing and plug the annulus of the hole to prevent vertical migration of solutions. If needed, the upper portion of the annulus will be cemented from the surface to stabilize the wellhead. This procedure is called "topping off". Tremie pipes can be used to top off a well.

After the well is cemented and the cement has set, the well is under reamed in the mineralized zone and completed either as an open hole or it is fitted with a screen assembly (slotted liner), which may have a sand filter pack installed between the screen and the under reamed formation. The well may then be air lifted for 30 minutes or more to remove any remaining drilling mud and/or cuttings. A submersible pump or small trailer mounted air compressor may be run in the well for final cleanup and/or sampling.

3.4.6 Well Casing Integrity

After an injection or recovery well has been completed, and before it is made operational, a Mechanical Integrity Test (MIT) of the well casing is conducted. For the integrity test, the bottom of the casing adjacent to or below the confining layer above the production zone is sealed with a plug, down hole packer, or other suitable device. The top of the casing is then sealed in a similar manner or with a sealed cap, and a pressure gauge is installed to monitor the pressure inside the casing. The pressure in the sealed casing is then increased to 125% of the maximum operating wellhead casing pressure. A well is considered satisfactory if a pressure drop of less than 10% occurs over one hour. A second procedure that uses a 5% pressure drop over 30 minutes may also be used.

If there are obvious leaks, or the pressure drops by more than 10% during the 60 minute period, or equivalent period, the seals and fittings will be reset and/or checked and another test is conducted. If the pressure drops less than 10% the well casing is considered to have demonstrated acceptable mechanical integrity.

The results of the MITs conducted during a quarter are documented on a quarterly bases to include the well designation, date of the test, method by which the MIT was completed, verification of whether the MIT was or was not established, test duration, beginning and ending pressures, and the signature of the individual responsible for conducting the test. Results of the MITs are maintained on site and are available for inspection by NRC and WDEQ personnel. In accordance with regulatory requirements the results of MITs are reported to the WDEQ on a quarterly basis for those wells that were tested. In accordance with WDEQ and EPA requirements, MITs are repeated once every five (5) years for all wells used for injection of lixiviant, or injection of fluids for restoration operations.

If a well casing does not meet the MIT criteria, the well will be placed out of service and the casing may be repaired and the well re-tested or abandoned. If a repaired well passes the MIT, it will be employed in its intended service. If an acceptable test cannot be obtained after repairs, the well will be plugged and abandoned. The WDEQ-LQD Administration will be notified in the quarterly report of wells that fail the MIT. In the quarterly report the following is required: the identification of the failed well, a description of the method of plugging or repair, a status of the corrective actions on defective wells, the results of well plugging or repair, statements that the wells were plugged according to the approved permit and that the volume of material used for plugging equals the volume of material placed in the well.

The injection pressures for the Class III wells for the Nichols Ranch Unit and the Hank Unit will be calculated to assure the pressure in the production zones do not generate new fractures or spread existing fractures. Uranerz Energy Corporation will operate the Class III wells in a manner that the injection pressure will be lower than the calculated pressure that could fracture the confining zone, or cause the injection fluid to migrate to unauthorized zones. The injection pressure for the Nichols Ranch Unit and Hank Unit will be no greater than 60% (range – 38% to 60%) of the formation fracture pressure and will not exceed the pressure rating of the casing.

Search of published fracture gradient information resulted in selecting a conservative fracture gradient of 0.80 psi/ foot of depth, for reservoir rock formations of 2,000 feet in depth or less. The following range for maximum injection pressures are: average depth for Nichols Ranch (600 ft X 0.80 psi/foot = 480 psi) and average depth for Hank (375 ft X 0.80 psi/foot = 300 psi). The range of 480 psi to 300 psi is greater than the maximum injection pressure ratings for PVC casing that Uranerz intends to use. The maximum operating pressure rating for SDR 17 casing is 180 psi and for SDR 21 casing (if used would only be at Hank) is 130 psi. MIT testing will be conducted at the maximum operating pressure of the installed casing. The casing pressure rating; therefore, will be the limiting factor and maximum injection pressure would be 180 psi. At Nichols Ranch 180 psi is 38% of the formation fracture pressure and for Hank it is 60% of the formation fracture pressure.

Injection wells will not be used for injection purposes if they do not demonstrate mechanical integrity. Additionally, a MIT will be conducted on any well to be used for injection purposes after any well repair where a down hole drill bit or under reaming tool is used. Any injection well with evidence of suspected subsurface damage will require a new MIT prior to the well being returned to service.

3.4.7 Monitoring of Wellfield Flow and Pressure

Injection well and recovery well flow rates and pressures are monitored in order that injection and recovery can be balanced for each pattern and the entire production area. Recovery flow rates will always be greater than injection rates. This flow information is also needed for assessing operational conditions and mineral royalties. The volume of fluid for each recovery and injection well is determined by monitoring individual flow meters in each production areas header houses. Recovery well volumes are determined on a daily basis. More details on the instrumentation are given in a following Section 3.5.

3.4.8 Monitor Well Ring Gradient Reversal

3.4.8.1 Analytical Modeling

An analytical simulation of the gradient reversal was conducted with the use of the Theis well flow equation, and a program by Walton (1989), which is called "WELFLO". The program sums the drawdowns from numerous stresses over a grid. The critical location for the gradient reversal at the Nichols Ranch Unit is to the northwest in the down gradient direction. The wellfield orientation extends in this direction; therefore, the drawdowns for the northwestern portion of the wellfield were calculated to evaluate the gradient reversal. Figure 3-15 (see map pocket) shows the location of 73 recovery wells in the northwestern end of the number one wellfield. Additional stresses were lumped together and placed at 15 locations over the remainder with the wellfield, which extends an additional length of 4,800 ft to the southeast of these 73 stresses. This accounts for the entire stress from the wellfield with distribution of the stresses over the area. The bleed rate was applied to each of the recovery wells to simulate the net withdrawal of water from the A Sand aquifer.

An average transmissivity of 350 gal/day/ft and a storage coefficient of 1.8E-4 were used to simulate the drawdowns resulting from the bleed of the Nichols Ranch Unit Production Areas. A stress of 0.155 gpm was applied to each of the 73 recovery wells shown in the northern portion of the production area. The lumped bleed rates for the remaining 15 stresses varied from 0.93 to2.48 gpm for a total bleed of 23.7 gpm from the additional stresses. The simulation period was one year to allow definition of the gradient reversals after a significant period of operation. The cumulative drawdown was calculated at each of the nodes. The differences between the 100 ft node drawdowns to the northwest (ground water gradient direction) are shown on Figure 3-15 (see map pocket).

This simulated bleed rate was 1% of the overall flow and the distance between adjacent nodes on the diagonal is 141 ft. In the northwest direction, a simulated head difference between adjacent nodes that is greater that 0.47 ft indicates gradient reversal toward the wellfield. The northwest corner of the model grid is approximately 1,100 ft from the northwest edge of the wellfield, and the simulated head difference between adjacent nodes in the northwest corner of the model grid is much greater than 0.47 ft. Hence, the operation of the Nichols Ranch Unit Production Areas at a bleed of 1% will result in gradient reversal to the wellfield at a distance much greater than 1,100 ft from the northwest edge of the wellfield. A horizontal monitoring ring that is located 500 ft from the perimeter of the Nichols Ranch Unit Production Areas is within the zone of gradient reversal and will be adequate for detection of potential excursions from the Production Areas. These monitoring wells will also be spaced 500 ft from each other.

The magnitude of this simulated gradient reversal shows that the maintenance of a reversal zone in the confined aquifer at the Nichols Ranch Unit is readily achievable, and adjustments in local wellfield balance can be used to quickly induce reversal in the event of excursions.

The groundwater gradient at the Hank Unit site is 0.005 ft/ft to the west. Seventy one wells in the southern end of the Hank Unit Production Area #1 were used to simulate the composite drawdown response for the Hank Units at a rate of 0.426 gpm per well. Aquifer properties used in the simulation were a transmissivity of 400 gal/day/ft and a specific yield of 0.05. A simulation period of 365 days was also used for the Hank Unit Production Areas. The Hank Unit Production Areas are planned for a 2,500 gpm production rate and a 3% bleed was used in this simulation. This resulted in a stress at the seventy one recovery wells of 0.426 gpm. An additional nine stresses were used to simulate the remaining 105 wells in the northern portion of the wellfield with varying stresses from 3.41 to 7.24 gpm for a total additional stress of 44.74 gpm for the northern wells. The total stress rate was 75 gpm.

Figure 3-16 (see map pocket) shows the results of the gradient reversal for the Hank Unit. The head change between the 100 ft nodes is shown on this figure to the left of the 71 recovery stresses. An additional drawdown of 0.5 ft is needed to create gradient reversal toward the wellfield. Horizontal monitoring ring distance for this unconfined aquifer will be adequate at a distance of 500 ft from the wellfield perimeter with a 3% bleed rate for the Hank Unit. A spacing of 500 ft between the monitoring ring wells is also proposed for the Hank Unit.

An additional simulation was conducted on the gradient reversals for the Hank Unit. The second simulation was the same as presented above except that the net extraction from the nine southern recovery wells in the production area were increased by a total of 5 gpm, which increases the overall wellfield bleed from 3% to 3.2%. The individual bleed rate for these nine wells was 0.982 gpm instead of the 0.462 gpm used in the first Hank Unit simulation. This small localized increase in the bleed rate caused the reversal to increase by greater than 60% at a distance of 500 ft from the production area. The second simulation shows that small local adjustments in the bleed rate can be used to expand the local zone of reversal and prevent or retrieve an excursion in a particular area for the Hank Unit.

This analysis provides the impacts that in situ recovery operations might have on surrounding groundwater. The surface pathways that might transport extraction solutions offsite include the Cottonwood Drainage and Tex Draw for the Nichols Ranch Unit and the Dry Willow and Willow Creek Drainage for the Hank Unit. The expected post-extraction impacts on geochemical properties and water quality are discussed in the Restoration Chapter, Chapter 6.0. The flood and flood velocities are provided in Appendix D6-1.

3.4.8.2 Numerical Modeling

The MODFLOW numerical model was used to simulate the groundwater conditions at the Nichols Ranch Unit and the Hank Unit for the A and F Sands, respectively. Addendum 3 presents the results of the Nichols Ranch Unit numerical groundwater modeling while Addendum 3C presents the results of the numerical modeling for the Hank Unit.

The results for the horizontal flare evaluation for the Nichols Ranch Unit are presented in Addendum 3B in Figures 3B.1-14 and 3B.1-15. The horizontal flare evaluation for the Hank Unit is presented in Addendum 3C and Figures 3C.1-9 through 3C.1-11.

The partially penetrating unconfined groundwater equation was used to evaluate the vertical flare between two wells for the Hank Unit. The vertical flare evaluation for the F Sand is presented in Addendum 3C in Figure 3C.1-12.

The numerical model simulation results for evaluation of excursion retrieval are presented in Figures 3B.1-16 through 3B.1-18 in Addendum 3B for the Nichols Ranch Unit. The results for the retrieval simulation for the Hank Unit are presented in Addendum 3C and Figures 3C.1-13 through 3C.1-17.

3.5 PLANT EQUIPMENT, INSTRUMENTATION, AND CONTROL

The plant equipment at the proposed facilities will consist of standard design, construction, and materials for uranium in-situ recovery extraction. Uranerz plans to install automated devices within the plant circuits to assist the operators with their coverage and reduce the number of operators required for successful coverage. Most of the automated devices will be pre-programmed to control operating parameters and the process information will be recorded. The automated systems will include alarms and shutoffs to prevent overflow and overpressure situations and provide centralized monitoring of the process variables.

The central processing plant, satellite plant, production circuits, wellfields, header houses, lines from the wellfield to the plant, and the deep disposal well will have instrumentation. The control system will have continuous monitoring, and alarms that are set when operating parameters are outside of the specified operating ranges. The alarms signal the operators to proceed with corrective actions until the parameter is back within specific ranges. Extreme tank levels or pressures will activate automatic shutdown of equipment for that area. The header houses, pipelines, and deep disposal wells are the sources of greatest risk for large spills and will have high and low pressure, and flow alarms for automatic shutdown of related equipment.

The total plant flow, total waste flow leaving the plant, and tank levels will be monitored. There will also be a low vacuum alarm for the dyer that will indicate either corrective action or automatic shut down. Manufacture's recommendations for the operating and maintenance of the dryer will be followed and recorded according to 10 CFR Part 40, Appendix A, Criterion 8. The critical systems will be equipped with back up systems that are automatically activated in a power failure or operating failure. The wellfield flows and pressures may be continually recorded, but at a minimum once a day recordings. The pressures will be kept under casing and formation rupture pressures.

The Uranerz Standard Operating Procedures (SOP) will address alarm responses, automatic shutdowns, and start up after automatic shutdowns. The SOP at both the Nichols Ranch Unit and Hank Unit facilities are designed to minimize the risks of uncontrolled releases of leaching fluids, chemicals, and plant fluids, and provide the maximum safety and protection to the environment and personnel.

In the event that a spill occurs in the wellfield or process plants, measures will be taken to safely and quickly contain the spill and mitigate the impacts of any released material. Proper notification of plant and corporate management will be made along with properly contacting the NRC and State if applicable.

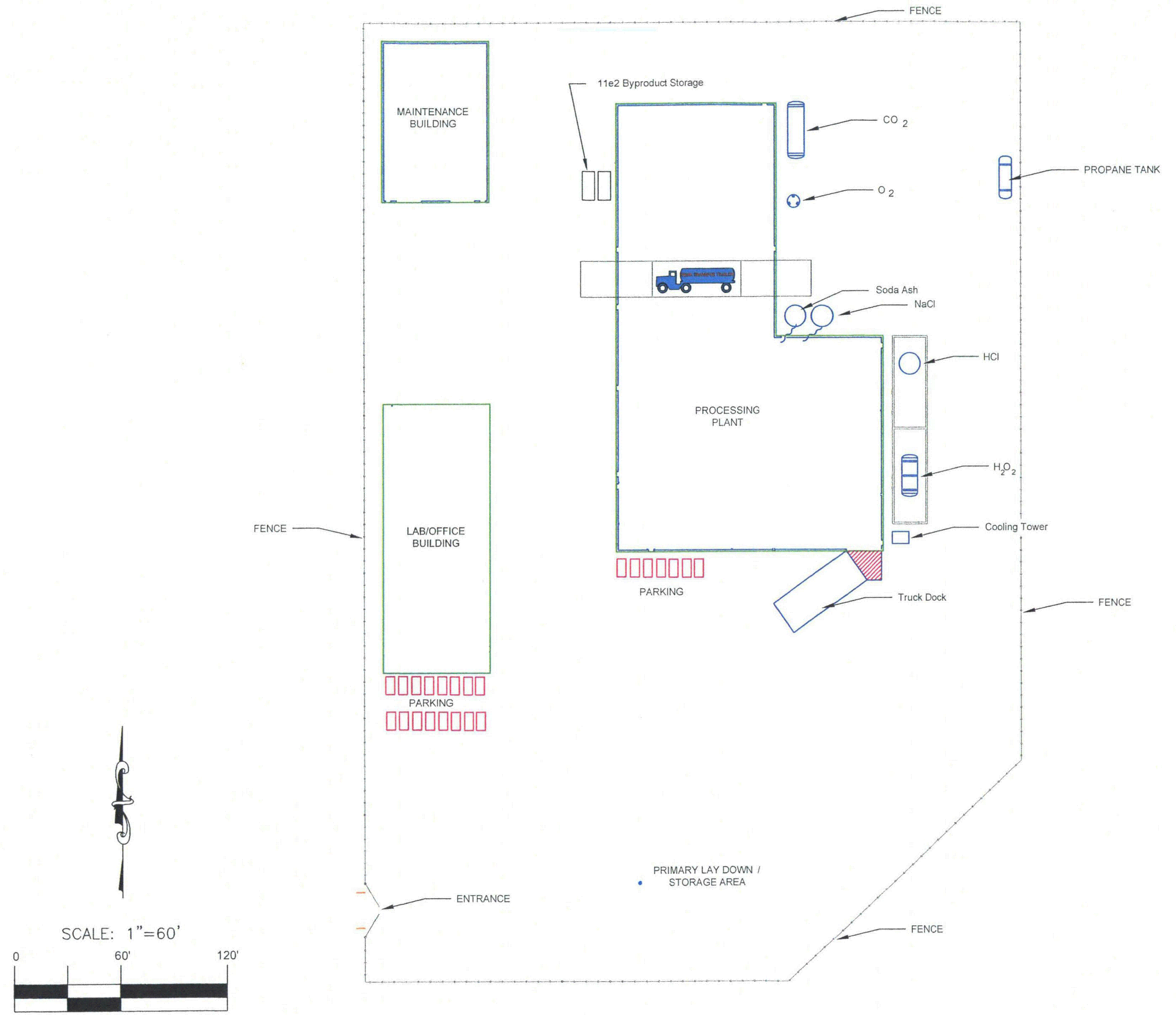
Spills are likely to occur from leaking pipelines and fittings. If a pipeline leak or spill occurs in the plants, the spill or leak will be contained within the building with all spilled material collected in the plant sump. This material will either be pumped backed into the process or sent to the deep disposal well.

Wellfield spills will be contained as soon as possible. The area of the spill will be surveyed to identify any contaminated areas and then cleaned up and removed for disposal according to NRC and State regulations.

If any process vessels or tanks that contain or have contained radioactive materials have to be entered for any reason such as cleaning, inspection, or repairs, a radiation work permit (RWP) will be issued detailing the requirements for special air sampling, protective equipment, and increased exposure surveillance.

To notify operating personnel of potential issues with process and wellfield operations, instrumentation such as flow meters and pressure indicators will be used. If any process condition falls out of the normal operating range, audible and visual alarms will sound notifying employees of potential plant problems. The alarm notification will aid in reducing the severity of any potential spills that might occur.

The NRC will have the opportunity to review and inspect control equipment prior to facility operation to ensure compliance with 10 CFR 40.32(c).



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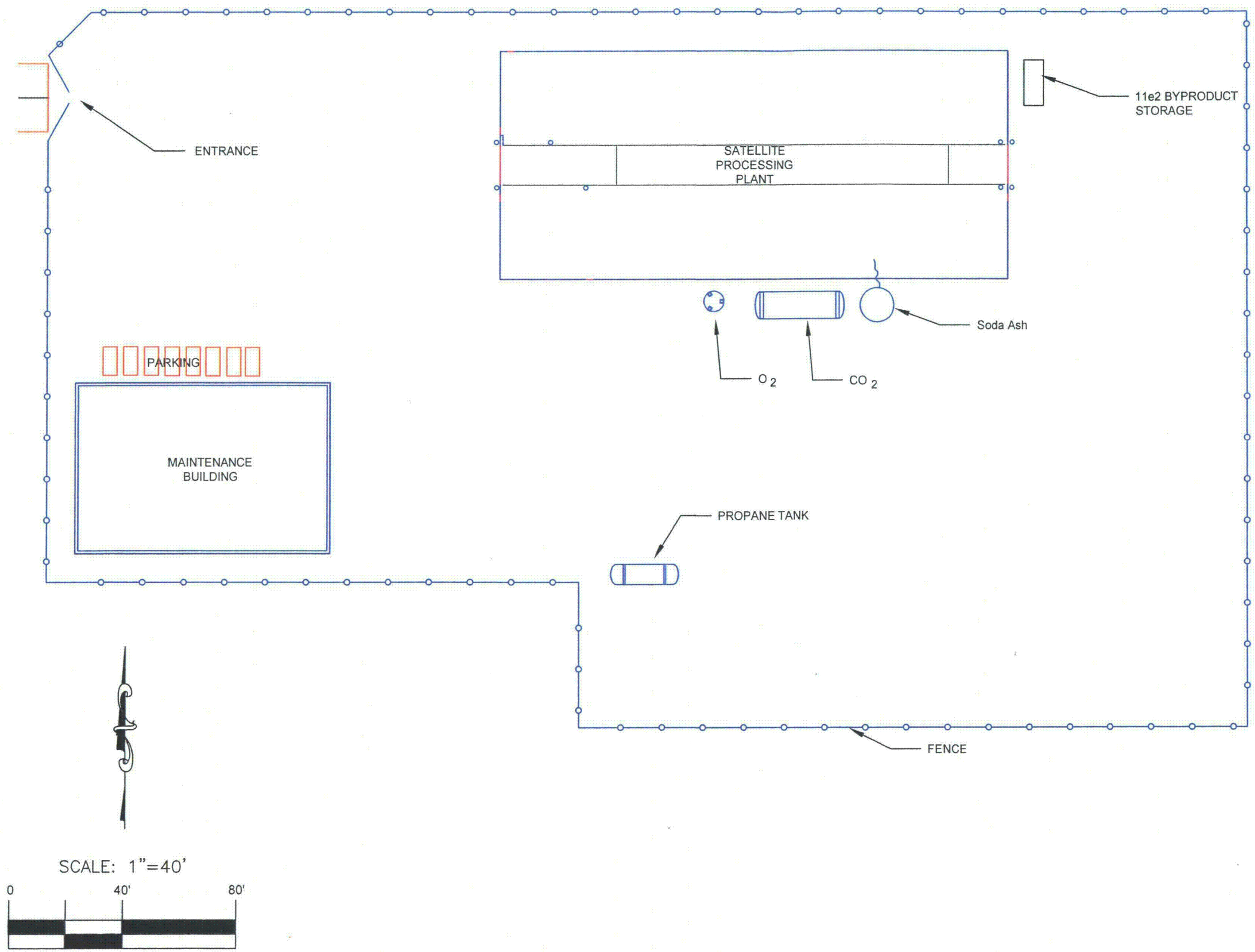
NICHOLS RANCH ISR PROJECT

FIGURE 3-1
NICHOLS RANCH UNIT
SITE FACILITY DIAGRAM

By: SMF	Date: 2-12-2010
Datum: NAD27 UTM13	Revision Date:
Scale: 1"=60'	Contour Interval:



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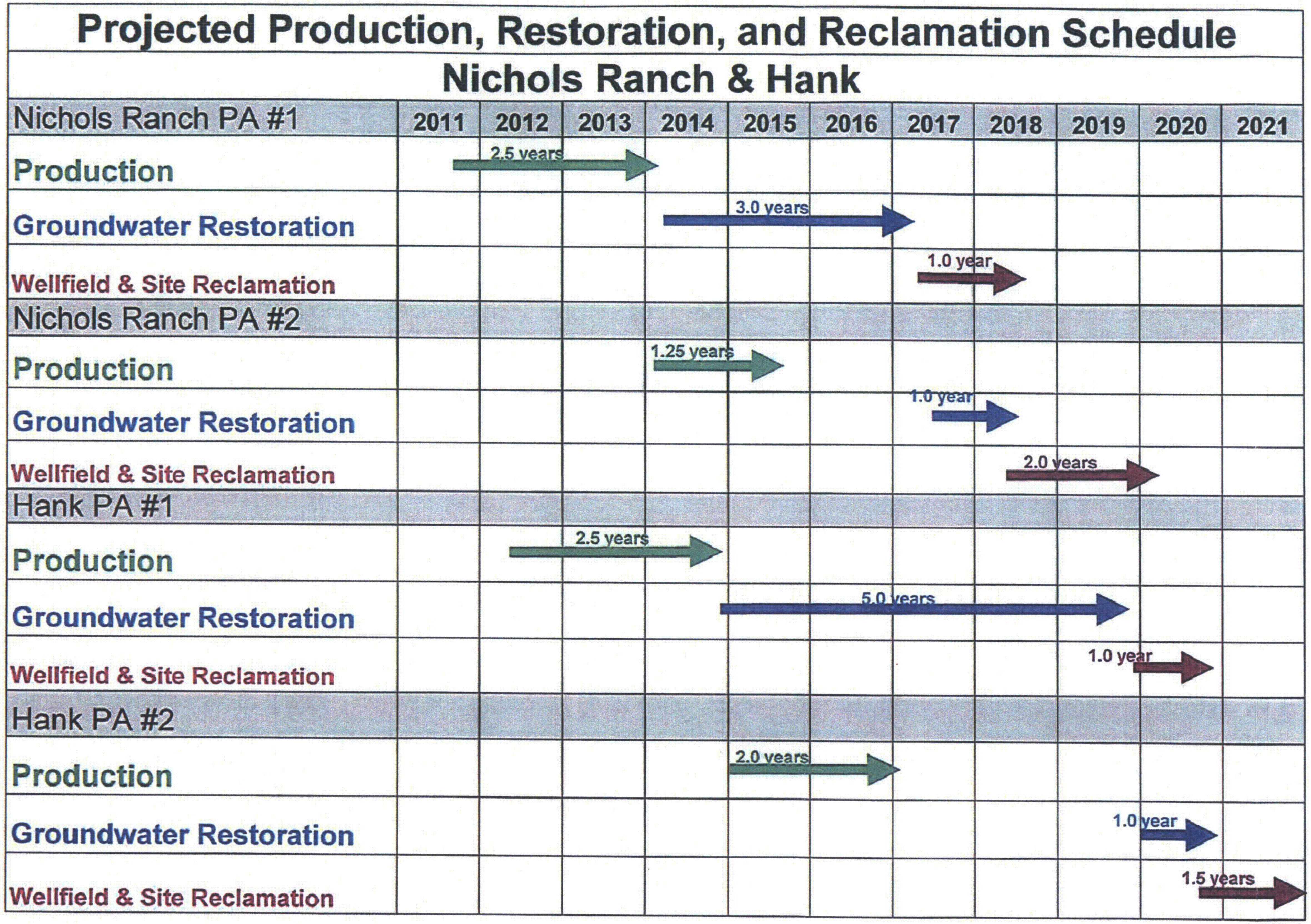
NICHOLS RANCH ISR PROJECT

FIGURE 3-2
HANK UNIT
SITE FACILITY DIAGRAM

By: SMF	Date: 2-11-20010
Datum: NAD27 UTM13	Revision Date:
Scale: 1"=40'	Contour Interval:



Note: Nichols Ranch Unit is divided into two production areas: Nichols Ranch Production Area #1 and Nichols Ranch Production Area #2. Hank Unit is divided into 2 production areas: Hank Production Area #1 and Hank Production Area #2. This is a projected estimate for Production, Restoration and Reclamation. The actual schedule will depend on permit approval timing, construction efficiency, actual production results and actual restoration of the groundwater.

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NICHOLS RANCH ISR PROJECT

FIGURE 3-12

PRODUCTION, RESTORATION & RECLAMATION SCHEDULE

By: S.M.F.	Date: OCT. 17, 2007
Datum: N/A	Revision Date: July 1, 2010
Scale: N/A	Contour Interval: N/A

4.0 EFFLUENT CONTROL SYSTEMS

This section describes the effluent control systems that will be used at the Nichols Ranch ISR Project. The potential effluents include radon, radioactive particulates in air, and radionuclides in liquid streams.

4.1 GASEOUS AND AIRBORNE PARTICULATES

The major airborne radioactive effluents include radon gas and radioactive particulates. To the extent practical, the facility ventilation systems for control of these effluents will be designed to accomplish the following:

- Provide for general area and local ventilation where concentrations of natural uranium and daughters, and radon or daughters may be present in excess of 25% of the values given in Table 1 of Appendix B to 10 CFR 20.
- Exhausted air will not enter air intakes that service other facility areas.

4.1.1 Radon

The principal gaseous radiological effluent is radon released from the circulating leach solution and/or in the elution and precipitation circuit. The buildup of radon in buildings will be controlled by general area and local ventilation systems.

For radon emissions, calculations performed in accordance with existing NRC guidance will be used to estimate source terms and calculate off site dose to the public. For example, Regulatory Guide 3.59, section 2.6 provides methods acceptable to NRC for estimating the radon source term during ISR operations. Additionally, NUREG 1569, Appendix D, provides the MILDOS – AREA methodology acceptable to the NRC, which includes expressions for calculating the annual radon 222 source terms from various aspects of ISR operations.

Regarding determination of buildup of radon in buildings, air sampling will be routinely performed to assess concentration of radon progeny using the modified Kusnetz method.

Routine measurements will be made throughout plant areas on a monthly basis using passive alpha track-etch type detectors for radon. Quarterly sampling for radon daughters will be made where previous measurements have shown the daughters are not generally present in concentrations exceeding 0.03 working levels (≤10% of the limit). Monthly measurements of radon daughter concentrations will be made where radon daughters routinely exceed 10% of the limit or 0.03 working levels above background and exposures (e.g., "WL hrs") will be assigned to workers as part of their permanent exposure records. If concentrations exceed 10 % of the DAC in 10 CFR 20 Appendix B (> 0.03 Working Levels), sampling will be increased to weekly and working level (WL) – hrs of exposure will be calculated and assigned to worker exposure records. At concentrations > 25 % of the DAC (> 0.08 WL), the RSO will investigate potential causes and institute necessary corrective actions.

4.1.1.1 General Area Ventilation

General ventilation of work areas in process buildings may be maintained by a forced air ventilation system. The preliminary general area ventilation system for the Nichols Ranch CPP will be designed to force air to circulate through the process areas with four, ten thousand (10,000) cfm fans. The ventilation system will draw fresh air into the building and exhaust outside the building resulting in an air exchange ratio of approximately 2.7 air exchanges per hour. The forced air system will be used when the buildings are normally closed due to weather or other factors. During favorable weather conditions, open doorways and convection vents will assist in providing satisfactory work area ventilation.

Preliminary general area ventilation design work for the Hank satellite includes the installation of two fans with a design capacity of 10,000 cfm per each fan. The two fans will be located so that one fan is on a separate half of the Hank satellite processing building. The air exchange rate for the two fans is approximately 3.1 air exchanges per hour. Like the Nichols Ranch CPP, during favorable weather conditions, open doorways and convection vents will assist in providing ventilation to the general work area. The Hank satellite processing building will also be heated during the winter months to maintain comfortable temperatures within the processing building.

Figures 4-1 and 4-2 (see map pockets) show the preliminary ventilation system for the Nichols Ranch CPP and the Hank Unit satellite.

4.1.1.2 Local Ventilation

A system independent of the general area ventilation will provide local ventilation for process vessels where significant concentration of radon could reasonably be expected to be released. The system will consist of ducting or piping near the expected point of release for the respective process vessel. Fans will collect gases through the ducting or piping and exhaust outdoors. The design will include considerations of redundancy or compensation. Airflow through openings in the vessels will be from the process area into the vessel and into the ventilation system, thus controlling any releases that occur inside the vessel. Separate and independent local ventilation systems may be used temporarily as needed for functional areas or nonroutine activities.

4.1.2 Particulate

The principal particulate radiological effluent is uranium and daughters released from the drying and packaging of yellowcake. An independent ventilation and filtration system is installed as a part of this operation. A description of the effluent controls of vacuum drying and packaging system are summarized as:

- The drying chamber operates at negative pressure.
- A bag house is situated above the drying chamber. It provides for filtration of air and vapor from the drying chamber. The dry solids on the filter surfaces are discharged back to the drying chamber. The bag house is maintained under negative pressure by the vacuum system.
- A condenser is located downstream of the bag house. Dust passing through the bag filters is wetted and entrained in the condensing moisture within this unit. The gases are moved through the condenser by the vacuum system.

- The vacuum system is a water sealed unit. It provides a negative pressure on the entire system during drying and packaging. The water seal captures entrained particulate remaining in the gas stream.
- Ventilation is provided by the vacuum system when yellowcake is transferred from the drying chamber for packaging.
- The low intermittent air flow exiting the vacuum system precludes sampling of this effluent.
- The system is instrumented to shut itself down for malfunction or failure of the vacuum system. The system will alarm if there is an indication that the emission controls are not performing within specifications. Operating procedures will provide for return of the system to service upon correction of the malfunction or failure.
- Instrumentation provides an audible and/or visual alarm if the vacuum level is outside specifications; the operation of this system is monitored during drying and packaging operations. Otherwise, effluent controls will be operated in accordance with 10 CFR 40, Appendix A, Criterion 8. In the event the instrumentation system fails, the operator will document checks of the vacuum every four hours. Additionally, during routine operations, the air pressure differential gauges for other emission control equipment is observed and documented at least once per shift during dryer operations.

The vacuum system is proven technology which is being used successfully at several uranium recovery facilities where uranium oxide is being produced.

Concentrations of both radon and progeny will be measured during operations at site boundary locations. As described in section 5.7.7.2 of the Technical Report, radon 222 gas will be measured using "alpha track" detectors (e.g., Radtrak detectors available from Landauer, Inc.) for the measurement of radon. Alpha track detectors will be exchanged and analyzed on a quarterly basis.

Radionuclide air particulates are measured at site boundary locations via filter paper collection and subsequent radiochemical analysis. Although no radionuclide particulates are expected to be released from modern ISRs (see NUREG 1910, *Generic Environmental Impact Statement* *for In-Situ Leach Uranium Milling Facilities*, Section 4.2.11.2.1), particulate radon daughters are produced from the decay of their Radon 222 parent. The air particulate filters are analyzed on a quarterly basis for radionuclides including Pb 210, the representative long lived radon progeny that will survive during the time period from point of radon 222 release to point of potential exposure, filter collection and analysis.

4.2 LIQUIDS AND SOLIDS

This section provides description of disposal methods for the major liquid effluents and solid wastes at the Nichols Ranch ISR Project.

4.2.1 Liquid Effluents

Liquid effluents are expected to be generated from well development water, pumping test water, process bleed, process solutions, wash-down water, and restoration water.

The water generated during well development and pumping tests is expected to satisfy WDEQ-WDQ Class III (Livestock) standards at a minimum and has minimal potential radiological impact on soils or surface water. No alternate handling or disposal method is required allowing water to be pumped onto the ground.

The process bleed and wash down water will be transferred to a deep disposal well. This deep disposal well will be equivalent in design and depth to existing deep disposal wells at similar ISR uranium recovery sites. This deep disposal well will be permitted through the WDEQ and operated according to permit requirements.

The restoration water will be treated by reverse osmosis or other purification technology. The treated restoration water will be re-injected into the production area undergoing restoration with the restoration water bleed transferred to the deep disposal well.

An expected chemical and radiological composition of the liquid waste stream to be disposed of in the deep wells that is based on a currently operating ISR operation is described as follows:

Table 4-1 Typical Deep Disposal Well Constituents.

Constituent	mg/l *
Ammonia as nitrogen	~ 1
Sodium	50 - 100
Calcium	400 - 700
Potassium	15 - 30
Bicarbonate as HCO3	500 - 700
Carbonate as CO3	0
Sulfate	600 - 800
Chloride	150 - 900
TDS	1900 - 3200
Uranium as U3O8	1 - 10
Ra-226, pCi/l	900 - 3200
pH, standard units	5 - 7

* unless otherwise indicated

4.2.2 Solid Wastes

Solid wastes will normally consist of spent resin, empty packaging, miscellaneous pipes and fittings, tank sediments, and domestic trash. These materials will be classified as contaminated or noncontaminated based on their radiological characteristics.

4.2.2.1 Noncontaminated solid waste

Noncontaminated solid waste is waste which is not contaminated with radioactive material or which can be decontaminated and reclassified as noncontaminated waste. This type of waste may include trash, piping, valves, instrumentation, equipment and any other items which are not contaminated or which may be successfully decontaminated. Noncontaminated solid waste will be collected on the site in designated areas and disposed of in the nearest permitted sanitary landfill.

It is estimated that the site will produce approximately 700 to 1,000 cubic yards of noncontaminated solid waste per year. This estimate is based on the waste generation rates of similar in situ uranium recovery facilities.

4.2.2.2 Contaminated solid waste

Contaminated solid waste consists of solid waste contaminated with radioactive material that cannot be decontaminated. This waste will be classified as 11.e(2) byproduct material. This byproduct material will consist of filters, personal protective equipment, spent resin, piping, etc. It is estimated that the site will produce approximately 60 to 90 cubic yards of 11.e(2) byproduct material as waste per year. This estimate is based on the waste generation rates of similar ISR uranium recovery facilities. These materials will be temporarily stored on site and periodically transported for disposal.

Contaminated soils may also be temporarily stored on site and periodically transported for disposal.

Uranerz will establish an agreement(s) for disposal of 11.e(2) byproduct material and contaminated soils in a licensed waste disposal site or licensed mill tailings facility. Uranerz will notify NRC within seven days if any disposal agreement is terminated and will submit a new agreement to NRC staff for approval within 90 days of expiration or termination.

4.3 CONTAMINATED EQUIPMENT

Surface contamination surveys will be conducted of potentially contaminated equipment and materials before they are released to unrestricted areas. The applicable surface contamination limits are provided by USNRC, *Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material*, Division of Fuel Cycle and Material Safety, April 1993. A comprehensive radiation survey will be made in conformance with these guidelines, which establishes that contamination is within the limits specified within the referenced guidelines and is as low as is reasonably achievable before release of the equipment or material for unrestricted use.

If contamination above these limits is detected, the equipment or material will be decontaminated until the limits are satisfied, or the item will not be released to unrestricted use.

Radioactivity on surfaces will not be covered by paint, plating, or other covering unless contamination levels, as determined by a survey and documented, are below the aforementioned limits before application of the covering. A reasonable effort will be made to minimize the contamination before use of any covering.

The radioactivity of the interior surfaces of pipes, drain lines, or duct work will be determined by making measurements at all traps and other appropriate access points, provided that contamination at these locations is likely to be representative of contamination on the interior of the pipes, drain lines, or duct work.

4.4 SYSTEM FAILURES

In the event that a spill occurs in the wellfield or process plants, measures will be taken to safely and quickly contain the spill and mitigate the impacts of any released material. Proper notification of plant and corporate management will be made along with properly contacting the NRC and State.

Spills are likely to occur from leaking pipelines and fittings. If a pipeline leak or spill occurs in the plants, the spill or leak will be contained within the building with all spilled material collected in the plant sump. This material will either be pumped back into the process or sent to the deep disposal well.

Wellfield spills will be contained as soon as possible. The area of the spill will be surveyed to identify any contaminated areas and then cleaned up and removed for disposal according to NRC and State regulations.

If any process vessels or tanks that contain or have contained radioactive materials have to be entered for any reason such as cleaning, inspection, or repairs, a radiation work permit (RWP) will be issued detailing the requirements for special air sampling, protective equipment, and increased exposure surveillance.

To notify operating personnel of potential issues with process and wellfield operations, instrumentation such as flow meters and pressure indicators will be used. If any process condition falls out of the normal operating range, audible and visual alarms will sound notifying employees of potential plant problems. The alarm notification will aid in reducing the severity of any potential spills that might occur.

5.0 OPERATIONS

Operations at the Nichols Ranch ISR Project site and facilities are conducted in conformance with applicable laws, regulations and requirements of the various Federal and State regulatory agencies. The organization and management controls described below are established to ensure compliance and further implement the company's policy for providing a safe working environment including the philosophy of maintaining radiation exposures as low as is reasonably achievable (ALARA).

5.1 ORGANIZATION

The management structure and responsibilities of the Uranerz Energy Corporation (Uranerz) organization are described in the following section. The organization function is to provide for development, review, approval, implementation, and adherence to operating procedures, radiation safety programs, environmental and groundwater monitoring programs, quality assurance programs, routine and non-routine maintenance activities, and changes to any of these programs or activities.

5.1.1 Management

The Uranerz organization management structure is shown in Figure 5-1 (see map pocket). The structure is applicable to site construction and site management. The structure is applicable to the central processing facility and the satellite facility. The responsibilities and authorities are described below for these management positions.

A Safety and Environmental Review Panel (SERP) will be established, in whole or part, from these management positions. The SERP is described in Section 5.2.

President

The President has the overall responsibility and authority for the radiation safety and environmental compliance programs. He is responsible for ensuring that operations are compliant with applicable regulations and permit/license conditions. The President is also responsible for maintenance of the license. The President provides for direct supervision of the Executive Vice President in this capacity.

Executive Vice President

The Executive Vice President reports to the President and is directly responsible for ensuring that operations personnel comply with radiation safety and environmental protection programs. The Executive Vice President is also responsible for compliance with all federal and state regulations, license conditions, and reporting requirements. The Executive Vice President has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employee or public health, the environment, or potentially a violation of state or federal regulations. The Executive Vice President directly supervises the functional area managers.

Production Manager

The Production Manager reports directly to the Executive Vice President. The Production Manager is responsible for all production activity at the site. In addition to production activities, the Production Manager is also responsible for implementation of industrial and radiation safety, and environmental protection programs associated with operations. All site operations, maintenance, construction, environmental health and safety, and support groups report to the Production Manager. The Production Manager is authorized to implement immediately any action to correct or prevent hazards. The Production Manager has the responsibility and the authority to suspend, postpone, or modify, immediately if necessary, any activity that is determined to be a threat to employee or public health, the environment, or potentially a violation of state or federal regulations. The Production Manager cannot unilaterally override a decision for suspension, postponement, or modification if that decision is made by senior management, the Environmental, Safety, and Health Manager, or the Radiation Safety Officer. The Production Manager directly supervises the Mine Superintendent.

Mine Superintendent

The Mine Superintendent reports directly to the Production Manager. The Mine Superintendent is responsible for day-to-day operation and management of construction and production activities at the site. The Mine Superintendent is also responsible for implementation of industrial and radiation safety, and environmental protection programs associated with construction and plant management. The Mine Superintendent has the responsibility and the authority to suspend, postpone, or modify, immediately if necessary, any activity that is determined to be a threat to employee or public health, the environment, or a potential violation of state or federal regulations. The Mine Superintendent oversees the line management for the functional areas of construction, administration, operations, maintenance, and support.

Line Management

Line management reports directly to the Mine Superintendent. Line management is responsible for management oversight and direct supervision of activities including construction, operations, maintenance, and support for the respective functional area. Line management is responsible for line implementation of industrial and radiation safety, and environmental protection program requirements associated with the respective functional area. Line management is responsible for line conduct and enforcing compliance with management controls (e.g. operating procedures, radiation work permits, and ALARA requirements within the respective functional area. Line management has the authority to stop any activity, immediately if necessary, that is determined to be a threat to employee or public health, the environment, or a potential violation of state or federal regulations. Line management oversees all wellfield, production, and lab personnel.

ES&H Manager

The Environmental, Safety, and Health Manager, reports directly to the Executive Vice President. The Manager ESH is responsible for all radiation protection, health and safety, and environmental programs, and for ensuring compliance with all applicable regulatory requirements. The Manager ESH also has the responsibility to advise senior management on matters involving radiation safety and to implement changes and/or corrective actions involving radiation safety authorized by senior management. The Manager ESH is tasked to ensure that the radiation safety and environmental monitoring and protection programs are conducted in a manner consistent with regulatory requirements. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs. The Manager ESH has no production-related responsibilities. The Manager Environment, Safety, and Health, supervises the Radiation Safety Officer.

Radiation Safety Officer

The Radiation Safety Officer (RSO) reports directly to the Manager Environment, Safety, and Health. The RSO is responsible for conducting the radiation safety program and for providing assistance in ensuring compliance with NRC regulations and license conditions applicable to worker health protection. The RSO is responsible for overseeing the day-to-day operation of the radiation safety program and for ensuring that records required by NRC are maintained. The RSO has the responsibility and the authority to suspend, postpone, or modify, immediately if necessary, any activity that is determined to be a threat to employee or public health, the environment, or potentially a violation of state or federal regulations, including the ALARA program. The RSO has no production-related responsibilities. The RSO supervises the Radiation Safety Technician(s).

Environmental and Radiation Safety Technicians

The Environmental and Radiation Safety technicians report directly to the Manager ESH and the RSO, respectively. The Environmental and Radiation Safety technicians assist the Manager ESH and the RSO with the implementation of the environmental monitoring and radiation safety programs. The Environmental and Radiation Safety technicians are responsible for the orderly collection and recording of all data from environmental and radiological safety programs. The Environmental and Radiation Safety technicians have no production-related responsibilities.

5.1.2 ALARA

The radiation safety and environmental programs at the Nichols Ranch ISR Project site will be implemented in the context of keeping personnel and environmental exposure to radiation and radioactive material as low as is reasonably achievable (ALARA).

5.1.2.1 Philosophy

The considered purpose of the radiation safety and environmental protection programs at the Nichols Ranch ISR Project site are to maintain exposure to radiation and radioactive materials ALARA for all employees, contractors, visitors, and the environment. The implementation and effectiveness of a successful ALARA program is the responsibility of everyone involved in conducting operations at the site.

5.1.2.2 Responsibilities

Responsibilities for implementation of the ALARA philosophy are shared by management, the RSO, and all workers at the Nichols Ranch ISR Project site.

Management

Management is responsible for developing, implementing, and enforcing the policies and procedures necessary for effective radiation safety, environmental protection, and ALARA programs to ensure the health and safety of workers and visitors, and protection of the environment.

Management will provide the following:

1. A strong commitment to and continuing support for the development and implementation of the radiation safety, environmental protection, and ALARA programs;
2. Information and policy statements to employees, contractors, and visitors.
3. Periodic management review of operational and procedural efforts to maintain ALARA;
4. Continuing management evaluation of the radiation safety and environmental protection programs including staffing, and allocations of space and funding; and
5. Appropriate briefings and training in radiation safety, environmental protection, and ALARA concepts for all employees, and, when appropriate, for contractors and visitors.

Manager ESH and RSO

The Manager ESH and the RSO have primary responsibility for the technical adequacy and correctness of an ALARA application for the environmental protection and radiation safety programs. Each has continuing responsibility for surveillance and supervisory action in the enforcement of the ALARA program.

The Manager ESH and the RSO will be assigned the following:

1. Major responsibility for the development and administration of the environmental protection, radiation safety, and ALARA programs;
2. Sufficient authority to enforce regulations and administrative policies that affect any aspect of the environmental protection and radiation safety;
3. Responsibility to review and approve plans for new equipment, process changes, or changes in operating procedures to ensure that the plans do not adversely affect the environmental protection and radiation safety programs; and
4. Adequate equipment and facilities to monitor relative attainment of the ALARA objective.

Workers

Environmental protection, radiation safety, and ALARA programs are only as effective as the workers' adherence to the program. All workers at the Nichols Ranch ISR Project site will be responsible for the following:

1. Adhering to all policies, operating procedures, and instruction for environmental protection and radiation safety as established by management;
2. Reporting promptly to management equipment malfunctions or violations of standard practices or procedures that could result in increased radiological hazard;
3. Suggesting improvements for the environmental protection, radiation safety, and ALARA programs.

5.2 MANAGEMENT CONTROL PROGRAM

Activities will be conducted in a manner to protect the health and safety of employees, the public, and the environment. Management controls are provided to implement this policy.

5.2.1 Administrative Procedures

Activities that may affect health, safety, and the environment, including compliance with license commitments or conditions, will be conducted in accordance with written procedures or instructions.

5.2.1.1 Operating Procedures

Written operating procedures or instructions (procedures) will be established for all activities that involve handling, processing, or storing radioactive materials. These procedures will include consideration of pertinent radiation safety practices. Written procedures will also be established document control, record keeping, corrective action system, quality assurance, operations, industrial and radiation safety, workplace and environmental monitoring, and emergency response.

Procedures, new and revised, for activities involving radioactive material will include review and approval by the RSO. Approval and training will occur before implementation. A current copy of each procedure will be accessible to all employees. The procedures will include documentation of revision and date. Procedures will be reviewed annually by RSO.

5.2.1.2 Radiation Work Permits

Activities not covered by a written operating procedure but involving radioactive material will be conducted in accordance with requirements of a radiation work permit (RWP). The RWP will describe the job to be performed; precautions necessary to reduce exposure to radioactive materials; and monitoring and sampling requirements before, during, and after completion of the job.

The RWP will be completed in accordance with a written operating procedure. The RSO or RST will indicate approval of the RWP by signature. Those working under the RWP will acknowledge in writing that they understand the requirements.

5.2.1.3 Record Keeping

Records will be maintained of receipt, transfer, and disposal of source or byproduct material processed or produced at the site. Records will also be maintained of the radiation safety and environmental monitoring programs to include surveys, sampling, and calibrations. These records will be maintained for the period described by regulation or license. Records of surveys and monitoring will also be maintained in accordance with 10 CFR 20 Subpart L

The following records will be permanently maintained and retained until license termination:

- Records of deep well injection.
- Records containing information important to decommissioning and reclamation, including:
    - Descriptions of spills, contamination events and associated corrective actions.
    - Information related to site and aquifer characterization, and background radiation and radioactivity levels.
    - As built drawings of structures, equipment, restricted areas, wellfields, radioactive material storage, and any modifications showing the locations of these structures and systems through time.
    - Drawings of areas of possible inaccessible contamination, including features such as buried pipes or pipelines.
- Occupational exposure history of employees and contractors including:
    - Results of exposure rate measurements used for personnel monitoring and dose calculations.
    - Results of air sampling used for personnel monitoring and dose calculations.

    - Bioassay results.
    - NRC Form 5 or equivalent.
- Records of environmental monitoring.

Records will be maintained with safeguards against tampering and loss. Records will be maintained as hardcopy originals and/or electronic copy of same by scanning. Records will be readily retrievable for inspection at the site.

5.2.1.4 Reporting

Spills, leaks, or excursions will be reported in accordance with 10 CFR 40.60. Personnel and environmental monitoring will be reported in accordance with 10 CFR 19.13 and 10 CFR 20 Subpart M.

5.2.2 Safety and Environmental Review Panel

A Safety and Environmental Review Panel (SERP) will be established. The purpose of the SERP is to review proposed changes, tests, or new activities with respect to whether they first require a license amendment.

5.2.2.1 Organization

The SERP will consist of at least three members. One member will have management authority for implementing managerial and financial changes. One member will have expertise in operations and/or construction and will have responsibility for implementing any operational changes. One member will be the RSO, or designee, with responsibility for assuring that changes conform to radiation safety and environmental requirements. Additional members may be included in the SERP, as appropriate, to address specific issues or disciplines. Additional members may serve temporarily and may be consultants.

5.2.2.2 SERP Procedures

The SERP will function in accordance with a written operating procedure(s). The procedure(s) will ensure that approvals of changes in the facility, license, operating procedures, or conduct of tests or experiments are appropriately documented and reported. These approvals may be effected without obtaining a license amendment pursuant to 10 CFR 40.44, so long as the approved activity does not:

- Create a possibility for an accident of a different type than previously evaluated in the license application (as updated).
- Create a possibility for a malfunction of a structure, system, or control with a different result than previously evaluated in the license application (as updated).
- Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report or the environmental assessment or technical evaluation reports or other analyses and evaluations for license amendments.

Absent approval by the SERP, a proposed activity may not occur without revision subsequently allowing SERP approval, or approval by NRC.

The RSO will not approve self-proposed changes to radiation safety and environmental requirements. A designee satisfying the qualification requirements of the RSO will serve as a SERP member in these cases.

5.2.2.3 SERP Records

The SERP records will include written safety and environmental evaluations that provide the basis(s) for determining whether changes satisfy the procedural requirements described previously. These records will be permanently maintained and retained until license termination and otherwise in conformance with previous description of record keeping requirements.

5.2.2.4 SERP Reports

An annual report will be submitted to the NRC that includes the results of the annual audit of the radiation safety and ALARA programs required at Section 5.3, land use survey, monitoring data, corrective action program report, one of the semiannual effluent and environmental monitoring reports, and description of activities approved by the SERP. Revised pages of the license application will be included with the report as applicable; each revised license application page will have a change indicator for the area changed and a page change indication.

5.2.3 Cultural Resource Inventory

Uranerz will administer a cultural resources inventory before engaging in any development activity not previously assessed by NRC. Any disturbances to be associated with such development will be completed in compliance with the National Historic Preservation Act, the Archeological Resources Protection Act, and their implementing regulations. Uranerz will cease any work resulting in the discovery of previously unknown cultural artifacts to ensure that no unapproved disturbance occurs. Any such artifacts will be inventoried and evaluated, and no further disturbance will occur until the licensee has received authorization from the NRC to proceed.

5.3 MANAGEMENT AUDIT AND INSPECTION PROGRAM

5.3.1 Audit

An audit will be completed annually of the content and implementation of radiation safety and ALARA programs. The scope of the review will be consistent with NRC Regulatory Guide 8.31 "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Mills Will Be As Low As Is Reasonably Achievable." Revision 1, 2002. A written report of the audit will be submitted to corporate and site management. A written report of the audit will be provided to the Safety and Environmental Review Panel for action as applicable.

5.3.2 Inspections

Inspections will be conducted periodically, as described below, of the wellfield and process areas. The purpose of the inspections will be to ensure that radiation protection, monitoring, and safety requirements are being followed and/or are properly functioning. The inspections will be performed and documented in accordance with a written procedure.

Daily

An ES&H staff representative will conduct a daily walkthrough inspection of the process and storage areas. The inspection will provide for a visual survey of proper implementation of procedures, housekeeping, and contamination control.

Weekly

The ES&H staff will complete a weekly inspection of the site. The scope of the inspection will include radiation safety practices, procedural compliance, environmental monitoring, and environmental conditions at the site.

Monthly

The ES&H manager will provide to site management a written summary of the conditions of radiation safety and environmental monitoring. The report will include summaries of personnel monitoring, radiation and contamination surveys, trends important to ALARA considerations, a general assessment of compliance, and a description of problems with recommendations for corrective action.

5.4 QUALIFICATIONS FOR PERSONNEL CONDUCTING THE RADIATION SAFETY PROGRAM

The qualifications are described below for personnel assigned responsibility for developing, conducting, and administering the radiation safety program. The qualifications will be consistent with NRC Regulatory Guide 8.31, "Information Relevant to Ensuring that

Occupational Radiation Exposures at Uranium Mills Will Be As Low As Is Reasonably Achievable," Revision 1, 2002 at Section 2.4.

Radiation Safety Officer

The RSO should have the following education, training, and experience:

Education: A bachelor's degree in the physical sciences, industrial hygiene, or engineering from an accredited college or university, or an equivalent combination of training and relevant experience in radiation safety. Two years of relevant experience may be considered equivalent to one year of academic study.

Radiation Safety Experience: At least one year of work experience relevant to uranium recovery operations in applied radiation safety, industrial hygiene, or similar work. This experience should involve actually working with radiation detection and measurement equipment, and administrative duties.

Specialized Training: At least four weeks of specialized classroom training in radiation safety applicable to uranium recovery. Refresher training on relevant radiation safety matters should be completed every two years.

Specialized Knowledge: Knowledge of the proper application and use of all radiation safety equipment used at the facility, the analytical procedures used for radiological sampling and monitoring, methodologies used to calculate personnel exposure to uranium and its daughters, an understanding of the processes and equipment used at the facility, and how the radiation hazards are generated and controlled.

Radiation Safety Technician

The radiation safety technician should have one of the following combinations of education, training, and experience:

Education: An associate degree or two or more years of study in the physical sciences, engineering, or a health-related field;

Training: At least four weeks of generalized training (up to two weeks may be on-the-job training) in radiation safety applicable to uranium recovery facilities;

Experience: One year of work experience using sampling and analytical laboratory procedures that involve radiation safety, industrial hygiene, or industrial safety measures to be applied at a uranium recovery facility;

Or

Education: A high school diploma;

Training: A total of three months of specialized training (up to one month may be on-the-job training) in radiation safety relevant to uranium recovery facilities;
Experience: Two years of relevant work experience in applied radiation safety.

The radiation safety technician should demonstrate a working knowledge of the proper operation of radiation safety instruments used in the facility, surveying and sampling techniques, and personnel dosimetry requirements.

5.5 RADIATION SAFETY TRAINING

All personnel will be provided training before entering controlled areas or beginning their jobs. The scope of the training will be based on access requirements to the facility and potential for exposure to radiation and radioactive materials. The scope of training will initially be determined with respect to whether the individual is a visitor, or an employee or contractor. Training of visitors will be applicable to newly hired employees and contractors, and visitors who will not or have not completed other site-specific training (e.g. as described below). All visitors to the facility will receive instruction on what they should do to avoid possible radiological and nonradiological hazards in the areas of the facility they will be visiting, escort requirement, and actions to take during an emergency.

All new employees and contractors will be instructed by means of an established course in the inherent risk of exposure to radiation and the fundamentals of protection against exposure to uranium and its daughters before beginning their jobs. The training will be commensurate with the risks and hazards associated with their requirements for access to the site. Those personnel who need unescorted access to the wellfield and process area will be provided a course of instruction covering those topics identified in NRC Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Recovery Facilities Will Be As Low As Is Reasonably Achievable," Revision 1, 2002 at Section 2.5. The instruction will be consistent with NRC Regulatory Guide 8.29, "Instruction Concerning Risks from Occupational Radiation Exposure," Revision 1, 1996 and NRC Regulatory Guide 8.13, "Instruction Concerning Prenatal Radiation Exposure," Revision 3, 1999.

Those employees and contractors who will work in the wellfield or process area (i.e. working around radiation and/or with radioactive materials) will be provided additional training. The additional training will include more depth on the previously identified topics, particular instruction on the health and radiation safety aspects and nonradiological hazards of tasks, and the requirements of procedures and instructions pertaining to radiation safety.

A written or oral test will be given to each individual. The test will cover radiation safety and health protection principles and requirements as applicable to the Nichols Ranch ISR Project site. The test will be reviewed with the individual(s), including discussion of wrong answers. Individuals who fail the test will be provided additional training and successfully retested if the intention remains to place them in the wellfield or process area.

Employees and contractors will be provided refresher training annually. The refresher training will be an abbreviated form of the original training. Refresher training will also include relevant information available since the previous training, review of safety issues since the previous training, applicable changes in regulations and license conditions, and personnel exposure trends.

Training will be documented to include individuals name and employer, topic, date, and identification of instructor. Records will be maintained of this documentation and test results.

5.6 SECURITY

Security measures will be provided to prevent unauthorized entry to controlled areas and unauthorized access to licensed material in storage. The security measures will be comprised of passive and active controls. Passive controls will include fencing of wellfields and the process area: wellfield fence will be a typical 3-strand livestock fence to prevent livestock from entering the wellfield, and the process area fence will be a typical chainlink fence with minimum the height of six feet to prevent inadvertent animal or human intrusion. Passive controls will also include postings indicating that radioactive material may be present and that permission is required for entry. Active controls will also include capability to lock gates and doors. Visitors will not be allowed inside the wellfields or process area without an escort.

5.7 RADIATION SAFETY CONTROLS AND MONITORING

A corporate commitment to and support for the implementation of the radiation safety program has been established for the Nichols Ranch ISR Project sites. This commitment and support incorporates the ALARA philosophy into the environmental protection and radiation safety controls and monitoring programs described in the following sections.

5.7.1 Effluent Control Techniques

This section describes effluent control techniques designed to minimize in-plant and environmental emissions at each step of the process where release might occur.

5.7.1.1 Airborne Radioactive Effluents

The potential airborne radioactive effluents include radioactive particulates and radon gas.

5.7.1.1.1 Particulate

The potential for airborne radioactive particulate emissions is associated with the drying and packaging of the recovered uranium. These activities will occur in a closed system under vacuum. The use of vacuum drying and packaging equipment is briefly described in Section 4.1. This type equipment has been shown to eliminate particulate releases from drying and packaging activities at ISR uranium processing facilities.

Additionally, the vacuum drying and packaging will occur in a dedicated room or enclosure as depicted in Figure 4-1 (see map pocket). This will provide for confinement of releases associated with these activities.

The dryer room is a single room containing the drying and packaging equipment and operations. Preliminary design dimensions of the dryer room will be 60' L x 60' W x 30' H. The dryer room will be ventilated by the emission control system of the dryer (see also Section 4.1.2). The dryer room will be maintained at a negative pressure during drying and packaging operations. The room will be ventilated to satisfy the criteria in the Technical Report at sections 4.1 GASEOUS AND AIRBORNE PARTICULATES, and 5.7.3 Airborne Radiation Monitoring Program.

The potential release points of uranium in the dryer room are during filling of the dryer and filling of the yellowcake packaging. Spill during fill of the dryer would not be expected to create significant airborne radioactive material due to the high moisture content of the yellowcake at this point (50% or greater), allowing the yellowcake to behave like a sludge. During filling of the yellowcake packaging, local ventilation from the emission control system will prevent significant airborne release during normal operation. A dead-man switch on the fill mechanism will prevent unintended flow of yellowcake when filling packaging.

The dryer room will not normally be accessible from the main process area or the YC (yellowcake) Drum Storage. The dryer room will include a conveyor system for moving the filled yellowcake packages into the adjacent YC Drum Storage.

A process flow diagram of the yellowcake dryer is provided in Figure 5-1a.

5.7.1.1.2 Radon

The potential for radon gas emission is associated with emanation from process solutions. Radon gas mobilization occurs from recovery solutions at process locations where systems allow venting. Control of radon gas will be achieved by using passive and mechanical ventilation in buildings where radon gas venting is expected. The application of ventilation is briefly described in Section 4.1. This type of control has been shown to be effective in reducing and controlling radon gas levels at ISR uranium processing facilities.

5.7.1.2 Liquid Radioactive Effluents

The major liquid effluents include well development water, pumping test water, process bleed, process solutions, wash-down water, and restoration water.

The primary control techniques are application of the systems and methods described in Section 4.2. Otherwise, general contamination control techniques of confinement, containment, isolation, and decontamination will be implemented by operating procedures to affect effluent control.

A description of the waste stream that will be sent to the deep disposal wells is found in Table 4-1 in Chapter 4 of the Technical Report. Fluids captured on the process pad, reject water from the RO units, bleed, accidental spills, routine cleaning of equipment and the pad, maintenance operations and decommissioning will be injected down Class I disposal wells. The rules governing Class I wells are rigorous and provided a high level of protection to workers, members of the public and the environment. Examples of protection that are in full keeping with the ALARA principle include: requirements covering mechanical integrity testing (prior to using the well, after performing workovers and during the operational life of the well and prior to plugging and abandonment); routine inspections by state personnel; 24 hour monitoring/recording of pressure and fluid volume; corrosion monitoring; reviewing and approving full engineering details on the pre-injection units (i.e., equipment such as by-product storage tanks, pipelines, filters, pumps and emergency cutoff switches); preparation of process flow diagrams (PFDs) and piping and instrumentation diagrams (P&IDs); and preparation of a fluid balance table showing that the facility has sufficient capacity to accommodate all fluids. In addition to the above, the materials used to build waste disposal wells and their associated facilities are well known and have a 30 year plus record of successful performance.

With regard to the location of potentially affected facilities, the project sites are in remote, sparsely populated areas with little to no infrastructure. The pipeline routes to the wellheads will not pass near other non-project related facilities. As discussed in sections covering accidental spills and corrective action, it was demonstrated that potential impacts from a spill would be significantly minimized.

As summarized above, the design, frequent inspections both by company personnel, state and NRC inspectors and the corrective action plans combine to assure that potential impacts (including dose to individual members of the public) are in line with the ALARA principle. It should also be noted that this method of disposal ensures that members of the public are most protected in that the fluid is placed deep underground near the facility. In other words, if fluids were to be transported by tanker trucks to a distant disposal facility over public roads, potential exposure to the environment and the public would be much greater. Piping the fluid over a short distance and then injecting it deep underground affords the best protection. In summary, the potential for causing any dose to an individual member of the public is extremely remote in that they (the public) are completely shielded from the material.

Nichols Ranch ISR Project will not release liquids into surface waters.

5.7.1.2.1 Contingency for Unplanned Releases

Administrative and engineering controls will be established to prevent both surface and subsurface releases to the environment and to mitigate the effects should a release occur. These controls, including response actions, will be implemented by operating procedures.

Releases can be of two primary types at an in situ uranium recovery facility: surface releases such as vessel failure, piping failure, etc.; and subsurface releases such as well excursion or piping failure.

5.7.1.3 Surface Releases

Vessel failure – Releases may occur from leaks or ruptures of process vessels. These releases will initially be confined within the building by curbing and/or sloped flooring. The entire building will drain to a sump that will contain the solutions until transfer for appropriate management.

Piping failure – Releases may occur from leaks or breaks within the above ground segments of the piping system that transfers fluids between the wellfield and the process area. These are expected to be small and of short duration due to visual inspections and engineering controls that detect pressure changes in the piping systems subsequently alerting the plant operators through system alarms. Surface piping will be protected from vehicle traffic. All process solution pipelines will be pressure tested prior to use.

5.7.1.3.1 Subsurface Releases

Well excursion – Extraction fluids are normally maintained in the production aquifer within the immediate vicinity of the wellfield. The function of the encircling monitor well ring is to detect any extraction solutions migrating from the production area due to fluid pressure imbalance. This system has been proven to function satisfactorily over many years of operating experience with uranium in situ uranium recovery operations.

A ring of perimeter monitor wells located no further than 500 ft from the wellfield and screened in the ore-bearing aquifer will surround all wellfields. Additionally, shallow and deep monitor wells will be placed in the first overlying and first underlying aquifer above each wellfield segment. These wells will be sampled biweekly for the presence of leach solution. The total effect of the close proximity of the monitor wells, the low flow rate from the well patterns, and over-production of leach fluids (production bleed) makes the likelihood of an undetected excursion extremely remote.

Migration of fluids to overlying and underlying aquifers has also been considered. Several controls are in place to prevent this. All current and future exploration holes will be plugged to prevent commingling of aquifers and to isolate the mineralized zone. In addition, prior to placing a well in service, a well mechanical integrity test will be performed. This requirement ensures that all wells are constructed properly and capable of maintaining pressure without leakage.

Piping failure – Releases may occur from leaks or breaks within the underground segments of the piping system that transfers fluids between the wellfield and the process area. These are expected to be small and of short duration due to engineering controls that detect pressure changes and flow rates in the piping systems subsequently alerting the plant operators through system alarms. All process solution pipelines will be pressure tested prior to use.

5.7.2 External Radiation Exposure Monitoring Program

Monitoring, surveys, instrumentation, and equipment will be provided to determine exposures of employees to external radiation during routine and non-routine operations, maintenance, and cleanup activities.

5.7.2.1 Personnel Monitoring

Employees requiring unescorted access to restricted areas to work around radiation and/or radioactive materials will be provided individual monitoring devices for external occupational dose.

External exposure monitoring will be accomplished using thermoluminescent or optically stimulated luminescent dosimeters. These dosimeters have a lower limit of detection of one mrem and an upper limit of approximately 1,000 rem. The dosimeters will be processed at least quarterly by a vendor accredited by the National Voluntary Laboratory Accreditation

Program. Corrective action will be implemented for any worker reaching 25% of the annual limits of 10 CFR 20.

The program for external exposure monitoring and determining doses from external exposure will be conducted in accordance with or equivalent to NRC Regulatory Guide 8.34, "Monitoring Criteria and Methods to Calculate Occupational Radiation Doses," 1992.

Documentation of these monitoring results will be completed consistent with NRC Regulatory Guide 8.7, "Instructions for Recording and Reporting Occupational Radiation Exposure Data," Revision 1, 1992.

5.7.2.2 Exposure Rate Surveys

Exposure rate surveys will be performed on at least a quarterly frequency in the process areas. Surveys will be performed at normally and periodically occupied locations and areas of potential gamma sources such as process vessels, filter press, dryer, and yellowcake storage. The frequency of exposure rate surveys in the process areas will be increased to monthly for normally occupied areas exceeding 5 mrem/h. The cause and corrective actions will be documented for these cases. Routine survey locations are shown on Figure 5-2a and 5-2b (see map pocket).

Exposure rate surveys will also be performed on at least a quarterly frequency in controlled and unrestricted areas to include wellfields, eating areas, change rooms, and office space. The frequency of exposure rate surveys in controlled and unrestricted areas will be increased to monthly for areas exceeding two mrem/h. The cause and corrective actions will be documented for these cases.

The surveys will be performed with instrumentation that, individually or in combination, covers a range of approximately 0.010 mrem per hour to five rem per hour. The survey instruments will be portable and hand-held. The instruments will be calibrated at least annually. The instruments will be calibrated and operated in accordance with manufacturers' instructions. The instruments will satisfactorily complete a performance check each day of use.

The results of these surveys will be used to establish postings in accordance with requirements of 10 CFR 20. The results of these surveys may be used to supplement personnel monitoring when work is being performed where workers are required to be monitored.

Exposure rate surveys will be made consistent with NRC Regulatory Guide 8.30 "Health Physics Surveys in Uranium Mills," Revision 1, 2002.

Beta exposure rate surveys will be performed at the specific operations that involve direct handling of large quantities of aged yellowcake. This would include in plant areas associated with precipitation, dewatering (filter press) and drying/packaging. These surveys will be performed near the surface of the material (e.g., within 10 cm) so as to be representative of beta exposure rates to workers' hands and skin during the handling of the material. Surveys will be performed at initiation of operations and subsequent surveys and/or beta evaluations will be performed whenever procedural and/or equipment changes could affect the beta levels to which employees may be exposed. Any beta exposure rate evaluations for these operations that are performed in lieu of instrument surveys will use the information provided in Regulatory Guide 8.30 Figures 1 and 2. Should evaluations and/or measurements indicate workers could be exposed to levels > 10% of the limits for shallow-dose equivalent to the skin of the whole body or to the skin of any extremity specified @ 10 CFR 20.1201(a)(2)(ii), finger and/or wrist TLD badges will be used in addition to "whole body" TLDs.

Beta contamination surveys will similarly be performed in these same plant areas initially and whenever procedural and/or equipment change may increase risk of beta contamination. These surveys will be performed with a Ludlum 43-1-1 alpha – beta phoswich scintillation probe or equivalent. This probe has an active window area of 83 cm^2, rated efficiencies of 30% alpha (Pu^{239}) and 30% beta (Sr^{90} / Y^{90}) and typical backgrounds of 3 cpm alpha and < 300 cpm beta. However, it should be recognized that there are no process mechanisms by which the beta emitters Th 234 or Pa 234 can be separated from their alpha emitting uranium parents; therefore, cannot be "beta contamination" in the absence of detectable alpha. (Maximum beta possible would when Th 234 / Pa 234 are at equilibrium with the uranium at approximately 4 months post mining).

5.7.3 Airborne Radiation Monitoring Program

A program will be implemented at the Nichols Ranch ISR Project sites for determination of concentrations of uranium and radon daughters in air. The scope of the program will include routine and non-routine operations, maintenance, and cleanup. Results of the program will be used for personnel exposure calculations, and to implement ALARA with respect to airborne radiation exposures and airborne radioactive releases. The airborne radiation monitoring program will be implemented in conjunction with the respiratory protection program.

The routine airborne radioactivity sampling locations are shown in Figures 5-2a and 5-2b (see map pocket).

Air sampling will be conducted in accordance with or equivalent to NRC Regulatory Guide 8.25, "Air Sampling in the Workplace," 1992. The program will be implemented consistent with NRC Regulatory Guide 8.30 "Health Physics Surveys in Uranium Recovery Facilities," Revision 1, 2002.

5.7.3.1 Airborne Uranium Particulate Monitoring

Airborne uranium particulate monitoring will include both breathing zone (e.g. lapel air sampler worn by worker) and area sampling (e.g. fixed location or portable air sampler). The samples will be collected under known physical conditions. Typically, the air filter will be glass fiber or paper, flow rate will be 2 to 5 liters per minute for breathing zone and 20 to 50 liters per minute for area, and start and stop time will be recorded. The flow meters will be calibrated after repair or modification, but at least annually. The samples will be analyzed onsite for gross alpha count rate. The resulting airborne radioactivity concentration will be interpreted as total uranium to support the calculations described in Section 5.7.4.

In order to establish that natural uranium isotopes are the exclusive alpha emitting radionuclides of concern in airborne particulate samples at the Nichols Ranch Ranch ISR Project, Uranerz will prepare composite samples from each of the air particulate monitoring locations noted in

Figures 2-25 and 2-26 of the Technical Report. These sample locations will adequately characterize various points in the process (e.g., lixiviant, precipitation, and drying/packaging areas). These samples will be submitted to a laboratory for radioisotopic analysis. Samples will be analyzed for U nat (total uranium) Th-230, and Ra-226. Uranerz will compare the results of these samples with mixture requirements in 10 CFR §20.1204(g) to ensure that the appropriate DAC from 10 CFR 20 Appendix B Table 1 is used. If necessary, a "sum of fractions rule" will be applied to establish the appropriate DAC. Time studies of job functions will be performed (or actual time workers are in process areas) and DAC – hrs of exposure estimated on weekly basis whenever air monitoring indicates workers were exposed to airborne concentrations > 10% of the DAC (which may be an "effective DAC" using sum of fractions as described above). Dose assignment will be based on the ratio of DAC-hrs of exposure to 2000 DAC –hrs /yr X 5 Rem.

5.7.3.1.1 Breathing Zone

Breathing zone air samples will be a method used to monitor the worker's intake of uranium.

Breathing zone air samples will be used routinely for drying and packaging activities. Breathing zone air samples will be used for non-routine operations, maintenance, and cleanup as required by operating procedure and/or RWP.

5.7.3.1.2 Area

Air samples will also be collected for general and/or local areas when and/or where there is potential for generation of airborne radioactive material.

Area air samples will be used to verify that confinement or containment is effective, and provide warning of elevated concentrations for planning or response actions. In each case, the sampling point will be located considering airflow patterns and to provide the most reasonable representation of the work environment.

Area air sampling will be used routinely for drying and packaging activities. Area air sampling will be used for non-routine operations, maintenance, and cleanup as required by operating procedure and/or RWP.

Area air sampling frequency will be conducted in accordance to NRC Regulatory Guide 8.30 "Health Physics Surveys for Uranium Mills," Revision 1, 2002, at Section 2.3.

5.7.3.1.3 Action Level and Limit

An administrative action level will be established for breathing zone and area air samples of 0.25 derived air concentration (DAC) described in Section 5.7.4; air sample results greater than this administrative action level will be reported to the RSO. An administrative limit will be established for air samples used to monitor intake of 12 DAC-hours per week; individual exposure greater than this limit will require the individual to be restricted from work involving potential exposure to airborne radioactive material unless approved by the RSO.

5.7.3.2 Radon

Radon monitoring will be conducted of the general work areas. The radon detectors will be of the track-etch type. The detection limit will be at least 0.33 pCi/l per 90 days of exposure. The radon detector will be exchanged quarterly. The detectors will be analyzed for total radon. If radon concentrations are above 7.5 x 10-9 μCi/ml (> 25% of the limit), the sampling frequency will be increased to weekly. Sampling will continue to be performed weekly until four consecutive weekly samples indicate concentrations of radon are below 7.5 x 10-9 μCi/ml.

5.7.3.3 Radon Daughter Concentration Monitoring

The airborne concentration of radon daughters will be determined using the modified Kusnetz method of air particulate filter collection and analysis. The flow meters will be calibrated after repair or modification, but at least annually. The air sample result will support the calculations described in Section 5.7.4.

Radon daughter concentration sampling will be made of the process areas. The sampling frequencies and actions levels will be as described in NRC Regulatory Guide 8.30 "Health Physics Surveys in Uranium Recovery Facilities," Revision 1, 2002 at Section 2.3. Additionally, quarterly sampling for radon daughters will be made where previous measurements have shown the daughters are not generally present in concentrations exceeding 0.03 working levels (≤10% of the limit). Monthly measurements of radon daughter concentrations will be made where radon daughters routinely exceed 10% of the limit or 0.03 working levels above background and exposures (e.g., "WL hrs") will be assigned to workers as part of their permanent exposure records. If radon daughter concentrations are normally greater than 0.08 working levels or radon concentrations are above 7.5 x 10-9 μCi/ml (> 25% of either limit), the sampling frequency will be increased to weekly. Sampling will continue to be performed weekly until four consecutive weekly samples indicate concentrations of radon daughters below 0.08 working level.

5.7.3.4 Respiratory Protection Program

Respiratory protection equipment will be used when other means are not available or sufficient to control a worker's exposure to airborne radioactivity. Respiratory protection will routinely be used for drying and packaging activities. Respiratory protection will be used when airborne radioactivity levels are known or expected to exceed one DAC as described in Section 5.7.4, and when removable alpha surface contamination levels are known or suspected to exceed 220,000 dpm/100 m^2. Respiratory protection will be used for nonroutine operations, maintenance, and cleanup as required by operating procedure and/or RWP.

The respiratory protection program will be conducted in accordance with or equivalent to NRC Regulatory Guide 8.15, "Acceptable Programs for Respiratory Protection," Revision 1, 1999.

5.7.4 Internal Dose Calculations

Assessment of internal dose to determine compliance with occupational dose equivalent limits will be in accordance with 10 CFR 20.1204. Determination of intake will be based on

(1 concentrations of radioactive materials in air (air sampling), or (2) quantities of radionuclides excreted form the body (bioassay), or (3) combinations of these measurements. The air sampling program is described in Section 5.7.3. The bioassay program is described in Section 5.7.5.

Internal dose will be determined for routine operations, non-routine operations, maintenance, and cleanup activities. Internal dose calculations will be equivalent to the methodologies provided in NRC Regulatory Guide 8.30, Health Physics Surveys in Uranium Recovery Facilities, 2002, Section 3; NRC Regulatory Guide 8.34, Monitoring Criteria and Methods to Calculate Occupational Radiation Doses, 1992, Section C; or a combination of these methodologies.

Intake will be determined for actual exposure time. Exposure time will be determined from interview, the radiation work permit, other record of work, or a combination. Intake calculations will be equivalent to NRC Regulatory Guide 8.30, Health Physics Surveys in Uranium Recovery Facilities, 2002, Equation A.1; NUREG/CR-4884 Interpretation of Bioassay Measurements; or a combination of these methodologies.

5.7.4.1 Uranium

The intake or concentration or radioactive material in air will be compared to the annual limit on Intake or the Derived Air Concentration value, respectively, of 10 CFR 20, Appendix B, Table 1, Column 3, Uranium-natural. A solubility classification "D" will be assigned to all uranium at the Nichols Ranch ISR Project sites.[1] Account will be made for use of respiratory protection according to 10 CFR 20 at paragraph 1703(i) and Appendix A.

The resulting intakes will also be compiled to allow comparison to the weekly intake limit for soluble uranium of 10 CFR 20.1201(e). Intake of soluble uranium will be limited to 10 mg per week per 10 CFR 20.1201(e). Accordingly, at an assumed specific activity of 0.67 μCi/gram for Unat (10 CFR 20, Appendix B, footnote 3), the weekly soluble intake limit is 6.7 E-3 μCi. Initially, solubility Class W will be used to establish the appropriate ALI of 0.8 μCi and DAC of3 E-10 μCi/ml for U natural (10 CFR 20, App B, Table 1).

[1] U.S. NRC Regulatory Guide 8.30 . Health Physics Surveys in Uranium Recovery Facilities. March 2002, Section 2.2.

Assuming a 40 hour work week and average breathing rate of 20 liters/min, the average concentration at the soluble weekly intake limit is approximately equal to 50% of the DAC. Compliance to this requirement will be documented by recording of worker airborne exposure in DAC – hrs, whenever long lived particulate concentrations in air are determined to be ≥ 10 % DAC and an action level of 25% DAC will be established requiring RSO investigation and potential corrective actions. Assignments of positive airborne exposure will be reviewed weekly. Accordingly, any exposures to soluble uranium > 20 % of the 10 mg/week limit will in fact be recorded (as DAC-hrs) and controlling exposure to 25% of DAC ensures both that the 10 mg / week limit is not exceeded and ALARA. Worker exposure to soluble uranium will be assessed via standard grab and breathing zone sampling particulate filtration techniques and subsequent analysis of radionuclide content of filter papers.

Intake of soluble uranium will be limited to 10 mg per week per 10 CFR 20.1201(e). Accordingly, at an assumed specific activity of 0.67 μCi/gram for Unat (10 CFR 20, Appendix B, footnote 3), the weekly soluble intake limit is 6.7 E-3 μCi. Initially, solubility Class W will be used to establish the appropriate ALI of 0.8 μCi and DAC of 3 E-10 μCi/ml for U natural (10 CFR 20, App B, Table 1). Assuming a 40 hour work week and average breathing rate of 20 liters/min, the average concentration at the soluble weekly intake limit is approximately equal to 50% of the DAC. Compliance to this requirement will be documented by recording of worker airborne exposure in DAC – hrs, whenever long lived particulate concentrations in air are determined to be ≥ 10 % DAC and an action level of 25% DAC will be established requiring RSO investigation and potential corrective actions. Assignments of positive airborne exposure will be reviewed weekly. Accordingly, any exposures to soluble uranium > 20 % of the 10 mg/week limit will in fact be recorded (as DAC –hrs) and controlling exposure to 25% of DAC ensures both that the 10 m/week limit is not exceeded and ALARA. Worker exposure to soluble uranium will be assessed via standard grab and breathing zone sampling particulate filtration techniques and subsequent analysis of radionuclide content of filter papers.

The resulting intakes and doses are recorded onto each worker's occupational exposure record.

5.7.4.2 Radon Daughters

Concentration of radon daughters in air in terms of working level (WL) will be compared to the Derived Air Concentration value of 10 CFR 20, Appendix B, Table 1, Column 3, Radon-222, as WL. A classification "with daughters present" will be assigned to all radon daughter sample results at the Nichols Ranch ISR Project sites. Account will be made for use of respiratory protection according to 10 CFR 20at paragraph 1703(i) and Appendix A.

The resulting dose is included in each worker's occupational exposure record.

5.7.4.3 Prenatal and Fetal Radiation Exposure

The dose equivalent to the embryo/fetus will be controlled in accordance with the requirements of 10 CFR 20.1208.

The dose equivalent to the embryo/fetus will be determined by monitoring the declared pregnant woman. The declared pregnant woman will be monitored in accordance with the requirements of 10 CFR 20.1502.

The dose equivalent to the embryo/fetus will be determined if the dose to the declared pregnant woman exceeds 0.1 rem from deep dose equivalent, committed effective dose equivalent, or a combination of these.

The dose to the embryo/fetus will be estimated for the case in which the declared pregnant woman was not monitored prior to declaration of pregnancy. The dose estimate for the unmonitored period will be developed from the available combination of radiation surveys, air monitoring, and bioassay results.

The calculations of dose to the embryo/fetus will be performed in accordance with the guidance of NRC Regulatory Guide 8.36 "Radiation Dose to the Embryo/Fetus", 1992. The following conditions are applicable:

- The deep dose equivalent to the embryo/fetus will be assumed equivalent to the deep dose equivalent of the declared pregnant woman during the gestation period. The deep dose equivalent will be based on monitoring methods described in Section 5.7.2 and will consider all occupational exposure of the declared pregnant woman since the declared date of pregnancy.
- The internal dose to the embryo/fetus will be determined from radionuclides in the declared pregnant woman's body from occupational intakes occurring prior to and during pregnancy. The intake will be based on the methods described previously in this section.

5.7.4.4 Recording Radiation Dose

Uranerz will obtain prior dose histories of all employees in accordance with 10 CFR 20.2104 Determination of Prior Occupational Dose.

The radiation dose assigned to a worker as a result of internal dose calculations described here will be recorded in conformance with NRC Regulatory Guide 8.7 "Instructions for Recording and Reporting Occupational Radiation Exposure Data," 1992.

5.7.5 Bioassay Program

A bioassay program will be provided to confirm results of the airborne radioactivity monitoring program; confirmation will be in accordance with NRC Regulatory Guide 8.22 "Bioassay at Uranium Mills," 1988, Table 1, column "Interpretation". The bioassay program will be applicable to all workers routinely or potentially exposed to airborne uranium. The type of bioassay will be urinalysis.

The program will include baseline samples from all new employees. Bioassay samples will be collected at least once per month from those workers involved with uranium extracted into solution from ion exchange through final packaging, and those who conduct regular maintenance on drying and ventilation/filtration equipment. Additional bioassay samples may be collected with respect to specific activities, as described on a Radiation Work Permit, or when air sampling data are not available. Random sampling of other personnel will be conducted on the same monthly schedule. The program will include exit samples from all employees upon termination of employment.

Corrective actions (action levels and actions) for bioassay results will be those described in Table 1 of NRC Regulatory Guide 8.22 "Bioassay at Uranium Mills," 1988.

The bioassay program, including time of sample collection, availability of results, method of sample collection, measurement sensitivity, and quality control will be implemented consistent with the NRC Regulatory Guide 8.22 "Bioassay at Uranium Mills," 1988.

5.7.6 Contamination Control Program

A contamination control program will be established to prevent contaminated employees and equipment from entering clean areas or from leaving the site. The contamination control program will be implemented considering the guidance of NRC Regulatory Guide 8.30 "Health Physics Surveys in Uranium Mills," Revision 1, 2002.

5.7.6.1 Surveys for Surface Contamination in Restricted Area

Inspection of the drying and packaging areas for visible yellowcake on surfaces will be made at least once per shift when these areas are in use. Inspection will be made daily in the other process areas for visible yellowcake on surfaces. Visible yellowcake will be cleaned up promptly, but not later than the end of the shift or workday. Spills will be cleaned up before the yellowcake dries so that re-suspension during cleanup will be lessened.

A survey for removable contamination will be made daily of the drying and packaging area when these areas are in use. An area will be promptly cleaned if removable alpha surface contamination levels exceed 220,000 dpm/100cm^2.

A survey for removable surface contamination will be made weekly in rooms within the process area where work with uranium is not performed, such as break rooms, change rooms, control rooms, and offices. An area will be promptly cleaned if surface contamination levels exceed 1000 dpm/100cm^2.

5.7.6.2 Surveys for Surface Contamination in Controlled Areas and Unrestricted Areas

A survey for total alpha contamination will be made monthly in controlled areas (e.g. wellfields) to include personnel and equipment. The total alpha contamination limit for these surveys is 1000 dpm/100cm^2.

A survey for each of total alpha and total beta/gamma contamination will be made weekly within the unrestricted area. The scope of this survey will include break areas, eating areas, change rooms, and offices. The total alpha contamination limit for these surveys is 1000 dpm/100cm^2. The total beta/gamma contamination limit for these surveys is 1000 dpm/100cm^2.

5.7.6.3 Surveys for Contamination of Skin and Personal Clothing

All personnel leaving the restricted area will be required to survey the soles of their shoes. The total alpha contamination limit for these surveys is 5000 dpm/100cm^2.

Employees working in the precipitation, drying and packaging areas, as well as those involved in process equipment maintenance or repair are provided appropriate protective clothing and equipment. Protective clothing is laundered on site or, if a disposable type, is disposed of in a facility licensed to accept such wastes.

All employees with potential exposure to yellowcake dust can shower and change clothes each day prior to leaving the site. An employee is considered uncontaminated after showering and changing clothes. In lieu of showering, employees are required to survey their clothing, shoes, hands, face and hair with an alpha survey instrument prior to leaving the site. The alpha contamination limit for these surveys is 1000 dpm/100cm^2.

The RSO or designee will perform an unannounced spot survey for alpha contamination on selected yellowcake workers leaving facility each quarter.

5.7.6.4 Surveys of Equipment Prior to Release to Unrestricted Areas

Personnel will conduct contamination monitoring of small, hand-carried items for use in wellfield and controlled areas as long as all surfaces can be reached and the item does not originate in yellowcake areas. The total alpha contamination limit for these surveys is 1000 dpm/100cm^2. Requirements for contamination control of equipment and materials released for unrestricted use are otherwise described in Section 4.3.

5.7.6.5 Surveys for Contamination on Respirators

Respiratory protection equipment will be surveyed for alpha contamination by a standard wipe or smear technique. Removable alpha contamination levels will be less than 100 dpm/100 cm^2 prior to reuse of the equipment.

5.7.6.6 Instrumentation

The direct alpha surveys will be performed using a scaler/ratermeter with ZnS type probe. The removable alpha surveys will be performed using a standard cloth smear and a scaler/ratermeter with ZnS type probe. The survey instruments will be portable and/or hand-held. The instruments will be calibrated at least annually. The instruments will be calibrated and operated in accordance with manufacturers' instructions. The instruments will satisfactorily complete a performance check each day of use.

5.7.6.7 Survey Record

The following information will be recorded for each contamination survey:

- Date of survey
- Identification of the person, area, or item surveyed. This identification will be unique for persons, respiratory protection equipment, and as reasonable for other areas and items.
- Identification of the person performing the survey.
- Unique identification of the instrument(s) used to complete the survey.
- The results of the survey.

5.7.7 Airborne Effluent and Environmental Monitoring

A program will be established for measuring concentrations and quantities of radioactive materials released to and in the environment surrounding the facility. This program will be implemented consistent with NRC Regulatory Guide 4.14 "Radiological Effluent and Environmental Monitoring at Uranium Mills," Revision 1, 1980.

The sampling and measurement locations of the program are shown in Exhibit 5-1 (see map pocket).

Uranerz will manage the area between the process area and the site boundary as a controlled area pursuant to 10 CFR 20.1003. The types of controls used for this area are described in the Technical Report at Section 5.6. Uranerz will show compliance with the annual dose limit in 10 CFR 20.1301 by using results from routine monitoring supplemented by calculation pursuant to 10 CFR Part 20.1301(b)(1). The results of process area and environmental monitoring for direct radiation, air particulates, radon, and surface water will be extrapolated and or used to estimate a dose from licensed operations in the controlled area.

5.7.7.1 Stack Sampling

The operational characteristics of the vacuum drying process preclude collection of air samples from the respective exhaust. No air samples will be collected from the yellowcake dryer exhaust since there are no emissions and no exhaust.

5.7.7.2 Air Samples

5.7.7.2.1 Air Particulate

Air particulate samples will be collected continuously at the same locations as the pre-operational air particulate sampling. The air particulate samples will be collected continuously. The filters will be changed weekly or more often as required by dust loading. The filters will be composited quarterly per location. The composite samples will be analyzed for total uranium, Th-230, Ra-226, and Pb-210.

5.7.7.2.2 Radon

Radon samples will be collected continuously at the same locations as the pre-operational radon sampling. The radon samples will be collected by use of track-etch type detectors, effectively equivalent to those provided for area monitoring of the workplace. The detectors will be changed once per calendar quarter. The detectors will be analyzed for total radon.

5.7.7.3 Water Samples

Samples are collected from both surface water and groundwater to support the environmental monitoring program.

5.7.7.3.1 Surface Water

Surface water samples will be collected annually or on a quarterly basis, if water is present, at the same locations as the used for the pre-operational surface water sampling. The surface water samples will be a grab sample or will be collected by self samplers. The surface water samples will be analyzed for total uranium, Th-230, Ra-226, and Pb-210.

Addendum 5A contains the standard operation procedure (SOP) the Uranerz Energy Corporation personnel have and will use in collecting surface water samples. Exhibit 5-1 also contains the locations of where surface water self samplers are located.

5.7.7.3.2 Groundwater

The groundwater monitoring program is described in Section 5.7.8.

5.7.7.4 Vegetation, Food, and Fish Samples

No sampling will be made of vegetation, food, or fish. The evaluation described in Section 7.3 indicates the ingestion pathway to be insignificant; i.e. the predicted dose to an individual will be less than five percent of the applicable radiation protection standard.

5.7.7.5 Soil and Sediment Samples

Surface soil samples will be collected annually at the same locations as the radon sampling. The surface soil samples will be a grab sample of 0" - 6." The surface soil samples will be analyzed for total uranium, Th-230, Ra-226, and Pb-210.

Sediment samples will be collected annually at the same locations as those used for the pre-operational sediment sampling. The sediment samples will be a grab sample. The sediment samples will be analyzed for total uranium, Th-230, Ra-226, and Pb-210.

5.7.7.6 Direct Radiation

Gamma measurements will be made continuously at the same locations as the radon sampling. The gamma measurements will be made with passive integrating detectors, effectively equivalent to those provided for personnel monitoring. The detectors will be changed once per calendar quarter.

5.7.8 Groundwater Monitoring Program

The groundwater monitoring program for the Nichols Ranch ISR Project will be based on information obtained from pre-mining baseline geologic and hydrologic information, wellfield testing, and wellfield groundwater baseline sampling. The purpose of the groundwater monitoring program is to detect potential excursions of lixiviant outside of the production wellfield area or excursions of lixiviant into the overlying and/or underlying aquifers.

5.7.8.1 Pre-Operational Wellfield Assessment

The groundwater monitoring program for the Nichols Ranch ISR Project will begin with pre-operation wellfield testing. These tests are conducted using the baseline geologic and hydrologic information that was collected and assembled for Nichols Ranch ISR Project. Volume V, Appendix D5 and Volume VI of Appendix D6 of this application contain the baseline geologic and hydrologic information.

By using the detailed geologic and hydrologic information, monitoring zones can be defined, geologic and hydrologic parameters quantified, wellfields planned, hydrologic monitoring programs developed, and baseline water quality sufficiently determined. This is all accomplished by conducting a very capital intensive multi-step program that includes interaction with the WDEQ-LQD.

5.7.8.2 Monitor Well Spacing

The density and spacing of monitor wells for the Nichols Ranch Unit and the Hank Unit is determined during the geologic and hydrologic assessment of a proposed wellfield. Monitor wells will be installed in the ore zone at a density of one monitoring well per four acres in the proposed wellfield. These wells will be used to obtain baseline water quality data for the proposed wellfield to determine groundwater Restoration Target Values (RTV's).

Horizontal monitor wells will also be installed on the edge of the wellfield in the same zone as the ore zone. This "ring" of monitor wells will be used to obtain baseline water quality data in the area outside of the wellfield, determine groundwater flow paths, and to ensure that recovery solutions do not migrate outside of the ore zones. Upper Control Limits (UCL's) will be determined for these wells from the baseline water quality data that are collected. The distance between these wells and the wellfield is approximately 500 ft. The distance from horizontal monitor well to horizontal monitor well is also 500 ft. These distances were determined using a groundwater flow model, WELFLO (found in Addendum 3A of the Technical Report), and estimated hydrologic properties for the proposed wellfield. This distance also takes into consideration that if an excursion were to occur, processing fluids could be controlled within 60 days as required by the Wyoming Department of Environmental Quality.

Vertical monitor wells will also be installed in the overlying and underlying aquifers at a density of one underlying and one overlying well per every four acres of wellfield. These wells will be used to collect baseline water data that will be used to determine UCL's for the overlying and underlying aquifers. If the immediate overlying or underlying aquifers in the wellfield are non-existent, or the confining unit (aquitard) is thin (less than five feet in thickness) within the proposed wellfield or section of the wellfield, then monitor well spacing and density will be determined in consultation with the regulatory agencies. In the case of the wellfield becoming very narrow where a line drive pattern may be utilized, overlying and underlying aquifer monitor wells will not be more than approximately 1,000 ft apart from one another.

5.7.8.3 Production Area Pump Test

When a proposed wellfield has been found to be feasible to be mined using the ISR method, the wellfield becomes a production area. A Production Area Pump Test is then developed to determine information about the hydrologic characteristics of the production area and the underlying and overlying aquifers within the production area. The information to be determined during the Production Area Pump Test includes: hydrologic characteristics of the ore zone aquifer, determination of any hydrologic communication between the ore zone aquifer and the overlying and underlying aquifers, the presence or absence of any hydrologic boundaries in the ore zone aquifer, determination of the degree of hydrologic communication between the ore zone and the monitor well ring, determination of groundwater flow paths, and the vertical permeability of the overlying and underlying confining units that have not all ready been tested.

Before conducting the Production Area Pump Test, the test plan will be submitted to the WDEQ for review and comment. Standard Operating Procedures (SOP's) will also be developed that will detail the procedures of the Production Area Pump Test.

5.7.8.4 Production Area Pump Test Document

After the completion of the Production Area Pump Test field data collection, a Production Area Pump Test Document will be assembled and submitted to the WDEQ and NRC for review and approval. Additionally the document will be reviewed by the Safety and Environmental Review Panel (SERP) to verify that the results of the production area hydrologic testing and the planned production area activities are in compliance with NRC technical requirements. A written evaluation by the SERP will evaluate any safety and environmental concerns. The evaluation will also address compliance with applicable NRC requirements. The written evaluation will be located at the Uranerz Energy Corporation offices.

Details to be contained in the Production Area Pump Test document are as follows:

1. A description of the location, extent, etc. of the production area.
2. Map(s) showing the proposed production area (production patterns) and location of all monitoring wells. This includes the monitor well ring, underlying, overlying, and ore zone wells.
3. Geologic cross-sections maps.
4. Isopach maps of the ore zone, underlying, and overlying confining units.
5. Discussion on pump test methods including well completion reports.

6. Discussion of the results and conclusions of the production area pump test including pumping data, drawdown match curves, potentiometric surface maps, water level graphs, drawdown map, and directional transmissivity data and graphs.
7. Data showing that the monitor well ring and the ore zone are in communication with the production patterns.
8. Any other information that is pertinent to the production area being tested.

5.7.8.5 Baseline Water Quality Determination

The importance of properly defining the baseline groundwater quality for individual production areas cannot be overemphasized as the data collected will be used to establish the Upper Control Limits (UCL's) and the restoration target values that will be used in groundwater restoration. Standard Operating Procedures (SOP) will be developed that will detail acceptable water quality sampling and handling procedures, as well as the statistical assessment of the groundwater data.

5.7.8.5.1 Data Collection

Water quality samples will be collected and analyzed from all monitor wells to establish baseline groundwater quality for the ore zone, ore zone aquifer, underlying aquifer, and the overlying aquifer. Table D6-6a in Volume VI of Appendix D6 details the parameters that will be analyzed during the sampling of baseline water quality. The sampling of the monitor wells will be in accordance to all sampling, preservation, and analysis procedures. Addendum 5A details the standard operating procedure that is and will be utilized by Uranerz Energy Corporation personnel while conducting baselining and operational sampling. The number of samples collected and the parameters that the samples will be tested for are as follows:

1. Ore Zone (Production Pattern) Wells (MP Wells) – All ore zone monitoring wells in a production area will be sampled four times, with a minimum of two weeks between sampling, during baseline groundwater quality determination. All sampling events shall

2. be analyzed for all parameters found in WDEQ-LQD Guideline No. 8 including uranium parameters (see Table D6-6a in Volume VI of Appendix D6.
2. Ore Zone Monitoring Ring Wells (MR Wells) – Monitoring ring wells will be sampled four times, with at least two weeks between sampling, during the baseline characterization. The first monitor well ring sampling will include the analyses for the parameters listed in WDEQ-LQD Guideline No. 8 including uranium parameters (see Table D6-6 in Volume VI of Appendix D6). The remaining three samples will be tested for the potential Upper Control Limits (UCL's) parameters chloride, total alkalinity, and conductivity.
3. Overlying Aquifer Wells (MO Wells) and Underlying Aquifer Wells (MU Wells) – The overlying and underlying aquifer monitoring wells will be sampled four times with at least two weeks between sampling events. All sampling events will be analyzed for the parameters listed in Table D6-6a of Volume VI, Appendix D6.

5.7.8.6 Statistical Assessment of Baseline Water Quality Data

Baseline water quality for the overlying, underlying, ore zone, and monitoring ring wells will be determined by averaging the data collected for each parameter analyzed. In addition to calculating the average of the data, the variability of the data will also be calculated. Outliers will be determined by using the methods outlined in WDEQ-LQD Guideline No. 4 or other accepted methods. Any value determined to be an outlier will not be used in baseline calculations.

Average data from wells that are not uniformly distributed will be calculated by weighting the data according to the fraction of area, or water volume, represented by the data. Baseline conditions will be calculated as follows:

1 Ore Zone Wells (MP Wells) – Baseline water quality will be calculated by using the average of each parameter that is analyzed. If the data collected shows that water from

Table 5-1 Restoration Target Values Parameters.

Parameter	Lower Detection Limit*
Alkalinity	0.1
Ammonium	0.05
Arsenic	1
Barium	0.1
Bicarbonate	0.1
Boron	0.1
Cadmium	0.01
Calcium	0.05
Carbonate	0.1
Chloride	0.1
Chromium	0.05
Copper	0.01
Electrical Conductivity@ 25 degrees° C	1 uohm
Fluoride	0.1
Iron	0.05
Lead	0.05
Magnesium	0.01
Manganese	0.01
Mercury	0.0005
Molybdenum	0.05
Nickel	0.05
Nitrate	0.01
pH	0-14 s.u.
Potassium	0.1
Radium-226	0.1 pCi/L
Selenium	0.001
Sodium	0.05
Sulfate	0.5
Total Dissolved Solids	1
Uranium	0.001
Vanadium	0.1

*mg/L unless specified otherwise

the entire production area is that of waters of different under-groundwater classes, the data then will not be averaged together, but separated into sub-zones. Data within the sub-zones will then be averaged. The boundaries of the sub-zones, where required, will be delineated at halfway between the sets of sampled wells that define the sub-zones.

2. Monitoring Ring Wells (MR Wells) – Baseline water quality will be calculated by averaging each parameter that is analyzed. As with the ore zone wells, if sub-zones are present that have different classes of water, data in the sub-zones will be averaged separately.

3. Overlying and Underlying Aquifer Wells (MO and MU Wells) – The baseline water quality will be calculated by using the average of each parameter that is analyzed.

5.7.8.7 Restoration Target Values

The Restoration Target Values (RTV's) are calculated from the baseline water quality data collected from the ore zone monitoring wells. The RTV's are used in determining and assessing the effectiveness of groundwater restoration within a production area. Baseline water quality averages for the parameters sampled for the ore zone wells constitute the RTV's. If sub-zones exist in the ore zone, the RTV's will be determined for each sub-zone. The Restoration Target Value Parameters are listed in Table 5-1.

5.7.8.8 Upper Control Limits

Upper Control Limits (UCL's) are used to define excursions at monitoring wells. Through the installation of the monitoring ring wells, and the overlying and underlying aquifer monitoring wells, tracking of the lixiviant and processing fluids can be accomplished to ensure that the fluids are not leaving the defined ore zone. The process bleed or wellfield purge in combination with the production area pumping and injection rates assist in keeping all processing fluids within the ore zone.

An excursion occurs when the production area processing fluids reach a monitoring ring or overlying/underlying monitor well. This will cause the UCL's to be exceeded. If an excursion is determined to have occurred, operational changes will be implemented to reverse the flow of the processing fluids so that they are retrieved back to the ore zone and the affected monitor well(s) is no longer in a excursion status. UCL's for the monitor wells are determined from the collection of the baseline water quality data. For the Nichols Ranch ISR Project, the parameters to be used for UCL's will be chloride, conductivity, and total alkalinity.

5.7.8.9 Calculation of Upper Control Limits

The UCL's are based on the baseline water quality data and calculated as follows:

1. Chloride UCL – The chloride UCL will be calculated by taking the baseline mean plus five standard deviations or by taking the baseline mean plus 15 mg/L, whichever is greater. The chloride UCL will be expressed in mg/L.
2. Total Alkalinity UCL – The total alkalinity UCL will be calculated by taking the baseline mean plus five standard deviations. The total alkalinity UCL will be expressed in mg/L $CaCO_3$.
3. Conductivity UCL – The conductivity UCL will be calculated by taking the baseline mean plus five standard deviations. The conductivity UCL will be expressed in umhos/cm at 25°C.

5.7.8.10 Operational Groundwater Monitoring Program

The groundwater in a production area will be monitored during operation to detect and correct for any condition that could lead to an excursion. Process variables such as flow rates and operating pressures of each individual operating well will be monitored in addition to the flow rates and operating pressures of the main pipelines going to and from the plants.

5.7.8.10.1 Monitoring Frequency and Reporting

The ore zone, overlying aquifer, and underlying aquifer monitor wells will be sampled twice per month at intervals of approximately two weeks. The samples will be analyzed for and compared against the UCL parameters of conductivity, chloride, and total alkalinity. Static water levels will also be collected and recorded prior to the sampling event (but are not used as an excursion indicator). All static water levels and analytical monitoring data for the monitoring wells will be kept by Uranerz Energy Corporation and submitted to the WDEQ-LQD on a quarterly basis. These data will also be available to the NRC for review.

Any private wells within one kilometer of the wellfield area boundary and that are completed in the same sand as the ore will be sampled on a quarterly basis. Groundwater samples will be analyzed for natural uranium and radium-226. For Nichols Ranch the wells that will be sampled are: Red Springs #4 Lower (aka DW-4L), Pats Well #1, and Brown 20-9. For Hank the wells are: BR-F, Dry Willow #1, and Means #1.

5.7.8.10.2 Water Quality Sampling and Analysis Procedures

Water quality samples will be obtained for the monitor wells through permanently installed submersible pumps. Initially the monitor wells will have three casing volumes discharged before sampling to ensure that the water in the well is formation water. As operations continue, the monitor wells will be pumped for a determined amount of time, with a minimum of one casing volume removed, based on the particular monitor well's performance. Each individual monitor well will have its static water level recorded prior to pumping. Conductivity, pH, and temperature will be measured in the field and recorded in periodic intervals prior to sampling. This is done to demonstrate that the water quality conditions in the monitor wells have stabilized and that formation water is being sampled. All collected water quality data for each monitor well will be periodically reviewed to ensure that sampling and analytical procedures are adequate.

All water quality samples from the monitor wells will be analyzed at the Nichols Ranch Unit laboratory for chlorides, total alkalinity, and conductivity within 48 hours of the sample being collected. All samples will be analyzed in accordance with accepted methods. Standard Operating Procedures (SOP's) will be developed that will detail all water sampling and laboratory analysis procedures. The SOP that Uranerz will utilize for sampling of monitor wells can be found in Addendum 5A.

5.7.8.10.3 Excursions

If any two of the three UCL excursion parameters (chloride, total alkalinity, or conductivity) are exceeded, an excursion is suspected to have occurred. Within 24 hours of the first analysis, a second verification sample will be taken and analyzed to determine that two of the three excursion parameters have been exceeded. The verification sample is then split and analyzed in duplicate to assess any analytical error. If two of the three UCL's are exceeded, an excursion is then verified. During an excursion event, all monitoring wells that are placed on excursion status will be sampled at least every seven days for the UCL parameters.

If an excursion is verified, the WDEQ-LQD and NRC Project Manager will be verbally notified within 24 hours. The WDEQ-LQD and NRC Project Manager will also be notified in writing within seven days of a verified excursion. Corrective actions such as changes in the injection and recovery flow rates in the affected area will be implemented as soon as practical. The corrective actions will continue until the excursion is mitigated. A written report describing the excursion event, corrective actions, and the corrective action results must also be submitted to the NRC Project Manager within 60 days of the excursion confirmation.

In the event that the concentration of the UCL parameters that were detected in the monitor well(s) do not begin to decline within 60 days after the verification of an excursion, all injection into the ore zone (production zone) adjacent to the excursion will be suspended to further increase the amount of net water withdrawal from the excursion area. Injection will be suspended until such time that a declining trend in the UCL parameters concentration is established. If a declining trend is not established in a reasonable time period, additional measures will be implemented. When a significant declining trend is established, normal operations will resume with injection and/or production rates monitored such that net water withdrawals for the excursion area will continue. The declining trend will be maintained until such time that the concentrations of excursion parameters in the affected monitor well(s) has returned to concentrations less than the established UCL's. Addendum 3B and 3C of Volume II include numerical modeling of how the retrieval of an excursion will be conducted in the event that an excursion does take place.

In the event that an excursion remains for more than 60 days, Uranerz will increase the posted surety amount to a level that is agreeable to the NRC. The increased amount will cover the full expected cost of correcting and cleaning up the excursion as stated in NUREG-1569 Section 5.7.8.5. (5). The surety increase will remain in force until the excursion is corrected.

5.7.8.11 Operational Surface Water Monitoring Program

Surface water samples will continue to be collected in the same locations that were used during the pre-mining baselining for both the Nichols Ranch and Hank Units. Additionally surface water samples will be collected whenever water is present in the locations outlined in Table D6A.1-1 of Appendix D6, Addendum D6A of Volume VI.

5.7.9 Quality Assurance

A quality assurance program will be established to provide a measure of the completeness and accuracy of sampling and measurement results. The results of the quality assurance program will demonstrate effectiveness of implemented programs or allow for identification of deficiencies so that corrective action can be taken. The quality assurance program will be applied to all radiological, effluent, and environmental programs.

5.7.9.1 Organization

The organizational structure described in Section 5.1 will be responsible for implementation of the quality assurance program.

5.7.9.2 Procedures

The quality assurance program will be implemented in accordance with written operating procedures as described in Section 5.2. These procedures will include consideration of quality assurance and quality control for activities of measurement, sampling, sample analysis, calibration, calculation techniques, data evaluation, and data reporting.

5.7.9.3 Records

Records will be maintained to document the activities performed in the program. The records will be specified in the applicable operating procedure. These records will include field logs, chain-of-custody, measurement results, instrument performance checks, calibration, data reduction, and data review and approval.

Record keeping will be in conformance with Section 5.3.2.

5.7.9.4 Quality Control in Sampling

Quality control for sample and measurement collection will be included in the respective operating procedure. Requirements will be designed to ensure that the sample or measurement is representative of actual conditions. Chain-of-custody records will be maintained for samples in accordance with an operating procedure.

5.7.9.5 Quality Control in Laboratory

Quality control of laboratory measurements and analyses will be included in the respective operating procedure, or a supporting operating procedure or instruction.

5.7.9.5.1 Calibration

Requirements will include use of calibration standards or sources traceable to National Institute of Standards and Technology.

5.7.9.5.2 Performance Checks

Determination of the background counting rate and the response of radiation detection systems to appropriate check sources will be performed on a scheduled basis for systems in routine use. The results of these measurements will be recorded and monitored. Investigative and corrective action will be taken when the performance check falls outside a predetermined control value.

5.7.9.5.3 Quality Control Samples

Quality control samples will be collected to assess field activities, intralaboratory, and interlaboratory analyses. Control values will be established for evaluation of these results. Investigative and corrective action will be taken when the results fall outside a predetermined control value.

Quality control for field activities will include replicates and blanks. Intralaboratory quality control will be accomplished by use of duplicate samples. Interlaboratory quality control will include use of replicates or duplicates to different contract laboratories and/or will be made by reference to a contract laboratory's participation in an independent verification program; e.g. EPA or state qualifications or certifications.

5.7.9.6 Computational Checks

Computations of the concentration of radioactive materials will include the independent verification of a fraction of the results of the computation or of the calculation method or both by a person other than the one performing the original computation.

5.7.9.7 Review and Analysis of Data

Requirements for review and analysis of data will be included within operating procedure or instructions governing collection and analysis of samples and measurements. These requirements will cover examination of data from actual samples and from quality-control activities for reasonableness, completeness, and consistency. Provisions will be made for investigation and correction of recognized deficiencies and for documentation of these actions.

5.7.9.8 Review of Quality Assurance Program

Reviews will be made to verify implementation of the quality assurance program. The audits will be performed by individuals qualified in the respective techniques who do not have direct responsibilities in the areas being reviewed.

Results will be documented and provided to the Safety and Environmental Review Panel (SERP). Follow-up action, including additional review of deficient areas, will be taken upon recommendation of the SERP.

The quality assurance program will be implemented consistent with NRC Regulatory Guide 4.15 "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment," Revision 1, 1979.

6.0 RECLAMATION PLAN

The objective of the Reclamation Plan is to return the subsurface and surface of the Nichols Ranch ISR Project area to conditions compatible with the pre-mining uses. All groundwater that is affected by the Nichols Ranch ISR Project will be restored to a condition of use equal to or exceeding that which existed prior to project construction.

6.1 GROUNDWATER RESTORATION

Groundwater restoration is an important part of an ISR operation. The time it takes to restore the groundwater is primarily linked to the capacity of the deep waste disposal well. If the capacity of a deep waste disposal well is such that the time involved for groundwater restoration is unacceptable, then measures such as installing another deep disposal well will be implemented to decrease the restoration time.

Uranerz will return the groundwater quality of the production areas to the restoration standards that are specified in NUREG-1569. The criteria to be used are as follows:

(a) Primary Restoration Standards - The primary goal of a restoration program is to return the water quality within the exploited production zone and any affected aquifers to pre-operational (baseline) water quality conditions. Recognizing that *in situ* recovery operations fundamentally alter groundwater geochemistry, restoration activities are not likely to return groundwater quality to exact water quality that existed at every location prior to *in situ* recovery operations. Still, as a primary restoration goal, Uranerz will attempt to return the concentrations of the monitored water quality indicator constituents to within the baseline range of statistical variability for each constituent.

(b) Secondary Restoration Standards - *In situ* recovery operations may cause permanent changes in water quality within the exploited production zone, because the *in situ* recovery extraction process relies on changing the chemistry in the production zone to remove the uranium. If baseline conditions cannot be met, then Uranerz will return the water quality to its pre-operational Wyoming class of use (e.g., drinking water, livestock, agricultural, or limited use) as a secondary restoration standard. Uranerz's principal goal of its restoration program will be to return the water to baseline, as long as it is technically and economically feasible, and that secondary standards will not be applied so long as restoration continues to result in significant improvement in groundwater quality. Uranerz first attempt will be to return groundwater quality to primary restoration standards before reverting to secondary restoration standards such as Wyoming class of use.

In the event secondary restoration standards will be used, it is acceptable to establish secondary restoration standards on a constituent-by constituent basis, with the numerical limits established to ensure state or EPA primary or secondary drinking water standards will not be exceeded in any potential source of drinking water. For radionuclides not included in the drinking water standards, it is acceptable to determine, on a constituent-by-constituent basis, secondary standards from the concentrations for unrestricted release to the public in water, from Table 2 of 10 CFR Part 20, Appendix B.

(c) If a constituent cannot technically or economically be restored to its secondary standard within the exploited production zone, Uranerz will demonstrate that leaving the constituent at the higher concentration would not be a threat to public health and safety or the environment or produce an unacceptable degradation to the water use of adjacent groundwater resources. This situation may arise with respect to general water quality parameters such as the total dissolved solids, sulfate, chloride, iron, and others which do not typically present a health risk. However, not all the major constituents have a primary or secondary drinking water standard (e.g., bicarbonate, carbonate, calcium, magnesium, and potassium). Consequently, groundwater restoration may achieve the secondary standard for total dissolved solids, but may not achieve a secondary standard for individual major ions that contribute to total dissolved solids. If such a situation occurred, Uranerz will show that leaving the individual constituent at a concentration higher than secondary standard would not be a threat to public health and safety nor the environment, or produce an unacceptable degradation to the water use of adjacent groundwater resources.

Such proposed alternatives must be evaluated on a case-by-case basis as a license amendment request only after restoration to the primary or secondary standard is shown not to be technically or economically achievable. This approach is consistent with the as low as is reasonably achievable philosophy that is used broadly within NRC.

Although NUREG-1569 lists the above restoration standards, Uranerz will accept as a license condition the restoration standards that are now being set forth by the NRC unless future ISR groundwater restoration rulemaking results in different standards that are similar to the above stated criteria. The license condition standards that Uranerz will accept were published in the November 17-18, 2009 Uranium Recovery Application Workshop Meeting Summary (ML093510162) and are as follows: "***To resolve this issue, licenses will be issued with a condition that states that groundwater in the wellfield (production zone) will be restored to the standards presented in Criterion 5(B)(5). This condition will not use the term "point of compliance" to avoid confusion regarding the literal interpretation of Criterion 5(B)(5). The ISR rulemaking will resolve the "point of compliance" issue regarding ISR facilities. Standards for corrective actions of excursions will also be Criterion 5(B)(5).***"

Additionally, Uranerz Energy Corporation will inform the NRC when a transition from production to restoration has occurred in a Production Unit and will adhere to the timeliness in decommissioning regulations of 10 CFR Part 40.42.

6.1.1 Water Quality Criteria

The primary goal of the groundwater restoration efforts will be to return the groundwater quality of the mined ore zone, on a production area average, to the pre-mining baseline water quality condition that has been defined by the baseline water quality sampling program. During the groundwater restoration, all parameters on an average basis will be returned to baseline or as close to average baseline values as is reasonably achievable. If the average baseline values of some of the parameters are unachievable using the best practical technology (BPT), Uranerz Energy Corporation will then use a secondary goal of returning the groundwater to the Wyoming Department of Environmental Quality-Water Quality Division class of use designation. This will return the groundwater to a quality consistent with the use of the water prior to the ISR extraction.

The use categories of the groundwater are those established by the Wyoming Department of Environmental Quality-Water Quality Division. Pre-mining baseline water quality data, groundwater use category, available technology, and economics will be criteria used in attaining the final level of water quality during restoration.

6.1.2 Restoration Criteria

Groundwater restoration criteria in a production area will be based on the baseline water quality data collected for each production area. The baseline water quality data will include data collected from wells completed in the ore zone (i.e. MP-wells) and perimeter monitoring ring wells. Baseline water quality parameters from the MP-Wells will be used, on a parameter-by-parameter basis, to monitor and evaluate restoration activities in returning the affected groundwater back to pre-mining quality as reasonably as possible.

Specific restoration values will be established prior to mining in each production area by computing specific restoration values for specific parameters. The restoration values will be the mean plus two standard deviations of the pre-mining water quality for each parameter listed in Table 5-1. These restoration target values (RTVs) will not change unless the operational monitoring program indicates that baseline water quality has changed in a production area because of accelerated movement of groundwater, and that such change justifies re-determination of the baseline water quality. If this were to occur, re-sampling of monitor wells would be conducted along with the Wyoming Department of Environmental Quality (WDEQ) and NRC reviewing and approving the change to restoration values.

The success of the restoration will be determined after the completion of the stability monitoring period (see Section 6.1.4). If no significant increasing trends in restoration values are identified, restoration will be deemed complete. A summary report requesting approval will be submitted along with the appropriate water quality data to the regulatory agencies. When approval is received from the regulatory agencies, final decommissioning of the wellfield will commence.

6.1.3 Groundwater Restoration Methods

For in situ recovery (ISR) operations, a common commercial groundwater restoration program consists of two stages, the restoration stage and the stability monitoring stage. The restoration stage typically consists of three phases such as groundwater sweep, groundwater transfer, and groundwater treatment. These techniques represent the BPT that has been used in the successful restoration of groundwater at numerous Wyoming ISR operations and Pilot Plants including the Bison Basin ISR operation located in the Great Divide Basin of Wyoming, the COGEMA Christensen Ranch and Irigaray ISR operations, Smith Ranch/Highlands ISR operation, Collins Draw R&D Facility, Ruth R&D Facility, and the Reno Creek R&D Facility, all located in the Powder River Basin in Wyoming within 35 miles of the Nichols Ranch ISR Project. The formations that are found in the Nichols Ranch ISR Project are very similar to those found in the other operations that have had successful groundwater restoration, therefore Uranerz believes that successful groundwater restoration will be accomplished using the same techniques that have been previously employed. Additionally, the Reno Creek R&D Facility was able to demonstrate the successful groundwater restoration of an unconfined aquifer with their Pattern 2 operation using the same techniques that will be used by Uranerz Energy Corporation. Summaries of the Reno Creek Project groundwater restoration can be found in Section 6.1.3.5 and Addendum 6C.

In addition to the already proven groundwater restoration techniques, Uranerz will use techniques such as pulsing of the extraction and injection wells to have contact of restoration fluids with all parts of the mine production zone at the Hank Unit since it is in a hydrologic unconfined setting. As seen in the Uranium One Moore Ranch Source Material License Application, Uranium One did specific numerical modeling for five spot patterns to show how the pulsing will complete a sweep of the mine zone. Switching of extraction and injection wells will be done if necessary to meet the restoration goals.

Although Uranerz has committed to not used hydrogen peroxide at the Hank Unit, adjustments will be made if gas locking is resulting in a reduction in the hydraulic conductivity of the aquifer. Procedures that have been used at the Texas operations will be used to remove the effects from the gas locking. This issue is discussed in detail in Chapter 3.0 of the application.

The stability monitoring stage includes a six month or longer time period in which the groundwater is monitored for successful restoration by monitoring the restoration targets for consistency.

The three phases used in groundwater restoration are designed to efficiently and effectively restore the groundwater so that groundwater loss is kept to a minimum and restoration equipment is optimized. Monitoring of the quality of groundwater will occur in selected wells as needed during restoration to determine the efficiency of the operations and to determine if additional or alternate techniques are necessary. Online production wells will be sampled for certain parameters, such as uranium and conductivity, to determine restoration progress on a pattern-by-pattern basis. Additionally, if an area is noticed as having higher concentrations, then appropriate measures such as adjusting the flows in the area or providing additional treatment to the area will be used to aid in reducing the higher concentrations. Furthermore the fluid coming from the wellfield being restored will be sampled on a frequent basis that could include daily sampling to check to the progress of restoration.

The sequence of the restoration methods used will be determined based on operating conditions and waste water system capacity. Depending on the progress of restoration, it is possible that not all phases of the restoration stage will be utilized. Uranerz Energy Corporation will determine the need for certain restoration steps based on the progress of restoration and the monitoring of restoration values.

During groundwater restoration, a reductant may be added to lower the oxidation potential of the ore zone. Either a sulfide or sulfite compound may be added to the injection stream in concentrations sufficient to reduce the mobilized species. The use of reductants is beneficial because several of the metals typically found in the ore zone groundwater become solubilized during the recovery process. These metals can then form stable insoluble compounds that are usually in form of sulfides. Dissolved metal compounds that are precipitated by such reductants include those of molybdenum, selenium, uranium, and vanadium.

Once restoration activities have returned the average concentration of restoration parameters to acceptable levels, the WDEQ and NRC will be contacted for agreement that restoration has been achieved in the production area. After this, the stability monitoring stage will begin. This phase of restoration consists of monitoring the water quality in the restored production area for at least six months after the successful completion of the restoration stage. When the stability monitoring stage is completed, Uranerz Energy Corporation will make a request to the WDEQ and NRC that the production area be deemed restored.

6.1.3.1 Groundwater Transfer

During the groundwater transfer phase, water may be transferred between a production area beginning restoration operations and a production area beginning mining operations. Also, a groundwater transfer may occur within the same production area, if one section of the production area is in a more advanced state of restoration than another.

Pre-mining baseline quality water from the production area beginning mining may be pumped and injected into the production area in restoration. The higher TDS (total dissolved solids) water from the production area in restoration will be recovered and injected into the production area beginning mining. The direct transfer of water will act to lower the TDS in the production area being restored by displacing affected groundwater with pre-mining baseline quality water.

The goal of the groundwater transfer is to blend the water in the two production areas until they become similar in conductivity. The water recovered from the restoration production area may be passed through ion exchange (IX) columns and/or filtered during this phase if suspended solids are sufficient in concentration to present a problem with blocking the injection well screens.

For the groundwater transfer to occur between production areas, a newly constructed production area must be ready to begin mining. Because of this condition, a groundwater transfer can occur at any time during the restoration process, if needed. If a production area is not available to accept transferred water, then groundwater sweep will be used as the first phase of restoration.

The advantage of using the groundwater transfer technique is that it reduces the amount of water that must ultimately be sent to the deep disposal well during restoration activities.

6.1.3.2 Groundwater Sweep

During the groundwater sweep stage, the groundwater from a production area beginning restoration is pumped from the production area to the processing plant though all production wells without any re-injection. By doing this, native groundwater is drawn into the production area to flush contaminants from the mining zone thus "sweeping" the mining aquifer. The cleaner baseline water has lower ion concentrations that act to strip off the cation that have attached to the clays during mining. The water produced during groundwater sweep is usually then sent to the processing plant for treatment and removal of any uranium that could be in the production area water. Radium 226 and dissolved solids are also removed. After the treatment, the swept water is disposed of in an approved manner such as injection into a deep disposal well.

The rate of groundwater sweep will be dependent upon the capacity of the deep disposal wells and the ability of the production area to sustain the rate of withdrawal. A hydraulic barrier may be employed during this stage if there is an adjacent operation production area to prevent drawing groundwater from the operational production area to the production area undergoing restoration.

6.1.3.3 Groundwater Treatment

Either following or in conjunction with the groundwater sweep, water will be pumped from the mining zone to treatment equipment at the surface. Ion exchange (IX) and reverse osmosis (RO) treatment equipment will then be utilized during this phase of restoration.

Groundwater recovered from the restoration production area may be passed through the IX system prior to RO. The groundwater will either be sent to waste disposal system or it will be re-injected into the production area. The IX columns exchange the majority of the contained soluble uranium for chloride or sulfate. Additionally, prior to or following IX treatment, the groundwater may be passed through a de-carbonation unit to remove residual carbon dioxide that remains in the groundwater after mining.

At any time during treatment, an amount of reductant sufficient to reduce any oxidized minerals may be metered into the restoration production area injection stream. The concentration and amount of reductant injected into the restoration production area is determined by how the ore zone groundwater reacts with the reductant. The goal of reductant addition is to decrease the concentrations of oxidation-reduction sensitive elements through reduction of these elements.

All or some portion of the restoration recovery water can be sent to the RO unit. The use of an RO unit 1) reduces the total dissolved solids in the groundwater being restored, 2) reduces the quantity of water that must be removed from the aquifer to achieve restoration limits, 3) concentrates the dissolved contaminates in a smaller volume of brine to facilitate waste disposal, and 4) enhances the exchange of ions from the formation due to the large difference in ion concentration. The RO passes a high percentage of the water through the membranes, leaving 60 to 90 percent of the dissolved salts in the brine water or concentrate. The clean water, called permeate, will be either re-injected, or stored for use in the mining process, or sent to the waste water disposal well. The permeate may also be de-carbonated prior to re-injection into the wellfield. The brine water that is rejected contains the majority of the dissolved salts in the affected groundwater and is sent to the disposal system. Make-up water, which may come from either water produced from a production area that is in a more advanced state of restoration, or water being exchanged with a new production area, water being pumped from a different aquifer, or the purge of an operating production area, or a combination of these sources, may be added prior to the RO or production area injection stream to control the amount of "bleed" in the restoration area.

If needed, the reductant added to the injection stream during this stage will scavenge any oxygen and reduce the oxidation-reduction potential of the aquifer. During mining operations, certain trace elements are oxidized. By adding the reductant, the oxidation-reduction potential of the aquifer is lowered thereby decreasing the solubility of these elements. Regardless of the reductant used, a comprehensive safety plan will be developed and implemented prior to using any reductant that will address such issues as reductant use, proper PPE to be worn around the reductant, and the location of the reductant versus other chemicals in and around the plant. This plan will be sent to the NRC for review and approval prior to the use of a reductant.

If necessary, sodium hydroxide may be used during the groundwater treatment phase to return the groundwater to baseline pH levels. This will assist in immobilizing certain parameters such as trace metals.

The number of pore volumes treated and re-injected during the groundwater treatment phase will depend on the efficiency of returning the production area back to pre-mining baseline water quality conditions. This relies on the efficiency of the RO in removing contaminates from the restoration production area groundwater and the success of the reductant, if used, in lowering the uranium and trace element concentrations.

6.1.3.4 Restoration Monitoring

During restoration, lixiviant injection is discontinued while improving the quality of the groundwater back to restoration standards. Because of this, the possibility of an excursion is greatly reduced. The monitor ring wells (MR-Wells), overlying aquifer wells (MO-Wells), and underling aquifer wells (MU-Wells) sampling frequencies will be changed from once every two weeks to once every 60 days during restoration. The wells are analyzed for the excursion parameters chloride, total alkalinity and conductivity. Water levels are also obtained at these wells prior to sampling.

In the event that unforeseen conditions (such as snowstorms, flooding, and equipment malfunction) occur, the WDEQ will be contacted if any of the wells cannot be monitored within 65 days of the last sampling event.

The production area will be monitored no differently with the addition of any reductants than it would normally be with the standard restoration techniques. During restoration, the solution returning from the wellfield will be sampled on a daily basis to track how restoration is progressing. The production area wells (MP-Wells) will be monitored on a once a month basis providing Uranerz Energy Corporation with adequate information to address the success of the restoration, the effectiveness and efficiency of the restoration techniques being used, and any further restoration that may or may not be needed in areas of the production areas. Samples collected will be analyzed for all of the parameters found in Table 5-1 at the beginning of restoration and then all or some of the parameters as restoration continues.

The sampling frequencies that will be used during restoration for monitoring of excursions are adequate since no known preferential flow paths have been defined at either of the Nichols Ranch or Hank Units. Therefore, a uniform monitoring ring was selected to best detect an excursion. The natural groundwater flow rates for the two sites in the ore sands are estimated to be 12 and 22 ft/year. During restoration these groundwater movement rates should be reduced near the monitoring ring wells. The slow groundwater movement rates warrant the monitoring of the wells every 60 days. If the groundwater moves at 22 ft/year the actual movement for 60 days is only 3.6 ft.

Figures 3-8A and Figures 3-8B of Chapter 3.0 of the Technical Report demonstrate the proposed location of all monitoring wells (ie. MP-wells, MR-Wells, MO and MU Wells).

6.1.3.5 Effectiveness of Groundwater Restoration Techniques

The monitor wells that were used to establish the baseline water quality in a production area ore zone (i.e. MP-Wells) will be the same wells that will be used to monitor groundwater quality during restoration.

The groundwater restoration methods described in this application have been successfully used at other ISR operations, both commercial and pilot, in Wyoming, including the Great Divide and Powder River Basins, Nebraska, and Texas. By using the techniques presented in this application the operations that have used the proposed restoration techniques have obtained regulatory approval for groundwater restoration. As mentioned in Section 6.1.3, several of the successful operation have been located very near the Nichols Ranch ISR Project and have used the proposed restoration techniques in similar formations with very similar operational techniques. The following information details the success of two commercial and one pilot ISR operations that have used the proposed restoration techniques and are located within the Powder River Basin and one commercial ISR operation located in the Great Divide Basin.

Smith Ranch/Highland Uranium Project

The Smith Ranch/Highland Uranium Project currently operated by Cameco Resources, Inc [formally Power Resources, Inc (PRI)] had two R&D and commercial wellfields approved as restored by both the NRC and WDEQ. In 2004 the A-Wellfield was approved by both agencies as restored after commercial operation to applicable regulatory standards. Not all of the parameters were returned to baseline conditions, but the groundwater quality was consistent with the pre-mining class of use. In 1987, the NRC confirmed the restoration of the Q-Sand Project. Although one well exhibited uranium and nitrate levels above the restoration target values, the wellfield water quality averages, as a whole, were below the target values.

Christensen Ranch/Irigaray Uranium Project

The Irigaray/Christensen Ranch Uranium Project operated by COGEMA Mining, Inc. has received both WDEQ and NRC approval for groundwater restoration for Wellfield 1 through 9 at Irigaray following commercial operation of the wellfields and groundwater restoration. When restoration of the wellfields was completed, 27 of the 29 constituents were restored to the restoration target values. Only bicarbonate and manganese did not meet the restoration target value, but the two constituents did meet the pre-mining class of use criteria. Based on this, the WDEQ determined that the groundwater had been returned to its pre-mining class of use and that restoration was complete.

In 2006, the NRC agreed with the DEQ determination that restoration was complete and that Wellfields 1 through 9 had been restored in accordance with the applicable regulatory requirements.

Reno Creek Project

The Reno Creek Project was an R&D ISR project operated by Rocky Mountain Energy Corporation (RME) located approximately less than 20 mi to the East of the Nichols Ranch ISR Project. In October of 1980, a sodium carbonate/bicarbonate lixiviant was used to extract uranium from two wellfields, Pattern 1 and Pattern 2. Both patterns were located in the typical sandstone formations found in the Powder River Basin, but Pattern 1 was located in a confined portion of the mining aquifer while Pattern 2 was located in an unconfined portion of the mining aquifer. The water level in Pattern 2 was approximately 8 feet below the top of the aquifer.

After 10 weeks of lixiviant injection, recovery operations were halted and groundwater restoration began. The techniques used during groundwater restoration included pumping and circulating the wellfields back through the ion exchange (IX) process. This process continued for a one month period of time and was then followed by a groundwater sweep. At the close of the groundwater restoration program, all groundwater constituents, except uranium, were restored to levels below or within baseline ranges. Uranium was reduced to less than 5 parts per million which is below the standard for drinking water in Wyoming. After restoration and stabilization data were thoroughly evaluated by the WDEQ and NRC, both agencies concluded that the goal of restoring the groundwater to pre-mining baseline conditions was achieved for all parameters except uranium, but the uranium met the pre-mining class of use standards. Thus the groundwater was restored and that the restoration was suitable, for both Pattern 1 and the unconfined Pattern 2, to support commercial ISR operations.

Three reports titled, "Reno Creek ISL Hydrology," "Reno Creek Project, Demonstrated Restoration Report," and "Hydrologic Analysis of the Reno Creek – Pattern 2 Property For In Situ Uranium Recovery" are attached in Addendum 6C for further information on the Reno Creek Project and the restoration on the unconfined Pattern 2.

Bison Basin

Bison Basin was both a pilot project and commercial operation that was conducted and was a completed restoration in both project phases. It received a license and successfully operated the first wellfield for approximately one year using a sodium carbonate/bicarbonate lixiviant. When uranium prices dropped, it ceased operations. The project was abandoned and the state cashed in the bond. Duke power stayed involved until the decommissioning plan was finished and restored the site. This occurred in the 1982 timeframe. Restoration was completed in approximately 1986.

Further review of the restoration that was conducted at both the pilot and commercial scale operations at Bison Basin found that approximately 6 pore volumes were used to restore the pilot site and 8 pore volumes were used to restore the commercial site (the commercial site was restored with 6 pore volumes, but an agreement was made with the regulators at that time to do 8). The restoration was completed by using a combination of groundwater sweep, groundwater transfer, and reverse osmosis. These are the same techniques that have been applied to all successfully restored ISR facilities in Wyoming and the same techniques that are proposed to be used for the Nichols Ranch ISR Project.

Additionally the hydrologic characteristics at the other ISR sites in Wyoming, including the four mentioned above, make them good analogs for the Nichols Ranch and Hank sites. The Table 6a summarizes the variation in ore sand aquifer properties of the different analog sites to the Nichols Ranch and Hank Units. The transmissivities at the NRC licensed North Butte site range from 181 to 1440 gal/day/ft while the hydraulic conductivities range from 0.34 to 5.5 ft/day. The NRC licensed and previous test site Ruth transmissivities and hydraulic conductivities are significantly lower and range from 1.8 to 260 gal/day/ft and 0.17 to 0.62 ft/day for transmissivity and hydraulic conductivity, respectively. Aquifer properties at the NRC licensed Christensen Ranch are similar to the North Butte aquifer properties. The previously licensed and restored Bison Basin ISR aquifer properties were similar to the aquifer properties with values between the Ruth and North Butte sites. Transmissivities at Smith Ranch and Highlands have varied from as low as typical values at the Ruth site; but significantly higher than typical values observed at the

Table 6a Comparison of ISR Ore Sand Aquifer Properties.

	Transmissivity (GAL/DAY/FT)	Transmissivity (FT^2/DAY)	Hydraulic Conductivity (FT/DAY)	Storage Coefficient	Specific Yield
Nichols Ranch Unit	101-460	13-61	0.18-0.7	1.80E-04	-
Hank Unit	19-6670	2.5-8917	0.14-9.4	6.80E-05	0.14
North Butte	181-1440	24-192	0.34-5.5	4.4E-5 - 3.6E-4	-
Ruth	1.8-260	0.24-35	0.17-0.62	4.2E-5 - 1.7E-3	-
Christensen Ranch	264-1030	35-138	0.32-0.54	8.7E-5 - 1.5E-3	-
Reno Creek	11.4-6490	1.5-867	0.03-5.5	1.3E-4 - 2.6E-3	0.024-0.11
Bison Basin	117-198	16-26	0.77-1.3	3.9E-5 - 1.9E-4	-
Smith Ranch	90-8650	12-1156	0.5-3.8	5.2E-6 - 5.4E-4	-

North Butte site. This makes Smith Ranch a good analog site for Nichols Ranch and Hank also. Storage values for the other sites are similar to the Nichols Ranch site. The storage value for the Hank Unit is significantly different due to it being an unconfined aquifer. Therefore, some different considerations need to be used for the Hank Unit but overall these analogs are still very applicable to the Hank site. The aquifer properties from the Reno Creek R&D site are very similar to those observed at the Hank site.

6.1.3.6 Environmental Effects of Groundwater Restoration

The restoration of groundwater at ISR operations and at other ISR operations in the Powder River Basin has proven successful by utilizing the techniques discussed in the application. Uranerz Energy Corporation expects that groundwater restoration at the Nichols Ranch ISR Project will also be successful at both the Nichols Ranch and Hank Units by utilizing the proven techniques that have been discussed. As with any groundwater restoration, the purpose of the restoration is to restore the groundwater back to the restoration target values so that adjacent groundwater is protected outside the EPA/WDEQ exempted production area. If during groundwater restoration, a constituent cannot technically or economically be restored to its restoration target value within the production area, the NRC and WDEQ will require Uranerz Energy Corporation to demonstrate that leaving the constituent at a higher concentration will not be a threat to public health and safety, to the environment, or produce any unacceptable impact to the use of adjacent groundwater resources. With the proven application of the best practicable technology for groundwater restoration and the in place regulatory requirements of the WDEQ and NRC, Uranerz Energy Corporation believes that there is no adverse impact on the water quality of groundwater outside the production area.

The proposed restoration techniques do consume groundwater. During the restoration process, water will be consumed by the groundwater sweep. This amount, based on one pore volume could be as much as twenty million plus gallons of water. Also during restoration, approximately 20 to 25% of the groundwater treatment flow through the reverse osmosis (RO) units is disposed of as brine that is sent to the deep disposal well. This consumption of water is an unavoidable consequence of groundwater restoration, but will not have any different affect on surrounding groundwater used outside of the production zone other than those impacts that have been discussed in Chapter 2.0, Section 2.7 and Chapter 7.0, Section 7.2.3.

6.1.4 Restoration Stability Monitoring Stage

Once a production area has been designated as restored by the Wyoming Department of Environmental Quality, a six month stability period begins to ensure that the restoration goal of returning the production area groundwater to baseline water quality or pre-mining class of use category is maintained. The following restoration stability monitoring program will be in place during the stability period:

1. The monitor ring wells are sampled once every two months and analyzed for the UCL (upper control limits) parameters: chloride, total alkalinity and conductivity; and
2. At the beginning, middle, and end of the stability period, the production wells will be sampled and analyzed for the parameters in Table 5-1.

In the event that unforeseen conditions (such as snowstorms, flooding, and equipment malfunction) occur, the WDEQ will be contacted if any of the monitor or production wells cannot be monitored within 65 days of the last sampling event.

The six month stability monitoring period is specified in WDEQ-LQD Guideline 4. The criteria to establish restoration stability will be based on wellfield averages for water quality. A determination of aquifer stability should be made upon the "trends" in the data; i.e., a stable aquifer should not exhibit rapid upward or downward trends or be oscillating back and forth over a wide range of values. The data is evaluated against baseline quality and variability to determine if the restoration goal is met and if the water is restored at a minimum to within the class of use.

For the Nichols Ranch ISR Project, Uranerz will provide 4 sampling events on a quarter-year basis during the restoration stability monitoring. This sampling will include both the monitoring ring wells and the production wells.

6.1.5 Well Abandonment

When the groundwater has been adequately restored and determined stable by the regulatory agencies, surface reclamation and well abandonment will begin. All production, injection, monitor wells, and drill holes will be abandoned in accordance with WS-35-11-404 and Chapter VIII of the Wyoming Department of Environmental Quality-Land Quality Rules and Regulations to prevent adverse impacts to groundwater quality or quantity, and to ensure the safety of people, livestock, wildlife, and machinery in the area.
Wells will be abandoned using the following procedure:

1. All pumps and piping will be removed from wells, when practicable.
2. All wells are plugged from total depth to within 5 ft of the collar with a well abandonment plugging gel formulated for well abandonment and mixed in the recommended proportion of 10 to 20 lbs per barrel of water, to yield an abandonment fluid with a 10 minute gel strength of at least 20 lbs/100 sq ft and a filtrate volume not to exceed 13.5 cc.

3. The casing is cut off at least two feet below the ground surface. Abandonment fluid is used to fill the void to the top of the cut-off casing.
4. Cement or a plastic plug will be placed at the top of the abandoned well casing. The area is backfilled, smoothed, leveled, and reseeded to blend with the natural terrain.

Any deviation from the above procedure will be approved in advanced by the NRC and WDEQ.

6.2 SURFACE RECLAMATION AND DECOMMISSIONING

6.2.1 Introduction

At the completion of mining of the Nichols Ranch ISR Project, all lands disturbed by the mining project will be restored to their pre-mining land use of livestock grazing and wildlife habitat. Any buildings or structures will be decontaminated to regulatory standards, and either demolished and trucked to a disposal facility or turned over to the landowner if desired. Baseline soils, vegetation, and radiological data will be used as guide in evaluating the final reclamation. A final decommissioning plan will be sent to the NRC for review and approval at least 12 months prior to the planned decommissioning of a wellfield or project area.

6.2.2 Surface Disturbance

Because of the nature of ISR mining, minimal surface disturbance will be associated with the Nichols Ranch ISR Project. Surface disturbance will consist of construction activities associated with the construction of the central processing plant (CPP), satellite plants, and wellfields including well drilling, pipeline installations, and road construction. Disturbances associated with the wellfield impact a relatively small area and have short-term impacts.

Surface disturbances associated with the construction of the central processing plant, satellite plants, and wellfield header houses will be for the life of those activities. Topsoil will be stripped from these areas prior to the construction of the facilities. Disturbances associated with the wellfield drilling and pipeline installation are limited and reclaimed as soon as possible after completion of these items. Access roads to and from the wellfield are also limited with minimum surface disturbance.

6.2.3 Topsoil Handling and Replacement

Topsoil will be salvaged from any building sites, permanent storage areas, main access roads, and chemical storage areas prior to construction in accordance with Wyoming Department of Environmental Quality-Land Quality Division (WDEQ-LQD) requirements. To accomplish this, typical earth moving equipment such as rubber tired scrapers and front end loaders will be utilized. Topsoil salvage operations for the wellfield will be limited to the removal of topsoil at header house locations. Wellfield access roads topsoil removal will be in accordance with the landowner's road construction practices. These practices are outlined in the letter attached in Addendum 6A. All together, an estimated 100 acres of topsoil will be salvaged, stockpiled, and reapplied during the life of the Nichols Ranch ISR Project.

Topsoil that is salvaged during construction activities will be stored in designated topsoil stockpiles. These stockpiles will be located so as to minimize topsoil losses from wind erosion. Topsoil stockpiles will also not be located in any drainage channels or other locations that could lead to a loss of material. Berms will be constructed around the base of the stockpiles along with the seeding of the stockpiles with a mixture of Western Wheatgrass and Thickspike Wheatgrass at a seeding rate of seven pounds pure live seed per acre per wheatgrass species to reduce the risk of sediment runoff. Additionally, all topsoil stockpiles will be identified with highly visible signs labeled "Topsoil" in accordance with WDEQ-LQD requirements.

During excavations of mud pits associated with well construction, exploration drilling, and delineation drilling activities, topsoil is separated from the subsoil with a backhoe. The topsoil is first removed and then placed at a separate location. The subsoil is then removed and deposited next to the mud pit. When the use of the mud pit is complete (usually within 30 days of initial excavation), the subsoil is then redeposited in the mud pit followed by the replacing of the topsoil. Pipeline ditch construction will follow a similar path with the topsoil stored separately from the subsoil with the topsoil deposited on the subsoil after the pipeline ditch has been backfilled. These methods of topsoil salvaging have proven to be adequate as demonstrated by the successful revegetation and reclamation at prior and existing ISR operations.

6.2.4 Vegetation Reclamation Practices

All revegetation practices will be conducted in accordance with the WDEQ-LQD regulations and the methods outlined in the mining permit. Topsoil stockpiles, along with as many as practical disturbed areas of the wellfield, will be seeded with vegetation throughout the mining operation to reduce wind and water erosion. Final revegetation of the mine area will consist of seeding the area with one final reclamation seed mix. Table 6-1 shows the seed mixture that will be used for reclamation. This mixture was developed through discussions with the landowner and approved by the WDEQ-LQD. A seeding rate of 15 pounds of pure live seed per acre will be used when using a rangeland drill. On areas where it is not practicable to use a drill, the seed will be broadcast at a rate of 30 pounds pure live seed per acre.

The success of the final revegetation will be determined by measuring the revegetation in meeting prior mining land use conditions and reclamation success standards as compared to the "Extended Reference Area" outlined in WDEQ-LQD Guideline No. 2. The Extended Reference Area allows for a statistical comparison of the reclaimed area with an adjacent undisturbed area of the same or nearly the same vegetation type. The area that the Extended Reference Area has to encompass needs to be at least one half the size of the reclaimed area that is being assessed or at least no smaller than 25 acres in size.

In choosing the Extended Reference Area, the WDEQ-LQD will be consulted. This will ensure that the Extended Reference Area adequately represents the reclaimed area being assessed. The success of the final revegetation and final bond release will be determined by the WDEQ-LQD.

Table 6-1 Uranerz Reclamation Seed Mixture.

Species	Percent of Mix	Pounds PLS/acre
Western Wheatgrass	28	4.2
Revenue Slender Wheatgrass	28	4.2
Bozoisky Russian Wildrye	19	2.85
Greenleaf Pubescent	9	1.35
Gulf Annual Ryegrass	6	0.9
Yellow Blossom Sweet Clover	5	0.75
Ladak 65 Alfalfa	5	0.75
Total	100	15

6.2.5 Road Reclamation

6.2.5.1 Access Roads

Two access roads will be built to connect both the Nichols Ranch central processing plant (CPP) and the Hank satellite plant with the existing ranch roads. The length of the Nichols Ranch CPP road is approximately 0.20 mi in length. The Hank satellite plant road will also be approximately 0.20 mi in length. If the landowner desires, the roads will be left in place when operations are complete. If not, the roads will be reclaimed. Even if the roads are left in place, third party reclamation costs will be included in the reclamation bond estimate.

If the access roads are to be reclaimed, the first step will be to pick up and remove the scoria/gravel on the road surface. Once the scoria/gravel has been removed the roadbed will be disced or ripped. Next, the topsoil stored in the ditch will be re-applied on the road surface. Finally, the road surface will be mulched and seeded with the permanent seed mixture.

6.2.5.2 Wellfield Access Roads

The wellfield access roads will allow vehicular traffic to move from the plants to the wellfields and from one wellfield to another wellfield. The construction design for the wellfield access roads is present in Addendum 6A. At the time of decommissioning, the landowner will decide which wellfield access roads will remain and which roads will be reclaimed.

If wellfield access roads are to be reclaimed, the first step in reclaiming the wellfield access roads will be to pick up and remove the scoria/gravel so that the roadbed is back to the approximate original grade. Next, the roadbed will be either disced or ripped. The disturbed area will then be mulched and seeded with the permanent seed mixture.

6.2.6 Site Decontamination and Decommissioning

A pre-remediation radiological survey will identify areas of the site that need to be cleaned up to comply with respective or applicable limits. Prior to commencement of reclamation, Uranerz will make available the results of the pre-remediation radiological survey that documents the post-operational condition of the site. The pre-remediation radiological survey will include lands (soils), and structures and equipment.

6.2.6.1 Reclaiming Disturbed Lands

Following the successful conclusion of the aquifer restoration stability period in a particular production area, the wellfield piping, well heads and associated equipment will be removed and, if serviceable, taken to a new production area for continued service. Wellfield equipment that is no longer usable will be gamma surveyed and placed in either a contaminated or non-contaminated bone yard located near the central processing plant for subsequent removal from the site. If the final production area is being reclaimed, the nonsalvageable contaminated piping, well heads, and associated equipment will be trucked from the site to an approved NRC disposal facility.

Uranerz will provide a plan for reclamation of land (soil plan) to the NRC for review and approval at least 12 months before the planned commencement of reclamation of a well field or licensed area. The plan will include a description of the areas to be reclaimed, a description of planned reclamation activities, a description of methods to be used to ensure protection of workers and the environment against radiation hazards, a description of the planned final radiation survey including cleanup criteria for soil, and a respective cost estimate.

The cleanup criteria for radium in soils will be as provided in 10 CFR Part 40, Appendix A, Criterion 6(6).

The cleanup criteria for Th-230 in soil will be that concentration, when combined with the residual concentration of Ra-226 (i.e., contribution from thorium transformation plus residual radium), will result in the radium concentration that would be present in 1,000 years satisfying the radium cleanup standard.

The cleanup criteria for uranium in soil will be derived from the radium benchmark dose approach of 10 CFR Part 40, Appendix A, Criterion 6(6).

The survey designs for verification of soil cleanup will be developed from NUREG-1575 Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). Statistical tests for analysis of survey data will be chosen from the MARSSIM. The statistical tests will be applied to provide 95-percent confidence that the survey units meet the cleanup criteria.

6.2.6.2 Removing and Disposing of Structures and Equipment

After groundwater restoration is complete in the final production area, decommissioning of the Nichols Ranch Unit central processing plant site and the Hank Unit satellite plant will commence. (The Nichols Ranch plant may continue to be used after completion of mining to process materials from other satellites.) All process equipment associated with the plants will be dismantled and either sold to another NRC licensed facility or decontaminated to satisfy the surface contamination levels of "Guidelines for Decontamination of Facilities and Equipment

Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source or Special Nuclear Material." Any material that cannot be decontaminated to an acceptable level will be disposed of at an approved NRC facility. After decontamination, materials that will not be reused or that do not have any resale value, like building foundations, will be removed and disposed of at an off-site facility.

Uranerz will provide a plan for decommissioning structures and equipment (plan) to the NRC for review and approval at least 12 months before the planned commencement of decommissioning of such structures and equipment. The plan will include a description of structures and equipment to be decommissioned, a description of planned decommissioning activities, a description of methods to be used to ensure protection of workers and the environment against radiation hazards, a description of the planned final radiation survey, and a respective cost estimate.

Nonradioactive hazardous wastes will be segregated and disposed of at a hazardous waste disposal facility. Non-radiological uncontaminated wastes will be disposed of as ordinary solid waste at a municipal solid waste facility. Closure of the site will otherwise be completed in conformance with 10 CFR Part 40, Appendix A, Criterion 6 (7).

6.2.7 Final Contouring

Because of the nature of solution mining, very little, if any, construction activities will take place which will require any major contouring during reclamation. Any surface disturbances that do occur will be contoured to blend in with the natural terrain. The Nichols Ranch Unit plant site and Hank Unit satellite plant site will be contoured to blend in with the natural terrain after all buildings have been removed; topsoil replacement and reseeding of the area will then take place. No final contour map has been included since no significant changes in the topography will result from the proposed mining operation.

6.2.8 Financial Assurance

Uranerz Energy Corporation will maintain surety instruments to cover the costs of reclamation for the Nichols Ranch ISR Project. The surety instruments will cover the costs of groundwater restoration, decommissioning, dismantling, and disposal of all facilities including buildings and the wellfield, and the reclamation and revegetation of all affected mining areas. Additionally, the NRC and WDEQ-LQD require an updated Annual Surety Estimate Revision to be submitted each year to adjust the surety instrument amount to reflect existing operations and those planned for construction or operation in the following year. Uranerz Energy Corporation will revise any surety instrument amount to reflect any changes to the Annual Surety Estimate Revision after its review and approval by the NRC and WDEQ-LQD. Uranerz Energy Corporation will also 1) automatically extend the existing surety amount for one year if the NRC has not approved a proposed revision at least 30 days prior to the expiration date for the existing surety, 2) revise the surety arrangement within 3 months of NRC approval of a revised closure (decommissioning) plan, if estimated costs exceed the amount of the existing financial surety, 3) update the surety to cover any planned expansion or operational change not included in the annual surety update at least 90 days prior to beginning associated construction, and 4) provide NRC a copy of the State's surety review.

Once the WDEQ-LQD, NRC, and Uranerz Energy Corporation have agreed to the estimated reclamation and restoration costs, a reclamation performance bond, irrevocable letter of credit, or other acceptable surety instrument will be submitted to the WDEQ-LQD with a copy to the NRC prior to commencing operations.

Addendum 6B contains the calculations and estimate of the proposed surety bond for the first year of operation for the Nichols Ranch ISR Project. The surety estimate is based on the first year of operation consisting of the construction of the Nichols Ranch central processing plant and the start up of the first production area at the Nichols Ranch Unit. The construction of the Hank satellite plant and the first Hank production area are not included in the surety estimate since the Hank Unit is not anticipated to be operational in the first year thus the surety bond will not include a cost estimate for restoring the groundwater at the Hank Unit.

Groundwater restoration costs for the Nichols Ranch Unit are based on the treatment of one pore volume of groundwater sweep and 6 pore volumes of treatment using reverse osmosis. The calculation for pore volume is as follows:

> Pore Volume = (Affected Ore Zone Area) x (Average Well Completed Thickness) x (Flare Factor) x (Porosity).

The number of pore volumes needed to restore a production area can vary from operation to operation or from wellfield to wellfield. As seen by COGEMA, who is located just a few miles to the north-northwest of the Nichols Ranch ISR Project and who has operated in very similar formations and conditions as the Nichols Ranch ISR Project; the number of pore volumes needed to restore Wellfieds 1-9, that were fully operational on a commercial scale, has varied from 9.5 to 18.4 with an average of 14.6. Other Wyoming ISR operations such as the commercial Bison Basin ISR uranium project needed just six pore volumes to achieve restoration; while the Reno Creek R&D uranium project successfully restored the groundwater without RO by using ten pore volumes in both confined and unconfined settings. Based on these operations and the restoration techniques that will be used by Uranerz Energy Corporation, the number of pore volumes that Uranerz estimates that will be needed to restore the partial operating Production Area 1 in the first year of operation at the Nichols Ranch Unit has been modified to seven pore volumes, one pore volume groundwater sweep and six pore volumes circulated through an RO unit.

Along with researching the number of pore volumes used at other commercial and R&D operations, the flare factor for a typical ISR operation can be anywhere from 1.3 as seen and approved for the HRI Churchrock ISR operations in New Mexico; to 1.5 to 1.7 as modeled using MODFLOW and MODPATH by PRI's Smith Ranch wellfields. COGEMA's Irigaray/Christensen Ranch sites have used an overall flare factor of 1.44. Knowing that flare factor can be influenced by such things as well completion, but also taking into account the flare factors that have been used at operating commercial ISR operations that are adjacent to the Nichols Ranch ISR Project and operate in very similar sandstone formations and deposits along with conduction Numerical Modeling for both units (found in Addendums 3B and 3C), Uranerz will be using a flare factor of 1.45 for the Nichols Ranch Unit for the surety estimates attached in Addendum 6B. For the Hank Unit a flare factor of 1.89 will be used.

Porosity values used in the surety estimate are based on total porosity of the Nichols Ranch and Hank Units. Although, in places, a porosity of 0.05 is used in the application, this porosity is used in only discussion about effective porosity. The effective porosity values for the A and F Sands of 0.05 was used for calculation of groundwater velocity. A total porosity is more appropriate for the restoration pore volumes than for the effective porosity. The effective porosity for groundwater velocity estimates was conservatively estimated from the lithologic materials at the two sites. A smaller effective porosity results in a conservatively higher groundwater velocity. The porosity value in the surety estimate has been revised to 0.3 for consistency.

7.0 ENVIRONMENTAL EFFECTS

7.1 SITE PREPARATION AND CONSTRUCTION

The environmental impacts of site preparation and construction for the Nichols Ranch ISR Project will be minimal. Even though the project boundaries (permit boundaries) will encompass a total of approximately 3,370 acres, disturbance and impacts will be limited to an area of approximately 300 acres or less. Local soils and vegetation will be impacted during the construction of the processing facilities and during the lifetime operation of the project. Wellfield activities such as drilling of wells and installation of pipelines will result in temporary disturbance to the soils and vegetation in those areas that the activities are taking place. The impact by the wellfield activities and processing facilities is small as demonstrated by existing ISR operations in the Powder River Basin of Wyoming and the southern portion of Texas. Since the Nichols Ranch ISR Project is located in a remote part of Wyoming, on private land, no impacts to any public services or public activities will result from the operation.

Construction and site preparation of the processing facilities located at both the Nichols Ranch and Hank Units will be limited to an area of approximately 2-4 acres at each site. During the construction of the facilities, all topsoil will be removed and stockpiled in a designated area where it will remain for the life of the project. During reclamation of the processing facilities, the original topsoil will be replaced in its original location where it will then be re-seeded to return the area back into its original land use of livestock grazing and wildlife habitat.

Access roads to the wellfield and processing facilities will also result in surface impact to the local soils and vegetation. The impacts caused from the access roads will be for the life of the project. The land where the Nichols Ranch ISR Project is located on has specific road construction practices that will be implemented if access roads have to be constructed. The details for road construction can be found in Addendum 6A in Chapter 6.0 of this license application. When the access roads are no longer needed for the operation of the project, those access roads that the landowner does not want will be re-contoured, topsoiled, and re-seeded.

With the construction and site preparation activities of the access roads and processing facilities, livestock grazing and wildlife habitat will be excluded in these areas. An estimated 60-80 acres will be fenced off to grazing activities at any given time during the life of the operation. Because the areas that will be affected by the surface disturbance of the access roads and processing facilities will be reclaimed and restored to the pre-mining use, no long-term surface impacts will result from the project.

Surface disturbance associated with the drilling of wells and pipelines result in temporary disturbance of the soils and vegetation in the areas of these activities. The impact that results from these activities is minimal in that when an area is being drilled and pipelines constructed the disturbance results from the digging of mud pits or from the trenching of the pipeline. When the mud pits or trenches are excavated, the topsoil from the area of the mud pit or trench is removed and placed in a separate location. The subsoil is then removed and placed next to the excavation site. As soon as the mud pit is no longer needed or the trench has the pipeline in place, the subsoil is immediately put back into the excavation followed by the replacement of the topsoil. Re-seeding then follows as soon as possible. Depending on the time of year of the completion of construction and weather conditions re-seeding will take place in late spring or early fall.

The Nichols Ranch ISR Project will not result in any subsidence to the project area or surrounding areas. The proposed in situ recovery process does not remove any physical structures underground that would cause a void to occur and subside. The in situ process removes only the uranium mineral that is present on the surface of the host sandstone formation. The physical structure of the host sandstone is unaffected. Because the host sandstone formation is not affected subsidence will not result from the in situ process; therefore, no subsidence mitigation or control plans have been developed or included in this application.

7.2 EFFECTS OF OPERATION

The Nichols Ranch ISR Project is anticipated to minimally affect the areas in and adjacent to the project areas since the in situ recovery process will be used to recover the uranium. The in situ recovery process has demonstrated that its impacts to air, surface water, groundwater, land, land use, and ecological systems are minor and temporary as seen by the past and current in situ recovery operations that are located in the areas near the proposed project and in currently operating facilities in Wyoming, Nebraska, and Texas.

7.2.1 Surface Water Impacts

Surface water impacts that result from the Nichols Ranch ISR Project are considered to be nonexistent to minimal. Any impacts that might arise to surface water from the Nichols Ranch ISR Project will be temporary.

Surface water for the Nichols Ranch ISR Project is limited to four identified jurisdictional wetlands located on the Nichols Ranch Unit. These wetlands are in such locations that they will not be disturbed by the mining activities. In the event that any disturbance would occur in a jurisdictional wetland, consultation with the Corp of Engineers would be initiated to establish mitigation and control plans. The attached Appendix D10 provides more information regarding the wetlands.

The potential for erosion and potential movement of sediments into drainages may occur during construction and reclamation activities associated with processing facilities and wellfield. Berms and contouring when and where possible will be utilized to minimize potential erosion and sediment movement. Re-seeding with native seed mixture or cover crops will also occur upon completion and reclamation of the project area. Re-seeding of an area will take place during the appropriate growing seasons, either spring or fall, whichever comes first.

Surface water runoff should not be affected by the presence of any surface facilities including the wellfields and associated structures, access roads, office and maintenance buildings, pipelines, and processing facilities (both main and satellite facilities). In the event that surface runoff flows are impeded by any facilities, culverts and diversion ditches will be implemented to control the runoff and prevent excessive erosion. If the surface runoff is concentrated in an area, measures such as energy dissipaters will be used to slow the flow of the runoff so that erosion and sediment transport are minimized. Figure 2-15 of Chapter 2.0 provides a map of the surface drainage areas for the Nichols Ranch ISR Project.

7.2.2 Ephemeral Drainages Impacts

The Nichols Ranch ISR Project area contains three main drainages, one at the Nichols Ranch Unit, and two at the Hank Unit. In the Nichols Ranch Unit, drainage from surface precipitation and snowmelt is to the southwest to Cottonwood Creek via small ephemeral moderately to deeply incised channels (1 to 30 ft high banks) that range from 1 to 15 ft wide. Cottonwood Creek has been altered with a system of irrigation ditches and spreader dikes that have been constructed in the past to supply water to the area for past hay production. Drainage in the Hank Unit generally is to the northwest and west off North Middle and South Middle Buttes via Dry Willow Creek and Willow Creek. Channel widths generally range from 1 to 2 ft in the headwater areas and increase to 20 to 30 ft wide where the drainages leave the western edge of the Hank Unit. In general, the drainages are deeply incised with 10 to 50 ft high banks in the southern and northeastern portions of the Hank Unit and less incised in the other parts of the unit.

All flows within both units are ephemeral with no perennial or intermittent stream flows. The volume of flow from these ephemeral drainages is seasonal and directly related to local climatic conditions. The climate is semi-arid with an annual precipitation varying from 10 to 14 inches. Most of the precipitation occurs during May through June with snowfall contributing slight amounts to the overall total.

Impacts to ephemeral drainages may occur with some of the production activities such as wellfield operations or the construction of access roads. To avoid impacts to the drainages, existing roads within the project area will be used. If an ephemeral drainage may be impacted by the roads or wellfield operations, appropriate measures will be taken to minimize the impact to the ephemeral drainage including the prevention of erosion and sediment transport into the drainage.

Access road construction will be minimized by using existing roads within the project area. When new roads are needed, design and construction practices will incorporate such parameters as drainages, elevation contours, location with regard to weather conditions, and land rights to ensure the least amount of impact. If a new road has to cross an ephemeral drainage, efforts will be made to cross the drainage at right angles to minimize erosion with the appropriate sized culverts installed. In the event that a drainage has to be crossed, but cannot be crossed at a right angle or along elevation contours, appropriate measures for erosion control will be examined and implemented.

Wellfield construction activities will result in some short term or temporary effects on erosion. The ongoing drilling, well development, pipeline construction, header house construction, lateral pipeline placement, and access road construction activities will incorporate erosion protection measures based on the conditions where construction activities are taking place. Protection measures that may be used are: grading and contouring, placement of hay bales, culvert installation, sedimentation breaks, or placement of water contour bars.

In areas where steep grades are encountered during construction activities, re-seeding of the disturbed area will take place along with the erosion protection measures mentioned in the previous paragraph. The re-seeding will take place in the spring or fall, whichever comes first after the construction activity takes place.

Wells that are constructed in any ephemeral drainage will use the appropriate erosion protection controls to minimize the impact to the drainage. Protection controls that could be used, but not limited to, are: grading and contouring, placement of hay bales, culvert installation, placement of water contour bars, and designated traffic routes. The drainage bottoms will be restricted to the work activities that are needed to construct and maintain the wells. If the wells are placed in a location in the drainage where runoff has the potential to impact the well, measures will be taken to protect the well and wellhead. Barriers surrounding the well such as cement blocks, protective steel casing around the well heads, or other measures to protect the wells from damage will be utilized.

7.2.3 Groundwater Impacts

In situ recovery impacts to the groundwater are minimal. During the uranium recovery process, the groundwater will be impacted by the elevated concentration of certain constituents that are present in the groundwater in the ore zone. These impacts are temporary as the groundwater will be returned to pre-mining condition or class of use as defined by the Wyoming Department of Environmental Quality when the mining of the ore zone is completed.

One other impact to the groundwater will be the removal of water from the ore zone aquifers during the life of the Nichols Ranch ISR Project from the wellfield bleed. The water that is removed from the ore zone aquifers will result in a net loss of water from the ore zone aquifer, but the water that is lost will be replaced over time by the recharging of the aquifer. Water that is removed from ore zone aquifers will be sent to a deep disposal well.

7.2.3.1 Analytical Modeling

The bleed rate from the ISR operation at Nichols Ranch Unit will cause a steady stress on the A Sand aquifer. For production of 3,500 gpm and a 1% bleed rate. The bleed rate will average 35 gpm. This stress for a three year operation at Nichols Ranch Unit was simulated with the aquifer properties of 350 gal/day/ft for transmissivity and a storage coefficient of 1.8E-4. Figure 7-1 (see map pocket) presents the results of these drawdowns. These drawdowns were calculated from three different stress locations. Pumping wells were placed in the southeastern portion of the wellfield, north central and southwestern portion; each for one year pumping period. One pumping location in the center of the wellfields would produce very similar drawdown. These predictions show that 30 ft of the drawdown will extend 7,000 ft outward from the center of the wellfields. The 5 ft contour is projected to extend out 22,500 ft or approximately 4 mi from the Nichols Ranch ISR Project area. Table 7A.1-1 in Addendum 7A presents the WELFLO model printout of the simulated drawdown.

The flowing wells that are inside the 10 ft contours and produce the majority of its water from the A Sand are likely to cease flowing. Most of the flowing wells in the area only have a few PSI pressure when they are shut in. Brown 20-9 flowing well is completed in the A Sand and will very likely cease flowing during the ISR operation. Impacts to any wells that could be affected by consumptive use in the "A" Sand by Uranerz are addressed in surface use agreements between Uranerz and the surface owner of the land where the Nichols Ranch ISR Project is located. Although the details of the surface use agreement are confidential, Uranerz has agreed to work with the landowners if a well is affected by the "A" Sand drawdown. Potential actions could include installing pumps in artesian/flowing wells that stop flowing or drilling a new well for the landowner.

The analysis of the potential predicted drawdowns in the F Sand from the Hank Unit ISR operation were calculated with average aquifer properties of transmissivity (400 gal/day/ft) and storage value of 0.05 and 3 years of operation. For a production rate of 2,500 gpm and a 3% bleed rate, the predicted drawdowns are presented in Figure 7-2 (see map pocket). Twelve stresses were used to simulate these drawdowns. Six stresses for a total of 75 gpm for 1.5 years was located on the northern wellfield and a second set of six stresses for the following 1.5 years was located in the southern wellfield. This figure shows that for the 10 ft contour extends only near the area of the southern wellfield while the 5 ft unit contour extends out approximately 900 ft from the edge of the wellfields. Table 7A.2-1 in Addendum 7A presents the output from the WELFLO program for the Hank simulation.

No flowing wells exist in the F Sand in this area and therefore the limited drawdowns are not likely to significantly affect any existing water users.

7.2.3.2 Numerical Modeling

The MODFLOW numerical model was used to simulate the ground-water conditions at the Nichols Ranch Unit and the Hank Unit for the A and F Sands, respectively. Addendum 3B presents the results of the Nichols Ranch Unit numerical ground-water modeling while Addendum 3C presents the results of the numerical modeling for the Hank Unit. Drawdown after one year of operation of the two mine units are presented in Figures 3B.1-6 and 3C.1-5 for the Nichols Ranch and Hank Units, respectively. Corresponding piezometric surface maps at the end of one year of mining are presented in Figures 3B.1-7 and 3C.1-6. Drawdowns and piezometric maps at the end of mine operation of three years are presented in Figures 3B.1-10 through 3B.1-13 for the Nichols Ranch Unit in Addendum 3B. Addendum 3C contains the results for the end of mine operations for the Hank Unit is Figures 3C.1-7 and 3C.1-8. These numerical model results predicted very similar results as those predicted by the analytical modeling.

7.2.4 Air Quality

The Nichols Ranch ISR Project will result in minimal and temporary impacts to air quality in the region of the project. By using the in situ recovery method for the extraction of the uranium, minimal emissions are created. The principal emission will be fugitive dust generated from vehicle traffic to and from the project site and from wellfield activities since the majority of the roads in the project are unpaved. Negligible amounts of fugitive dust will be associated with disturbance of the soils during well development.

The gaseous pollutants produced from the diesel and gas vehicles used for the Nichols Ranch ISR Project are considered a non-stationary source which results in negligible impacts to the project area. Equipment used for development of the wellfields and construction activities will be used intermittently. Other vehicles associated with the Nichols Ranch ISR Project will be equipped with required pollution control devices to minimize combustion products derived from gasoline and diesel fuel.

Fugitive dust emissions associated with wind erosion are considered to be negligible. Measures such as re-seeding and prompt reclamation of disturbed areas such as wellfields will be utilized to minimize the dust emissions. These measures will also be used for additional areas such as topsoil stockpiles.

Emissions from the processing facilities associated with the Nichols Ranch ISR Project are limited to airborne effluents from process tanks and other vessels. The amounts of emissions that are released from the processing facility are considered to be very minimal to negligible. Table 7-1 identifies the emission sources from the processing facilities and their estimated emission quantities.

Radon will be generated during processing and restoration stages. When uranium-bearing solution is brought to the surface from the ore zone aquifer, radon; if not contained within the pressurized system, will off gas at the first opportunity due to changes in pressure and temperature. The pressurized down flow system described in the Application will ensure that

Table 7-1 Emissions Inventory.

Emission	Estimated Emission (tons/yr)
CO_2	353.70
HCL	0.017
H_2O_2	0.003
NaOH	0.0003
Fugitive Dust	135.9

radon emissions will be greatly reduced. The pressurized, closed-loop down flow-system will keep the radon gas in solution by keeping it under a constant pressure. However, caution and proper safety measures must and will be taken when loading and unloading ion exchange columns and vessels. Radon gas emissions will occur for short periods of time when ion exchange columns are taken off line and opened to the atmosphere. Short-term emissions will also occur in association with certain maintenance activities that involve cleaning or repairing the process/restoration system. Caution and proper safety measure must also be taken in the wellfield where radon gas will be vented from wellheads.

The yellowcake dryer that will be located at the Nichols Ranch Unit could potentially release minute airborne particulate emissions such as uranium and radon daughters to the atmosphere. Dryer particulate emissions are held to near zero by employing a condenser circuit in combination with high efficiency filters (capture rating in excess of 99.99%), and by maintaining a vacuum in the system. By keeping the closed-loop dryer under a constant vacuum, any particulates that are generated in the drying process are captured in the dryer, the filters and the condenser system. Any potential radiological impacts of particulate emissions that might leave the dryer on the local populations are detailed by the use of the MILDOS computer model developed by the NRC. Section 7.3 provides a detailed discussion of this model.

7.2.5 Wildlife Impacts

A wildlife survey/study was conducted for the Nichols Ranch ISR Project. The wildlife study area includes the Nichols Ranch ISR Project area and a 2.0-mile buffer (see Exhibits D9-1 through D9-4 of the attached Appendix D9). The entire wildlife survey area (project area plus the 2.0-mi survey area) encompasses approximately 62.0 mi^2 (39,659.6 acres).

7.2.5.1 Endangered Species

There are no known endangered species or endangered species habitat within the Nichols Ranch ISR Project area. Impact to endangered species is therefore non-existent and no mitigation factors are needed.

7.2.5.2 Wildlife

Mining activities within the proposed Nichols Ranch ISR Project area will result in limited short-term loss of approximately 300 acres of wildlife habitat over the approximate 10-year life of the mine. Short-term habitat losses will occur in those areas that are temporarily disturbed during drilling operations and during the construction of the ancillary facilities. The losses in wildlife habitat will be limited to small areas (less than 60-80 acres/year) and will be short-term in nature. The loss of wildlife habitat will be mitigated with the completion of reclamation activities.

All wildlife habitat disturbed during the life of the mine will be revegetated following the completion of mining operations (refer to the Reclamation Plan). Reclamation will be directed toward the restoration of the site primarily for livestock grazing and wildlife habitat.

7.2.5.2.1 Big Game

The entire project area lies within winter/yearlong pronghorn antelope and mule deer range of the Pumpkin Buttes Herd Units (WGFD 2005a). Direct impacts to big game as a result of project activities will include the disturbance of a portion of winter/yearlong range, loss of forage, increased potential for poaching, vehicular collision accidents, and the displacement of big game into surrounding areas. An estimated 300 acres will be incrementally mined or otherwise disturbed during the approximate 10-year life of the mine. As a result of these habitat disturbances, the winter/yearlong range carrying capacity for big game will be reduced during the life of the mine and for several years following mining until vegetative growth on the revegetated areas become productive enough to support big game. Since only 60-80 acres will be withdrawn from use as wildlife habitat at any given time, the Nichols Ranch ISR Project is not expected to have any adverse impacts on pronghorn antelope or mule deer. No significant increase in the potential for vehicle collision with big game is expected because of the short distances and low speeds required on the access roads. Also, levels of vehicular traffic associated with mine development and use of the roads are not expected to increase above current levels.

The number of employees and the nature and intensity of mining activities will be comparable to those already taking place on this site, and no increase in the potential for poaching and general harassment of big game is anticipated. Mitigation plans such as speed limits and fencing will aid in the reduction of big game conflicts associated with the Nichols Ranch ISR Project.

7.2.5.2.2 Upland Game Birds

Ten greater sage-grouse leks occur within the wildlife study area (refer to Exhibit D9-3 of the attached Appendix D9). All of the leks were active in 2006. Direct impacts to greater sage-grouse from project activities would include habitat loss and fragmentation from mine, road, pipeline, and power line construction; alteration of plant and animal communities; increased human activity that could cause the birds to avoid an area; increased noise that could cause the birds to avoid an area or reduce breeding efficiency; increased motorized access by the public leading to legal and illegal harvest; direct mortality from increased vehicular traffic; and an increase in mortality from raptors if power poles are placed in occupied greater sage-grouse habitat.

To minimize impacts to breeding greater sage-grouse, project activities and vehicular traffic would be minimized in areas within 0.25 mi of an active lek between the hours of 8:00 pm and 8:00 am during the greater sage-grouse strutting period (March 1-May 15), and project activities (i.e., drilling and construction) would be reduced in areas adjacent to an active lek between March 15 and July 15. To reduce raptor predation on greater sage-grouse, the construction of overhead power lines, permanent high-profiled structures such as storage tanks, and other perch sites would not be constructed within 0.25 mi of an active lek. To minimize impacts to greater sage-grouse and other upland bird species (i.e., Hungarian partridge), removal and disturbance of vegetation will be kept to a minimum through the use of existing roads for travel and for the placement of pipelines. All lands disturbed by project activities will be revegetated as soon as practical following the project disturbing activities following practices outlined in the Reclamation Plan.

7.2.5.2.3 Waterfowl and Shorebirds

During the 2006 field season, waterfowl were seldom observed on the project area. This minimal use is probably due to the fact that aquatic habitats on the project area are generally seasonal in nature and higher-quality waterfowl habitat is located outside the project area. Therefore, the Nichols Ranch ISR Project is not expected to have any adverse impacts on waterfowl or shorebirds. No mitigation efforts are needed.

7.2.5.2.4 Mammalian Predators

The use of the project area by mammalian predators will be temporarily reduced due to mining activities at the Nichols Ranch ISR Project. In addition, the recent outbreak of Tularemia may have an effect on the prey base (i.e., rabbits) for mammalian predators, which may have already resulted in a shift of predators to other areas to seek prey. Therefore, the Nichols Ranch ISR Project is not expected to have any adverse long-term impacts on mammalian predators. No mitigation efforts are also needed.

7.2.5.2.5 Lagomorphs

Rabbits were abundant within the project area and wildlife study area. Direct impacts to lagomorphs as a result of the project may include vehicular collision accidents, loss of habitat, increased motorized access by the public leading to legal and illegal harvest, and the displacement of lagomorphs into surrounding areas due to human activity and project related noise. The natural outbreak of Tularemia has caused noticeable mortality to the rabbits in the area. Since lagomorphs are relatively abundant in the project area, and the fact that they show an affinity to disturbed areas with existing facilities such as culverts and well pads, the Nichols Ranch ISR Project is expected to have a negligible short-term adverse impacts on lagomorph populations. No adverse long-term impacts are likely to occur.

7.2.5.2.6 Small Mammals

Some small mammals may be displaced by the mining activities over the life of the mine. Prairie dog habitat (i.e., towns) occurs on the project area. Prairie dog towns would not be avoided during mining activities; however, steps will be taken to minimize disturbance in their habitat. However, due to the low frequency of small mammal occurrence in the project area, the Nichols Ranch ISR Project is expected to have a negligible short-term adverse impact on small mammal populations. No adverse long-term impacts are likely to occur.

7.2.5.2.7 Raptors

Forty raptor nests occur within the wildlife study area, of which 14 were determined to be active. Twelve of the 14 active nests were located in the Hank Unit and two of the active nests were located in the Nichols Ranch Unit. Two active red-tailed hawk, two long-eared owl, one great-horned owl, and two prairie falcon nests were observed in the Hank Unit. Based on the proposed permit boundaries, those trees with nests will not be removed during project activities. The principal impact to these nests from project activities and associated increased human access is potential disturbance during nesting, which could result in nest abandonment and decreased reproduction success. Potential conflicts between active nest sites and project-related activities will be mitigated by annual raptor monitoring and mitigation plans such avoiding areas, when possible, where raptor nest sites are located, and limiting the constructing of overhead power lines so that raptors will not come in contact with them or use them as perches for viewing prey such as sage-grouse.

The temporary disturbance of approximately 300 acres of raptor prey species habitats is unlikely to result in a reduction in the raptor population in the area because only 60-80 acres will be disturbed at any time. Additionally, this reduction is expected to be short-term and negligible. Therefore, the Nichols Ranch ISR Project is not expected to have any adverse long-term impacts on raptor populations.

7.2.5.2.8 Nongame/Migratory Birds

The temporary disturbance of approximately 300 acres of habitat will result is some reduction in the carrying capacity for nongame/migratory birds within the project area. Birds may be displaced by the mining activities and the temporary disturbance of wildlife habitat; however, the amount of habitat lost will be minimal in relation to the amount of comparable habitats that are available in the general area. Therefore, the Nichols Ranch ISR Project is not expected to have any adverse long-term impact on any passerine bird populations.

7.2.5.2.9 Reptiles and Amphibians

The two species of reptiles that were documented in or near the project area during fieldwork are common in Wyoming. The mining activities and temporary disturbance may result in some reduction in the population levels of reptile and amphibian species in the area; however, these impacts are expected to be short-term and negligible. Therefore, the Nichols Ranch ISR Project is not expected to have any adverse long-term impacts on any reptiles or amphibian populations.

7.2.5.2.10 Threatened, Endangered, Proposed, and Candidate Species and Special Status Species

Based on state and federal wildlife agencies and habitat preference, two TEPC animal species and 17 BLM SS species have the potential to occur in the project area (refer to Tables D9-3 and D9-4 of the attached Appendix D9). Bald eagle was the only protected species observed within the wildlife study area and may use the area for foraging during the winter months and migration; however, no nests or communal roosts occur within the Nichols Ranch ISR Project wildlife survey area. Project lands disturbed as a result of mining will be unavailable for foraging bald eagles until these areas are reclaimed and prey species return. The area has been block-cleared for the black-footed ferret (refer to Addendum D9A of the attached Appendix D9; therefore, the mine will have no affect on black-footed ferrets. Two BLM SS species, the swift fox and Brewer's sparrow, were observed within or adjacent to the project area. Since only 60-80 acres will be withdrawn from use as wildlife habitat at any given time, the Nichols Ranch ISR Project is not expected to have any adverse impacts on TEPC species or SS. No special mitigation plans for TEPC species or SS are planned at this time.

7.3 RADIOLOGICAL EFFECTS

This section provides an evaluation of the radiological effects of the Nichols Ranch ISR Project. The evaluation considers potential exposure pathways to humans from operation of the Nichols Ranch and Hank Unit facilities.

The evaluation described in this section is based on the description of the sites and operations provided in Chapter 3.0 of this report. Otherwise, pertinent inputs and assumptions are included here.

7.3.1 Exposure Pathways

The potential exposure pathways considered here are water, air, and external. The water and external pathways are not quantitatively evaluated since there are no liquid effluents to surface water and no particulate effluents to air. The air pathway is quantitatively addressed but the scope is limited to radon since there are no particulate emissions.

7.3.1.1 Exposures from Water Pathways

The extraction solutions in the ore zone will be monitored and controlled to detect and prevent migration from the production zone. The monitoring and controls are described in Section 5.7.8 of this report.

The method of liquid waste disposal at the facility will be by deep disposal well. The deep disposal well(s) will be completed at depths significantly deeper than zones planned for mining and current CBM operations and will be isolated geologically from underground sources of drinking water. The deep disposal well(s) are described in Sections 3.2.6 of this report.

The uranium ion exchange, precipitation, drying and packaging facilities will be located on curbed, re-inforced concrete pads to prevent liquids from entering the environment. Solutions collected on these pads including water; used to wash down equipment, and accidental spills drain to a sump collection network and are either pumped back into the process circuit or to the disposal well.

No liquid effluents will be discharged to surface water. There are no surface waters on either site. Thus no definable water related pathways exist for routine operations.

7.3.1.2 Exposures from Air Pathways

Release rates of airborne radioactivity were estimated for the Nichols Ranch ISR Project. Dose commitments received by individuals and the general population within an 80 km radius of the site were estimated from atmospheric dispersal of such radioactivity with respect to regional meteorological data. Only airborne releases of radon are considered. Particulate emissions are not considered since such releases are not expected under normal operating conditions for vacuum dryers.

The computer code MILDOS-Area (MILDOS) was used to calculate both the release rates (source terms) and the dose commitments. The dose commitments include contribution from each of the Nichols Ranch and Hank Unit sites. Extra-regional population doses are also estimated as a result of transport of radon. The results are provided as total effective dose equivalent per year.

Two MILDOS-Area models were run for the Nichols Ranch ISR Project. The first MILDOS model used joint frequency data for wind speed, direction, and stability that was collected from Gillette, Wyoming from 1996 to 2005. This MILDOS model is presented in Addendum 7B. The second MILDOS-Area model, contained in Addendum 7C, used joint frequency distribution data for wind speed, direction, and stability that was collected from the Antelope Coal Company (ACC) site from 1987 to 2006. Each MILDOS model was used because the original model containing the Gillette data did not fully represent the conditions at the Nichols Ranch ISR Project site. The wind at the Nichols Ranch ISR Project site is primarily out of the south/southwest. The wind direction at Gillette is primarily from the north/northwest. To be consistent with the conditions at the Nichols Ranch ISR Project site, the second MILDOS model run used the ACC site since the wind direction at this site is the same and the Nichols Ranch ISR Project. Even with the two different runs using two different wind directions, the results for each model were very similar. The data contained in the tables in this section report the numbers that were produced from the second MILDOS model run using the ACC site.

7.3.1.2.1 Site Description

The physical description of the sites is provided in Chapter 3.0 of this report. The location of the sites is described in Figure 7-3 (see map pocket). The dose estimates are provided for intervals, directions, and elevations relative to the drying/packaging location at the Nichols Ranch facility; this location is subsequently referred to as the Nichols Ranch Central Processing Plant (mill center).

7.3.1.2.2 Population Distribution

The population distribution within 80 km of the mill center is provided in Table 7-2. Figure 7-4 (see map pocket) shows the locations of the cities within 80 km of the mill center.

The population dose beyond 80 km is estimated using the code's predetermined population dose for year 1978. The population dose is adjusted for population growth by the ratio of estimated United States population for year 2000 of 268 million to the estimated United States population for year 1980 of 228 million, or 1.2.

7.3.1.2.3 Individual Receptor Locations

The locations of the nearest residents to the Nichols Ranch Central Processing Plant are provided in Table 7-3. Locations of site boundaries to the Nichols Ranch CPP are provided in Table 7-4. Figure 7-3 (see map pocket) shows the locations of the nearest residents to the mill center.

Table 7-2 Population Distribution Within 80 km of Nichols Ranch Central Processing Plant.

Cities Within 80 km of Mill Center	Population	Distance from Mill Center (km)	Direction from Mill Center
Gillette	19,646	74	NE
Kaycee	249	56	W
Midwest	408	40	SW
Edgerton	169	37	SW
Wright	1,347	35	E

Table 7-3 Nearest Residents to Nichols Ranch Central Processing Plant.

Nearest Residence	Number of Inhabitants	Distance from mill center km x(E)	y(N)	Elevation from mill center z m
T-Chair (Rolling Pin) Ranch	5	3.7	-2.2	-7
Dry Fork Ranch	3	-2.7	-1.1	-58
Christensen Ranch	1	1.8	7.8	-1
Pfister Ranch	3	7.8	7.4	78
Pumpkin Butte Ranch	2	11.1	3.6	218
Van Buggenum Ranch	0	15.4	5.3	130
Ruby Ranch	2	19.0	2.9	101
Hank Satellite Plant	0	7.9	3.5	121

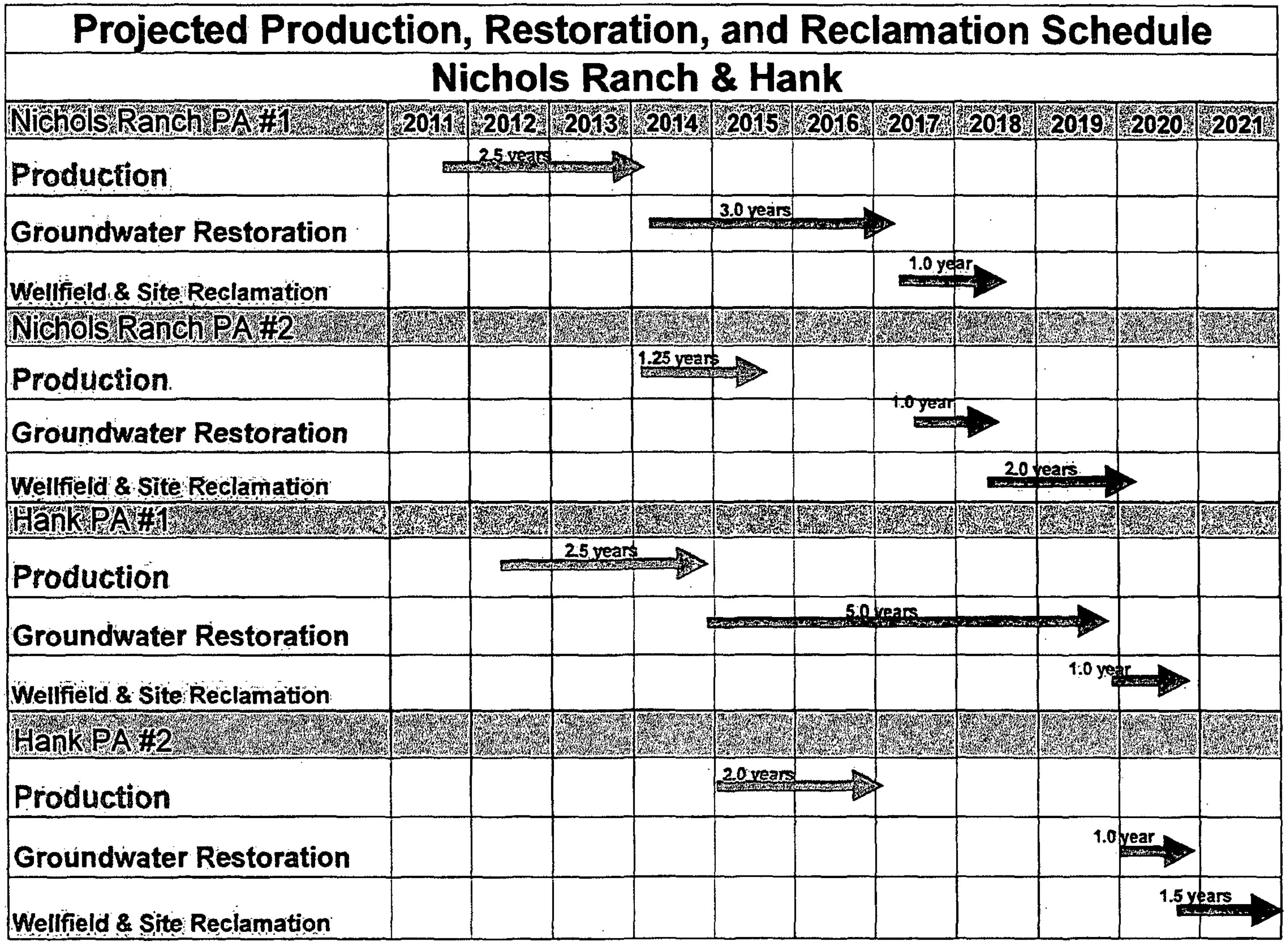
Table 7-4 Center of Site Boundary from Nichols Ranch Central Processing Plant.

Location	Distance from mill center x(E), y(N) km		Elevation from mill center z m
Nichols Ranch – north central	-0.4	1.3	57
– east central	0.6	0.2	-2
– south central	-0.3	-1.1	-18
– west central	-1.4	0.5	12
Hank – north central	7.9	6.6	86
– east central	8.8	3.3	160
– south central	7.9	1.3	139
– west central	7.1	4.2	102

7.3.1.2.4 Time Parameters

The dose commitments were completed for development, production, and restoration of wellfields for the operating years 2011 through 2019. The respective schedule is provided in Table 7-5.

Table 7-5 Development, Production, and Restoration Schedule.



Note: Nichols Ranch Unit is divided into two production areas: Nichols Ranch Production Area #1 and Nichols Ranch Production Area #2. Hank Unit is divided into 2 production areas: Hank Production Area #1 and Hank Production Area #2. This is a projected estimate for Production, Restoration and Reclamation. The actual schedule will depend on permit approval timing, construction efficiency, actual production results and actual restoration of the groundwater.

6/29/2010

The time parameters were input as:

- Beginning Year: 2011.
- Number of Time Steps: 9.
- Time Increment: 1 year.
- Population Adjustment: 1.2 (see "Population Distribution")
- Source Adjustment: varied per source to reflect development, production, and restoration schedule of Table 7-5.

7.3.1.2.5 Food Pathway Parameters

The MILDOS code requires four inputs to describe the feeding habits of livestock near the sites. The inputs used to describe the fraction of total annual livestock feed requirements are:

- Pasture Grass/Individual: 0.5 (default)
- Pasture Grass/Population: 0.5 (default)
- Hay/Individual: 0.5 (default)
- Hay/Population: 0.5 (default)

The MILDOS code also requires input of the areal food-production rate per unit area around the facility. The inputs used are:

- Vegetables: 3120 kg/y-m^2
- Meat: 345 kg/y-m^2
- Milk: 134 kg/y-m^2

7.3.1.2.6 Meteorological Parameters

The meteorological parameters for the MILDOS code were input as:

- The annual average morning and afternoon mixing heights each as the code default of 100 m
- The Briggs height cutoff vertical dispersion coefficient as the code default of 50 m
- The fractional joint frequency distribution of wind speed, direction and stability for Gillette, Wyoming for years 1996 through 2005. Atmospheric stability class G was

summed with class F. The results provided within this section are based on the Gillette, Wyoming stability array just noted. Subsequent to this assessment, two additional model runs were conducted using stability arrays from a private meteorological station associated with the Antelope Coal Company and an array developed from a former on-site meteorological station (North Butte Project) that is very near the project site. The distance between the North Butte project and the Hank site is only approximately 2.0 miles and the distance from Nichols Ranch to North Butte is approximately 5.0 miles. Data from the North Butte Project was previously used in the North Butte license application, which was approved by NRC. Because the very short distance between the data collection point and the Hank/Nichols project area, stability data from this station is certainly appropriate to use for MILDOS modeling.

A comparison of the three model runs was completed in response to Open Issues 2.2.1 and 2.2.2 in a previous filing with NRC. As described in the previous Open Issues Response, predicted doses to the public from the three runs did not vary significantly. The results for the model runs using Antelope and North Butte input data are included in Volume II as Addendums 7C and 7D.

7.3.1.2.7 Source Terms

The parameters and values used to develop the source terms and the resulting annual releases are listed in Tables 7-6 and 7-7 for Nichols Ranch and Hank Units, respectively. The respective source terms determined by MILDOS are included in these tables.

The fraction of radon attributable to the site was input as one for Casper, Wyoming.

A source term for release of particulates from drying and packaging activities was not developed since no particulate emissions are expected under normal operating conditions for vacuum dryers.

Table 7-6 MILDOS Input Parameters - Nichols Ranch Unit.

	(values in gray are calculated by MILDOS)*		
	Common Parameters (each wellfield)	Units	
Location	X (location relative to the plant which is considered (0,0,0)	-0.9	km
	Y (location relative to the plant which is considered (0,0,0)	0.4	km
	Z (location relative to the plant which is considered (0,0,0)	6	m
	area of active drilling (ore zone)	228644	m^2
	emanation fraction	0.2	
	Ra concentration in ore	311	pCi/g
	thickness	2.2	m
	density	1.9	g/cm3
	porosity	0.3	
	fraction of Rn	0.75	
	rate of Rn venting	0.01	/d
	volume in circulation	149068519	L
	New Wellfield Source Parameters (each wellfield)		
Mud pits	storage time in pit	30	d
	ore material into pit	136534	g/y
	number of mud pits	966	
	Total amount of Rn-222 released from drilling activities	0.045	Ci/yr
	Production Wellfield Source Parameters (each wellfield)		
Ore zone	Rn-222 source	1.1 E+13	pCi/d
Process water	treated water purge rate	190779	L/d
	Rn-222 release from purge water	20	Ci/yr
	Rn-222 release from well venting	150	Ci/yr
Ion exchange columns	column volume	14158	L
	column unloading rate	2	/d
	porosity of resin	0.4	
	Rn-222 release from ion exchange column	1.2	Ci/yr
	Total amount of Rn-222 released from production activities	170	Ci/yr
	Restoration Wellfield Source Parameters (each wellfield)		
Ore zone	Rn-222 source	1.1 E+13	pCi/d
Process water	treated water purge rate	310698	L/d
	operating days	360	d/yr
	Rn-222 release from purge water	31	Ci/yr
	Rn-222 release from well venting	150	Ci/yr
	Total Rn-222 released from restoration activities	180	Ci/yr

* Values may not sum within table due to rounding.

Table 7-7 MILDOS Input Parameters – Hank Unit.

	(values in gray are calculated by MILDOS)*		
	Common Parameters (each wellfield)		Units
Location	X (location relative to the plant which is considered (0,0,0)	8.2	km
	Y (location relative to the plant which is considered (0,0,0)	3.5	km
	Z (location relative to the plant which is considered (0,0,0)	142	m
	area of active drilling (ore zone)	313627	m^2
	emanation fraction	0.2	
	Ra concentration in ore	277	pCi/g
	thickness	2.6	m
	density	1.9	g/cm3
	porosity	0.3	
	fraction of Rn	0.75	
	rate of Rn venting	0.01	/d
	volume in circulation	245770913	L
	New Wellfield Source Parameters (each wellfield)		
Mud pits	storage time in pit	30	d
	ore material into pit	160949	g/y
	number of mud pits	776	
	Total amount of Rn-222 released from drilling activities	0.038	Ci/yr
	Production Wellfield Source Parameters (each wellfield)		
Ore zone	Rn-222 source	1.6 E+13	pCi/d
Process water	treated water purge rate	408813	L/d
	Rn-222 release from purge water	37	Ci/yr
	Rn-222 release from well venting	220	Ci/yr
Ion exchange columns	column volume	14158	L
	column unloading rate	2	/d
	porosity of resin	0.4	
	Rn-222 release from ion exchange column	1.0	Ci/yr
	Total amount of Rn-222 released from production activities	260	Ci/yr
	Restoration Wellfield Source Parameters (each wellfield)		
Ore zone	Rn-222 source	1.6 E+13	pCi/d
Process water	treated water purge rate	119918	L/d
	operating days	360	d/yr
	Rn-222 release from purge water	11	Ci/yr
	Rn-222 release from well venting	220	Ci/yr
	Total Rn-222 released from restoration activities	230	Ci/yr

* Values may not sum within table due to rounding.

7.3.1.2.8 Results

Dose modeling was completed as described above for the primary years of operation of the Nichols Ranch ISR Project, Nichols Ranch and Hank sites. The operations modeled included wellfield development, production, and wellfield restoration. The source terms were adjusted to reflect actual periods of activity per year. The results of the dose modeling are summarized below with respect to the nearest residents, site boundaries, and the surrounding population. The 40 CFR 190 doses are zero because does from radon is excluded from the scope of the standard. The report of the MILDOS code execution is provided as Addendum 7B.

7.3.1.2.8.1 Individual Receptor Dose

Estimated annual doses at individual receptor locations are shown in Table 7-8. The estimated doses result exclusively from radon daughters, since there are no particulate releases from the facility. The total effective dose equivalent (TEDE) is at least 100 times less than the dose limit to individual members of the public in 10 CFR 20 of 100 mrem/y.

Estimated annual doses at site boundary locations are shown in Table 7-9. The estimated doses result exclusively from radon daughters, since there are no particulate releases from the facility. The total effective dose equivalent (TEDE) is substantially less than the dose limit to individual members of the public in 10 CFR 20 of 100 mrem/y.

Table 7-8 Summary of Total Effective Dose Equivalent to Individual Receptors, mrem/year.

	Year								
Receptor	2011	2012	2013	2014	2015	2016	2017	2018	2019
T-Chair Ranch	0.1	0.2	0.2	0.2	0.2	0.2	0.06	0.03	0.02
Dry Fork Ranch	0.04	0.04	0.06	0.07	0.05	0.04	0.02	0.01	0.01
Christensen Ranch	0.07	0.09	0.1	0.2	0.1	0.08	0.06	0.05	0.04
Pfister Ranch	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.07
Pumpkin Butte Ranch	0.5	0.7	0.8	1	1	0.6	0.6	0.5	0.4
Van Buggenum Ranch	0.1	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1
Ruby Ranch	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.07

Table 7-9 Summary of Total Effective Dose Equivalent Site Boundary, mrem/year.

	Year								
Boundary Location	2011	2012	2013	2014	2015	2016	2017	2018	2019
Nichols Ranch									
– north central	0.7	0.7	1	1	0.7	0.7	0.2	0.03	0.3
– east central	1	1	2	2	1	1	0.3	0.03	0.02
– south central	0.2	0.2	0.4	0.4	0.3	0.2	0.08	0.02	0.02
– west central	3	3	4	4	3	3	0.7	0.03	0.02
Hank									
– north central	0.2	0.2	0.2	0.4	0.4	0.2	0.1	0.1	0.1
– east central	4	6	7	11	9	5	5	5	4
– south central	0.3	0.3	0.4	0.5	0.4	0.3	0.2	0.2	0.1
– west central	0.6	0.8	1	1	1	0.7	0.7	0.6	0.5

7.3.1.2.8.2 Population Dose

Estimated annual doses populations are shown in Table 7-10. The estimated doses result exclusively from radon daughters, since there are no particulate releases from the facility. There is no regulatory limit for population dose. The TEDE for the population within 80 km of the mill center (0.04 to 0.2 person-rem/y) is about 162,500 to 32,500 times less than the dose to this

Table 7-10 Summary of Total Effective Dose Equivalent to Populations, person-rem/year.

	Year								
Receptor	2011	2012	2013	2014	2015	2016	2017	2018	2019
Population within 80 km	0.07	0.08	0.1	0.2	0.1	0.08	0.06	0.05	0.04
Population beyond 80 km	4	4	6	7	6	4	3	2	2
All populations	4	4	6	8	6	4	3	2	2

population attributable to natural background radon of 300 mrem/y (21,819 persons x 0.3 rem/y = 6500 person-rem/y).

7.3.1.3 Exposures from External Radiation

The drying and packaging operations are conducted under vacuum such that there are no particulate emissions. The drying and packaging controls are described in Section 4.1.2 of this report. Therefore, there is no potential for deposition and concentration of source material in surface soils from routine site operations.

Certain process areas at either site will routinely exhibit exposure rates well above background. However, these areas include controls to prevent unintended or unmonitored access of the general public. These process areas are of such a distance from any site boundary that natural attenuation in air reduces the exposure rate to background levels.

There is no source created by operations to establish a concern for external exposure. Also, no definable external exposure pathways exist for routine operations.

Figure 7.3a – Exposure Pathways Diagram (see map pocket) depicts the pathways for potential exposures from an ISR operation.

7.3.1.4 Total Human Exposures

The dose estimates described above for the air pathway represent the maximum annual dose that could be received via all pathways by an individual at the nearest residence (i.e. the individual likely to receive the highest dose from the licensed operation). These estimates were effectively executed by the MILDOS-Area code as described in Section 7.3.1.2 given the absence of the water and external exposure pathways. The results satisfy the regulatory requirements of 10 CFR 20.1301(a)(1) and 1302(b).

The public dose limits of 40 CFR 190 and the constraint requirement of 10 CFR20.1101 are not applicable because the scope of each excludes radon.

The Nichols Ranch ISR Project (Project) does not impose a significant dose on any individual member of the public. The Project does not appreciably contribute to total population dose.

7.3.1.5 Exposure to Flora and Fauna

The project will not have any significant impact on flora and fauna as a result of planned or accidental air emissions or fluid discharges. As noted above, the primary emission associated with ISR is Rn-222 and its daughters since there are no particulate emissions or fluid discharges. Any fluid discharge would be the result of an accidental spill from a pipeline break or leak. Spills of this nature would most likely occur within the restricted wellfield areas and between the wellfields and the process facility. Spills occurring on the process facility pad are far less likely to contact soil and vegetation. The reason for this is that the pad is engineered to contain a spill from a pipe rupture or leaking fluid vessel.

The engineering controls and operational monitoring program that will be in place combine to provide strong assurance that spills will be quickly detected and minimized. In addition to these measures, any contamination that might result from an accidental spill will be reconciled through corrective action protocol. Corrective action involves identifying the area affected by the spill, conducting radiological surveys and removing contaminated soil and vegetation. Corrective action also includes documenting the event. Extensive experience has shown that single-event spills arising from a pipeline leak or break do not cause significant contamination of soil and vegetation.

With regard to fauna, there is no opportunity for animals (domestic or wildlife) to consume contaminated vegetation or seeds. As just noted above, other than limited accidental spills which would be immediately assessed and undergo remediation, the operation will not significantly impact food (vegetation/seeds) sources that wildlife and domestic animals depend upon.

Although this is in fact the case, the operation's potential radiological impact on human health and the environment was assessed through MILDOS radiological modeling.

Briefly, MILDOS is an air dispersion model which provides an estimate of radiation dose commitment to the public from all sources associated with the operation. To do this, the model requires certain input parameters such as: (1) local meteorological dispersion characteristics; (2) radiation source term location, type (e.g., gaseous/particulate/fluid), particle size, strength, volume and duration; (3) population distribution within 80 km of the process site; (4) location of the nearest residences; and (5) food chain pathways (crop production/consumption and contributions from consuming meat and milk from grazing animals).

Given the various input parameters, the model generates dose commitments to the population as a whole and to certain organs such as bone, lung, liver, kidney, bronchi and whole-body. Exposure pathways include inhalation, ground, emersion in cloud, and the consumption of vegetation, meat and milk. As can be seen from this description, the MILDOS model provides a comprehensive assessment of potential exposure from a number of sources.

Referring back to the conclusions of the MILDOS radiological assessment given in Section 7.3.1.4, it was noted that dose estimates are well within the regulatory limits given in 10 CFR 20.1301(a)(1) and 1302(b). If fact, dose estimates are many times lower than the

10 mrem standard set for members of the public. It is understood that the dose standards set for humans are also protective of animals and wildlife.

7.4 NONRADIOLOGICAL EFFECTS

7.4.1 Nonradioactive Airborne Effluents

Nonradioactive airborne effluents that are released from the Nichols Ranch ISR Project will not have a significant environmental impact. Fugitive dust from vehicular travel on access roads and wellfield development, and emissions such as CO_2, NaOH, and HCl consist of the majority of the non-radioactive airborne effluents. Because of the minimal amounts of these non-radioactive airborne effluents, no air quality permits are anticipated to be required from the Wyoming Department of Environmental Quality. The nonradioactive airborne effluents and their estimated emissions quantity are detailed in Table 7-1.

Measures will be taken to minimize impacts from non-radioactive airborne effluents. Dust suppressant may be used to reduce fugitive dust when conditions are such that the use of the suppressant is warranted. Gaseous effluents will be vented to the atmosphere to quickly dissipate the effluent so that it will not impact the surrounding area.

7.4.2 Nonradioactive Liquid Effluents

Nonradioactive effluents will not be discharged to the environment during the operation of the Nichols Ranch ISR Project. The processing plants will be zero discharge facilities as all nonradioactive effluents will be sent to the deep disposal well.

7.5 EFFECTS OF ACCIDENTS

The NRC completed analyses of accidents at ISR uranium extraction facilities that consider the likelihood of occurrence and/or consequence. [NRC 2001, NRC 1980] These analyses demonstrate that consequences are minor in the presence of effective emergency procedures and properly trained personnel. The facility design, site features, and operating assumptions of the Nichols Ranch ISR Project are consistent with those of the NRC analyses. Therefore, independent accident analyses will not be conducted for the Nichols Ranch ISR Project. However, assessments are provided of applicable accident types and scenarios to include site specific conditions. More specifically, discussion is provided with respect to coal bed methane recovery, which is unique to the region.

Uranerz will promptly initiate corrective actions in response to an accident, as presented in various parts of the Application. Uranerz will also notify the NRC and file the appropriate reports in accordance with the rules provided in 10 CFR Part 20, §§ 20.2202 Notification of Incidents and 20.2203 Reports of Exposures, Radiation Levels, and Concentrations of Radioactive Material Exceeding the Constraints or Limits.

Uranerz will also contact local fire departments, medical services, and other local agencies that may respond to emergencies in the area of the Nichols Ranch ISR Project to inform the agencies about the project; training for the agencies when dealing with fire, injury, or other emergencies, and how to contact and locate the Nichols Ranch Project.

7.5.1 Transportation Incidents

Materials transportation to and from the Hank and Nichols Ranch Units can be classified into four categories:

1) Shipment of refined yellowcake from the Nichols Ranch Central Processing Plant to a uranium conversion facility.
2) Shipment of loaded resin from the Hank Unit to the Nichols Ranch Central Processing Plant.
3) Shipment of process chemicals from suppliers to the Hank and Nichols Ranch Units.
4) Shipments of 11(e)2 by-product material to a NRC licensed facility for disposal.

One other transportation classification is the transporting of employees to and from the plant site.

7.5.1.1 Shipment of Refined Yellowcake

Refined Yellowcake produced at the Nichols Ranch Central Processing Plant will not differ from the refined yellowcake produced at conventional mills. The NRC evaluated transportation accidents associated with yellowcake shipments from conventional mills and published the results in a generic environmental impact statement, NUREG-0706, NRC, 1980. The following information on transportation accidents is based on the analysis on the earlier NRC study.

Refined yellowcake produced at the Nichols Ranch Central Processing Plant will be packaged in 55-gallon steel drums. Yellowcake will be shipped approximately 1,200 mi to a uranium conversion facility. This conversion facility is the first manufacturing step in converting the yellowcake into reactor fuel. An average truck shipment contains approximately 40 drums, or up to 19 tons of yellowcake. Based on the initially projected annual production rate of 800,000 pounds of yellowcake per year, approximately 21 shipments of 40 drums each would be required annually for the Nichols Ranch ISR Project. By increasing the annual production rate to 2.0 million pounds per year per the vacuum dryer designed throughput, approximately 53 shipments would be required annually.

According to NUREG-0706, published accident statistics predict the probability of a truck accident under three different scenarios: 1) on interstate highways in rural areas, 2) on interstate highways in urban areas, and 3) on two-lane roads typical of those in the vicinity of the proposed project. The overall average probability of a truck accident for the Nichols Ranch ISR Project based on the NUREG-0706 data is 2.2×10^{-6}/mile. This takes into account that most of the shipping of yellowcake will be on interstates in both rural and urban areas.

The truck accident statistics also include three categories of events: collisions, noncollisions, and other events. Collisions are considered to be between the trucks and other vehicles or any other object, whether moving or stationary. Noncollisions are accidents involving only the truck that result in accidents such as the truck leaving the road and rolling over. Other events include personal injuries that are suffered from someone on the truck, someone falling from or being thrown against the truck, cases of stolen trucks, and fires occurring on a standing truck. The probability of a truck being involved in any of the accidents types during a one year period is approximately 10 percent.

A generalized accident-risk evaluation conducted by the NRC classified accidents into eight categories, depending on the combined stresses of impact, puncture, crush, and fire. Using this classification scheme as a basis, conditional accident probability was developed for eight severity levels. Two radioactive material release models were then developed to calculate the amount of yellowcake that could be released based up what severity of accident occurs. Model I is hypothetical assuming a complete loss of yellowcake drum contents when an accident occurs. Model II is based on actual tests assuming a partial loss of yellowcake drum contents. The quantity of the release for Model I and Model II in the event of an accident is 17,000 pounds and 1,200 pounds respectively, (NUREG 0706, NRC, 1980). Most of the yellowcake that is released from the container would be directly deposited on the ground in the immediate vicinity of the accident location. Some fraction of the released material would be dispersed to the atmosphere. The following expression was utilized by the NRC to estimate the amount of released material dispersed to the atmosphere:

$$F = 0.001/4.6\text{x}10^{-4}\,(1\text{-}e^{-0.15ut})\,u^{1.78}$$

Where:

F = the fractional airborne release

u = the wind speed at 50 ft expressed in m/s

t = the duration of the release (hours)

In this expression, the first term represents the initial "puff" that is immediately airborne when the yellowcake drum fails in an accident. Assuming a wind speed of 10 mph (5 m/s) and a release time of 24 hours, the environmental release fraction would be $9\text{x}10^{-3}$. Since the conversion facility is located in the eastern United States, a population density of 160 people per square mile was used to calculate the 50 year dose commitments to the lungs of the general public. The calculated 50 year dose commitments are two man-Sv (200 man-rem) and 0.14 man-Sv (14 man-rem) for Model I and Model II. The integrated dose estimate would be lower for the more sparsely populated areas.

Any accident that results during the shipment of yellowcake product could result in some yellowcake being spilled. In the unlikely event that such an accident does occur, all yellowcake and contaminated soil would be removed, processed through a uranium mill, or disposed of in a licensed NRC disposal facility. All areas that are disturbed by the accident would then be reclaimed in accordance to all applicable NRC and State regulations.

The risk of an accident involving the transporting of yellowcake resulting in a yellowcake spill will be kept to a minimum by the use of exclusive use shipments. If an accident were to occur, impact to the environment would be further reduced by following instruction outlined in the Uranerz Energy Corporation Incident Response Guide. This guide will be included with every shipment of yellowcake that leaves the Nichols Ranch Central Processing Plant. The carrier will also be required to maintain accident response capability to specifically include spill response.

With the shipment of yellowcake product to a conversion facility located approximately 1,200 mi away, all risks associated with the transportation of the product cannot be eliminated. However, the potential impacts to the environment in the event of an accident can be minimized by having proper procedures in place to ensure that any yellowcake that is spilled is contained as soon as possible and the area affected by the spill is secured and cleaned up to avoid contact with unauthorized personnel.

7.5.1.2 Shipments of Loaded Resin

The Hank Unit of the Nichols Ranch ISR Project is designed as a satellite ion-exchange (IX) facility. This IX satellite operation will require the shipping of resin loaded with uranium to the Nichols Ranch CPP located approximately 6 mi away. The uranium that is loaded on the resin will then be processed, dried, and packaged at the Nichols Ranch CPP. The route for moving the resin from the Hank Unit to the Nichols Ranch Unit is shown on Figure D1-2 of Appendix D1. No public roadways will be utilized during the shipping of resin for the Hank Unit to the Nichols Ranch CPP.

The uranium that is loaded onto the resin will remain attached to the resin until it is removed by a strong brine solution. When the loaded resin is transferred to a truck, it is moved using barren lixiviant. The barren lixiviant can have uranium concentrations of approximately 1-3 mg/L U_3O_8. The loaded resin is transferred to specially designed tanker trailers that will hold approximately 500 ft^3 of loaded resin. Most of the barren lixiviant is removed prior to shipping to minimize that amount of water weight in the tanker trailer. Because of the size of the trucks hauling the resin being consistent with a standard tractor-trailer combination, the trucks hauling the loaded resin should withstand the impact of most collisions.

If an accident were to occur with a loaded resin truck, a rupture to the tanker trailer carrying the loaded resin could happen. The ruptured tank could result in a portion of the loaded resin to be spilled on the ground. The uranium that is attached to the loaded resin would remain attached to the resin, but any residual barren lixiviant contained in the tank could spill to the ground carrying the resin a short distance from the accident scene. The environmental impact that would result would be minimal. The uranium on the resin would stay attached to the resin as would the uranium contained in any barren lixiviant that might spill. No airborne release of uranium would result from the spill. The spilled resin and lixiviant will typically collect in the low areas surrounding the accident scene trapping the resin for cleanup. The loaded resin and contaminated soil from the barren lixiviant would be removed and processed at a uranium mill or disposed of in a NRC licensed facility. The disturbed areas would then be reclaimed in accordance with all applicable NRC and State regulations.

7.5.1.3 Shipment of Process Chemicals

Truck shipments of process chemicals to the Nichols Ranch ISR Project site could result in local environmental impacts if the trucks are involved in an accident. Any spills would be removed with the affected area cleaned up and reclaimed. The process chemicals used at an ISR facility in truck load quantities are common to many industries and present no abnormal risk. Table 7-11 lists the process chemicals that may be utilized at the Nichols Ranch ISR Project. Since most of the material would be recovered or could be removed, no significant long-term environmental impacts would result from an accident involving the process chemicals.

Uranerz Energy Corporation may use anhydrous ammonia in the precipitation circuit at the Nichols Ranch CPP. A significant environmental impact could result if a truck carrying the anhydrous ammonia was involved in an accident. The ammonia "cloud" that could develop from a release during an accident could pose an environmental hazard if it were to occur in a populated area.

Table 7-11 Bulk Chemicals Required at the Nichols Ranch ISR Project.

Shipped As Dry Bulk Solids		Shipped as Liquids or Gases	
Salt	$NaCl$	Hydrochloric Acid	HCL
Sodium Bicarbonate	$NaHCO_3$	Hydrogen Peroxide	H_2O_2
Sodium Carbonate	Na_2CO_3	Carbon Dioxide	CO_2
Sodium Hydroxide	$NaOH$	Oxygen	O_2
		Diesel	
		Gasoline	
		Bottled Gases	
		Ammonia	NH_3

The anhydrous ammonia will be trucked to the Nichols Ranch ISR Project in bulk shipments of approximately 7,500 gallons. The frequency of shipments will be approximately 10-12 trucks per year. The trucks will originate from Casper and travel to the project site. The distance to be covered is approximately 85 road mi. Using the accident rate of 4.8×10^{-7} accidents/mi from the Generic Environmental Impact Statement for Uranium Mills, (NUREG-0706, NRC, 1980), the chance of a traffic accident involving these trucks is very low.

7.5.1.4 Shipment of 11e(2) By-product Material for Disposal

All 11e(2) by-products generated at the Nichols Ranch ISR Project site will be transported to an off-site NRC licensed disposal facility. The risk involved in shipping the material to a disposal facility is inherently lower that the risk involved in shipping yellowcake to a conversion facility since the distance between the disposal facility and the Nichols Ranch ISR Project site is considerably less than the distance between the conversion facility and the Nichols Ranch ISR Project site.

In the event that an accident would occur while transporting 11e(2) by-product material, the impact to the environment would be minimal. Any waste that is spilled on the ground and any contaminated soil would be removed and sent to the disposal facility. Because the 11e(2) by-products could contain some uranium, an airborne release could occur, but would not be any greater than the amount of released determined in Section 7.5.1.1 using the Model I criteria.

The risk of an accident involving the transporting of 11e(2) byproduct material and resulting in a spill will be kept to a minimum by the use of proper packaging and exclusive use shipments. If an accident were to occur, impact to the environment would be further reduced by following instruction outlined in the Uranerz Energy Corporation Incident Response Guide. This guide will be included with every shipment of 11e(2) byproduct material that leaves the Nichols Ranch Central Processing Plant. The carrier will also be required to maintain accident response capability to specifically include spill response.

7.5.1.5 Transporting Employees To and From Project Site

The Nichols Ranch ISR Project site is in a remote location in Wyoming. Employees that work at the Nichols Ranch ISR Project site will more than likely have to commute to the project site from areas such as Gillette, Wright, or Casper, Wyoming. The distances involved could be from 22 mi away to as far as 61 miles away from the project site. Transportation to and from the project site will either be from personal vehicles or company provided transportation.

Potential risks to employees coming to and from the Nichols Ranch ISR Project site include fatigue, animals, and adverse weather conditions. Fatigue and animal risks can be minimized by taking precautions such as resting and defensive driving, but adverse weather conditions can be more involved. If weather conditions exist such that roads leading into and out of the Nichols Ranch ISR Project are impassible or closed, then measures will be taken so that employees, contractors, vendors, and visitors will have a place to take shelter and be provided meals and a place to stay until the roads are passable.

The likelihood of an accident occurring while going to and from the Nichols Ranch ISR Project is estimated at 2.2×10^{-6}/mi based on NUREG 0780, NRC, 1980. All travel will be on either two lane rural highways with some rural interstate travel depending if employees come from Casper. Work schedules will be developed with the goal of trying to minimize the amount of time that employees are traveling to and from the project site to help in reducing the risks of commuting to the project site.

7.5.2 Tank Failure

Process fluids will be contained in process vessels and pipes during the operation of the Nichols Ranch CPP and the Hank Satellite. Process instrumentation, controls, and alarms will monitor the flows and levels of tanks to maintain proper levels in the vessels. If a tank or process vessel were to have an unlikely failure such as a rupture in the process building, all fluid would be contained in the process building. The fluid would be collected in the plants sumps and then pumped to either other process vessels or to the deep disposal well. After the fluids have been removed, the area then would be washed down with plant water. The water would be collected in the plant sump system and pumped to either process vessels or the deep disposal well eliminating any environmental impact for the tank failure.

A process vessel or tank that fails outside of the process plants could result in spill of a process chemical such as HCL or H_2O_2. In the unlikely event that such a failure were to occur, the process chemical would be contained in the containment basin surrounding the vessel. The process chemical would then be either pumped to another tank or into a tanker truck to be properly disposed of in accordance with State requirements. If any soil is contaminated from the failure, then it will be removed and disposed of according to the requirements of the State. The environmental impact of such an incident would be minimal with no long-term impact.

An additional measure that will be put forth to mitigate any potential tank failures is in designing of the plant concrete floors. The concrete floors will be designed to support the full weight of any vessel, including contents, plus a safety factor so that tanks will not collapse or rupture as a result of a flooring failure. With that, tanks will either be constructed on reinforced concrete floors or reinforced concrete pads that will be designed by registered civil engineers and meet all building codes and standards. Also sufficiently curbed concrete pads containing sump collection systems and supplemental fluid storage will retain the volume of the largest vessel. The curbed concrete pad can hold 4.9 volumes of the largest tank or 490% for the Nichols Ranch Unit and 2.9 volumes of the largest tank or 290% for the Hank Unit. Although a catastrophic tank failure is not likely, it is reasonable to have a secondary containment system that will capture the fluids if this event were to occur. In addition to the fixed retention capacity of the pad, sumps and storage tanks, two other mechanisms come into play to assure adequate containment: (1) constant removal of fluid via sump pumps and (2) disposal well rate. To illustrate, fluid can be removed from the pad at Nichols Ranch at a rate of 150 gpm, and at Hank at a rate of 30 gpm and the disposal well rate is estimated to be 100 gpm.

7.5.3 Pipeline Failure

7.5.3.1 Process Pipelines

The failure of a process pipeline could result in the discharge of pregnant or barren lixiviant to the surface if the failure were to occur in the pipelines located in the wellfield. Measures such as high and low pressure alarms/shutdowns and flowmeters will be utilized on the piping leading to and from the wellfield to the CPP and satellite plant to minimize the amount of process fluid that is lost if a failure were to occur. If the amount and/or concentration of the process fluid lost in a pipeline failure constitute an environmental concern, the spill area will be surveyed with a gamma meter and soil samples will be collected throughout the wetted area. A spill record will be made documenting the volume of the spill, the area affected and the corrective action taken (sampling and results of analysis). Areas exceeding twice background gamma will receive additional soil sampling to determine whether radiological concentrations (radium-226, thorium-230, lead-210) have increased significantly above background. Soils will also be analyzed for uranium. If soil sampling results show an increase from baseline, 2.5 – 3 pCi/g, for example, the soil will be removed and placed in approved by-product storage containers prior to shipping to a licensed site.

The probability of a failure to a process pipeline located in the wellfield is considered small since most pipelines will be buried approximately two to five feet below the surface and made out of corrosion free high density polyethylene. The pipelines will also be inspected and tested prior to burial to ensure that the pipelines are sound. Pressure test results will be documented.

The worst case scenario for a pipeline failure would involve a major pipeline rupture releasing barren or pregnant lixiviant for an hour at full operating capacity. If this were to occur, 210,000 gallons of barren or pregnant lixiviant would be released to the environment surrounding the area of the incident at the Nichols Ranch CPP. The pipeline would have to suffer a complete line break with no operators or plant personnel detecting the failure in a timely manner. The likelihood of this happening is considered very low since most industry experience has been that major pipeline ruptures are not complete line breaks, but smaller openings such as cracks, small punctures, or other types of partial line breaks. This was detailed in the NRC staff Hydro Resources Inc. Final Environmental Impact Statement for the Crownpoint Uranium Solution Mining Project (NUREG-1508, 1997). The Crownpoint FEIS also stated that the experience for pipeline ruptures shows less than 25% of the volume of the lixiviant contained in the pipeline is spilled in the worst case scenario, and in actuality, most leaks and spills occur through minor cracks or disconnection on smaller pipes.

An additional worst case pipeline scenario is the possibility a pipeline could rupture and produce a significant release of fluid onto the processing plant pad. Assuming the largest diameter pipeline carrying uranium-bearing fluid from the wellfield was to rupture at its connection point on the process pad, approximately 3,500 gallons per minute of fluid could be contained for 29 minutes at Nichols Ranch and 2,500 gallons per minute could be contained for 23 minutes at Hank. This would be released before the fluid in the pipeline would be secured by the automated pressure fall off switches/shutdown valves. It should also be noted that the safety shutdown system will not be entirely dependent on automation, operators will be present 24 hours a day and they would take immediate action to control the situation. The 29 minutes for Nichols Ranch and 23 minutes for the Hank Unit should be adequate for operator or automatic shutdown.

Given the fluid retention/removal capacity of the processing plant described above in Section 7.5.2, the pipeline spill would be safely captured. Instead of being routed to the disposal well, however, the uranium-bearing fluid would be pumped to the process circuit to recover the uranium. The sump pumps would be rerouted to the sand filters and then continue through the process. Immediately following the transfer of the lixiviant to the process circuit, the pad and sumps will be washed with clean water to remove any residual contaminants. Water from the cleaning operation will be pumped to the waste disposal well.

7.5.3.2 Coal Bed Methane Gas Pipeline Failure

With the coal bed methane production in the Hank and Nichols Ranch Units, a rupture of a methane pipeline could occur resulting in the escape of the flammable and explosive methane gas. If such an event were to occur, the area surrounding the rupture would have to be evacuated with all equipment being shutdown and if necessary, a total plant shutdown and evacuation if the rupture was located near the CPP or satellite plant. The area in the vicinity of the methane pipeline rupture would remain sealed off until such time that the methane gas is turned off and the pipeline repaired. The environmental impact of such a failure would be minimal as the methane would be released to the atmosphere where it would quickly dissipate. The probability of such an event occurring is low since the methane pipelines that would be located in the Hank and Nichols Ranch Units would be buried approximately 6 ft under the surface and clearly identified with signage.

The worst case scenario for a methane pipeline would involve a major pipeline rupture as a result of a drilling rig drilling into the pipeline. This event could potentially result in an explosion of the methane gas, which could result in significant property loss and fatalities. The probability of this happening is low given that coal bed methane pipelines located in the Hank and Nichols Ranch Units will be clearly identified with signage. In addition to the signage, procedures will be developed on steps to be taken when drilling near methane pipelines. Measures such as verifying the location of the pipeline, flagging off the pipeline corridor, and maintaining a set distance from the methane pipeline when drilling wells will be implemented. Most of the methane pipelines will be in place before the Nichols Ranch ISR Project begins. Communication with the coal bed methane producers and Uranerz Energy Corporation has taken place and will continue so that any potential incidents involving methane pipelines are minimized.

7.5.4 Fires and Explosions

Fire and explosion hazards for the Nichols Ranch CPP and Hank satellite will be low since neither of the two plants uses flammable liquids or products in the yellowcake process. Propane will be utilized for the heating of oil for the vacuum dryer located at the Nichols Ranch CPP. The propane would be the primary source for a potential fire at the CPP. Building heat at Hank and Nichols Ranch Units will be supplied by electric heaters. If an explosion were to occur at the CPP, the uranium present in the plant would not appreciably disperse to the environment.

The uranium will be kept in solution, adsorbed on ion exchange resin, as wet yellowcake slurry, or as dried yellowcake product contained in sealed 55-gallon drums. Any spilled fluids or slurries as a result of an explosion would be contained in the process building or in their containment area. The Dryer section of the Nichols Ranch CPP would contain the dried yellowcake product, sealed in 55-gallon drums or contained in the vacuum dryer, where any potential release from an explosion would occur and be contained.

Potential fire and explosions for the wellfields would be from an accumulation of gaseous oxygen in a "header house." Injection and recovery well piping systems are brought into manifolds in the wellfields for operational control. Piping manifolds, pump motor starters/controllers, and gaseous oxygen delivery systems are situated in the header houses. The header houses are designed to be an all-weather building equipped with electric heaters to keep piping from freezing during the cold months. If a gaseous oxygen accumulation were to occur in the header house and then ignited through some ignition source, an explosion could occur. The explosion could result in the rupture of pipelines containing mining solutions within the header houses and a spill to the area surrounding the header house.

To minimize the risk of an explosion in a header house caused by an accumulation of gaseous oxygen, each header house is equipped with a continuously operating exhaust fan. Additionally, the gaseous oxygen and primary mining solution lines entering the header houses are equipped with automatic low pressure shut off valves that will minimize any release of the oxygen or solution if the lines were ruptured.

7.5.5 Tornados

The Nichols Ranch ISR Project is located in Campbell and Johnson Counties, Wyoming. Both counties have experienced tornado activity. Johnson County has reported 17 tornados from the years 1950-2003. Campbell County has seen 69 tornados from the 1950-2003 time period (Wyoming Climate Atlas, 2004). The tornados occurring in Johnson County have been on the order of F0 (40-72 mph wind speed), and F1 (73-112 mph wind speed) as rated on the Fujita

Scale. The majority of the Campbell County tornados are also F0 and F1 tornados, but Campbell County has also experienced several F2 (113-157 mph wind speed) tornados. The most recent F2 tornado struck the town of Wright, Wyoming on August 12, 2005 resulting in the death of two people, numerous injuries, and forty plus homes destroyed. Wright, Wyoming lies approximately 22 air mi to the east of the project area.

The probability of occurrence of a tornado in the area that the Nichols Ranch ISR Project is located in is approximately 3.2×10^{-4} per year (NUREG-0706, Section 7.1.6.3.1, Table 7-5). The region is classified as a Region III tornado intensity area with typical tornados having winds speeds of 240 miles per hour comprising of rotational wind speeds of 190 miles per hour and transitional wind speeds of 50 miles per hour. The design of the plant structures are not designed to withstand a tornado of this intensity.

With the nature of ISR operations, there is little that can be done to secure the facilities with advance warning than without it. Since most of the uranium is in the form of wet slurry or contained as a dry powder, the potential environmental effects resulting from a tornado encounter would be minimal. The strongest recorded tornado in Johnson and Campbell Counties was a F2 tornado in Campbell County. Using the Fujita Scale for F2 tornado, the typical damaged resulting from a F2 tornado is roof damage, unsecured mobile homes being removed from their foundations, and light structures severely damaged or destroyed. With most of the dried yellowcake product being stored in 55-gallon drums or in the vacuum dryer, both located in an engineered steel building, the dried yellowcake should not be released in the air by a tornado. However, if a tornado does cause damage to the building housing the vacuum dryer and the stored yellowcake to the point that the building collapses, then a possibility exists that some of the dried yellowcake could be released to the environment from damaged 55-gallon drums or from a damaged vacuum dryer.

The NRC in NUREG-0706, Generic Environmental Statement for Uranium Milling, performed a conservative dispersion model for uranium released to the environment by a tornado incident. The NRC staff assumed 25,100 pounds of dry yellowcake, or approximately 26 55-gallon drums of dried yellowcake, were picked up by a tornado. The model then calculated the maximum radiation exposure to the public due to the accident at three distances. At a distance of 2.5 mi away from the facility, the estimated 50 year does commitment to the lungs of an individual was estimated at 8.3×10^{-7} rem. From the facility to the model facility fenceline approximately 1,600 ft away, the 50 year dose commitment to the lungs of an individual was estimated to be 2.2×10^{-7} rem. For the nearest resident to the model site, 6,500 ft away, the 50 dose commitment was estimated at 2.4×10^{-7} rem.

7.5.6 Well Casing Failure

The failure of an injection well casing would have the potential for the most significant environmental impact since this failure could introduce lixiviant into a United States Drinking Water (USDW) aquifer that is not exempted from the process. This type of incident has the possibility to last for several days before being detected by the monitoring well system that will be in place. If such a failure were to occur, the defective well would either be immediately repaired, or plugged and abandoned in accordance to State of Wyoming regulations. If contamination of an aquifer other than the ore zone aquifer was determined, wells would be drilled into the contaminated aquifer then pumped until concentrations of the lixiviant constituents were reduced to acceptable levels. With proper well construction procedures and well testing procedures, including verifying the integrity of the well casing, and proper cementing of the wells, the probability of such a failure is minimal.

To minimize the risk of a casing failure significantly impacting the environment, monitor wells are completed in the aquifers above and below the ore zone. The monitor wells are routinely sampled during the extraction process to check the fluid levels and quality of water. By doing such routine monitoring for fluid levels and water quality, any excursions of the lixiviant to these aquifers can be observed if such an incident were to occur. In addition to the routine monitoring of the monitor wells, casing integrity tests will be performed on all injection wells prior to putting the injection wells into production. The integrity testing will also be conducted after any work that involves entering the cased wells with a cutting tool such as a drill bit or underreamer is preformed.

The failure of a recovery well causing a significant impact is not very high since recovery wells normally do not cause fluid migration to aquifers above and below the ore zone. The recovery wells generally operate at a lower pressure than the aquifers located above and below the ore zone aquifers meaning that any casing failures by a recovery well would more than likely lead to the water in the aquifers flowing into the failed well casing instead of the lixiviant being introduced into the aquifer.

7.5.7 Aquifer Communication Through Old Exploration Holes

The communication between aquifers of lixiviant through old exploration holes in the project area is unlikely. The old exploration holes that have been drilled in the project area are thought to be abandoned using either abandonment mud, drilling mud, a combination of bentonite and abandonment mud, or a combination of bentonite and drilling mud. The mud in the old exploration holes provides an effective seal against fluid communication between the various aquifers penetrated by the drilling of the exploration holes. Additionally, the rapid swelling and bridging of the isolating shales between the sandstone aquifer units provides the abandoned exploration drill holes additional sealing. In the event that an aquifer is contaminated from leakage from an abandoned drill hole, new wells would be drilled and completed in the contaminated aquifer. Water samples would be collected and if needed, the well would be produced to reduce the concentration of contamination in the aquifer to an acceptable level.

Another measure that will be taken to ensure that there is no communication between the aquifers from prior exploration holes is conducting pump tests before the start-up of a production area. The pump test will demonstrate that there is no significant communication between aquifers. In the event that leakage between aquifers from old exploration holes is detected during the tests, the old exploration holes would be re-entered and plugged. If contamination of an aquifer is also indicated, wells would be drilled and completed in the contaminated aquifer, water samples collected, and if needed, the wells would be produced to reduce the concentration of lixiviant to an acceptable level.

7.5.8 Aquifer Communication Through Coal Bed Methane and Oil/Gas Wells

The likelihood of lixiviant communicating from the ore zone aquifer to another aquifer through a coal bed methane (CBM) well or an oil/gas well is very low. Oil/gas wells that exist in the project area have been in place since the 1980's. If any issues with their completion existed, current water quality baseline sampling that has taken place for the Nichols Ranch ISR Project would have indicated contamination when compared to historic water quality sampling that took place in the 1970's. Additionally, the oil/gas wells are completed as such that their integrity would not allow communication between aquifers. Cementing of the oil/gas wells occurs from the surface to at least 1,000 ft deep. A cement bond log is run after the wells are completed to ensure that the cementing job used for completion has been properly done. Pressure monitoring on the oil/gas wells also ensures that the oil/gas wells are working properly and that the wells integrity is intact.

CBM wells are also completed in the same manner as the oil/gas wells. The CBM wells are usually 1,000 ft or deeper to reach the coals seams under the project area. When the CBM wells are drilled, they are drilled to the top of the coal seam and then cemented from there to the surface. A cement bond log is run after the cement job has had time to cure to ensure that the well is completed properly. The CBM wells that are and will be located at the Nichols Ranch ISR Project site will all be in place prior to the start of mining. Production area pump tests conducted prior to mining along with monitor wells installed in the overlying and underlying aquifers will be able to detect if any CBM wells are causing aquifer communication. In the event that a CBM or oil/gas well is found to be causing communication, contact will be made with the company that owns the well to work on repairing, or plugging and abandoning the well. If any contamination of an aquifer is detected, monitor wells will be drilled and completed in the contaminated aquifer. Water quality sample will be taken and, if necessary, the wells produced until the concentration of any lixivant in the aquifer is reduced to acceptable levels.

7.5.9 Occupational Incidents

Uranerz Energy Corporation will have comprehensive safety policies, procedures, and practices that will be used to prevent occupational incidents from occurring to all Uranerz Energy Corporation employees, contractors, visitors, and the public. The policies, procedures, and practices will take into account such things as; following all building and construction codes during the construction of the Nichols Ranch ISR Project in order to prevent items such as tank and pipeline failures, proper containment for any fluid containing vessels, and emergency response procedures in the event of an emergency. Additionally, all Uranerz Energy Corporations will be trained on company safety and environmental policies that will cover topics ranging from OSHA rules and regulations to the company vehicle policy, proper use of PPE, and the enforcement of speed limits when traveling to, within, and from the plant locations, etc. Training on Uranerz Energy Corporation polices, procedures, and practices for employees will take place prior to beginning work at Uranerz and on an annual basis. Additionally, employees will receive training prior to beginning work in the plants on the correct plant operations including such subjects as regular inspections of all wellfields and plant lines, equipment, and operations.

Additional measures to protect employees, contractors, visitors, and the public from any potential hazards that may result from the Nichols Ranch ISR Project will be built into the plant. These measures include both visual and audible process monitoring devices such as HIGH and LOW levels alarms, HIGH and LOW pressure alarms, and flow alarms that will notify plant personnel of any situations in which process parameters are out of normal process ranges. Interlocks will also be present that will shutdown any part of the process in the event that an incident occurs that could have an impact on the safety of employees, contractors, visitors, or the public.

7.6 ECONOMIC AND SOCIAL EFFECTS OF CONSTRUCTION AND OPERATION

7.6.1 Benefits

7.6.1.1 Employment

The construction and operation of the Nichols Ranch ISR Project will provide jobs to approximately 55-65 company employees and 10–20 contract employees during the life of the project. Because mining is a basic industry, this job creation will produce a multiplier effect on employment in the region. Since employees are expected to live in the region, the entire income benefit will also accrue to the local economy.

7.6.1.2 Taxes

The extraction and selling of yellowcake product during the life of the Nichols Ranch ISR Project will produce direct and indirect tax benefits to local, state, and federal governments through the collection of sales taxes, severance taxes, and state and federal royalties.

7.6.1.3 Roads

Uranerz Energy Corporation will assist in the maintenance of existing gravel roads used by Uranerz from the county gravel road to the project area during the life of the Nichols Ranch ISR Project. The assistance with the road maintenance will lower the cost of maintenance to the other road users that include the land owner, oil/gas producers, and coal bed methane producers.

7.6.1.4 United States Nuclear Energy Supply

The yellowcake product that is produced by the Nichols Ranch ISR Project will provide a domestic source of uranium to be used for the production of nuclear power. The production of nuclear power aids in providing an inexpensive, environmentally friendly source of energy to meet the growing energy demand of the world.

7.6.2 Socioeconomic Costs

7.6.2.1 Public Facilities and Services

No adverse impacts on public facilities and services, such as congestion of streets and highways, overloading of utilities such as water supply and sewage treatment systems, and the overtaxing of local schools, hospitals, police and fire protection is expected with the Nichols Ranch ISR Project. Employees for the Nichols Ranch ISR Project will be drawn from the surrounding areas located near the project site so that minimal impacts will be made to the individual communities and their facilities and services.

7.6.2.2 Housing

Although Wyoming is dealing with a housing shortage because of a statewide energy boom, the Nichols Ranch ISR Project should not have a negative impact on the housing in the areas surrounding the project area. The Nichols Ranch ISR Project will draw from the workforce that is present in the project area. By doing this, there will not be a need for new housing to be developed to accommodate employees.

7.6.2.3 Impairment of Historical, Scenic, and Recreation Values

With the location of the Nichols Ranch ISR Project on private, remote land with limited access, historical, scenic, and recreational values will not be adversely impacted. No official or unofficial historic and scenic places of interest exist or are found at the Nichols Ranch ISR Project. If any cultural resources are encountered during the construction or operation of the Nichols Ranch ISR Project, the appropriate agencies will be notified immediately. The recreational values of the land in the project area, such as hunting, are controlled by the landowner and will not be significantly impacted by the proposed project.

7.7 MINERAL RESOURCE IMPACTS

The only known mineral that can be recovered in economical quantities in the Nichols Ranch ISR Project area is uranium. Large coal seams do exist within the project area, but they are at such a depth that they are not economically feasible to mine at the current coal prices. Oil and gas production has and is occurring in the Hank Unit of the project. Because of its depth (<9,000 ft) compared to the depth of the uranium (300 to 700 ft) no impacts will occur. Coal bed methane (CBM) activity is also currently taking place in the project area. No adverse impacts are expected to occur between the CBM and uranium mining activities because of the separation of the depth between the two; CBM being deeper (~1,000 ft plus). Communication and working agreements have and are being developed between the CBM producers and Uranerz Energy Corporation to alleviate any possible concerns and impacts that may arise.

8.0 ALTERNATIVES TO THE PROPOSED ACTION

8.1 ALTERNATIVE MINING METHODS

Alternate methods of mining available for the Nichols Ranch ISR Project include underground and open-pit mining. Both of these methods were not considered for the project since they are not economically feasible for mining of the uranium because of the much larger capital investment required, the grade of the ore, and the size of the ore zones. Additionally the underground and open-pit mining methods result in greater environmental impacts to the area along with exposing employees and the project area to higher safety and health risks.

The overall impacts of in situ recovery (ISR) mining compared to conventional and open-pit mining result in several environmental and socioeconomic advantages in an NRC evaluation (NUREG-0925, 1983, Section 2.3.5). The advantages are as follows:

1. The amount of surface area disturbed by in situ mining is significantly less. The amplitude of disruption is also significantly less.
2. Tailings that result from the milling process are not produced. Additionally the amount of solid waste produced by the ISR mining method is generally less than 1% of that produced by conventional milling methods.
3. Air pollution problems caused by ore stock piles, overburden stockpiles, tailings stockpiles, and crushing and grinding operations in conventional and open-pit mining do not exist with the ISR mining method.
4. Radiation exposure at an ISR operation is significantly less than that associated with conventional mining and milling. Operating personnel are not exposed to the radionuclides present in and emanating from the ore and tailings. Conventional mills tailing can contain all of the radium-226 originally present in the ore whereas ISR operations may have less than 5% of the radium in the ore body being brought to the surface through the recovery process.
5. The entire mine site can be returned to its original land use more rapidly with ISR mining methods than those of underground or open-pit mining methods.

ISR mines can remove the solid wastes form the site to a NRC licensed disposal site preventing them from contaminating the surface and subsurface environment. This is not always possible with the size and extent of conventional mining.

6. Solution mining results in significantly less water consumption than conventional mining and milling.
7. Socioeconomic advantages of ISR operations include:
   - Ability to mine lower grade ore
   - Minimum capital investment
   - Less risks to miners
   - Shorter lead time in beginning production, and
   - Minimal staffing requirements

8.2 ALTERNATIVE SITES

The planned locations of the Central Processing Plant (CPP), Main Office Building, and Main Maintenance Shop for the Nichols Ranch Unit are shown in Figure 3-1 (see map pocket) of Chapter 3.0, Description of the Facilities. The Hank Unit Satellite Ion Exchange Plant, Office Building, and Maintenance Shop are shown in Figure 3-2 (see map pocket) of Chapter 3.0, Description of the Facilities. All of these facilities were located off of the ore zone on the most topographically suitable land within the project area. With these considerations, no realistic alternative site locations exist.

8.3 ALTERNATIVE RECOVERY SOLUTIONS

The alkaline recovery solution (lixiviant) consisting of sodium carbonate/carbon dioxide, dissolved oxygen or hydrogen peroxide, and groundwater is the preferred recovery solution to be used in the Nichols Ranch ISR Project. The solution was selected based upon its successful use in recovering uranium and aquifer restoration in several pilot plant projects and commercial operations in the Powder River Basin.

Alternate recovery solutions include ammonium carbonate solutions and acidic solutions. Both of these solutions have been used in the past in ISR mining operations, but are no longer used because of the difficulties in restoring and stabilizing the affected mining aquifers. Because of these reasons, the solutions were not considered for the Nichols Ranch ISR Project.

8.4 GROUNDWATER RESTORATION ALTERNATIVES

Uranerz Energy Corporation will utilize the combination of groundwater sweeps, groundwater transfers, and Reverse Osmosis for the restoration of groundwater impacted by the Nichols Ranch ISR Project. This method is the chosen method for aquifer restoration because of its successful, proven use in ISR mining groundwater restoration. It is also considered to be Best Practicable Technology (BPT) available by the NRC and state regulatory agencies. If future technology advances are made to produce better alternatives for groundwater restoration, then Uranerz Energy Corporation will consider incorporating these technologies into groundwater restoration.

8.5 LIQUID EFFLUENT DISPOSAL ALTERNATIVES

The proposed disposal of liquid effluents is through the injection of the effluents down a deep disposal well. This method was chosen over other alternatives such as evaporation ponds and land application (irrigation) facilities because of the environmental impacts that ponds and irrigation have on the project area. The deep disposal wells to be used will be drilled to a depth of at least 6,000 ft deep or deeper. This is consistent with other deep disposal wells located in the project region that are used by other ISR operations. Each disposal well must be authorized by the State of Wyoming and the EPA UIC Program to receive the liquid effluent wastes.

9.0 BENEFIT-COST SUMMARY

9.1 GENERAL

Uranium that will be recovered at the Nichols Ranch ISR Project will be used to replace the uranium consumed in the production of power from nuclear power plants. The Nichols Ranch ISR Project would also supply a domestic source of uranium that would help alleviate the need of nuclear power plant operators in the United States to seek uranium supplies from foreign sources. Currently, the United States imports approximately 30 million pounds of uranium from foreign countries, while only producing, approximately 5 million pounds per year. The Nichols Ranch ISR Project would have the beneficial effect of helping the United States offset this deficit in domestic production.

In evaluating the benefits of energy produced during reactor licensing, the environmental costs of the reactor are weighed against the energy produced by including a pro-rated share of the environmental costs associated with recovering uranium for fuel. The incremental impacts of mining uranium for the use in reactor fuel are justified in terms of benefits of energy generation to society. With that, the benefits and costs of an in situ recovery facility are evaluated in terms of benefits to the United States and society in general against local environmental costs for which there may be no directly related compensation.

9.2 QUANTIFIABLE ECONOMIC IMPACTS

The major potential benefits for the Nichols Ranch ISR Project include the added income and revenues to local communities in the area near the project area, the State of Wyoming, and the federal government through employee income, royalty income, and tax revenues generated by the mining operation. Some items that may go against these potential benefits involve the added costs and strains on schools, fire and medical response, and other community services, but these costs are relatively small since most of the workforce that will used for the project will be pulled from the surrounding communities. Because of uncertainties in the market place and other factors such as counties being able to alter various taxing rates, a numerical balance between the benefits and costs of any one community, or for the project cannot be arrived.

9.3 ENVIRONMENTAL COSTS

The Nichols Ranch ISR Project will basically have three types of environmental costs: 1) radiological impact, 2) disturbance of the land, and 3) groundwater impact. The radiological impacts of the project during its operation are minimal since all potential radiological containing materials will be confined in the process. During reclamation, any remaining solid radioactive wastes will be disposed of at an NRC licensed facility. This results in no long-term impact at the site from the radiological materials. The disturbance of the land is also a small environmental impact. All lands that are disturbed during the life of the project will be reclaimed, and after the project is decommissioned, will be returned back to the pre-mining use. Groundwater impacted by the Nichols Ranch ISR Project will be restored back to pre-mining conditions or class of use such that pre-mining use suitability of the groundwater is maintained.

9.4 SUMMARY

The economic benefits to local communities, the State of Wyoming and the federal government along with the minimal radiological impacts, surface disturbance, and groundwater impacts that result from the production of uranium to make nuclear power for the use of the general public, make the benefit-cost balance for the Nichols Ranch ISR Project favorable. Additionally, the domestic production of uranium for the use of producing nuclear power helps the United States reduce its need to import uranium from foreign sources. With this, issuing a source material license for the Nichols Ranch ISR Project, subject to the necessary license conditions, is the appropriate regulatory action.

10.0 ENVIRONMENTAL APPROVALS AND CONSULTATIONS

10.1 PERMITS AND LICENSES REQUIRED FOR THE NICHOLS RANCH ISR PROJECT

Various state and federal permits and licenses that are needed or are in-hand for the Nichols Ranch ISR Project are listed in Table 10.1. Prior to the start of mining (the injection of lixivant into the ore body aquifer), Uranerz Energy Corporation will have obtained all the necessary permits, licenses, and approvals required by the Wyoming Department of Environmental Quality and the Nuclear Regulatory Commission.

Table 10-1 Permit and Licenses for the Nichols Ranch ISR Project.

Permit, License, or Approval Name	Agency	Status
Source Material License	NRC	Pending
Permit to Mine	WDEQ-LQD	Pending
Permit to Appropriate Groundwater	SEO	Existing wells are approved, new well permits will be filed prior to drilling
DEQ Drilling Permit	WDEQ-LQD	In Possession, No. 336DN-TFN 4 5/276
BLM Drilling Permit	BLM	In Possession, W-169662
Wellfield Authorization Permit	WDEQ-LQD	In Preparation
Deep Disposal Well Permits	WDEQ-WQD	In Preparation
WYPDES	WDEQ-WQD	In Preparation
11(e)2 Byproduct/Waste Disposal Agreement	N/A	In Preparation
Pemit to Construct Septic Leach Field	County	In Preparation
Air Quality Permit	WDEQ-AQD	Not Needed

Notes: NRC - Nuclear Regulatory Commission
WDEQ-LQD - Wyoming Department of Environmental Quality Land Quality Division
WDEQ-WQD - Wyoming Department of Environmental Quality Water Quality Division
WDEQ-AQD - Wyoming Department of Environmental Quality Air Quality Division
SEO - State Engineer's Office
BLM - Bureau of Land Management

11.0 REFERENCES

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APPENDIX D6 HYDROLOGY

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TABLES

ADDENDUMS

The majority of the wells completed in the Nichols Ranch Unit are completed in the A Sand because this is the ore bearing sand in this area. Figure D6-3 shows the locations of the Nichols Ranch Unit wells and Exhibit D6-1 shows the locations of wells within three miles of the Nichols Ranch Unit. Table D6-2 presents the tabulation of the well data for the Nichols Ranch Unit wells. The wells used to define baseline water level (L) and water quality (Q) are indicated in the last column of the Tables D6-2 and D6-3. Table D6-2 shows that eight of the wells have been completed in the A Sand for definition of baseline water level and water quality with one well completed in the C Sand, B Sand, 1 Sand and the Cottonwood alluvium. Two wells are completed in the F and G Sands for baseline measurements. Additional ranch wells are presented in the table but not used for baselining. Wells MN-1, MN-2, URZNB-1 and URZN1-2 are completed as open-hole completions, while the remaining Nichols Ranch wells have well screens in their completion interval. Addendum D6L gives the Uranium Data Submission Spreadsheets which contain additional information on the wells.

Table D6-3 presents the basic well data for the Hank Unit wells while Figure D6-4 shows the location of the Hank Unit wells. Exhibit D6-2 shows the locations of wells within three miles of the Hank Unit. Ten of these wells are completed in the F Sand for baselining of this aquifer because this is the ore bearing sand in this area. Four of the wells are completed in the overlying G Sand and two of the wells are completed in the underlying C Sand for baseline monitoring of these aquifers. In areas where the C Sand does not exist, the B Sand is the underlying aquifer and seven of the baseline wells in this area are completed in the B Sand. Three dry alluvial wells and five surficial aquifer H Sand wells are listed in Table D6-3. Hank wells C #1, Dry Willow #1, Hank 1, NBHW-13, URZHB-6, URZHC-2, URZNF-1, URZHF-5, URZHG-3, URZHG-4 and WC-MN1 are completed as open-hole completions while the remaining Hank wells have screens. Additionally, seven existing stock wells are listed in Table D6-3 but not used for baseline purposes.

Three new Nichols Ranch Unit wells were added in late 2009 and six new Hank Unit wells were drilled. Tables D6-2 and D6-3 have been updated with this new information.

D6.2.2 SUMMARY OF AQUIFER AND AQUITARD PROPERTIES

Numerous single-well pump tests and multi-well pump tests were conducted at the Nichols Ranch and Hank Units to define the aquifer properties. The detailed hydrologic analyses and supporting data are contained in Addendums D6B and D6C for Nichols Ranch Unit and Hank Unit respectively. Three multi-well pump tests were conducted at the Nichols Ranch Unit site and are referred to in this report as the MN-1, MN-2 and MN-6 tests. Three multi-well tests were performed at the Hank Unit site. These tests are referred to as the URZHF-1, URZHF-5 and SS1F tests. Tables D6-2 and D6-3 present the basic well data for wells used to define the aquifer properties for the Nichols Ranch and Hank Units respectively. Addendum D6J presents the aquifer test theory used to analyze the pump tests.

Additional multi-well pump tests were conducted in early 2010. The aquifer properties obtained from tests have been added to Tables D6-4 and D6-5, respectively, for the Nichols Ranch and Hank Units.

D6.2.2.1 AQUIFER PROPERTIES

In addition to determining the aquifer properties from the multi-well test, numerous single-well tests were conducted to define the aquifer properties. Several pump tests were previously conducted by Cleveland-Cliffs and Uranerz and the results of these tests were analyzed and included in the general hydrologic analysis.

during pump testing to determine if it has any connection with the F Sand. If the Paden #1 well has connection with the F Sand it will also need to be replaced. The Brown-WS well is completed in the C, B and A Sands. It is located greater than 1,000 feet west of the mineralized area in Hank Unit. The Brown #5 stock well is located just north of the northern edge of the Hank Unit area. This well has a depth of 540 feet and is completed in the B Sand. The distance of the ISR operation from this well makes it unlikely that mining operations will affect its water level or water quality. The sixth permitted well at the Hank Unit is the Means #1 well, which is used for stock watering and is 700 feet deep and also likely extends down to the A Sand.

Six permitted wells that are not related to the mining operations also exist within ½ mile of Nichols Ranch Unit. The Red Spring Artesian #1 well is located just north of the northwest corner of the project area. This well is completed to 740 feet deep and was a flowing well. The well was not flowing in August of 2007. This well likely extends to sands below the A Sand.

The other five wells are in the southern portion of the project area. The Brown 20-9 well is within the Nichols Ranch Unit and flows at approximately one gpm. This well is thought to be completed in the A Sand and has a total depth of 740 feet with perforations from 495 to 695 feet.

The Dry Fork #3 well is completed to a depth of 360 feet and was not flowing in October of 2007. With this depth, the well completion interval should be significantly shallower than the A Sand.

The Nichols #1 well, which is located in Section 19, is completed down to a depth of 310 feet. This well is likely completed in the C Sand and flows at approximately one gpm.

Based on a conversation with the current owner of the property where the Nichols Ranch once stood, the source of water was a well which was located approximately 200 yards from the old ranch house towards Cottonwood Creek and was thought to be artesian in nature. The depth of the well was not known but it was likely hand dug and fed off the waters of Cottonwood Creek.

The water source for the Pumpkin Buttes Ranch, located approximately 1.1 miles east of the Hank Unit permit area, is currently being supplied by a new well that was drilled sometime in 2008/2009 according to the landowner. This well is approximately 500 feet deep and completed between 400 and 480 feet placing it in the G Sand. The landowner also stated that there is another well present at the ranch near the current well that can be used as a backup well. The landowner did not know the depth of the well, it is not listed in the SEO database, and the landowner did not remember when it was drilled, but did state that the well had been there for sometime.

D6.4 COAL BED METHANE WELLS AND OIL/GAS WELLS

Wells permitted for coal bed methane production are presented on Exhibits D6-3 and D6-4 for the Nichols Ranch Unit and Hank Unit respectively. The tabulation of the coal bed methane wells is presented in Addendum D6H. Exhibit D6-5 shows the footage between the base of the ore sand for each of the two sites and the top of the coal bed methane coal.

The coal bed methane wells in the area of the Nichols Ranch are expected to start water production in 2008. Presently no coal bed methane water is being discharged to the stream channels but it is expected to start in 2008 into Tex Draw. The majority of the coal bed methane wells in this area are planned to be pumped to a deep injection well.

Oil/Gas wells are shown on Exhibit D6-6 for the combined Nichols Ranch Project. Tabulation of the oil/gas wells is presented in Addendum D6H.

D6.5 EXPLORATION DRILL HOLES

The areas surrounding the Nichols Ranch ISR Project have been historically drilled by several different companies over the past 50 years. Companies such as Cleveland-Cliff Iron Company, American Nuclear Company, Texas Eastern Nuclear, Everest Minerals Corporation, Rio Algom Mining, and Silver King Mines have historically drilled in the Pumpkin Buttes Mining District. A search of the drill hole database maintained by Uranerz Energy Corporation and drill holes provided by the WDEQ-LQD resulted in a total of 841 abandoned exploration drill holes located within the Nichols Ranch ISR Project boundaries that were drilled by Cleveland Cliff Iron Company (CC), Rio Algom (RAM), Texas Eastern Nuclear (TE), and Uranerz Energy Corporation (U). Holes drilled from 1997 through year to date 2009 have been plugged in accordance with current State of Wyoming regulations. A reasonable inspection of the project area showed that these abandoned holes were marked with a stake or pin flag after plugging was completed. To the best of Uranerz Energy Corporations knowledge all holes drilled prior to 1997 were sealed and surface plugged in compliance with the State of Wyoming regulations in effect at the time of drilling. Additionally, visual inspection conducted during current drilling and reclamation operations from 2006 through 2009 in the two permit areas have found no historic drill holes that were not abandoned properly. Also there has not been any evidence of historic drill holes causing cross contamination between aquifers when conducting pump tests or when reviewing historic versus current water levels and water quality in monitor wells that are present in the permit areas. Furthermore, since the historic drill holes have been released by the WDEQ, an assumption can be made that the holes were properly abandoned according to the rules and regulations in place at the time the drill holes were abandoned. No problems are anticipated with past abandoned drill holes.

All known abandoned drill holes are listed in Tables D6I.1-1, D6I.1-2, D6I.2-1 and D6I.2-2. The first letters of the drill holes (historic and current) denote the company that drilled the hole as seen after the company name in the previous paragraph. The location and density of all drill holes is shown on Exhibits D6-7 and D6-8.

Abandonment methods used for exploration holes drilled prior to 1997 were sealed and surface plugged in compliance with the State of Wyoming regulations in effect at the time of drilling. The methods utilized prior to 1997 mostly consisted of drilling and abandoning drill holes with drill and natural mud. No additional materials were added to increase the solids or viscosity. After 1977 bentonite was added if needed in abandoning drill holes. Drill holes abandoned by this method are denoted by a "1" in Tables D6I.1-2 and D6I.2-2. Drill holes that have a "2" are denoted for abandonment method in Tables D6I.1-1, D6I.1-2, D6I.2-1, and D6I.2-2 have been abandoned in accordance to current Wyoming Statue §35-11-404 and Wyoming Department of Environmental Quality – Land Quality Division (WDEQ-LQD) Noncoal Rules and Regulations, Chapter 8. These drill holes are abandoned by sealing the drill hole with additional high solids (fortified) bentonite circulated at total depth or abandonment muds as specified in Wyoming Statue §35-11-404 and Chapter 8 of the WDEQ LQD Noncoal Rules and Regulations. All drill holes were surface sealed and marked for identification.

TABLE D6-2. BASIC WELL DATA FOR NICHOLS RANCH UNIT WELLS.

WELL NAME	NORTH. COORD.	EAST. COORD.	MP ELEV. (ft-msl)	CASING DIA. (in)	STICK-UP ABOVE LSD	WELL DEPTH (ft-mp)	WATER LEVEL DATE	WATER LEVEL DEPTH (ft-mp)	WATER LEVEL ELEVATION (ft-msl)		SCREEN INTERVAL (ft-lsd)	AQUIFER
20-9	1102911	275410	4664.08	5.0	0.9	740	---	---	---		495 - 615	A
	1102911	275410	4664.08	5.0	0.9	740	---	---	---		635 - 655	A
CALVING #1	1100015	289109	4824.00	5.0	1.6	560	---	---	---		390 - 420	A
	1100015	289109	4824.00	5.0	1.6	560	---	---	---		440 - 500	A
Dry Fork #3	1100675	273123	4720.00		---	360	---	---	---		-	C
DW-4L	1112331	276856	4969.73	5.0	0.4	795	1/18/2010	307.67	4662.06		726 - 795	A
DW-4M	1112331	276769	4970.17	5.0	0.3	441	1/18/2010	285.20	4684.97		389 - 441	C
DW-4U	1111406	276812	4966.75	5.0	0.3	310	1/18/2010	230.60	4736.15		256 - 309	F
GARDEN	---	---	---		---	---	---	---	---		-	A
MN-1	1105710	273118	4715.14	4.5	1.3	556	2/3/2010	46.03	4669.11	#	479 - 556	A
MN-2	1108147	273844	4840.00	4.5	0.7	670	1/29/2010	176.40	4663.60	#	560 - 670	A
MN-3	1106960	275167	4764.64	4.5	0.7	585	1/18/2010	93.46	4671.18		479 - 585	A
MN-4	1109835	272220	4800.36	4.5	2.2	623	1/29/2010	142.73	4657.63		520 - 623	A
MN-5	1108755	272120	4883.28	4.5	2.3	727	1/29/2010	222.83	4660.45		628 - 727	A
MN-6	1107478	272220	4761.18	4.5	2.2	593	1/18/2010	98.30	4662.88		485 - 593	A
Nichols #1	1102532	269925	4622.33	2.0	0.0	310	---	---	---		191 - 310	F
NR#1	1107430	272265	4758.88	5.0	1.2	620	1/18/2010	94.75	4664.13		550 - 565	A
Pats #1	1102872	279812	4690.00		---	405	---	---	---		375 - 405	A
Pug #1	1102383	275338	4685.00		---	370	---	---	---		340 - 370	B
URZN1-2	1105691	273081	4714.31	4.5	1.1	645	2/3/2010	60.40	4653.91	#	600 - 645	1
URZNA-7	1106069	275761	4711.00	5.0	1.5	510	1/18/2010	42.67	4668.33	#	489 - 498	A
URZNA-8	1109220	272539	4962.12	5.0	1.1	645	4/13/2010	195.16	4766.96	#	628 - 636	A
URZNA-9	1109282	272604	4852.54	5.0	1.2	685	4/13/2010	186.57	4665.97	#	669 - 679	A
URZNB-1	1105725	273149	4716.36	4.5	1.3	375	2/3/2010	58.90	4657.46	#	330 - 375	B
URZNB-10	1109279	272522	4855.98	5.0	1.1	501	4/13/2010	193.63	4662.35	#	396 - 496	1
URZNF-3	1105992	273707	4728.87	4.0	2.3	173	1/26/2010	85.50	4643.37		153 - 173	F
URZNG-5	1109316	271149	4790.62	4.0	2.0	60	8/17/2009	49.78	4740.84		30 - 60	G
URZNG-6	1107845	277024	4785.15	4.0	2.0	105	1/18/2010	73.30	4711.85		70 - 100	G
URZNQ-4	1103219	272397	4638.44	4.0	1.5	35	2/3/2010	5.40	4633.04		15 - 35	ALL
W. of WW1	1116674	286130	5080.00	6.0	2.3	720	4/22/2009	358.16	4721.84		340 - 370	C
	1116674	286130	5080.00	6.0	2.3	720	4/22/2009	358.16	4721.84		540 - 720	A

NOTE: * = Abandoned
# = Open Hole Completion
ALL = Alluvial
W. of WW1 = West of Widow Women
MP = Measuring Point (at top of casing)
MSL = Mean Sea Level
LSD = Land Surface Datum
L = Baseline Water Level
Q = Baseline Water Quality

TABLE D6-3. BASIC WELL DATA FOR HANK UNIT WELLS.

WELL NAME	NORTH. COORD.	EAST. COORD.	MP ELEV. (ft-msl)	CASING DIA. (in)	STICK-UP ABOVE LSD	WELL DEPTH (ft-mp)	WATER LEVEL DATE	WATER LEVEL DEPTH (ft-mp)	WATER LEVEL ELEVATION (ft-msl)		SCREEN INTERVAL (ft-lsd)	AQUIFER
BR-B	1129884	299194	5029.70	5.0	1.5	300	12/10/2009	139.04	4890.66		200 - 280	F
BR-F	1128473	302583	5082.25	5.0	1.6	160	12/10/2009	67.10	5015.15		60 - 100	G
BR-G	1125397	305568	5157.27	5.0	1.6	320	7/17/2009	147.89	5009.38		240 - 320	F
BR-H	1127077	293768	4957.56	5.0	1.6	200	12/14/2009	92.85	4864.71		140 - 180	G
BR-I	1128729	303971	5130.88	4.0	1.7	80	11/11/2008	59.16	5071.72		40 - 80	H
BR-K	1129697	306515	5193.00	4.0	1.7	124	11/3/2008	124.00	5069.00		84 - 124	H
Brown #5	1128252	301915	5061.76	5.0	1.3	540	9/26/2007	215.60	4846.16		460 - 540	B
Brown-WS	1125026	299713	5146.00	6.0	1.2	702	12/14/2009	264.00	4882.00		340 - 380	C
	1125026	299713	5146.00	6.0	1.2	702	12/14/2009	264.00	4882.00		425 - 465	B
	1125026	299713	5146.00	6.0	1.2	702	12/14/2009	264.00	4882.00		540 - 620	A
BR-Q	1125878	305553	5154.22	5.0	1.1	600	12/17/2007	291.61	4862.61		500 - 600	B
BR-T	1131333	300699	5033.00	5.0	---	496	3/11/1981	196.50	4836.50		390 - 470	B
BR-U	1128876	300158	4983.18	4.0	1.7	23	4/13/1982	11.86	4971.32		5 - 23	ALL
C #1	1100216	304090	5137.00	5.0	1.1	232	12/14/2009	191.20	4945.80	#	146 - 232	F
Connie #2	---	---	5310.00	6.0	---	350	---	---	---		-	F
DRYMW1	1121212	293031	4930.00	3.0	0.3	19	10/4/2007	> 19.20	< 4910.80		-	ALL
DRYMW3	1121635	292581	4920.00	3.0	0.5	19	10/4/2007	> 18.60	< 4901.40		-	ALL
DW#1	1112155	304041	5154.19	6.0	1.3	320	10/26/2009	220.88	4933.31	#	220 - 320	F
F. Brown #1	1108650	288324	4890.00	7.0	2.3	520	10/29/2009	191.43	4698.57		423 - 483	B
Hank 1	1122566	302568	5251.01	6.0	1.8	440	1/18/2010	355.08	4895.93	#	354 - 440	F
Means #1	1108983	301384	5259.86	6.0	1.1	700	10/26/2009	341.60	4918.26		320 - 330	F
	1108983	301384	5259.86	6.0	1.1	700	10/26/2009	341.60	4918.26		640 - 650	B
NBHW-13	1128356	295943	4969.86	4.5	1.7	470	12/14/2009	126.33	4843.53	#	424 - 446	B
North Dry Willo	1116100	303879	5205.00	6.0	0.3	1132	---	---	---		250 - 280	F
	1116100	303879	5205.00	6.0	0.3	1132	---	---	---		380 - 410	C
	1116100	303879	5205.00	6.0	0.3	1132	---	---	---		540 - 570	B
	1116100	303879	5205.00	6.0	0.3	1132	---	---	---		700 - 770	A
	1116100	303879	5205.00	6.0	0.3	1132	---	---	---		990 - 1100	1
Old Maid #1	1115480	292878	5080.00	6.0	2.3	300	7/17/2009	197.69	4882.31		250 - 300	F
OW43756	1115602	298221	5052.00	6.0	2.0	251	12/18/2009	142.30	4909.70		-	G
	1115602	298221	5052.00	6.0	2.0	251	12/18/2009	142.30	4909.70		-	F
Paden #1	1115635	304361	5195.85	5.0	1.8	650	12/18/2009	306.38	4889.47		400 - 440	C
	1115635	304361	5195.85	5.0	1.8	650	12/18/2009	306.38	4889.47		570 - 630	A
	1115635	304361	5195.85	5.0	1.8	650	12/18/2009	306.38	4889.47		570 - 630	B
RED WINDMILL	---	---	---	6.0	---	300	---	---	---		-	A

TABLE D6-3. BASIC WELL DATA FOR HANK UNIT WELLS.

WELL NAME	NORTH. COORD.	EAST. COORD.	MP ELEV. (ft-msl)	CASING DIA. (in)	STICK-UP ABOVE LSD	WELL DEPTH (ft-mp)	WATER LEVEL				SCREEN INTERVAL (ft-lsd)	AQUIFER
							DATE	DEPTH (ft-mp)	ELEVATION (ft-msl)			
SS1-F	1129626	295559	4975.00	4.5	1.1	185	7/22/2009	113.71	4861.29		145 - 185	F
SS1-FPU	1129700	295428	4976.00	2.0	2.3	175	12/14/2009	199.30	4776.70		-	F
SS1-L	1129551	295690	4974.00	5.0	0.9	654	12/14/2009	136.95	4837.05		540 - 652	A
SS1-M	1129546	295602	4974.00	5.0	1.2	454	12/14/2009	136.00	4838.00		405 - 454	B
SS1-U	1129619	295647	4975.00	5.0	0.9	372	12/14/2009	134.45	4840.55		323 - 372	C
URZHB-6	1124299	302427	5213.78	4.5	1.1	650	12/18/2009	348.48	4865.30	#	536 - 650	B
URZHC-16	1122506	302466	5244.00	5.0	1.1	523	1/18/2010	364.00	4880.00	#	462 - 523	C
URZHC-2	1118511	302629	5234.76	4.5	1.3	485	12/14/2009	340.90	4893.86	#	440 - 450	C
URZHF-1	1118584	302588	5231.73	4.5	0.9	440	12/18/2009	328.00	4903.73	#	365 - 374	F
URZHF-11	1122685	301960	5232.00	5.0	1.0	420	1/18/2010	341.63	4890.37	#	330 - 420	F
URZHF-12	1122353	303021	5280.00	5.0	1.3	482	1/18/2010	381.28	4898.72	#	380 - 483	F
URZHF-13	1124729	301487	5179.00	5.0	1.0	330	2/1/2010	285.09	4893.91	#	317 - 325	F
URZHF-14	1124749	301408	5185.00	5.0	1.2	362	2/1/2010	291.61	4893.39	#	367 - 375	F
URZHF-5	1124265	302426	5217.67	4.5	1.7	410	2/1/2010	317.04	4900.63	#	369 - 386	F
URZHF-8	1122657	302570	5250.00	5.0	1.7	433	1/18/2010	354.77	4895.23		420 - 430	F
URZHG-15	1122559	302472	5244.00	5.0	1.3	314	1/18/2010	278.55	4965.45	#	255 - 314	G
URZHG-3	1118491	302556	5228.82	4.5	1.2	300	12/18/2009	273.88	4954.94	#	270 - 300	G
URZHG-4	1124257	302457	5215.78	4.5	1.1	290	12/17/2007	282.00	4933.78	#	270 - 290	G
URZHH-10	1122798	302044	5258.19	4.0	2.0	135	8/12/2009	131.18	5127.01		90 - 130	H
URZHH-7	1118639	301082	5169.37	4.0	2.2	135	12/18/2009	90.73	5078.64		115 - 135	H
	1118639	301082	5169.37	4.0	2.2	135	12/18/2009	90.73	5078.64		85 - 105	H
URZHH-9	1115596	302854	5157.68	4.0	2.0	155	8/13/2009	125.71	5031.97		135 - 150	H
WC-MN1	1121306	292653	4942.00	5.0	2.5	210	3/2/2009	92.93	4849.07	#	150 - 210	F

NOTE: * = Abandoned
# = Open Hole Completion
ALL = Alluvial
L = Baseline Water Level
Q = Baseline Water Quality

TABLE D6-4. SUMMARY OF AQUIFER PROPERTIES FOR NICHOLS RANCH UNIT

A ORE SAND

	TRANSMISSIVITY (GAL/DAY/FT)				HOR. HYDRAULIC CONDUCTIVITY		AQUIFER	STORAGE COEFFICIENT		
	RECOVERY	JACOB	THEIS OR WTAQ	BEST VALUE	(FT/DAY)	(DARCY)	THICKNESS (FT)	JACOB	THEIS OR WTAQ	BEST VALUE
SINGLE WELL TESTS										
MN-1	275	453	-	275	-	-	73	-	-	-
MN-1 (2nd test)	-	276	-	276	0.65	0.31	73	-	-	-
MN-3	454	465	-	460	0.57	0.27	107	-	-	-
MN-4	314	308	-	311	0.42	0.2	98	-	-	-
MN-5	284	747	-	-	-	-	104	-	-	-
MN-5 (2nd test)	322	357	-	322	0.41	0.20	104	-	-	-
DW-4L	53	101	-	101	0.18	0.084	77	-	-	-
MULTI WELL TESTS										
MN-1 TEST	303	355	-	329	0.6	0.29	73	-	-	-
MN-2 OBS	610	1034	180	180	0.33	0.16	73	1.5E-04	1.4E-04	1.4E-04
MN-3 OBS	471	1095	265	265	0.48	0.23	73	1.2E-04	1.2E-04	1.2E-04
NICHOLS 1 OBS	570	631	414	414	0.76	0.36	73	1.0E-04	1.7E-04	1.7E-04
MN-6 TEST	360	346	-	353	0.44	0.21	108	-	-	-
NICHOLS 1 OBS	369	384	359	371	0.46	0.22	108	2.8E-05	3.1E-05	-
MN-5 OBS	477	620	359	359	0.44	0.21	108	1.1E-04	1.5E-04	1.5E-04
MN-2 OBS	792	688	337	337	0.42	0.20	108	3.8E-05	3.8E-04	3.8E-04
MN-2 TEST	160	196	-	178	0.23	0.11	102			
MN-1 OBS	51	588	180	180	0.24	0.11	102	1.1E-04	1.0E-04	1.0E-04
URZNA-7 TEST	290	310	-	300	0.43	0.21	93	-	-	-
MN-1 OBS	-	-	260	260	0.37	0.18	93	-	1.1E-04	1.1E-04
MN-3 OBS	-	-	270	270	0.39	0.19	93	-	1.1E-04	1.1E-04
URZNA-9 TEST	310	350	-	310	0.41	0.2	100	-	-	-
URZNA-8 OBS	230	200	190	210	0.25	0.13	100	5.3E-04	1.3E-04	1.3E-04
MN-2 OBS	-	-	340	340	0.45	0.22	100	-	1.8E-04	1.8E-04
MN-4 OBS	-	-	320	320	0.43	0.2	100	-	1.1E-04	1.1E-04
MN-5 OBS	-	-	280	280	0.39	0.18	100	-	4.4E-05	4.4E-05

TABLE D6-4. SUMMARY OF AQUIFER PROPERTIES FOR NICHOLS RANCH UNIT (CONTINUED)

	TRANSMISSIVITY (GAL/DAY/FT)				HOR. HYDRAULIC CONDUCTIVITY		AQUIFER	STORAGE COEFFICIENT		
	RECOVERY	JACOB	THEIS OR WTAQ	BEST VALUE	(FT/DAY)	(DARCY)	THICKNESS (FT)	JACOB	THEIS OR WTAQ	BEST VALUE
SINGLE WELL TESTS					**B OVERLYING SAND**					
URZNB-1	-	306	-	-	-	-	63	-	-	-
URZNB-1 (2nd test)	127	174	-	174	0.37	0.18	63	-	-	-
SINGLE WELL TESTS					**1 UNDERLYING SAND**					
URZN1-2	93	105	-	-	-	-	45	-	-	-
URZN1-2 (2nd test)	83	73	-	88	0.26	0.12	45	-	-	-
SINGLE WELL TESTS					**COTTONWOOD ALLUVIUM**					
URZNQ-4	9520	8670	-	8,670	39	18	30	-	-	-
SINGLE WELL TESTS					**F SAND**					
DW-4U	1460	1360	-	1410	3.6	1.7	52	-	-	-
DW-4U (2nd test)	-	1470	-	-	-	-	-	-	-	-
URZNF-3	-	470	-	470	1.4	0.68	44	-	-	-
SINGLE WELL TESTS					**C SAND**					
DW-4M	-	45	-	45	0.099	0.047	61	-	-	-

TABLE D6-5. SUMMARY OF AQUIFER PROPERTIES FOR HANK UNIT

	TRANSMISSIVITY (GAL/DAY/FT)				HOR. HYDRAULIC CONDUCTIVITY		AQUIFER	STORAGE	SPECIFIC
	RECOVERY	JACOB	THEIS OR WTAQ	BEST VALUE	(FT/DAY)	(DARCY)	THICKNESS (FT)	COEFFICIENT	YIELD
SINGLE WELL TESTS					**F ORE SAND**				
HANK 1	2210	2210	-	2210	3.5	1.7	84	-	-
Dry Willow #1	7020	6670	-	6670	9.4	4.5	95	-	-
BR-B	2210	2530	-	-	-	-	88	-	-
BR-B (2nd Test)	-	1970	-	2240	3.4	1.6	88	-	-
BR-G	2.1	19	-	19	0.14	0.067	18	-	-
MULTI WELL TESTS									
HANK 1 TEST	2680	3510	-	-	-	-	84	-	-
URZHF-8 OBS	667	3740	-	667	1.06	0.5	84	1.10E-03	0.14
URZHF-5 TEST	-	470	-	470	0.69	0.33	91	-	-
HANK 1 OBS	-	-	-	-	-	-	91	-	-
BR-G OBS	-	-	-	-	-	-	91	-	-
URZHF-1	149	-	-	149	0.28	0.13	71	-	-
SS1-F TEST	-	1530	-	1530	6.4	3.1	32	-	-
SS1-FPU OBS	1380	1530	-	1450	6.1	2.9	32	6.80E-05	-
HANK 1, 2ND TEST	2300	-	-	-	-	-	84	-	-
URZHF-8 OBS	-	670	530	670	1.1	0.52	84	8.00E-04	0.13
URZHF-11 OBS	-	570	-	570	0.91	0.43	84	7.60E-04	0.11
URZHF-12 OBS	-	710	-	710	1.13	0.54	84	5.60E-04	0.11
URZHF-14 TEST	-	690	-	690	0.89	0.42	104	-	-
URZHF-13 OBS	-	770	-	770	0.99	0.47	104	4.80E-04	0.12

TABLE D6-5. SUMMARY OF AQU.. .R PROPERTIES FOR HANK UNIT (CONTINUED)

	TRANSMISSIVITY (GAL/DAY/FT) RECOVERY	JACOB	THEIS OR WTAQ	BEST VALUE	HOR. HYDRAULIC CONDUCTIVITY (FT/DAY)	(DARCY)	AQUIFER THICKNESS (FT)	STORAGE COEFFICIENT	SPECIFIC YIELD
SINGLE WELL TESTS				G OVERLYING SAND					
BR-F	-	0.62	-	-	-	-	10	-	-
BR-F (2nd Test)	0.4	2.3	-	0.4	0.005	0.003	10	-	-
BR-H	-	2.7	-	-	-	-	18	-	-
BR-H (2nd test)	2.9	2.9	-	2.9	0.022	0.01	18	-	-
SINGLE WELL TESTS				C UNDERLYING SAND					
URZHC-2	-	1.9	-	1.9	0.025	0.012	10	-	-
SINGLE WELL TESTS				B UNDERLYING SAND					
BR-Q	264	176	-	264	0.38	0.18	93	-	-
NBHW-13	742	1300	-	1300	2.2	1.1	78	-	-
SINGLE WELL TESTS				H SAND					
URZHH-7	2.1	8.1	-	-	-	-	25	-	-
URZHH-7(2nd test)	0.7	2.2	-	-	-	-	25	-	-
URZHH-7(3rd test)	1.1	1.8	-	1.1	0.006	0.003	25	-	-
SINGLE WELL TESTS				A SAND					
SS1-L	954	1100	-	1030	1.1	0.52	126	-	-
SS1-L (2nd test)	-	843	-	843	0.89	0.43	126	-	-

TABLE D6-5a. SUMMARY OF AQUITARD PROPERTIES AT NORTH BUTTE, RUTH and RUBY.

	NEUMAN-WITHERSPOON VERTICAL HYDRAULIC CONDUCTIVITY		
AQUITARD	(ft/day)	(ft/yr)	(cm/sec)
NORTH BUTTE			
C-F	9.60E-05	3.50E-02	3.40E-08
1-A	1.20E-04	4.20E-02	4.10E-08
RUTH			
A-B	2.00E-04	7.20E-02	7.00E-08
1-A	2.80E-04	1.00E-01	1.00E-07
RUBY			
B-C	9.95E-05	3.60E-02	3.50E-08
A-B	7.10E-05	2.60E-02	2.50E-08

	MODIFIED HANTUSH VERTICAL HYDRAULIC CONDUCTIVITY		
AQUITARD	(ft/day)	(ft/yr)	(cm/sec)
NORTH BUTTE			
C-F	2.00E-04	7.30E-02	6.90E-08
C-F	1.30E-04	4.70E-02	4.50E-08
C-F	7.80E-05	2.80E-02	2.70E-08
C-F	1.70E-04	6.20E-02	6.00E-08
C-F	8.20E-05	3.00E-02	2.90E-08
C-F	1.90E-05	6.90E-03	6.70E-09

	LABORATORY				
AQUITARD	VERTICAL HYDRAULIC CONDUCTIVITY		COEFFICIENT OF COMPRESSIBILTY	POROSITY	SPECIFIC STORAGE
	(ft/day)	(cm/sec)	(sq. ft/lb)		(1/ft)
NORTH BUTTE					
C-F	1.80E-05	6.40E-09	3.80E-07	0.222	1.94E-05
1-A	3.70E-05	1.30E-08	3.30E-07	0.233	1.67E-05
RUTH					
C-F	4.00E-05	1.40E-08	4.20E-07	0.216	2.16E-05
1-A	4.30E-06	1.50E-09	3.90E-07	0.243	1.96E-05
RUBY					
B-C	1.10E-04	3.90E-08	1.18E-06	0.382	5.30E-05
A-B	1.10E-05	4.00E-09	3.92E-07	0.194	2.10E-05

TABLE D6-5b. VERTICAL HYDRAULIC GRADIENTS THROUGH THE ADJACENT AQUITARDS.

AQUITARD	CALCULATED GRADIENT (ft/ft)	ESTIMATED GRADIENT (ft/ft)
	Nichols Ranch Unit	
A-B	0.2	0.1
1-A	0.3	0.1
AQUITARD	CALCULATED GRADIENT (ft/ft)	ESTIMATED GRADIENT (ft/ft)
	Hank Unit	
F-G	1.1	0.1
C-F	0.37	0.1

NICHOLS UNIT PUMP TESTS ADDENDUM D6B

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NICHOLS UNIT PUMP TESTS ADDENDUM D6B

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D6B.5 URZNA-7 MULTI WELL TEST

A multi-well pump test was performed on the A Sand by pumping well URZNA-7 for approximately 3 days while observing A Sand wells MN-1 and MN-3. The results of this multi-well pump test were used to calculate the aquifer properties of the A Sand in the area around URZNA-7 and the observation wells.

URZNA-7 was initially started on January 19 at 11:32 A.M, and ran for five minutes. It was shut off due to problems with the generator and the set height of the transducer. The well was allowed to recover for 71 min, and then was turned on again at 12:48 P.M. This second start time was used as the start for the pump test. This is applicable because all calculations performed on the pumping and observation wells use only the late-time data and not the early-time data from each of the wells.

D6B.5.1 PUMPING WELL URZNA-7

The A Sand well URZNA-7 was pumped for 71.1 hrs at an average rate of 10.3 gpm. This well has an open hole interval of 489-498 feet. The sand interval at this location is 426-519 feet, with an aquifer thickness of 93 ft. Figure D6B.5-1 presents the barometric pressure data collected during this test versus the water-level change in the pumping well. Due to barometric effects on the water-level a barometric correction of 0.2 ft of water/in of Hg was used to correct for the change in barometric pressure of 0.6 inches of mercury. Figure D6B.5-2 presents a straight-line fit to the corrected drawdown data, which resulted in a transmissivity of 310 gal/day/ft. Figure D6B.5-3 show the recovery data with a straight-line fit applied to it. The straight-line fit of this data yields a transmissivity of 290 gal/day/ft. Table D6B.5-1 presents the manual recorded data. Table D6B.5-2 presents transducer data collected during this test.

The average of the two transmissivities is 300 gal/day/ft, and is thought to best represent the URZNA-7 pumping well.

D6B.5.2 OBSERVATION WELL MN-1

The A Sand fully penetrating observation well MN-1 is located 2668 ft from the pumping well. A plot of the barometric pressure versus water-level change is presented on Figure D6B.5-4. A barometric correction of 0.3 ft of water/in of Hg was used for this data. Figure D6B.5-5 shows a log-log fit of the WTAQ curve for a confined aquifer. The partial penetration and anisotropic ratio do not vary the type curve at this distance. This log-log fit yield a transmissivity of 260 gal/day/ft and a storage coefficient of 1.1E-4. Tables D6B.5-3 and D6B.5-4 present the manual and transducer recorded water-level data.

The drawdown observed in MN-1 continues on longer than what is expected for this well. Using the amount of time from when the pump was started to when drawdown was first recorded in MN-1, it is expected that MN-1 should have started recovering by 1/24/10.

Due to the late time data not reflecting this expected recovery the transmissivity and storage coefficients were calculated using only data prior to 1/24/10. The start of recovery is lagged in this A Sand observation well likely due to the A Sand pinching out away from the Nichols Ranch Unit area.

D6B.5.3 OBSERVATION WELL MN-3

MN-3 is a fully penetrating A Sand observation well that is located 1071 ft from the pumping well. Figure D6B.5-6 presents the barometric pressure versus water-level change in MN-3. A barometric correction of 0.5 ft of water/in of Hg was used to correct water levels for well MN-3. A log-log fit of the WTAQ confined type curve to the MN-3 drawdown is shown on Figure D6B.5-7. This fit results in a transmissivity of 270 gal/day/ft and a storage coefficient of 1.1E-4. Tables D6B.5-5 and D6B.5-6 present the manual and transducer recorded water-level data.

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D6B.5-3

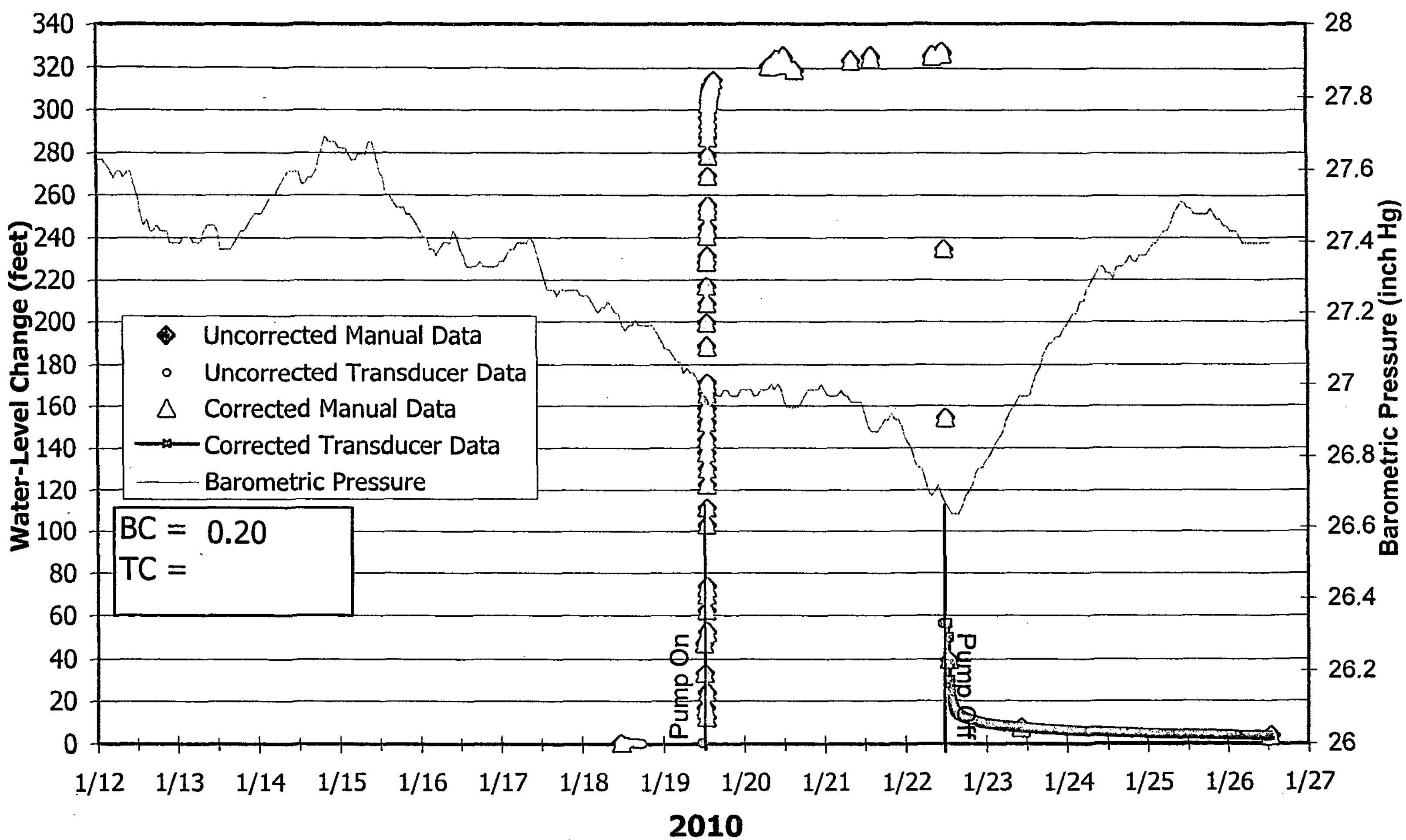

FIGURE D6B.5-1 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN A SAND PUMPING WELL, URZNA-7

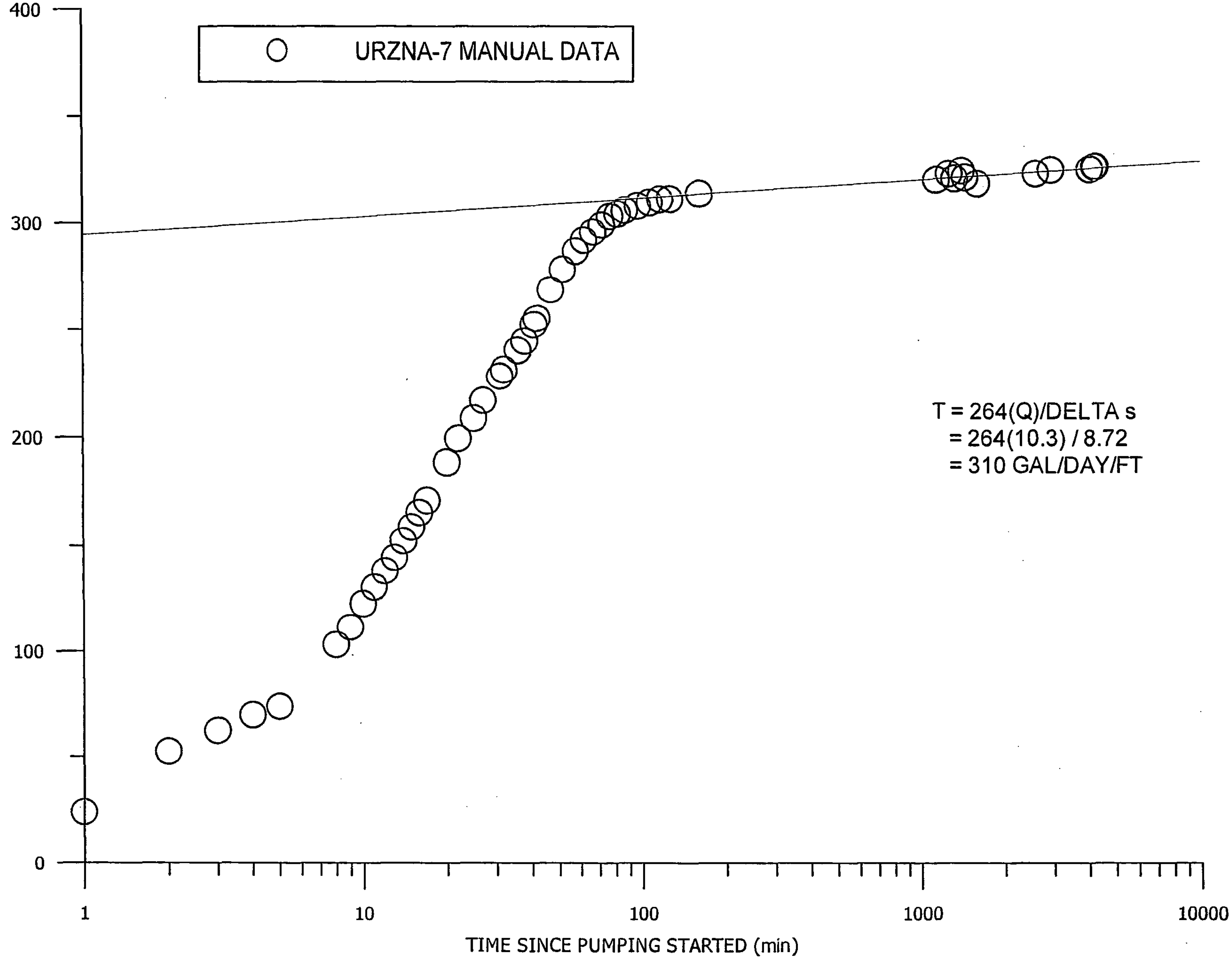

FIGURE D6B.5-2 DRAWDOWN IN PUMPING WELL URZNA-7

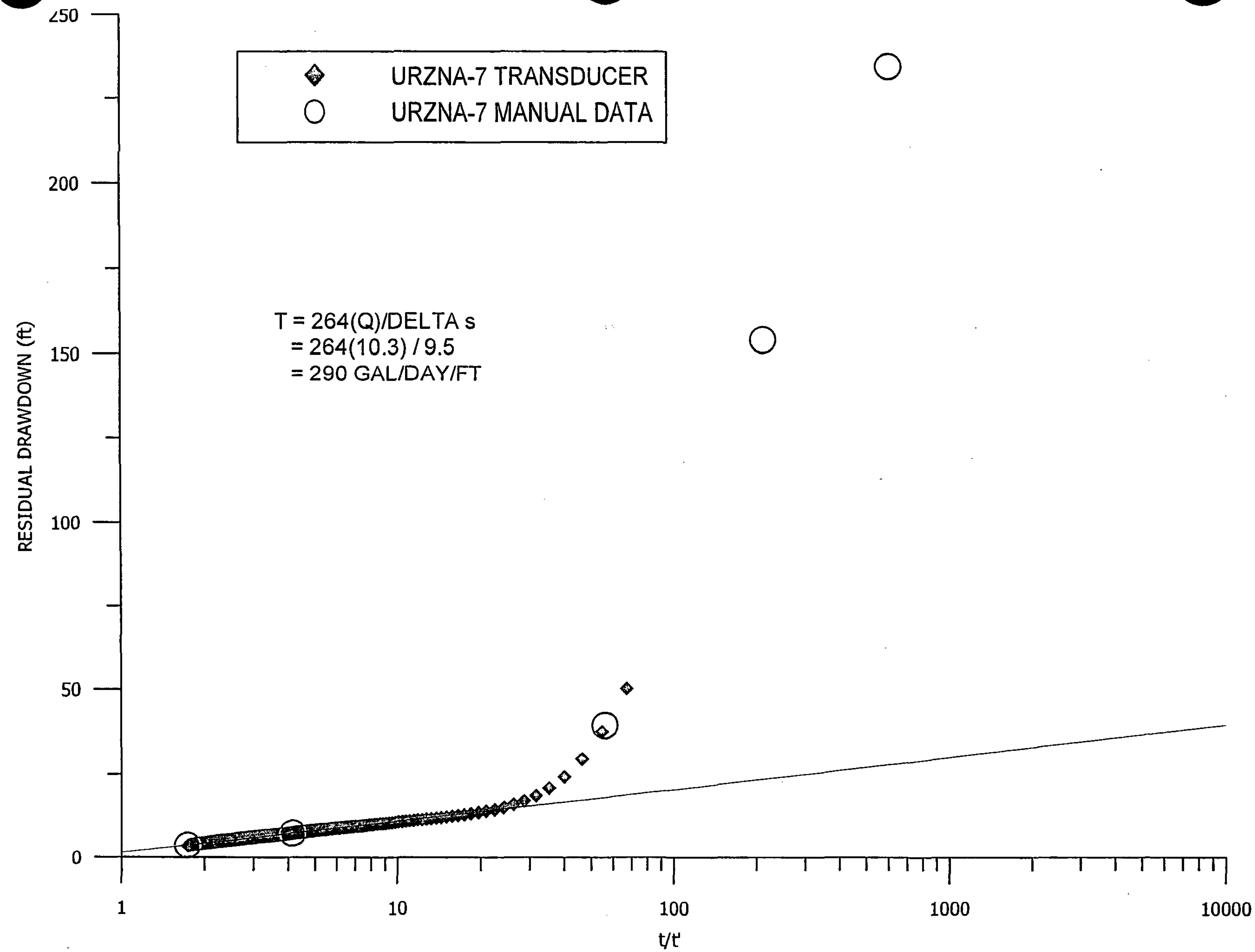

FIGURE D6B.5-3 RECOVERY IN PUMPING WELL URZNA-7

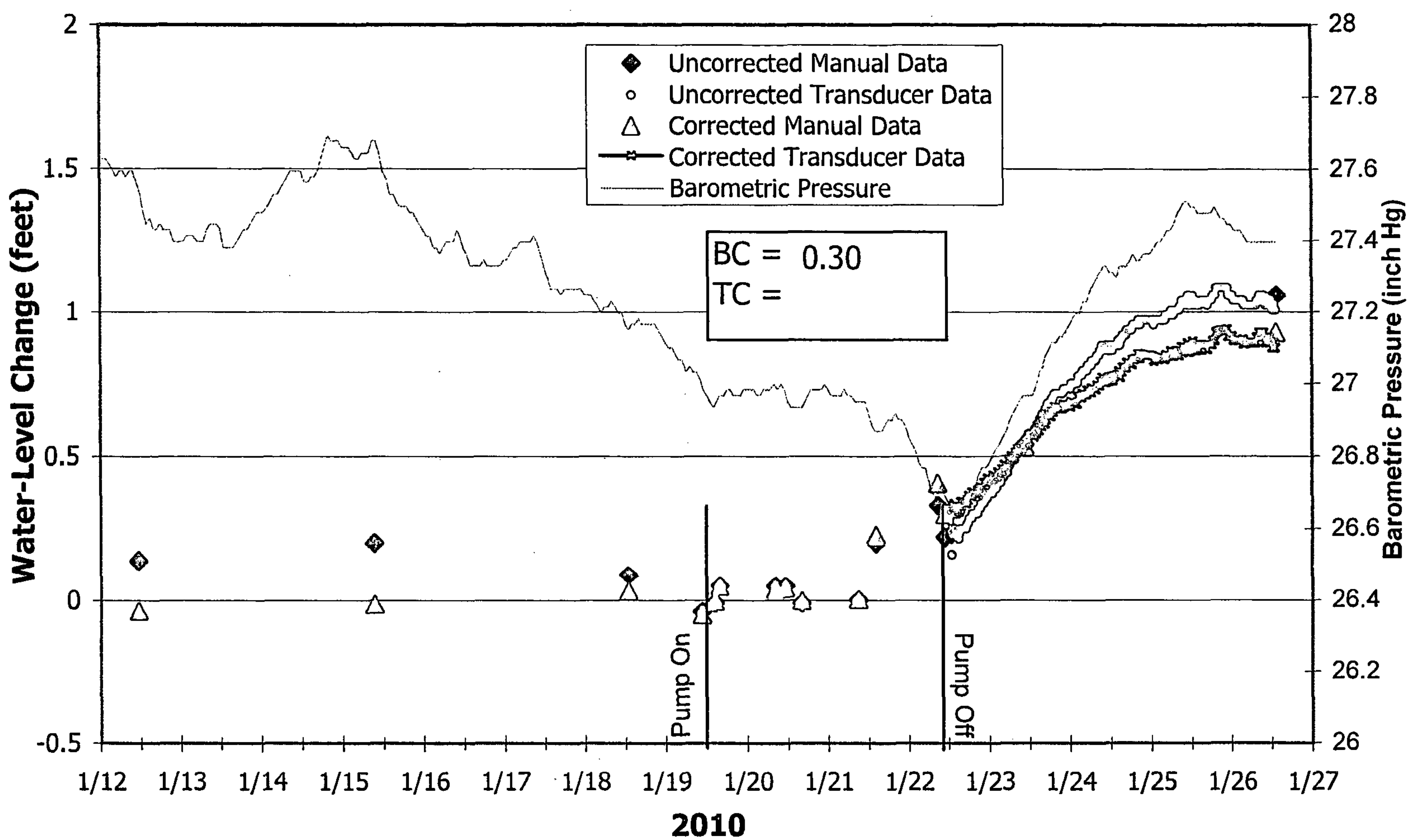

FIGURE D6B.5-4 BARROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN A SAND OBSERVATION WELL, MN-1

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D6B.5-6

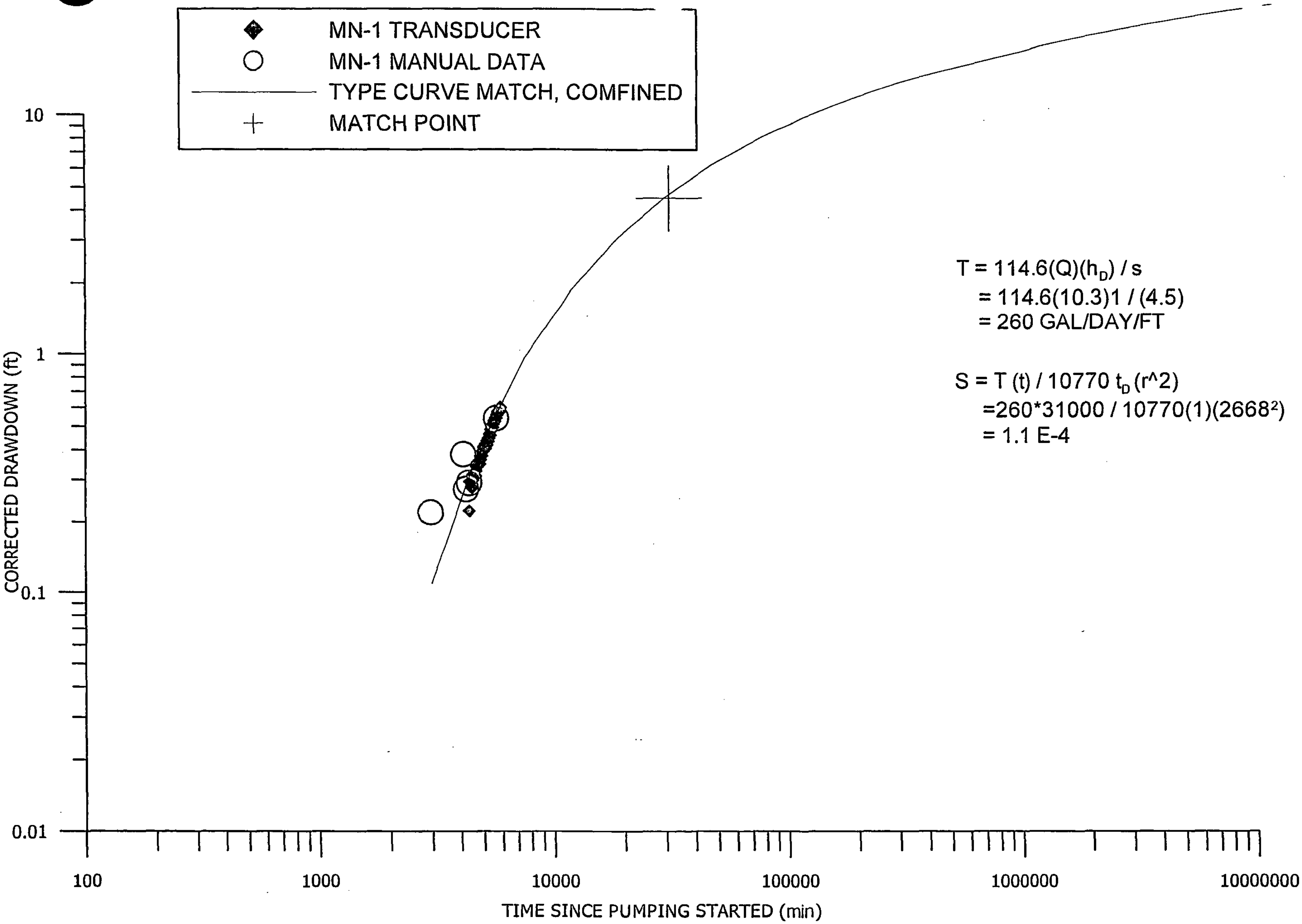

FIGURE D6B.5-5 DRAWDOWN IN OBSERVATION WELL MN-1, LOG-LOG

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D6B.5-8

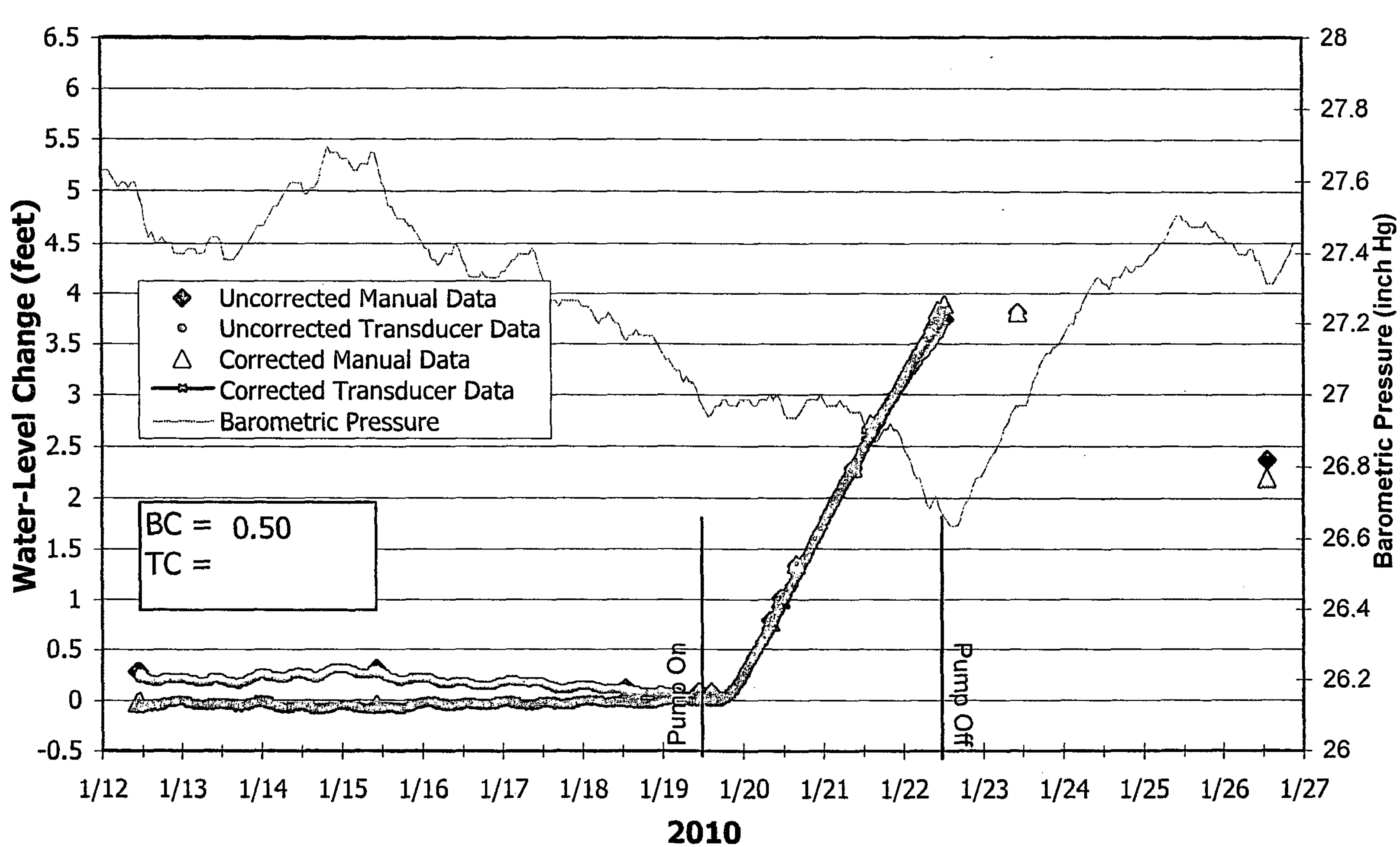

FIGURE D6B.5-6 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN A SAND OBSERVATION WELL, MN-3

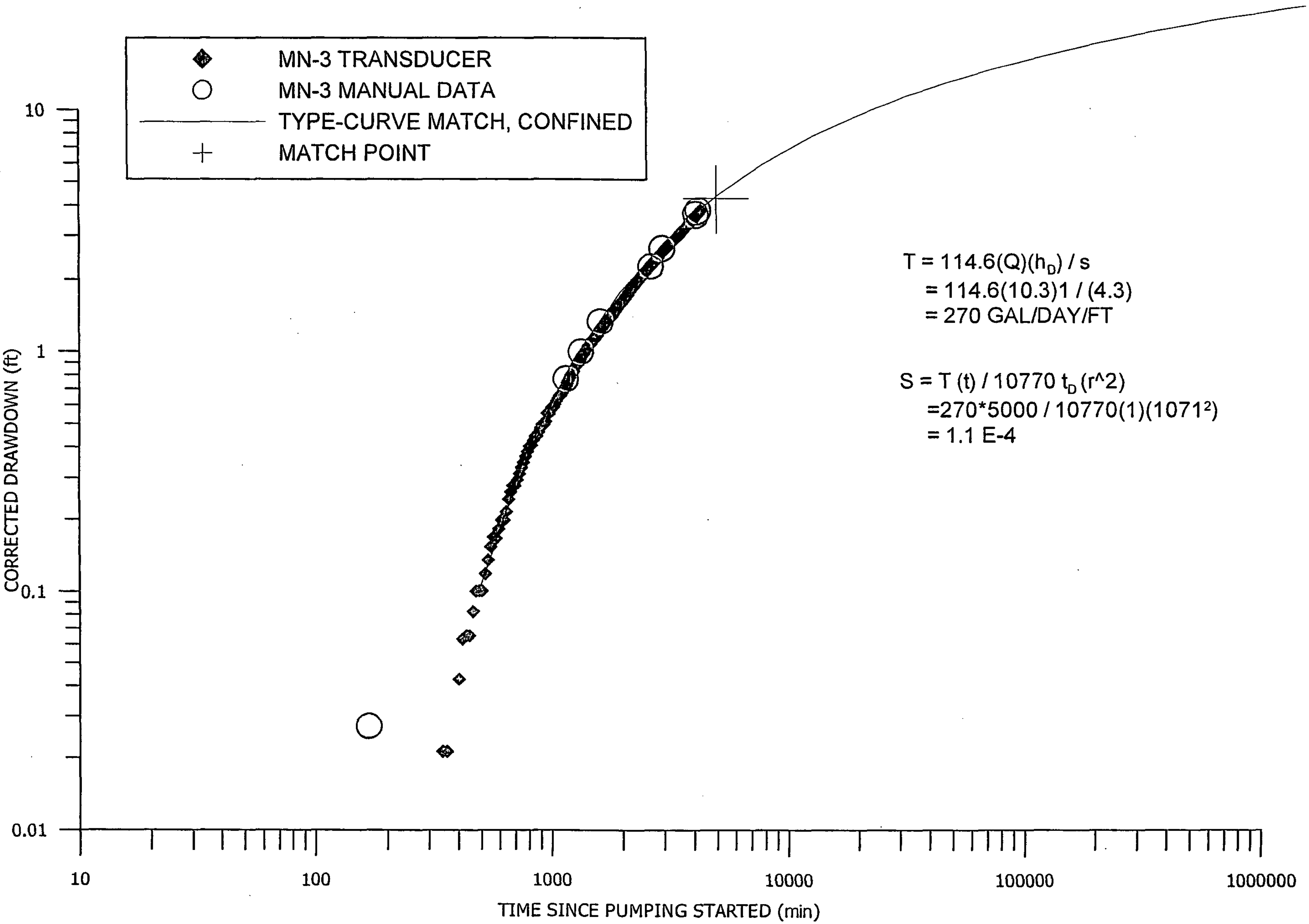

FIGURE D6B.5-7 DRAWDOWN IN OBSERVATION WELL MN-3, LOG-LOG

TABLE D6B.5-1. AQUIFER-TEST DATA FOR PUMPING WELL URZNA-7.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/18/10	12:48:00	-1440	--	--	42.67	0.00	--	--	--	--
	13:18:00	SET TRANSDUCER AND GEN								
01/19/10	11:18:00	RESET TRANSDUCER								
	11:25:00	-83	--	--	42.83	0.16	--	--	--	--
	11:32:00	PUMP ON								
	11:36:00	WL PAST TRANSDUCER								
	11:37:00	PUMP OFF								
	11:50:00	REMOVED TRANSDUCER								
	11:59:00	-49	--	--	89.68	47.01	--	--	--	--
	12:11:00	-37	--	--	75.20	32.53	--	--	--	--
	12:34:00	-14	--	--	59.03	16.36	--	--	--	--
	12:47:00	-1	--	--	54.64	11.97	--	--	--	--
	12:48:00	PUMP ON								
	12:49:00	1	--	--	66.30	23.63	--	--	--	--
	12:50:00	2	--	--	94.84	52.17	25.00	--	--	--
	12:51:00	3	--	--	104.60	61.93	--	--	--	--
	12:52:00	4	--	--	111.95	69.28	--	--	--	--
	12:53:00	5	--	--	116.03	73.36	--	--	--	--
	12:54:00	6	--	--	--	--	6.70	--	--	--
	12:56:00	8	--	--	145.30	102.63	--	--	--	--
	12:57:00	9	--	--	153.60	110.93	13.00	--	--	--
	12:58:00	10	--	--	164.71	122.04	--	--	--	--
	12:59:00	11	--	--	172.54	129.87	--	--	--	--
	13:00:00	12	--	--	180.18	137.51	--	--	--	--
	13:01:00	13	--	--	186.46	143.79	13.00	--	--	--
	13:02:00	14	--	--	194.48	151.81	--	--	--	--
	13:03:00	15	--	--	201.00	158.33	--	--	--	--
	13:04:00	16	--	--	207.80	165.13	--	--	--	--
	13:05:00	17	--	--	213.38	170.71	--	--	--	--
	13:08:00	20	--	--	230.74	188.07	--	--	--	--
	13:09:00	21	--	--	--	--	10.70	--	--	--
	13:10:00	22	--	--	241.70	199.03	--	--	--	--
	13:13:00	25	--	--	250.92	208.25	--	--	--	--
	13:14:00	26	--	--	--	--	10.30	--	--	--
	13:15:00	27	--	--	259.25	216.58	--	--	--	--
	13:19:00	31	--	--	270.74	228.07	--	--	--	--
	13:20:00	32	--	--	273.64	230.97	--	--	--	--
	13:22:00	34	--	--	--	--	10.00	--	--	--
	13:24:00	36	--	--	282.85	240.18	--	--	--	--
	13:26:00	38	--	--	286.98	244.31	--	--	--	--
	13:27:00	39	--	--	--	--	10.00	--	--	--
	13:29:00	41	--	--	294.80	252.13	--	--	--	--
	13:30:00	42	--	--	297.67	255.00	--	--	--	--
	13:32:00	44	--	--	--	--	10.30	--	--	--
	13:35:00	47	--	--	311.33	268.66	--	--	--	--

TABLE D6B.5-1. AQUIFER-TEST DATA FOR PUMPING WELL URZNA-7, (CONTINUED).

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/19/10	13:40:00	52	--	--	320.90	278.23	--	--	--	--
	13:42:00	54	--	--	--	--	10.30	--	--	--
	13:46:00	58	--	--	329.50	286.83	--	--	--	--
	13:50:00	62	--	--	334.67	292.00	--	--	--	--
	13:55:00	67	--	--	338.48	295.81	--	--	--	--
	13:57:00	69	--	--	--	--	10.30	--	--	--
	14:00:00	72	--	--	341.81	299.14	--	--	--	--
	14:05:00	77	--	--	345.89	303.22	--	--	--	--
	14:10:00	82	--	--	346.93	304.26	--	--	--	--
	14:12:00	84	--	--	--	--	10.30	--	--	--
	14:15:00	87	--	--	348.73	306.06	--	--	--	--
	14:25:00	97	--	--	350.75	308.08	--	--	--	--
	14:35:00	107	--	--	352.37	309.70	--	--	--	--
	14:45:00	117	--	--	353.87	311.20	--	--	--	--
	14:47:00	119	--	--	--	--	10.30	--	--	--
	14:55:00	127	--	--	354.00	311.33	--	--	--	--
	15:30:00	162	--	--	356.50	313.83	--	--	--	--
01/20/10	7:55:00	1147	--	--	363.18	320.51	--	--	--	--
	8:30:00	1182	--	--	--	--	12.00	--	--	--
	9:30:00	1242	--	--	--	--	--	8.46	600	8.7
	10:00:00	1272	--	--	366.08	323.41	--	--	--	--
	10:03:00	1275	--	--	--	--	10.30	--	--	--
	10:59:00	1331	--	--	--	--	10.30	--	--	--
	11:00:00	1332	--	--	363.78	321.11	--	--	--	--
	12:18:00	1410	--	--	367.44	324.77	--	--	--	--
	12:22:00	1414	--	--	--	--	10.30	--	--	--
	12:56:00	1448	--	--	--	--	10.30	--	--	--
	13:00:00	1452	--	--	364.34	321.67	--	--	--	--
	15:35:00	1607	--	--	361.42	318.75	--	--	--	--
01/21/10	8:30:00	2622	--	--	366.06	323.39	10.30	--	--	--
	14:20:00	2972	--	--	367.80	325.13	--	--	--	--
	14:25:00	2977	--	--	--	--	--	8.5	600	8.71
01/22/10	8:47:00	4079	--	--	368.03	325.36	--	--	--	--
	11:30:00	4242	--	--	369.23	326.56	--	--	--	--
	11:32:00	4244	--	--	--	--	10.30	--	--	--
	11:45:00	4257	--	--	--	--	--	9.3	598	7.62
	11:45:00	SAMPLE TAKEN								
	11:55:00	4267	--	--	369.39	326.72	--	--	--	--
	11:56:00	PUMP OFF								
	12:03:00	4275	7	610.71	277.17	234.50	--	--	--	--
	12:16:00	4288	20	214.40	196.76	154.09	--	--	--	--
	13:00:00	PLACED TRANSDUCER								
	13:13:00	4345	77	56.43	81.71	39.04	--	--	--	--
01/23/10	10:30:00	5622	1354	4.15	49.96	7.29	--	--	--	--
01/26/10	12:50:00	10082	5814	1.73	46.20	3.53	--	--	--	--

TABLE D6B.5-1. AQUIFER-TEST DATA FOR PUMPING WELL URZNA-7, (CONTINUED).

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/26/10	12:59:00	10091	5823	1.73	46.20	3.53	--	--	--	--
	12:59:00 REMOVED TRANSDUCER									

TABLE D6B.5-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-7.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/18/10	13:30	42.72	1/19/10	11:26	42.72	1/22/10	23:00	52.13	1/23/10	12:15	49.75	1/24/10	1:30	48.59
1/18/10	13:46	42.72	1/19/10	11:27	42.72	1/22/10	23:15	52.13	1/23/10	12:30	49.75	1/24/10	1:45	48.59
1/18/10	14:02	42.83	1/19/10	11:28	42.72	1/22/10	23:30	52.02	1/23/10	12:45	49.75	1/24/10	2:00	48.59
1/18/10	14:18	42.83	1/19/10	11:29	42.72	1/22/10	23:45	52.02	1/23/10	13:00	49.64	1/24/10	2:15	48.59
1/18/10	14:34	42.83	1/19/10	11:30	42.72	1/23/10	0:00	51.92	1/23/10	13:15	49.64	1/24/10	2:30	48.59
1/18/10	14:50	42.83	1/19/10	11:31	42.72	1/23/10	0:15	51.92	1/23/10	13:30	49.64	1/24/10	2:45	48.48
1/18/10	15:06	42.83	1/22/10	11:15	98.66	1/23/10	0:30	51.81	1/23/10	13:45	49.64	1/24/10	3:00	48.48
1/18/10	15:22	42.83	1/22/10	11:30	98.66	1/23/10	0:45	51.70	1/23/10	14:00	49.64	1/24/10	3:15	48.48
1/18/10	15:38	42.83	1/22/10	11:45	98.66	1/23/10	1:00	51.70	1/23/10	14:15	49.54	1/24/10	3:30	48.48
1/18/10	15:54	42.83	1/22/10	12:00	98.77	1/23/10	1:15	51.60	1/23/10	14:30	49.54	1/24/10	3:45	48.48
1/18/10	16:10	42.83	1/22/10	12:15	98.77	1/23/10	1:30	51.60	1/23/10	14:45	49.54	1/24/10	4:00	48.38
1/18/10	16:26	42.83	1/22/10	12:30	98.66	1/23/10	1:45	51.49	1/23/10	15:00	49.54	1/24/10	4:15	48.38
1/18/10	16:42	42.72	1/22/10	12:45	98.66	1/23/10	2:00	51.49	1/23/10	15:15	49.43	1/24/10	4:30	48.38
1/18/10	16:58	42.72	1/22/10	13:00	92.59	1/23/10	2:15	51.49	1/23/10	15:30	49.43	1/24/10	4:45	48.38
1/18/10	17:14	42.72	1/22/10	13:15	79.91	1/23/10	2:30	51.39	1/23/10	15:45	49.43	1/24/10	5:00	48.38
1/18/10	17:30	42.72	1/22/10	13:30	71.93	1/23/10	2:45	51.28	1/23/10	16:00	49.43	1/24/10	5:15	48.38
1/18/10	17:42	42.72	1/22/10	13:45	66.76	1/23/10	3:00	51.28	1/23/10	16:15	49.43	1/24/10	5:30	48.38
1/19/10	11:19	42.72	1/22/10	14:00	63.38	1/23/10	3:15	51.18	1/23/10	16:30	49.33	1/24/10	5:45	48.38
1/19/10	11:20	42.72	1/22/10	14:15	61.11	1/23/10	3:30	51.18	1/23/10	16:45	49.33	1/24/10	6:00	48.38
1/19/10	11:21	42.72	1/22/10	14:30	59.63	1/23/10	3:45	51.07	1/23/10	17:00	49.33	1/24/10	6:15	48.27
1/19/10	11:22	42.72	1/22/10	14:45	58.52	1/23/10	4:00	51.07	1/23/10	17:15	49.33	1/24/10	6:30	48.27
1/19/10	11:23	42.72	1/22/10	15:00	57.67	1/23/10	4:15	51.07	1/23/10	17:30	49.22	1/24/10	6:45	48.27
1/19/10	11:24	42.72	1/22/10	15:15	56.99	1/23/10	4:30	50.96	1/23/10	17:45	49.22	1/24/10	7:00	48.27
1/19/10	11:25	42.62	1/22/10	15:30	56.56	1/23/10	4:45	50.96	1/23/10	18:00	49.22	1/24/10	7:15	48.27
1/19/10	11:26	42.72	1/22/10	15:45	56.14	1/23/10	5:00	50.86	1/23/10	18:15	49.22	1/24/10	7:30	48.27
1/19/10	11:27	42.72	1/22/10	16:00	55.82	1/23/10	5:15	50.86	1/23/10	18:30	49.22	1/24/10	7:45	48.11
1/19/10	11:28	42.72	1/22/10	16:15	55.51	1/23/10	5:30	50.86	1/23/10	18:45	49.22	1/24/10	8:00	48.11
1/19/10	11:29	42.72	1/22/10	16:30	55.30	1/23/10	5:45	50.75	1/23/10	19:00	49.12	1/24/10	8:15	48.11
1/19/10	11:30	42.72	1/22/10	16:45	55.08	1/23/10	6:00	50.75	1/23/10	19:15	49.12	1/24/10	8:30	48.11
1/19/10	11:31	42.72	1/22/10	17:00	54.82	1/23/10	6:15	50.65	1/23/10	19:30	49.12	1/24/10	8:45	48.11
1/19/10	11:32	45.42	1/22/10	17:15	54.61	1/23/10	6:30	50.65	1/23/10	19:45	49.12	1/24/10	9:00	48.11
1/19/10	11:33	74.10	1/22/10	17:30	54.50	1/23/10	6:45	50.65	1/23/10	20:00	49.01	1/24/10	9:15	48.11
1/19/10	11:34	98.66	1/22/10	17:45	54.29	1/23/10	7:00	50.54	1/23/10	20:15	49.01	1/24/10	9:30	48.01
1/19/10	11:35	98.56	1/22/10	18:00	54.19	1/23/10	7:15	50.54	1/23/10	20:30	49.01	1/24/10	9:45	48.01
1/19/10	11:36	98.66	1/22/10	18:15	53.98	1/23/10	7:30	50.38	1/23/10	20:45	49.01	1/24/10	10:00	48.01
1/19/10	11:37	98.66	1/22/10	18:30	53.98	1/23/10	7:45	50.38	1/23/10	21:00	49.01	1/24/10	10:15	48.01
1/19/10	11:38	98.66	1/22/10	18:45	53.76	1/23/10	8:00	50.38	1/23/10	21:15	49.01	1/24/10	10:30	48.01
1/19/10	11:39	98.66	1/22/10	19:00	53.66	1/23/10	8:15	50.38	1/23/10	21:30	48.90	1/24/10	10:45	48.01
1/19/10	11:40	98.66	1/22/10	19:15	53.55	1/23/10	8:30	50.28	1/23/10	21:45	48.90	1/24/10	11:00	47.90
1/19/10	11:41	98.66	1/22/10	19:30	53.45	1/23/10	8:45	50.28	1/23/10	22:00	48.90	1/24/10	11:15	47.90
1/19/10	11:42	98.66	1/22/10	19:45	53.34	1/23/10	9:00	50.17	1/23/10	22:15	48.80	1/24/10	11:30	47.90
1/19/10	11:43	98.66	1/22/10	20:00	53.24	1/23/10	9:15	50.17	1/23/10	22:30	48.80	1/24/10	11:45	47.90
1/19/10	11:44	98.66	1/22/10	20:15	53.13	1/23/10	9:30	50.17	1/23/10	22:45	48.80	1/24/10	12:00	47.90
1/19/10	11:45	98.66	1/22/10	20:30	53.02	1/23/10	9:45	50.17	1/23/10	23:00	48.80	1/24/10	12:15	47.90
1/19/10	11:46	98.66	1/22/10	20:45	52.92	1/23/10	10:00	50.07	1/23/10	23:15	48.80	1/24/10	12:30	47.90
1/19/10	11:47	98.66	1/22/10	21:00	52.81	1/23/10	10:15	50.07	1/23/10	23:30	48.80	1/24/10	12:45	47.90
1/19/10	11:48	98.66	1/22/10	21:15	52.81	1/23/10	10:30	49.96	1/23/10	23:45	48.80	1/24/10	13:00	47.90
1/19/10	11:49	98.66	1/22/10	21:30	52.65	1/23/10	10:45	49.96	1/24/10	0:00	48.69	1/24/10	13:15	47.90
1/19/10	11:50	98.77	1/22/10	21:45	52.55	1/23/10	11:00	49.96	1/24/10	0:15	48.69	1/24/10	13:30	47.90
1/19/10	11:22	42.72	1/22/10	22:00	52.44	1/23/10	11:15	49.96	1/24/10	0:30	48.69	1/24/10	13:45	47.80
1/19/10	11:23	42.72	1/22/10	22:15	52.44	1/23/10	11:30	49.86	1/24/10	0:45	48.69	1/24/10	14:00	47.80
1/19/10	11:24	42.72	1/22/10	22:30	52.34	1/23/10	11:45	49.86	1/24/10	1:00	48.69	1/24/10	14:15	47.80
1/19/10	11:25	42.62	1/22/10	22:45	52.23	1/23/10	12:00	49.86	1/24/10	1:15	48.59	1/24/10	14:30	47.80

TABLE D6B.5-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-7, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/24/10	14:45	47.80	1/25/10	4:00	47.16	1/25/10	17:15	46.74	1/26/10	6:30	46.42			
1/24/10	15:00	47.69	1/25/10	4:15	47.16	1/25/10	17:30	46.74	1/26/10	6:45	46.42			
1/24/10	15:15	47.69	1/25/10	4:30	47.16	1/25/10	17:45	46.74	1/26/10	7:00	46.32			
1/24/10	15:30	47.69	1/25/10	4:45	47.16	1/25/10	18:00	46.74	1/26/10	7:15	46.32			
1/24/10	15:45	47.69	1/25/10	5:00	47.16	1/25/10	18:15	46.74	1/26/10	7:30	46.32			
1/24/10	16:00	47.69	1/25/10	5:15	47.16	1/25/10	18:30	46.74	1/26/10	7:45	46.32			
1/24/10	16:15	47.69	1/25/10	5:30	47.16	1/25/10	18:45	46.74	1/26/10	8:00	46.32			
1/24/10	16:30	47.69	1/25/10	5:45	47.06	1/25/10	19:00	46.74	1/26/10	8:15	46.32			
1/24/10	16:45	47.69	1/25/10	6:00	47.06	1/25/10	19:15	46.74	1/26/10	8:30	46.32			
1/24/10	17:00	47.69	1/25/10	6:15	47.06	1/25/10	19:30	46.74	1/26/10	8:45	46.32			
1/24/10	17:15	47.69	1/25/10	6:30	47.06	1/25/10	19:45	46.74	1/26/10	9:00	46.32			
1/24/10	17:30	47.69	1/25/10	6:45	47.06	1/25/10	20:00	46.74	1/26/10	9:15	46.32			
1/24/10	17:45	47.58	1/25/10	7:00	47.06	1/25/10	20:15	46.74	1/26/10	9:30	46.32			
1/24/10	18:00	47.58	1/25/10	7:15	47.06	1/25/10	20:30	46.74	1/26/10	9:45	46.21			
1/24/10	18:15	47.58	1/25/10	7:30	47.06	1/25/10	20:45	46.74	1/26/10	10:00	46.21			
1/24/10	18:30	47.58	1/25/10	7:45	47.06	1/25/10	21:00	46.63	1/26/10	10:15	46.21			
1/24/10	18:45	47.58	1/25/10	8:00	47.06	1/25/10	21:15	46.63	1/26/10	10:30	46.21			
1/24/10	19:00	47.58	1/25/10	8:15	47.06	1/25/10	21:30	46.63	1/26/10	10:45	46.21			
1/24/10	19:15	47.58	1/25/10	8:30	47.06	1/25/10	21:45	46.63	1/26/10	11:00	46.21			
1/24/10	19:30	47.58	1/25/10	8:45	47.06	1/25/10	22:00	46.63	1/26/10	11:15	46.21			
1/24/10	19:45	47.58	1/25/10	9:00	47.06	1/25/10	22:15	46.63	1/26/10	11:30	46.21			
1/24/10	20:00	47.58	1/25/10	9:15	47.06	1/25/10	22:30	46.63	1/26/10	11:45	46.21			
1/24/10	20:15	47.48	1/25/10	9:30	47.06	1/25/10	22:45	46.63	1/26/10	12:00	46.21			
1/24/10	20:30	47.48	1/25/10	9:45	46.95	1/25/10	23:00	46.63	1/26/10	12:15	46.11			
1/24/10	20:45	47.48	1/25/10	10:00	46.95	1/25/10	23:15	46.63	1/26/10	12:30	46.11			
1/24/10	21:00	47.48	1/25/10	10:15	46.95	1/25/10	23:30	46.63	1/26/10	12:45	46.11			
1/24/10	21:15	47.48	1/25/10	10:30	46.95	1/25/10	23:45	46.63						
1/24/10	21:30	47.48	1/25/10	10:45	46.95	1/26/10	0:00	46.63						
1/24/10	21:45	47.48	1/25/10	11:00	46.95	1/26/10	0:15	46.63						
1/24/10	22:00	47.48	1/25/10	11:15	46.95	1/26/10	0:30	46.63						
1/24/10	22:15	47.48	1/25/10	11:30	46.95	1/26/10	0:45	46.63						
1/24/10	22:30	47.48	1/25/10	11:45	46.95	1/26/10	1:00	46.63						
1/24/10	22:45	47.48	1/25/10	12:00	46.95	1/26/10	1:15	46.53						
1/24/10	23:00	47.48	1/25/10	12:15	46.84	1/26/10	1:30	46.53						
1/24/10	23:15	47.37	1/25/10	12:30	46.84	1/26/10	1:45	46.53						
1/24/10	23:30	47.37	1/25/10	12:45	46.84	1/26/10	2:00	46.53						
1/24/10	23:45	47.37	1/25/10	13:00	46.84	1/26/10	2:15	46.53						
1/25/10	0:00	47.37	1/25/10	13:15	46.84	1/26/10	2:30	46.53						
1/25/10	0:15	47.37	1/25/10	13:30	46.84	1/26/10	2:45	46.53						
1/25/10	0:30	47.37	1/25/10	13:45	46.84	1/26/10	3:00	46.42						
1/25/10	0:45	47.37	1/25/10	14:00	46.84	1/26/10	3:15	46.42						
1/25/10	1:00	47.27	1/25/10	14:15	46.84	1/26/10	3:30	46.42						
1/25/10	1:15	47.27	1/25/10	14:30	46.84	1/26/10	3:45	46.42						
1/25/10	1:30	47.27	1/25/10	14:45	46.84	1/26/10	4:00	46.42						
1/25/10	1:45	47.27	1/25/10	15:00	46.74	1/26/10	4:15	46.42						
1/25/10	2:00	47.27	1/25/10	15:15	46.74	1/26/10	4:30	46.42						
1/25/10	2:15	47.27	1/25/10	15:30	46.74	1/26/10	4:45	46.42						
1/25/10	2:30	47.27	1/25/10	15:45	46.74	1/26/10	5:00	46.42						
1/25/10	2:45	47.27	1/25/10	16:00	46.74	1/26/10	5:15	46.42						
1/25/10	3:00	47.27	1/25/10	16:15	46.74	1/26/10	5:30	46.42						
1/25/10	3:15	47.27	1/25/10	16:30	46.74	1/26/10	5:45	46.42						
1/25/10	3:30	47.16	1/25/10	16:45	46.74	1/26/10	6:00	46.42						
1/25/10	3:45	47.16	1/25/10	17:00	46.74	1/26/10	6:15	46.42						

TABLE D6B.5-3. AQUIFER-TEST DATA FOR OBSERVATION WELL MN-1.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/12/10	11:16:00	-10172	--	--	47.00	0.14	--	--	--	--
01/15/10	9:14:00	-5974	--	--	47.06	0.20	--	--	--	--
01/18/10	12:49:00	-1439	--	--	46.95	0.09	--	--	--	--
01/19/10	10:30:00	-138	--	--	46.82	-0.04	--	--	--	--
	14:18:00	90	--	--	46.85	-0.01	--	--	--	--
	15:40:00	172	--	--	46.91	0.05	--	--	--	--
01/20/10	8:05:00	1157	--	--	46.91	0.05	--	--	--	--
	11:00:00	1332	--	--	46.91	0.05	--	--	--	--
	15:58:00	1630	--	--	46.85	-0.01	--	--	--	--
01/21/10	8:52:00	2644	--	--	46.86	0.00	--	--	--	--
	14:10:00	2962	--	--	47.06	0.20	--	--	--	--
01/22/10	8:52:00	4084	--	--	47.19	0.33	--	--	--	--
	10:51:00	4203	--	--	47.08	0.22	--	--	--	--
	12:49:00	4321	53	81.53	47.09	0.23	--	--	--	--
	12:55:00	PLACED TRANSDUCER								
01/23/10	10:41:00	5633	1365	4.13	47.40	0.54	--	--	--	--
01/26/10	13:40:00	10132	5864	1.73	47.92	1.06	--	--	--	--

TABLE D6B.5-4. TRANSDUCER DATA FOR OBSERVATION WELL MN-1.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/22/10	13:00	47.02	1/23/10	2:15	47.25	1/23/10	15:30	47.49	1/24/10	4:45	47.66	1/24/10	18:00	47.80
1/22/10	13:15	47.09	1/23/10	2:30	47.27	1/23/10	15:45	47.49	1/24/10	5:00	47.66	1/24/10	18:15	47.80
1/22/10	13:30	47.09	1/23/10	2:45	47.27	1/23/10	16:00	47.51	1/24/10	5:15	47.67	1/24/10	18:30	47.80
1/22/10	13:45	47.09	1/23/10	3:00	47.27	1/23/10	16:15	47.51	1/24/10	5:30	47.67	1/24/10	18:45	47.81
1/22/10	14:00	47.09	1/23/10	3:15	47.27	1/23/10	16:30	47.51	1/24/10	5:45	47.67	1/24/10	19:00	47.81
1/22/10	14:15	47.09	1/23/10	3:30	47.27	1/23/10	16:45	47.51	1/24/10	6:00	47.67	1/24/10	19:15	47.81
1/22/10	14:30	47.09	1/23/10	3:45	47.29	1/23/10	17:00	47.52	1/24/10	6:15	47.67	1/24/10	19:30	47.81
1/22/10	14:45	47.09	1/23/10	4:00	47.29	1/23/10	17:15	47.52	1/24/10	6:30	47.69	1/24/10	19:45	47.81
1/22/10	15:00	47.07	1/23/10	4:15	47.29	1/23/10	17:30	47.54	1/24/10	6:45	47.69	1/24/10	20:00	47.81
1/22/10	15:15	47.09	1/23/10	4:30	47.30	1/23/10	17:45	47.54	1/24/10	7:00	47.69	1/24/10	20:15	47.81
1/22/10	15:30	47.11	1/23/10	4:45	47.30	1/23/10	18:00	47.54	1/24/10	7:15	47.69	1/24/10	20:30	47.83
1/22/10	15:45	47.11	1/23/10	5:00	47.30	1/23/10	18:15	47.54	1/24/10	7:30	47.69	1/24/10	20:45	47.81
1/22/10	16:00	47.11	1/23/10	5:15	47.30	1/23/10	18:30	47.54	1/24/10	7:45	47.69	1/24/10	21:00	47.81
1/22/10	16:15	47.11	1/23/10	5:30	47.30	1/23/10	18:45	47.56	1/24/10	8:00	47.71	1/24/10	21:15	47.83
1/22/10	16:30	47.11	1/23/10	5:45	47.33	1/23/10	19:00	47.56	1/24/10	8:15	47.71	1/24/10	21:30	47.83
1/22/10	16:45	47.11	1/23/10	6:00	47.33	1/23/10	19:15	47.56	1/24/10	8:30	47.71	1/24/10	21:45	47.83
1/22/10	17:00	47.11	1/23/10	6:15	47.33	1/23/10	19:30	47.58	1/24/10	8:45	47.71	1/24/10	22:00	47.83
1/22/10	17:15	47.11	1/23/10	6:30	47.35	1/23/10	19:45	47.58	1/24/10	9:00	47.73	1/24/10	22:15	47.83
1/22/10	17:30	47.13	1/23/10	6:45	47.35	1/23/10	20:00	47.58	1/24/10	9:15	47.73	1/24/10	22:30	47.83
1/22/10	17:45	47.13	1/23/10	7:00	47.35	1/23/10	20:15	47.58	1/24/10	9:30	47.74	1/24/10	22:45	47.83
1/22/10	18:00	47.15	1/23/10	7:15	47.35	1/23/10	20:30	47.58	1/24/10	9:45	47.73	1/24/10	23:00	47.83
1/22/10	18:15	47.15	1/23/10	7:30	47.35	1/23/10	20:45	47.58	1/24/10	10:00	47.73	1/24/10	23:15	47.83
1/22/10	18:30	47.15	1/23/10	7:45	47.37	1/23/10	21:00	47.58	1/24/10	10:15	47.73	1/24/10	23:30	47.83
1/22/10	18:45	47.15	1/23/10	8:00	47.37	1/23/10	21:15	47.58	1/24/10	10:30	47.73	1/24/10	23:45	47.83
1/22/10	19:00	47.16	1/23/10	8:15	47.37	1/23/10	21:30	47.58	1/24/10	10:45	47.73	1/25/10	0:00	47.83
1/22/10	19:15	47.16	1/23/10	8:30	47.38	1/23/10	21:45	47.58	1/24/10	11:00	47.74	1/25/10	0:15	47.83
1/22/10	19:30	47.16	1/23/10	8:45	47.38	1/23/10	22:00	47.58	1/24/10	11:15	47.73	1/25/10	0:30	47.83
1/22/10	19:45	47.16	1/23/10	9:00	47.38	1/23/10	22:15	47.59	1/24/10	11:30	47.74	1/25/10	0:45	47.83
1/22/10	20:00	47.16	1/23/10	9:15	47.38	1/23/10	22:30	47.59	1/24/10	11:45	47.73	1/25/10	1:00	47.81
1/22/10	20:15	47.16	1/23/10	9:30	47.38	1/23/10	22:45	47.59	1/24/10	12:00	47.73	1/25/10	1:15	47.83
1/22/10	20:30	47.16	1/23/10	9:45	47.40	1/23/10	23:00	47.59	1/24/10	12:15	47.74	1/25/10	1:30	47.83
1/22/10	20:45	47.18	1/23/10	10:00	47.40	1/23/10	23:15	47.59	1/24/10	12:30	47.73	1/25/10	1:45	47.83
1/22/10	21:00	47.18	1/23/10	10:15	47.40	1/23/10	23:30	47.59	1/24/10	12:45	47.73	1/25/10	2:00	47.83
1/22/10	21:15	47.18	1/23/10	10:30	47.40	1/23/10	23:45	47.59	1/24/10	13:00	47.74	1/25/10	2:15	47.83
1/22/10	21:30	47.20	1/23/10	10:45	47.40	1/24/10	0:00	47.59	1/24/10	13:15	47.74	1/25/10	2:30	47.83
1/22/10	21:45	47.20	1/23/10	11:00	47.42	1/24/10	0:15	47.59	1/24/10	13:30	47.74	1/25/10	2:45	47.83
1/22/10	22:00	47.20	1/23/10	11:15	47.42	1/24/10	0:30	47.61	1/24/10	13:45	47.74	1/25/10	3:00	47.83
1/22/10	22:15	47.20	1/23/10	11:30	47.42	1/24/10	0:45	47.61	1/24/10	14:00	47.74	1/25/10	3:15	47.83
1/22/10	22:30	47.22	1/23/10	11:45	47.44	1/24/10	1:00	47.61	1/24/10	14:15	47.74	1/25/10	3:30	47.83
1/22/10	22:45	47.22	1/23/10	12:00	47.44	1/24/10	1:15	47.61	1/24/10	14:30	47.76	1/25/10	3:45	47.83
1/22/10	23:00	47.22	1/23/10	12:15	47.44	1/24/10	1:30	47.61	1/24/10	14:45	47.76	1/25/10	4:00	47.83
1/22/10	23:15	47.22	1/23/10	12:30	47.44	1/24/10	1:45	47.61	1/24/10	15:00	47.74	1/25/10	4:15	47.83
1/22/10	23:30	47.23	1/23/10	12:45	47.44	1/24/10	2:00	47.61	1/24/10	15:15	47.76	1/25/10	4:30	47.85
1/22/10	23:45	47.23	1/23/10	13:00	47.44	1/24/10	2:15	47.61	1/24/10	15:30	47.76	1/25/10	4:45	47.85
1/23/10	0:00	47.23	1/23/10	13:15	47.44	1/24/10	2:30	47.64	1/24/10	15:45	47.78	1/25/10	5:00	47.85
1/23/10	0:15	47.23	1/23/10	13:30	47.44	1/24/10	2:45	47.64	1/24/10	16:00	47.78	1/25/10	5:15	47.85
1/23/10	0:30	47.23	1/23/10	13:45	47.45	1/24/10	3:00	47.64	1/24/10	16:15	47.78	1/25/10	5:30	47.85
1/23/10	0:45	47.23	1/23/10	14:00	47.45	1/24/10	3:15	47.64	1/24/10	16:30	47.78	1/25/10	5:45	47.85
1/23/10	1:00	47.23	1/23/10	14:15	47.45	1/24/10	3:30	47.64	1/24/10	16:45	47.78	1/25/10	6:00	47.87
1/23/10	1:15	47.25	1/23/10	14:30	47.47	1/24/10	3:45	47.66	1/24/10	17:00	47.80	1/25/10	6:15	47.85
1/23/10	1:30	47.25	1/23/10	14:45	47.47	1/24/10	4:00	47.66	1/24/10	17:15	47.80	1/25/10	6:30	47.85
1/23/10	1:45	47.25	1/23/10	15:00	47.47	1/24/10	4:15	47.66	1/24/10	17:30	47.80	1/25/10	6:45	47.85
1/23/10	2:00	47.25	1/23/10	15:15	47.49	1/24/10	4:30	47.66	1/24/10	17:45	47.80	1/25/10	7:00	47.87

TABLE D6B.5-4. TRANSDUCER DATA FOR OBSERVATION WELL MN-1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/25/10	7:15	47.87	1/25/10	20:30	47.95	1/26/10	9:45	47.90						
1/25/10	7:30	47.87	1/25/10	20:45	47.95	1/26/10	10:00	47.92						
1/25/10	7:45	47.87	1/25/10	21:00	47.95	1/26/10	10:15	47.90						
1/25/10	8:00	47.87	1/25/10	21:15	47.95	1/26/10	10:30	47.88						
1/25/10	8:15	47.87	1/25/10	21:30	47.95	1/26/10	10:45	47.90						
1/25/10	8:30	47.87	1/25/10	21:45	47.95	1/26/10	11:00	47.90						
1/25/10	8:45	47.88	1/25/10	22:00	47.95	1/26/10	11:15	47.90						
1/25/10	9:00	47.88	1/25/10	22:15	47.95	1/26/10	11:30	47.88						
1/25/10	9:15	47.90	1/25/10	22:30	47.95	1/26/10	11:45	47.90						
1/25/10	9:30	47.90	1/25/10	22:45	47.95	1/26/10	12:00	47.88						
1/25/10	9:45	47.88	1/25/10	23:00	47.95	1/26/10	12:15	47.88						
1/25/10	10:00	47.90	1/25/10	23:15	47.92	1/26/10	12:30	47.87						
1/25/10	10:15	47.90	1/25/10	23:30	47.92	1/26/10	12:45	47.87						
1/25/10	10:30	47.90	1/25/10	23:45	47.92	1/26/10	13:00	47.88						
1/25/10	10:45	47.90	1/26/10	0:00	47.92	1/26/10	13:15	47.87						
1/25/10	11:00	47.92	1/26/10	0:15	47.92	1/26/10	13:30	47.87						
1/25/10	11:15	47.88	1/26/10	0:30	47.92									
1/25/10	11:30	47.88	1/26/10	0:45	47.90									
1/25/10	11:45	47.90	1/26/10	1:00	47.90									
1/25/10	12:00	47.88	1/26/10	1:15	47.90									
1/25/10	12:15	47.90	1/26/10	1:30	47.90									
1/25/10	12:30	47.92	1/26/10	1:45	47.90									
1/25/10	12:45	47.90	1/26/10	2:00	47.90									
1/25/10	13:00	47.90	1/26/10	2:15	47.90									
1/25/10	13:15	47.90	1/26/10	2:30	47.90									
1/25/10	13:30	47.88	1/26/10	2:45	47.90									
1/25/10	13:45	47.90	1/26/10	3:00	47.90									
1/25/10	14:00	47.88	1/26/10	3:15	47.90									
1/25/10	14:15	47.90	1/26/10	3:30	47.90									
1/25/10	14:30	47.88	1/26/10	3:45	47.90									
1/25/10	14:45	47.90	1/26/10	4:00	47.88									
1/25/10	15:00	47.90	1/26/10	4:15	47.88									
1/25/10	15:15	47.90	1/26/10	4:30	47.88									
1/25/10	15:30	47.90	1/26/10	4:45	47.88									
1/25/10	15:45	47.90	1/26/10	5:00	47.88									
1/25/10	16:00	47.90	1/26/10	5:15	47.88									
1/25/10	16:15	47.90	1/26/10	5:30	47.88									
1/25/10	16:30	47.90	1/26/10	5:45	47.88									
1/25/10	16:45	47.90	1/26/10	6:00	47.88									
1/25/10	17:00	47.88	1/26/10	6:15	47.88									
1/25/10	17:15	47.90	1/26/10	6:30	47.88									
1/25/10	17:30	47.90	1/26/10	6:45	47.88									
1/25/10	17:45	47.90	1/26/10	7:00	47.88									
1/25/10	18:00	47.90	1/26/10	7:15	47.88									
1/25/10	18:15	47.90	1/26/10	7:30	47.88									
1/25/10	18:30	47.92	1/26/10	7:45	47.90									
1/25/10	18:45	47.92	1/26/10	8:00	47.90									
1/25/10	19:00	47.92	1/26/10	8:15	47.90									
1/25/10	19:15	47.92	1/26/10	8:30	47.92									
1/25/10	19:30	47.95	1/26/10	8:45	47.92									
1/25/10	19:45	47.95	1/26/10	9:00	47.90									
1/25/10	20:00	47.95	1/26/10	9:15	47.92									
1/25/10	20:15	47.95	1/26/10	9:30	47.92									

TABLE D6B.5-5. AQUIFER-TEST DATA FOR OBSERVATION WELL MN-3.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/12/10	10:18:00	-10230	--	--	93.62	0.28	--	--	--	--
	10:52:00	SET STAR LOGGER								
	11:02:00	-10186	--	--	93.62	0.28	--	--	--	--
01/15/10	10:15:00	-5913	--	--	93.65	0.31	--	--	--	--
01/18/10	12:42:00	-1446	--	--	93.46	0.12	--	--	--	--
01/19/10	10:38:00	-130	--	--	93.42	0.08	--	--	--	--
	14:30:00	102	--	--	93.41	0.07	--	--	--	--
	15:35:00	167	--	--	93.37	0.03	--	--	--	--
01/20/10	8:00:00	1152	--	--	94.13	0.79	--	--	--	--
	11:05:00	1337	--	--	94.35	1.01	--	--	--	--
	15:49:00	1621	--	--	94.67	1.33	--	--	--	--
01/21/10	8:57:00	2649	--	--	95.62	2.28	--	--	--	--
	14:05:00	2957	--	--	96.00	2.66	--	--	--	--
01/22/10	9:03:00	4095	--	--	96.91	3.57	--	--	--	--
	10:37:00	4189	--	--	97.04	3.70	--	--	--	--
	12:35:00	4307	39	110.44	97.08	3.74	--	--	--	--
	12:35:00	REMOVED TRANSDUCER								
01/23/10	10:36:00	5628	1360	4.14	97.15	3.81	--	--	--	--
01/26/10	13:12:00	10104	5836	1.73	95.70	2.36	--	--	--	--

TABLE D6B.5-6. TRANSDUCER DATA FOR OBSERVATION WELL MN-3.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/12/10	11:00	93.55	1/13/10	13:30	93.52	1/14/10	16:00	93.55	1/15/10	18:30	93.53	1/16/10	21:00	93.48
1/12/10	11:30	93.60	1/13/10	14:00	93.50	1/14/10	16:30	93.57	1/15/10	19:00	93.53	1/16/10	21:30	93.50
1/12/10	12:00	93.57	1/13/10	14:30	93.52	1/14/10	17:00	93.57	1/15/10	19:30	93.53	1/16/10	22:00	93.50
1/12/10	12:30	93.55	1/13/10	15:00	93.50	1/14/10	17:30	93.57	1/15/10	20:00	93.53	1/16/10	22:30	93.52
1/12/10	13:00	93.55	1/13/10	15:30	93.50	1/14/10	18:00	93.60	1/15/10	20:30	93.55	1/16/10	23:00	93.52
1/12/10	13:30	93.53	1/13/10	16:00	93.50	1/14/10	18:30	93.60	1/15/10	21:00	93.55	1/16/10	23:30	93.52
1/12/10	14:00	93.53	1/13/10	16:30	93.50	1/14/10	19:00	93.61	1/15/10	21:30	93.55	1/17/10	0:00	93.52
1/12/10	14:30	93.53	1/13/10	17:00	93.50	1/14/10	19:30	93.61	1/15/10	22:00	93.55	1/17/10	0:30	93.52
1/12/10	15:00	93.53	1/13/10	17:30	93.52	1/14/10	20:00	93.63	1/15/10	22:30	93.55	1/17/10	1:00	93.52
1/12/10	15:30	93.52	1/13/10	18:00	93.52	1/14/10	20:30	93.63	1/15/10	23:00	93.55	1/17/10	1:30	93.53
1/12/10	16:00	93.52	1/13/10	18:30	93.52	1/14/10	21:00	93.65	1/15/10	23:30	93.55	1/17/10	2:00	93.53
1/12/10	16:30	93.52	1/13/10	19:00	93.52	1/14/10	21:30	93.65	1/16/10	0:00	93.55	1/17/10	2:30	93.53
1/12/10	17:00	93.52	1/13/10	19:30	93.53	1/14/10	22:00	93.65	1/16/10	0:30	93.55	1/17/10	3:00	93.52
1/12/10	17:30	93.53	1/13/10	20:00	93.53	1/14/10	22:30	93.65	1/16/10	1:00	93.55	1/17/10	3:30	93.52
1/12/10	18:00	93.53	1/13/10	20:30	93.55	1/14/10	23:00	93.65	1/16/10	1:30	93.55	1/17/10	4:00	93.52
1/12/10	18:30	93.55	1/13/10	21:00	93.55	1/14/10	23:30	93.65	1/16/10	2:00	93.55	1/17/10	4:30	93.52
1/12/10	19:00	93.55	1/13/10	21:30	93.57	1/15/10	0:00	93.65	1/16/10	2:30	93.55	1/17/10	5:00	93.52
1/12/10	19:30	93.55	1/13/10	22:00	93.57	1/15/10	0:30	93.65	1/16/10	3:00	93.53	1/17/10	5:30	93.52
1/12/10	20:00	93.55	1/13/10	22:30	93.57	1/15/10	1:00	93.65	1/16/10	3:30	93.53	1/17/10	6:00	93.52
1/12/10	20:30	93.55	1/13/10	23:00	93.60	1/15/10	1:30	93.65	1/16/10	4:00	93.52	1/17/10	6:30	93.52
1/12/10	21:00	93.55	1/13/10	23:30	93.60	1/15/10	2:00	93.65	1/16/10	4:30	93.52	1/17/10	7:00	93.52
1/12/10	21:30	93.55	1/14/10	0:00	93.60	1/15/10	2:30	93.63	1/16/10	5:00	93.52	1/17/10	7:30	93.52
1/12/10	22:00	93.55	1/14/10	0:30	93.60	1/15/10	3:00	93.63	1/16/10	5:30	93.50	1/17/10	8:00	93.52
1/12/10	22:30	93.55	1/14/10	1:00	93.60	1/15/10	3:30	93.63	1/16/10	6:00	93.52	1/17/10	8:30	93.52
1/12/10	23:00	93.55	1/14/10	1:30	93.57	1/15/10	4:00	93.61	1/16/10	6:30	93.50	1/17/10	9:00	93.52
1/12/10	23:30	93.55	1/14/10	2:00	93.60	1/15/10	4:30	93.60	1/16/10	7:00	93.50	1/17/10	9:30	93.52
1/13/10	0:00	93.55	1/14/10	2:30	93.57	1/15/10	5:00	93.60	1/16/10	7:30	93.50	1/17/10	10:00	93.52
1/13/10	0:30	93.55	1/14/10	3:00	93.57	1/15/10	5:30	93.60	1/16/10	8:00	93.50	1/17/10	10:30	93.52
1/13/10	1:00	93.55	1/14/10	3:30	93.57	1/15/10	6:00	93.60	1/16/10	8:30	93.50	1/17/10	11:00	93.52
1/13/10	1:30	93.55	1/14/10	4:00	93.57	1/15/10	6:30	93.60	1/16/10	9:00	93.52	1/17/10	11:30	93.52
1/13/10	2:00	93.53	1/14/10	4:30	93.57	1/15/10	7:00	93.60	1/16/10	9:30	93.52	1/17/10	12:00	93.50
1/13/10	2:30	93.53	1/14/10	5:00	93.55	1/15/10	7:30	93.60	1/16/10	10:00	93.52	1/17/10	12:30	93.50
1/13/10	3:00	93.53	1/14/10	5:30	93.55	1/15/10	8:00	93.60	1/16/10	10:30	93.52	1/17/10	13:00	93.48
1/13/10	3:30	93.53	1/14/10	6:00	93.55	1/15/10	8:30	93.60	1/16/10	11:00	93.52	1/17/10	13:30	93.48
1/13/10	4:00	93.53	1/14/10	6:30	93.55	1/15/10	9:00	93.61	1/16/10	11:30	93.52	1/17/10	14:00	93.48
1/13/10	4:30	93.52	1/14/10	7:00	93.55	1/15/10	9:30	93.63	1/16/10	12:00	93.52	1/17/10	14:30	93.48
1/13/10	5:00	93.52	1/14/10	7:30	93.57	1/15/10	10:00	93.63	1/16/10	12:30	93.52	1/17/10	15:00	93.46
1/13/10	5:30	93.52	1/14/10	8:00	93.57	1/15/10	10:30	93.63	1/16/10	13:00	93.52	1/17/10	15:30	93.46
1/13/10	6:00	93.52	1/14/10	8:30	93.60	1/15/10	11:00	93.61	1/16/10	13:30	93.50	1/17/10	16:00	93.45
1/13/10	6:30	93.52	1/14/10	9:00	93.60	1/15/10	11:30	93.61	1/16/10	14:00	93.50	1/17/10	16:30	93.45
1/13/10	7:00	93.52	1/14/10	9:30	93.60	1/15/10	12:00	93.60	1/16/10	14:30	93.50	1/17/10	17:00	93.45
1/13/10	7:30	93.52	1/14/10	10:00	93.60	1/15/10	12:30	93.60	1/16/10	15:00	93.48	1/17/10	17:30	93.45
1/13/10	8:00	93.52	1/14/10	10:30	93.61	1/15/10	13:00	93.60	1/16/10	15:30	93.48	1/17/10	18:00	93.45
1/13/10	8:30	93.53	1/14/10	11:00	93.61	1/15/10	13:30	93.57	1/16/10	16:00	93.48	1/17/10	18:30	93.45
1/13/10	9:00	93.55	1/14/10	11:30	93.61	1/15/10	14:00	93.55	1/16/10	16:30	93.48	1/17/10	19:00	93.45
1/13/10	9:30	93.55	1/14/10	12:00	93.60	1/15/10	14:30	93.55	1/16/10	17:00	93.48	1/17/10	19:30	93.45
1/13/10	10:00	93.55	1/14/10	12:30	93.60	1/15/10	15:00	93.55	1/16/10	17:30	93.48	1/17/10	20:00	93.45
1/13/10	10:30	93.55	1/14/10	13:00	93.60	1/15/10	15:30	93.55	1/16/10	18:00	93.48	1/17/10	20:30	93.46
1/13/10	11:00	93.55	1/14/10	13:30	93.60	1/15/10	16:00	93.53	1/16/10	18:30	93.48	1/17/10	21:00	93.46
1/13/10	11:30	93.55	1/14/10	14:00	93.57	1/15/10	16:30	93.53	1/16/10	19:00	93.48	1/17/10	21:30	93.46
1/13/10	12:00	93.53	1/14/10	14:30	93.57	1/15/10	17:00	93.52	1/16/10	19:30	93.48	1/17/10	22:00	93.48
1/13/10	12:30	93.53	1/14/10	15:00	93.57	1/15/10	17:30	93.52	1/16/10	20:00	93.48	1/17/10	22:30	93.48
1/13/10	13:00	93.52	1/14/10	15:30	93.55	1/15/10	18:00	93.53	1/16/10	20:30	93.48	1/17/10	23:00	93.48

TABLE D6B.5-6. TRANSDUCER DATA FOR OBSERVATION WELL MN-3, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/17/10	23:30	93.48	1/19/10	1:00	93.41	1/19/10	14:15	93.34	1/20/10	4:00	93.84	1/20/10	17:15	94.66
1/18/10	0:00	93.48	1/19/10	1:15	93.41	1/19/10	14:30	93.34	1/20/10	4:15	93.84	1/20/10	17:30	94.68
1/18/10	0:30	93.48	1/19/10	1:30	93.41	1/19/10	14:45	93.34	1/20/10	4:30	93.86	1/20/10	17:45	94.70
1/18/10	1:00	93.48	1/19/10	1:45	93.41	1/19/10	15:00	93.34	1/20/10	4:45	93.90	1/20/10	18:00	94.71
1/18/10	1:30	93.48	1/19/10	2:00	93.41	1/19/10	15:15	93.34	1/20/10	5:00	93.90	1/20/10	18:15	94.73
1/18/10	2:00	93.48	1/19/10	2:15	93.41	1/19/10	15:30	93.34	1/20/10	5:15	93.92	1/20/10	18:30	94.75
1/18/10	2:30	93.48	1/19/10	2:30	93.41	1/19/10	15:45	93.34	1/20/10	5:30	93.94	1/20/10	18:45	94.75
1/18/10	3:00	93.48	1/19/10	2:45	93.41	1/19/10	16:00	93.34	1/20/10	5:45	93.94	1/20/10	19:00	94.77
1/18/10	3:30	93.46	1/19/10	3:00	93.41	1/19/10	16:15	93.36	1/20/10	6:00	93.96	1/20/10	19:15	94.78
1/18/10	4:00	93.46	1/19/10	3:15	93.41	1/19/10	16:30	93.34	1/20/10	6:15	93.97	1/20/10	19:30	94.80
1/18/10	4:30	93.46	1/19/10	3:30	93.41	1/19/10	16:45	93.34	1/20/10	6:30	93.99	1/20/10	19:45	94.83
1/18/10	5:00	93.45	1/19/10	3:45	93.41	1/19/10	17:00	93.36	1/20/10	6:45	94.01	1/20/10	20:00	94.85
1/18/10	5:30	93.45	1/19/10	4:00	93.41	1/19/10	17:15	93.36	1/20/10	7:00	94.01	1/20/10	20:15	94.86
1/18/10	6:00	93.45	1/19/10	4:15	93.39	1/19/10	17:30	93.36	1/20/10	7:15	94.03	1/20/10	20:30	94.88
1/18/10	6:30	93.45	1/19/10	4:30	93.41	1/19/10	17:45	93.36	1/20/10	7:30	94.05	1/20/10	20:45	94.90
1/18/10	7:00	93.45	1/19/10	4:45	93.39	1/19/10	18:00	93.38	1/20/10	7:45	94.06	1/20/10	21:00	94.92
1/18/10	7:30	93.45	1/19/10	5:00	93.39	1/19/10	18:15	93.38	1/20/10	8:00	94.08	1/20/10	21:15	94.93
1/18/10	8:00	93.45	1/19/10	5:15	93.39	1/19/10	18:30	93.38	1/20/10	8:15	94.10	1/20/10	21:30	94.95
1/18/10	8:30	93.45	1/19/10	5:30	93.38	1/19/10	18:45	93.38	1/20/10	8:30	94.12	1/20/10	21:45	94.95
1/18/10	9:00	93.45	1/19/10	5:45	93.38	1/19/10	19:30	93.39	1/20/10	8:45	94.13	1/20/10	22:00	94.99
1/18/10	9:30	93.45	1/19/10	6:00	93.38	1/19/10	19:45	93.41	1/20/10	9:00	94.15	1/20/10	22:15	94.99
1/18/10	10:00	93.45	1/19/10	6:15	93.38	1/19/10	20:00	93.41	1/20/10	9:15	94.17	1/20/10	22:30	95.00
1/18/10	10:30	93.45	1/19/10	6:30	93.38	1/19/10	20:15	93.41	1/20/10	9:30	94.19	1/20/10	22:45	95.02
1/18/10	11:00	93.45	1/19/10	6:45	93.38	1/19/10	20:30	93.43	1/20/10	9:45	94.21	1/20/10	23:00	95.04
1/18/10	11:30	93.45	1/19/10	7:00	93.38	1/19/10	20:45	93.45	1/20/10	10:00	94.23	1/20/10	23:15	95.06
1/18/10	12:00	93.45	1/19/10	7:15	93.38	1/19/10	21:00	93.45	1/20/10	10:15	94.25	1/20/10	23:30	95.08
1/18/10	12:30	93.43	1/19/10	7:30	93.38	1/19/10	21:15	93.45	1/20/10	10:30	94.25	1/20/10	23:45	95.09
1/18/10	13:00	93.41	1/19/10	7:45	93.38	1/19/10	21:30	93.46	1/20/10	10:45	94.27	1/21/10	0:00	95.09
1/18/10	13:30	93.43	1/19/10	8:00	93.38	1/19/10	21:45	93.48	1/20/10	11:00	94.28	1/21/10	0:15	95.14
1/18/10	14:00	93.43	1/19/10	8:15	93.38	1/19/10	22:00	93.50	1/20/10	11:15	94.30	1/21/10	0:30	95.14
1/18/10	14:30	93.43	1/19/10	8:30	93.38	1/19/10	22:15	93.52	1/20/10	11:30	94.32	1/21/10	0:45	95.15
1/18/10	15:00	93.43	1/19/10	8:45	93.38	1/19/10	22:30	93.52	1/20/10	11:45	94.32	1/21/10	1:00	95.17
1/18/10	15:30	93.43	1/19/10	9:00	93.38	1/19/10	22:45	93.53	1/20/10	12:00	94.34	1/21/10	1:15	95.19
1/18/10	16:00	93.41	1/19/10	9:15	93.38	1/19/10	23:00	93.55	1/20/10	12:15	94.35	1/21/10	1:30	95.21
1/18/10	16:30	93.43	1/19/10	9:30	93.36	1/19/10	23:15	93.55	1/20/10	12:30	94.35	1/21/10	1:45	95.21
1/18/10	17:00	93.41	1/19/10	9:45	93.38	1/19/10	23:30	93.57	1/20/10	12:45	94.39	1/21/10	2:00	95.22
1/18/10	17:30	93.41	1/19/10	10:00	93.38	1/19/10	23:45	93.60	1/20/10	13:00	94.39	1/21/10	2:15	95.24
1/18/10	18:00	93.41	1/19/10	10:15	93.36	1/20/10	0:00	93.61	1/20/10	13:15	94.41	1/21/10	2:30	95.26
1/18/10	18:30	93.41	1/19/10	10:30	93.36	1/20/10	0:15	93.63	1/20/10	13:30	94.44	1/21/10	2:45	95.28
1/18/10	19:00	93.41	1/19/10	10:45	93.34	1/20/10	0:30	93.63	1/20/10	13:45	94.44	1/21/10	3:00	95.30
1/18/10	19:30	93.41	1/19/10	11:00	93.36	1/20/10	0:45	93.65	1/20/10	14:00	94.46	1/21/10	3:15	95.31
1/18/10	20:00	93.41	1/19/10	11:15	93.36	1/20/10	1:00	93.67	1/20/10	14:15	94.46	1/21/10	3:30	95.31
1/18/10	20:30	93.41	1/19/10	11:30	93.36	1/20/10	1:15	93.68	1/20/10	14:30	94.48	1/21/10	3:45	95.33
1/18/10	21:00	93.41	1/19/10	11:45	93.36	1/20/10	1:30	93.70	1/20/10	14:45	94.49	1/21/10	4:00	95.35
1/18/10	21:30	93.41	1/19/10	12:00	93.34	1/20/10	1:45	93.72	1/20/10	15:00	94.49	1/21/10	4:15	95.37
1/18/10	22:00	93.41	1/19/10	12:15	93.34	1/20/10	2:00	93.74	1/20/10	15:15	94.54	1/21/10	4:30	95.38
1/18/10	22:30	93.41	1/19/10	12:30	93.34	1/20/10	2:15	93.75	1/20/10	15:30	94.56	1/21/10	4:45	95.40
1/18/10	23:00	93.43	1/19/10	12:45	93.34	1/20/10	2:30	93.75	1/20/10	15:45	94.57	1/21/10	5:00	95.40
1/18/10	23:30	93.43	1/19/10	13:00	93.34	1/20/10	2:45	93.77	1/20/10	16:00	94.57	1/21/10	5:15	95.42
1/19/10	0:00	93.41	1/19/10	13:15	93.34	1/20/10	3:00	93.79	1/20/10	16:15	94.61	1/21/10	5:30	95.44
1/19/10	0:15	93.41	1/19/10	13:30	93.34	1/20/10	3:15	93.79	1/20/10	16:30	94.61	1/21/10	5:45	95.46
1/19/10	0:30	93.41	1/19/10	13:45	93.34	1/20/10	3:30	93.81	1/20/10	16:45	94.63	1/21/10	6:00	95.48
1/19/10	0:45	93.41	1/19/10	14:00	93.34	1/20/10	3:45	93.82	1/20/10	17:00	94.64	1/21/10	6:15	95.48

TABLE D6B.5-6. TRANSDUCER DATA FOR OBSERVATION WELL MN-3, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/21/10	6:30	95.50	1/21/10	19:45	96.24	1/22/10	9:00	96.85						
1/21/10	6:45	95.52	1/21/10	20:00	96.24	1/22/10	9:15	96.85						
1/21/10	7:00	95.52	1/21/10	20:15	96.25	1/22/10	9:30	96.85						
1/21/10	7:15	95.53	1/21/10	20:30	96.27	1/22/10	9:45	96.89						
1/21/10	7:30	95.55	1/21/10	20:45	96.29	1/22/10	10:00	96.89						
1/21/10	7:45	95.55	1/21/10	21:00	96.29	1/22/10	10:15	96.91						
1/21/10	8:00	95.57	1/21/10	21:15	96.31	1/22/10	10:30	96.92						
1/21/10	8:15	95.59	1/21/10	21:30	96.31	1/22/10	10:45	96.92						
1/21/10	8:30	95.60	1/21/10	21:45	96.33	1/22/10	11:00	96.92						
1/21/10	8:45	95.62	1/21/10	22:00	96.34	1/22/10	11:15	96.94						
1/21/10	9:00	95.62	1/21/10	22:15	96.37	1/22/10	11:30	96.96						
1/21/10	9:15	95.64	1/21/10	22:30	96.37	1/22/10	11:45	96.99						
1/21/10	9:30	95.66	1/21/10	22:45	96.39	1/22/10	12:00	97.00						
1/21/10	9:45	95.67	1/21/10	23:00	96.40	1/22/10	12:15	97.02						
1/21/10	10:00	95.69	1/21/10	23:15	96.40									
1/21/10	10:15	95.69	1/21/10	23:30	96.42									
1/21/10	10:30	95.71	1/21/10	23:45	96.44									
1/21/10	10:45	95.73	1/22/10	0:00	96.44									
1/21/10	11:00	95.75	1/22/10	0:15	96.46									
1/21/10	11:15	95.77	1/22/10	0:30	96.47									
1/21/10	11:30	95.77	1/22/10	0:45	96.47									
1/21/10	11:45	95.79	1/22/10	1:00	96.49									
1/21/10	12:00	95.81	1/22/10	1:15	96.51									
1/21/10	12:15	95.81	1/22/10	1:30	96.51									
1/21/10	12:30	95.84	1/22/10	1:45	96.53									
1/21/10	12:45	95.86	1/22/10	2:00	96.55									
1/21/10	13:00	95.86	1/22/10	2:15	96.56									
1/21/10	13:15	95.86	1/22/10	2:30	96.56									
1/21/10	13:30	95.89	1/22/10	2:45	96.56									
1/21/10	13:45	95.89	1/22/10	3:00	96.58									
1/21/10	14:00	95.91	1/22/10	3:15	96.60									
1/21/10	14:15	95.91	1/22/10	3:30	96.60									
1/21/10	14:30	95.93	1/22/10	3:45	96.62									
1/21/10	14:45	95.95	1/22/10	4:00	96.63									
1/21/10	15:00	95.96	1/22/10	4:15	96.63									
1/21/10	15:15	95.96	1/22/10	4:30	96.65									
1/21/10	15:30	96.00	1/22/10	4:45	96.65									
1/21/10	15:45	96.02	1/22/10	5:00	96.68									
1/21/10	16:00	96.02	1/22/10	5:15	96.69									
1/21/10	16:15	96.03	1/22/10	5:30	96.71									
1/21/10	16:30	96.03	1/22/10	5:45	96.71									
1/21/10	16:45	96.06	1/22/10	6:00	96.71									
1/21/10	17:00	96.06	1/22/10	6:15	96.73									
1/21/10	17:15	96.08	1/22/10	6:30	96.73									
1/21/10	17:30	96.11	1/22/10	6:45	96.75									
1/21/10	17:45	96.11	1/22/10	7:00	96.75									
1/21/10	18:00	96.13	1/22/10	7:15	96.77									
1/21/10	18:15	96.15	1/22/10	7:30	96.78									
1/21/10	18:30	96.17	1/22/10	7:45	96.78									
1/21/10	18:45	96.17	1/22/10	8:00	96.80									
1/21/10	19:00	96.18	1/22/10	8:15	96.80									
1/21/10	19:15	96.20	1/22/10	8:30	96.82									
1/21/10	19:30	96.22	1/22/10	8:45	96.82									

D6B.6 URZNA-9 MULTI WELL TEST

A multi-well pump test was conducted by pumping A Sand well URZNA-9 for 3 days while A Sand observation wells URZNA-8, MN-2, MN-4 and MN-5 were monitored for drawdown. An additional multi-well pump test will be conducted to define whether any connection exists between the A Sand and the 1 and B Sands at this site in the future. Figure D6B.6-1 presents the barometric pressure data during this multi-well pump test. The barometric pressure changed a maximum of approximately 0.5 inches of mercury during the monitoring of this multi-well pump test. This change in barometric pressure was not very significant but the data was corrected for these small changes in barometric pressure. The thickness of the A Sand at pumping well URZNA-9 is 100 feet.

D6B.6.1 PUMPING WELL URZNA-9

Partially penetrating well URZNA-9 was pumped from February 1 through February 4 at an average rate of 12.6 gallons per minute (gpm). Table D6B.6-1 presents the pumping and manual data for this well. Table D6B.6-2 presents the transducer data collected from the pumping well. Figure D6B.6-1 presents a linear plot of the depth to water-level data collected during this pump test. This figure shows when the pump was turned on and turned off during this multi-well pump test. Figure D6B.6-2 presents the semi-log plot of the corrected drawdown for pumping well URZNA-9. The straight-line fit to this data yields a transmissivity of 350 gal/day/ft. The late time data was used in this fit. Therefore no adjustments were needed for the partial penetration conditions. The discharge was adjusted upward on February 3, which caused the upward step on the drawdown in the pumping well.

A plot of the recovery data is presented on Figure D6B.6-3 and a straight-line fit of this recovery data yields a transmissivity of 310 gal/day/ft. This value is thought to be the best representation for this well due to the changes in discharge occurring during the drawdown portion of the test.

D6B.6.2 OBSERVATION WELL URZNA-8

The manual water-level measurements made for observation well URZNA-8 are presented in Table D6B.6-3 while the transducer water levels are presented in Table D6B.6-4. Observation well URZNA-8 is located 95.7 feet from the pumping well, URZNA-9. Figure D6B.6-4 presents the barometric pressure and water-level data collected in observation well URZNA-8. This figure shows that the water-level started to decline shortly after 100 minutes after pumping began and approximately 19 feet of drawdown was developed in this observation well.

Figure D6B.6-5 presents the drawdown data for observation well URZNA-8 on a semi-log plot. The WTAQ program was used to develop type curves for the partially penetrating pumping and observation wells for confined aquifer conditions at anisotropic ratios of 1, 0.1 and 0.01. These type curves plotted on a semi-log plot show that the slope of the drawdown type curve is equal for each of these curves and also equal to the fully penetrating Theis slope. Therefore, the Theis coefficient(264) for the straight-line equation is appropriate for the analysis of this semi-log plot. The slope of the straight-line from Figure D6B.6-5 yields a transmissivity of 200 gal/day/ft. The straight-line plot of the WTAQ confined type curves for this observation well shows that the straight-line coefficient(4800) in the storage equation needs to be adjusted for different anisotropic ratios. A change from the 4800 to a coefficient of 1200 is needed from the Theis intercept to the fully penetrating isotropic ratio of KV/KH of 1.0 for the WTAQ type curve. The WTAQ intercept coefficient needs to be adjusted from 1200 to 12748 for the difference between the isotropic and a KV/KH of 0.01 WTAQ type curve intercept. This adjusted coefficient was used in the storage coefficient calculation in Figure D6B.6-5 and produces a storage coefficient of 5.3 E-4. Small adjustments from the anisotropic ratio of 0.01 would still produce reasonable storage coefficients for this aquifer but the KV/KH value could not be much different than 0.01. Therefore, the straight-line method is very helpful in selecting the anisotropic ratio for the A Sand at this site. Figure D6B.6-6 presents the log-log plot of the corrected drawdown for observation well URNA-8. This figure is shown with the fit to anisotropic ratio of 0.01. This drawdown data would fit each of the different type curves fairly well and therefore the log-log fit of the type curve is not very sensitive to obtaining the anisotropic ratio, while the semi-log test was very sensitive to the anisotropic ratio. A transmissivity of 190 gal/day/ft is obtained from the log-log fit of the drawdown data and a storage coefficient of 1.3E-4. These values are similar to those obtained from the semi-log plot of the drawdown data. An aquifer thickness of 100 feet yields a radial hydraulic conductivity of 0.25 ft/day and a vertical hydraulic conductivity of 0.003 ft/day.

The recovery plot from observation well URZNA-8 is presented in Figure D6B.6-7 and a straight-line fit of this recovery data yields a transmissivity of 230 gal/day/ft. The Theis recovery straight-line coefficient for this partially penetrating well should be appropriate because the type curve drawdown slopes for the partially penetrating type curves are equal to the Theis slope. A transmissivity of 210 gal/day/ft and a storage coefficient of 1.3E-4 are thought to best represent the A Sand at well URZNA-8.

D6B.6.3 OBSERVATION WELL MN-2

Figure D6B.6-8 presents the barometric pressure and depth to water level in the A Sand observation well MN-2. This figure shows drawdowns developing during the second day of pumping of well URZNA-9. Well MN-2 is located 1,681 feet from the pumping well. This distance and the aquifer properties for this site make the straight-line method inappropriate for analysis of this drawdown data. The WTAQ program shows that the partially penetrating type curves at this large of distance result in type curves equal to the fully penetrating Theis curve and therefore the Theis method is appropriate for analysis of this drawdown. The Theis type curve match to MN-2 drawdown data yields a transmissivity of 340 gal/day/ft and a storage coefficient of 1.8E-4.

D6B.6.4 OBSERVATION WELL MN-4

Fully penetrating A Sand well MN-4 was also monitored during this pump test with manual water-level measurement. This well is 673 feet from the pumping well. Figure D6B.6-10 presented the barometric pressure and depth to water-level measurements during the URZNA-9 multi-well pump test. This figure shows that the water levels declined greater than 9 feet in MN-4 during the pump test. Figure D6B.6-11 presents the drawdown data (see Table D6B.6-7 for the manual water-level measurements for observation well MN-4). The confined aquifer WTAQ type curve for well MN-4 fit to this data yields a transmissivity of 320 gal/day/ft and a storage coefficient of 1.1E-4.

D6B.6.5 OBSERVATION WELL MN-5

A Sand well MN-5 was monitored during the URZNA-9 multi-well pump test. This well is located 716 feet from the pumping well. Table D6B.6-8 presents the transducer water-level measurements that were made during this pump test. Figure D6B.6-12 presents the linear plot of the water-level data collected for monitoring well MN-5. This data shows that the well had slightly greater than 12 feet of drawdown. Figure D6B.6-13 presents the log-log plot of observation well MN-4 and its fit to the WTAQ confined type curve; yields a transmissivity of 280 gal/day/ft and a storage coefficient of 4.4E-5.

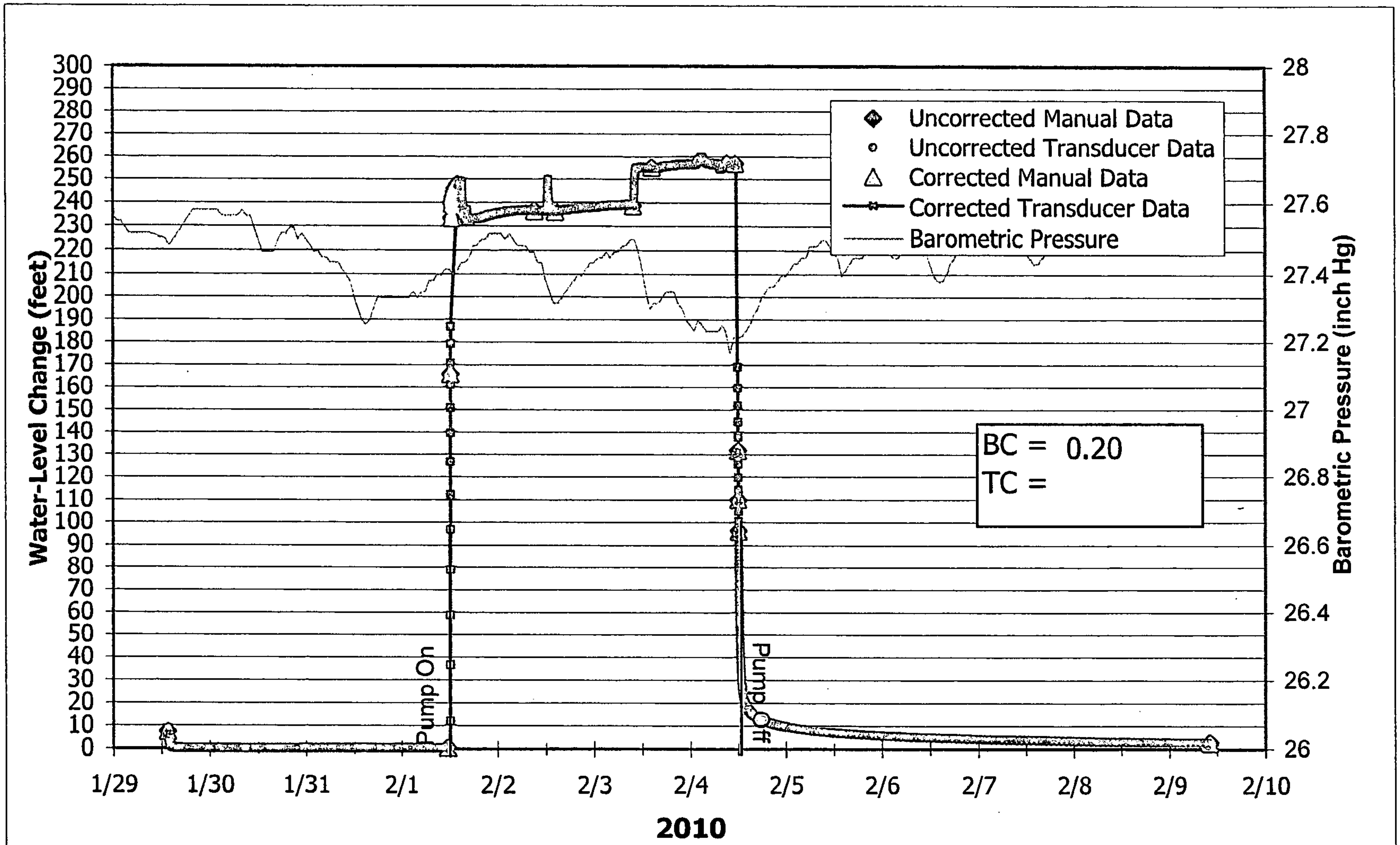

FIGURE D6B.6-1 BARCOMETRIC PRESSURE AND WATER-LEVEL CHANGE IN A SAND PUMPING WELL, URZNA-9

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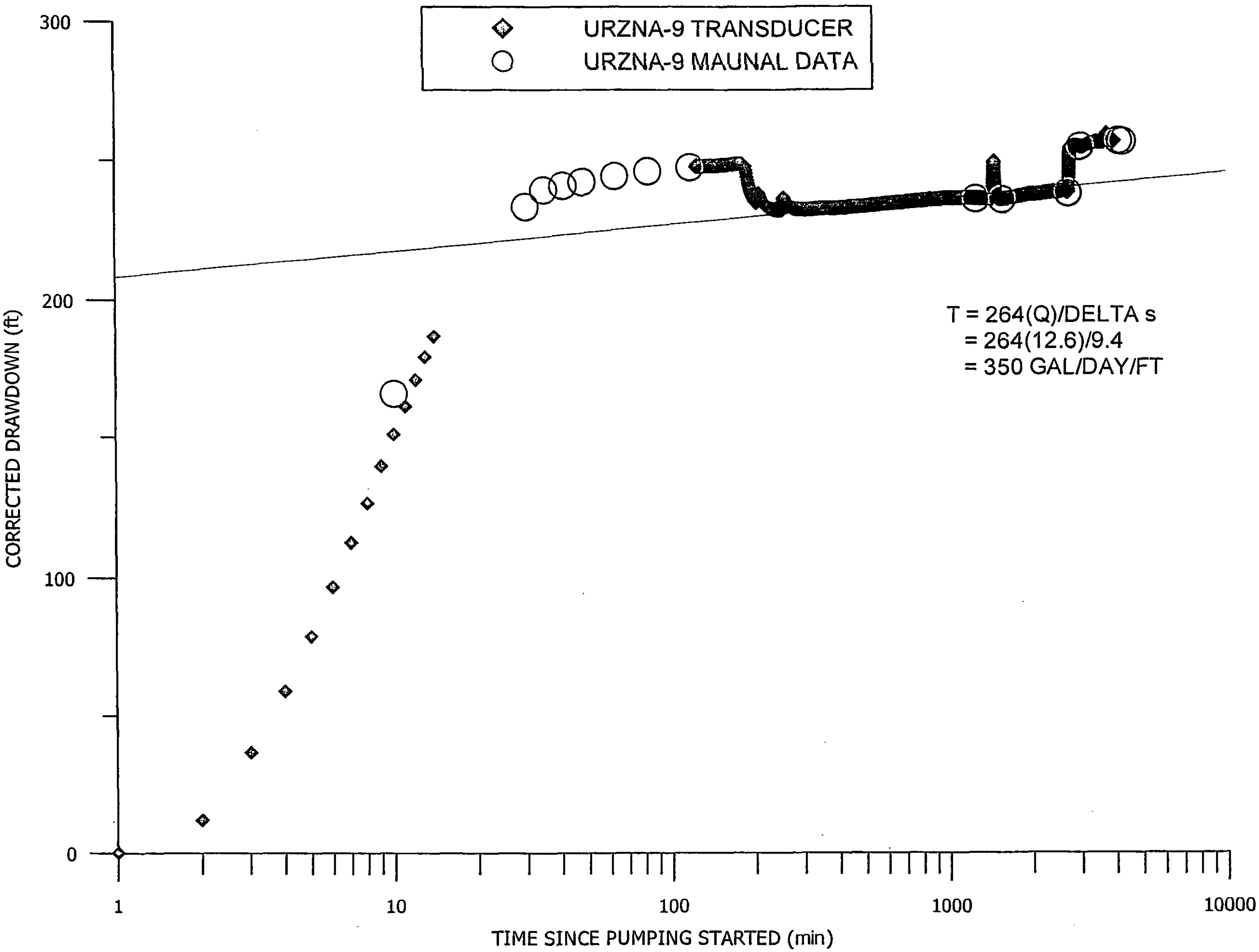

FIGURE D6B.6-2 DRAWDOWN IN PUMPING WELL URZNA-9

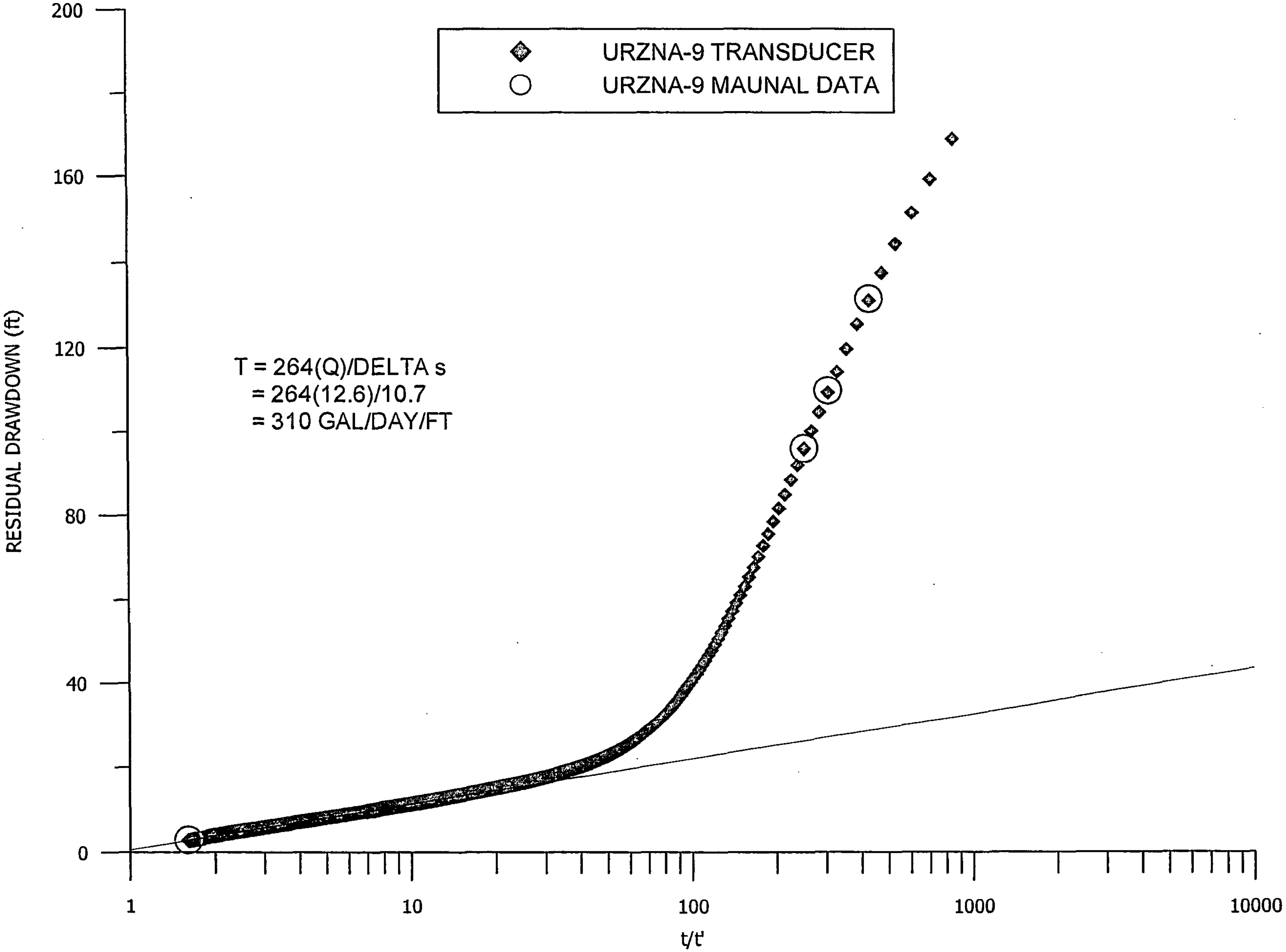

FIGURE D6B.6-3 RECOVERY IN PUMPING WELL URZNA-9

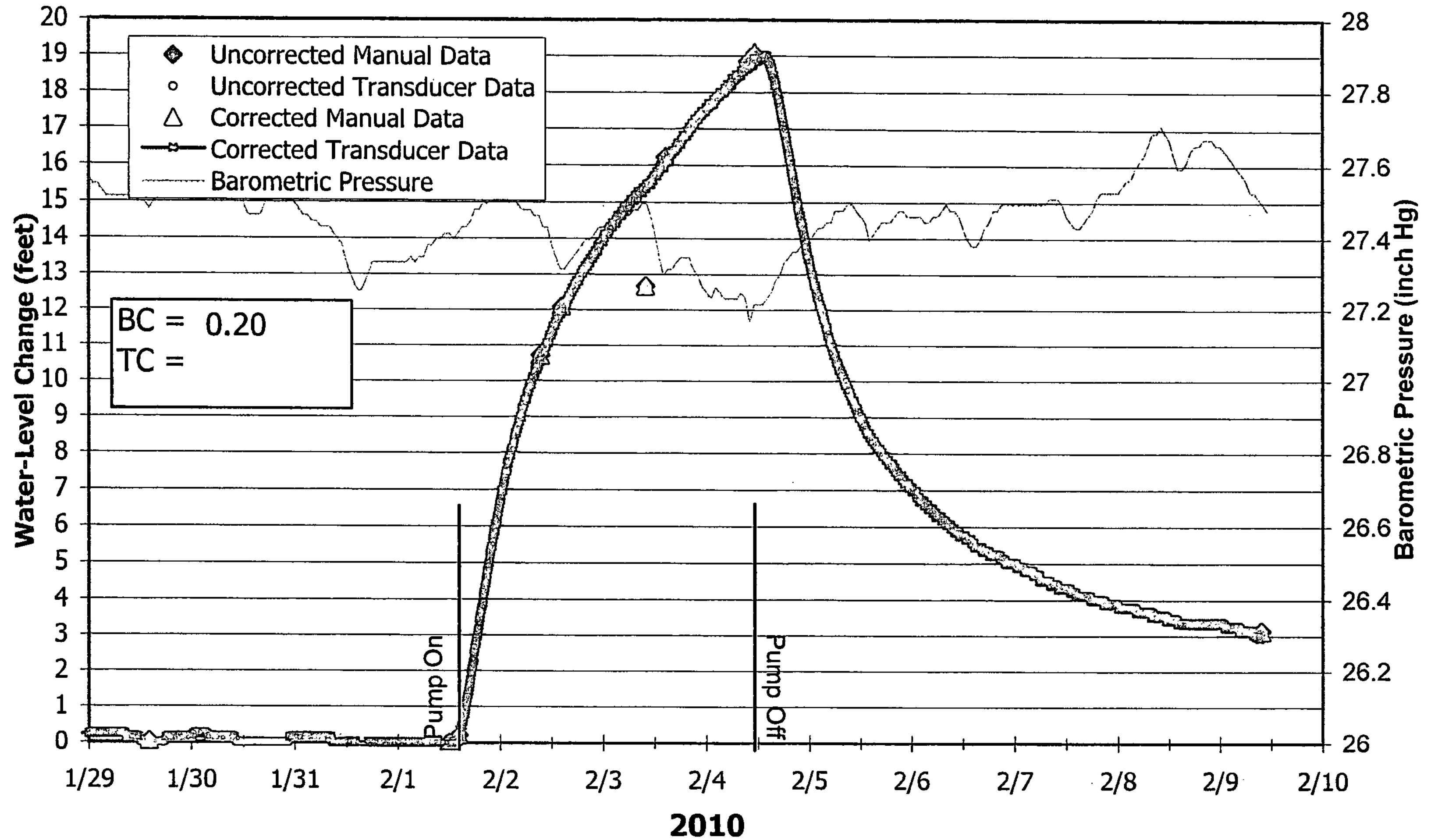

FIGURE D6B.6-4 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN A SAND OBSERVATION WELL, URZNA-8

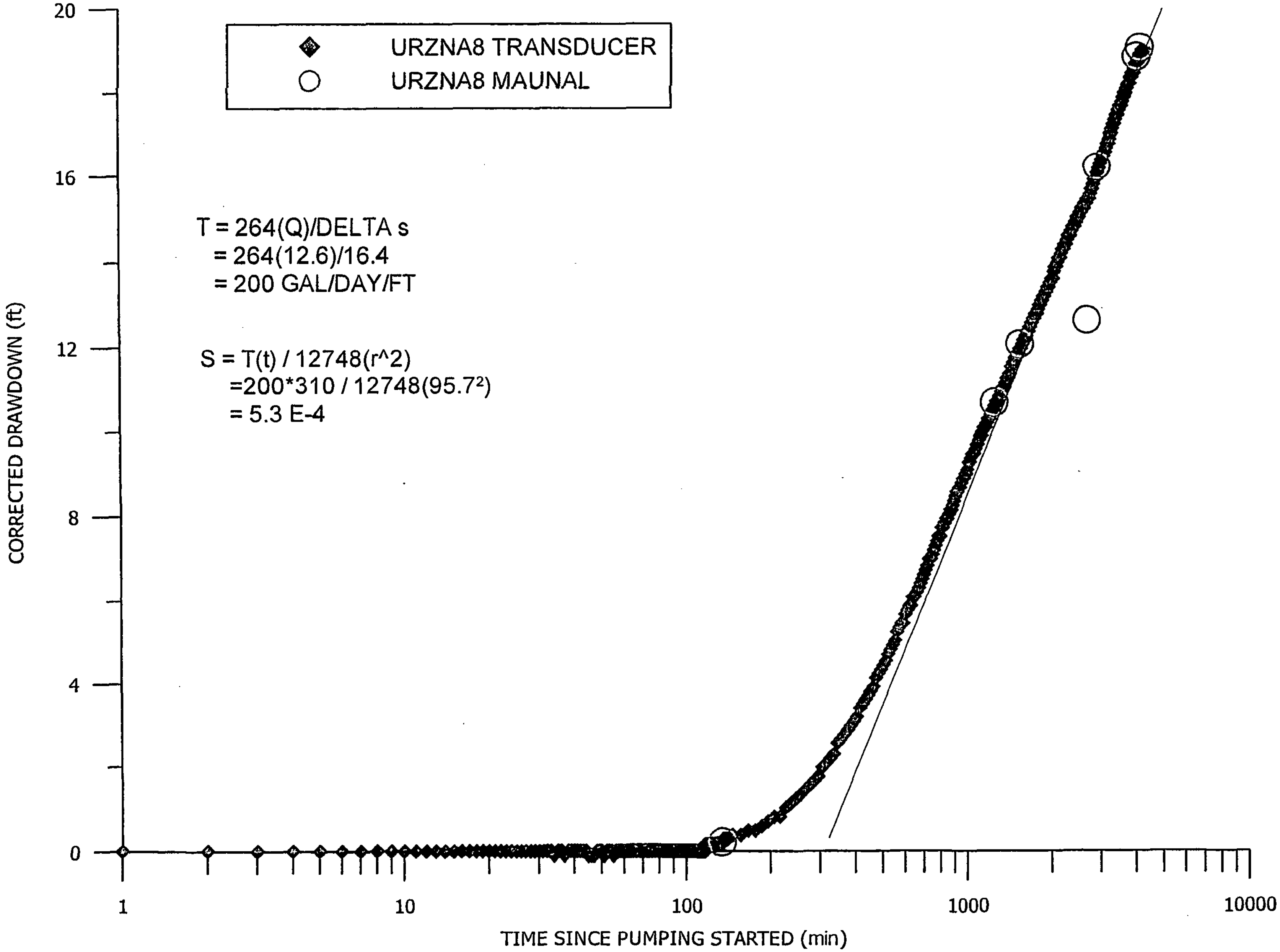

FIGURE D6B.6-5 DRAWDOWN IN OBSERVATION WELL URZNA-8

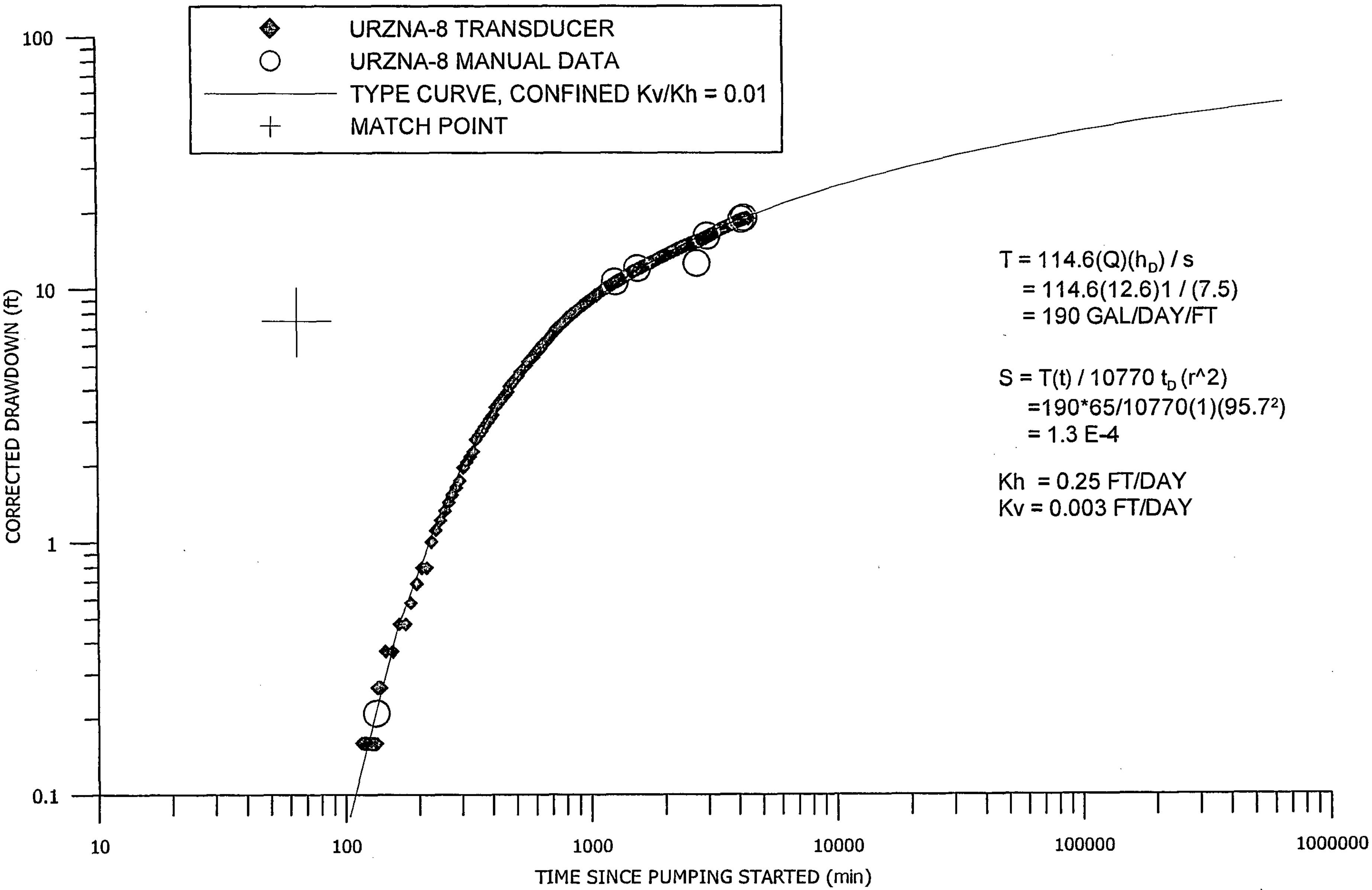

FIGURE D6B.6-6 DRAWDOWN IN OBSERVATION WELL URZNA-8, LOG-LOG

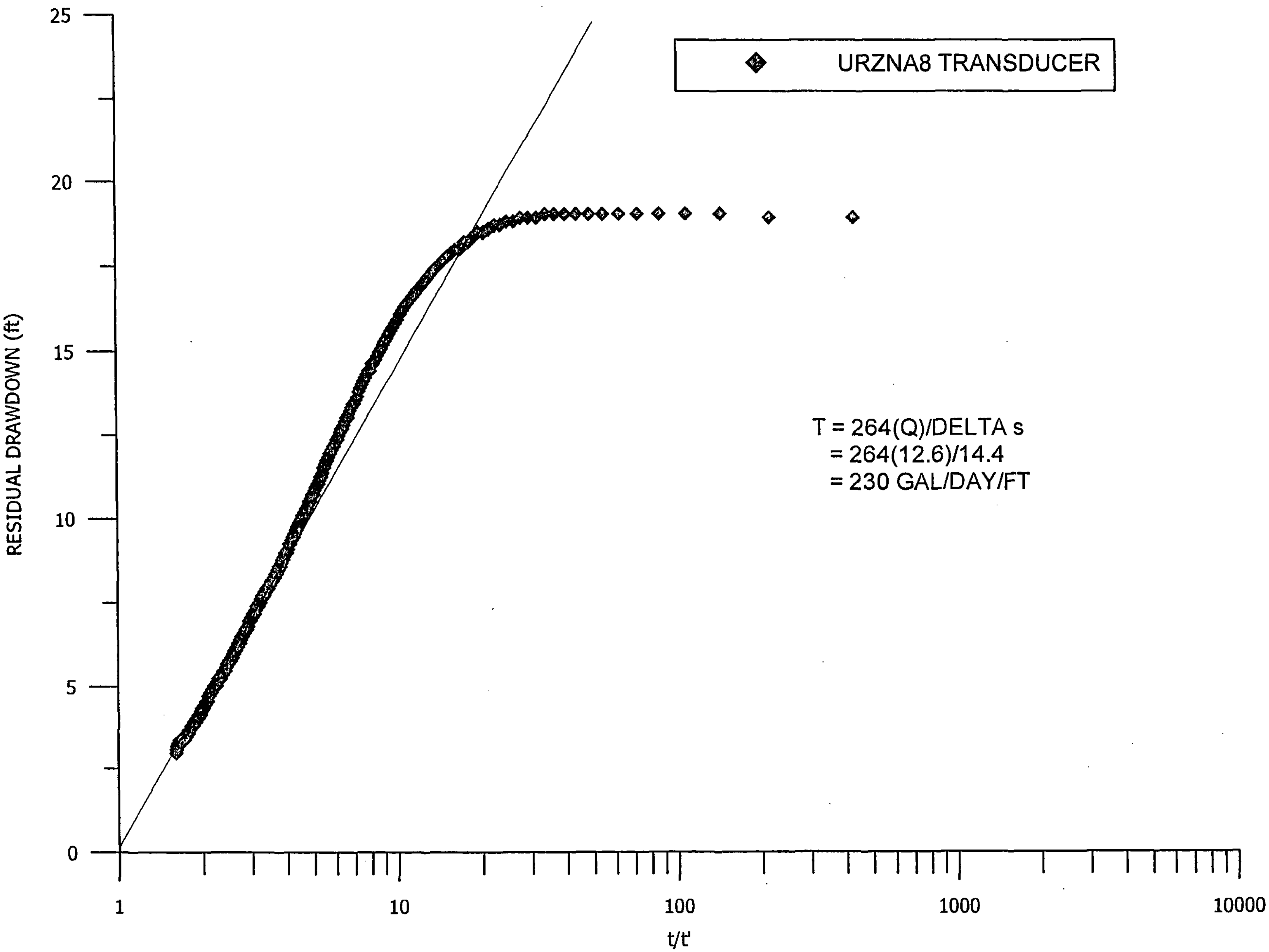

FIGURE D6B.6-7 RECOVERY IN OBSERVATION WELL URZNA-8

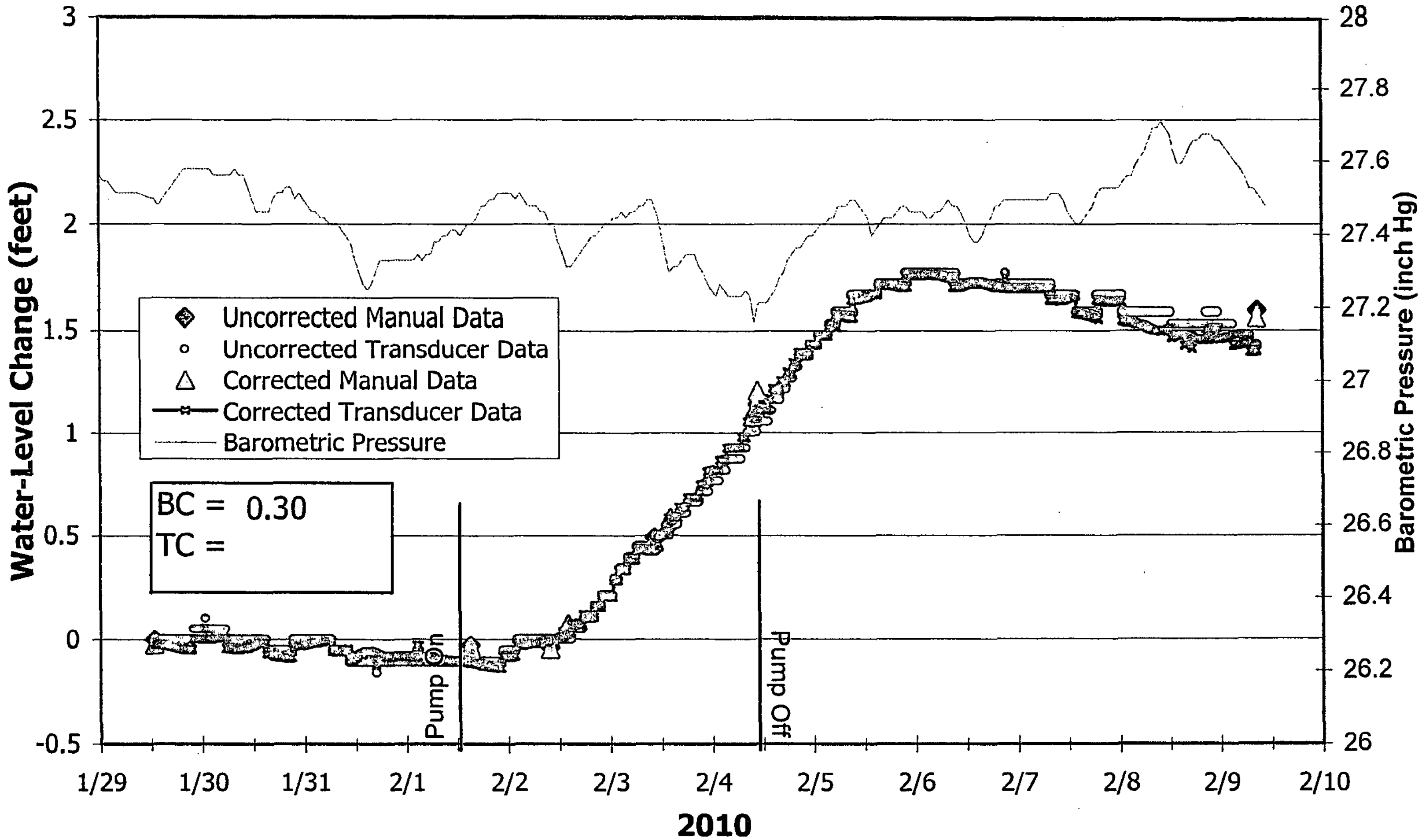

FIGURE D6B.6-8 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN A SAND OBSERVATION WELL, MN-2

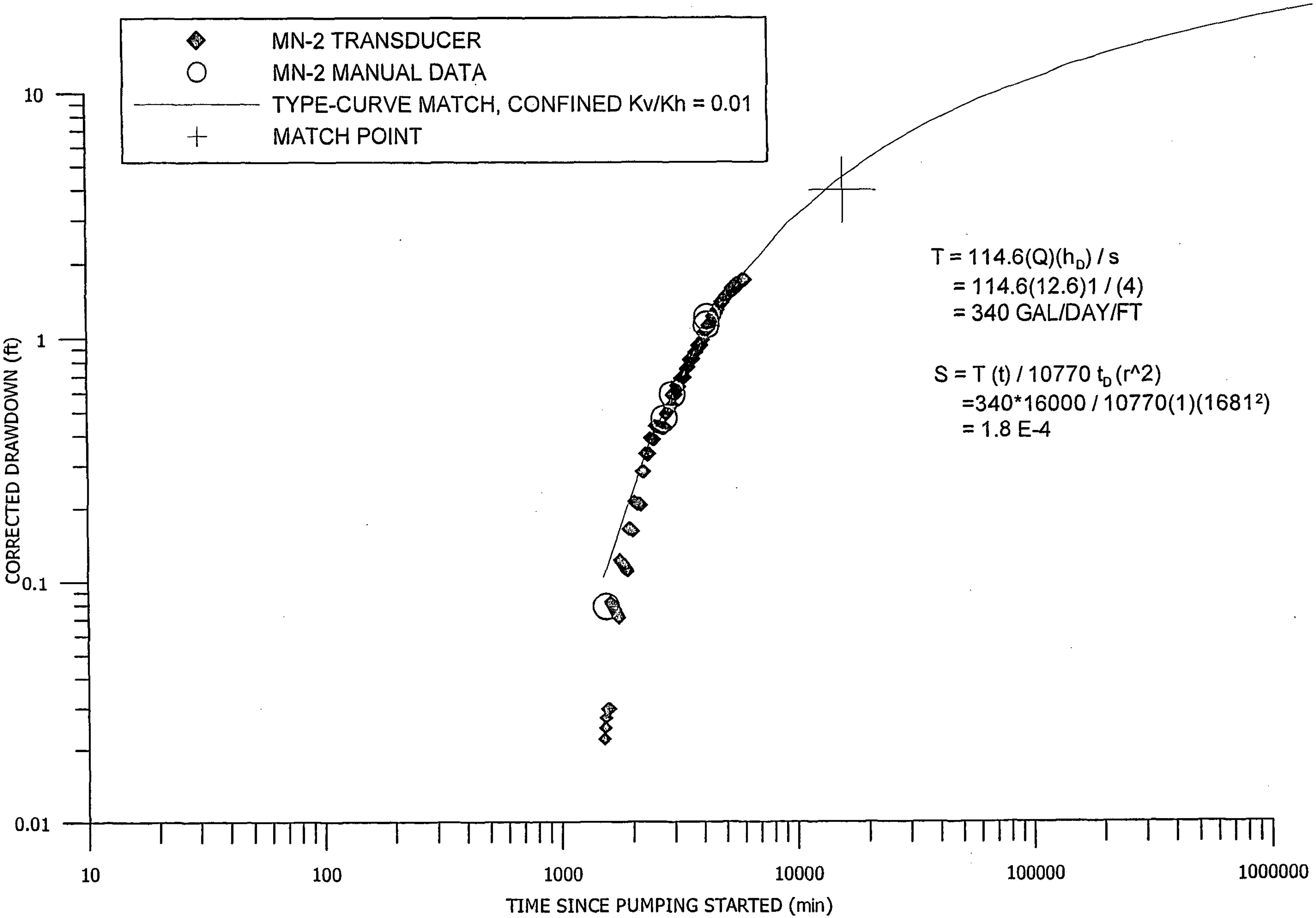

FIGURE D6B.6-9 DRAWDOWN IN OBSERVATION WELL MN-2, LOG-LOG

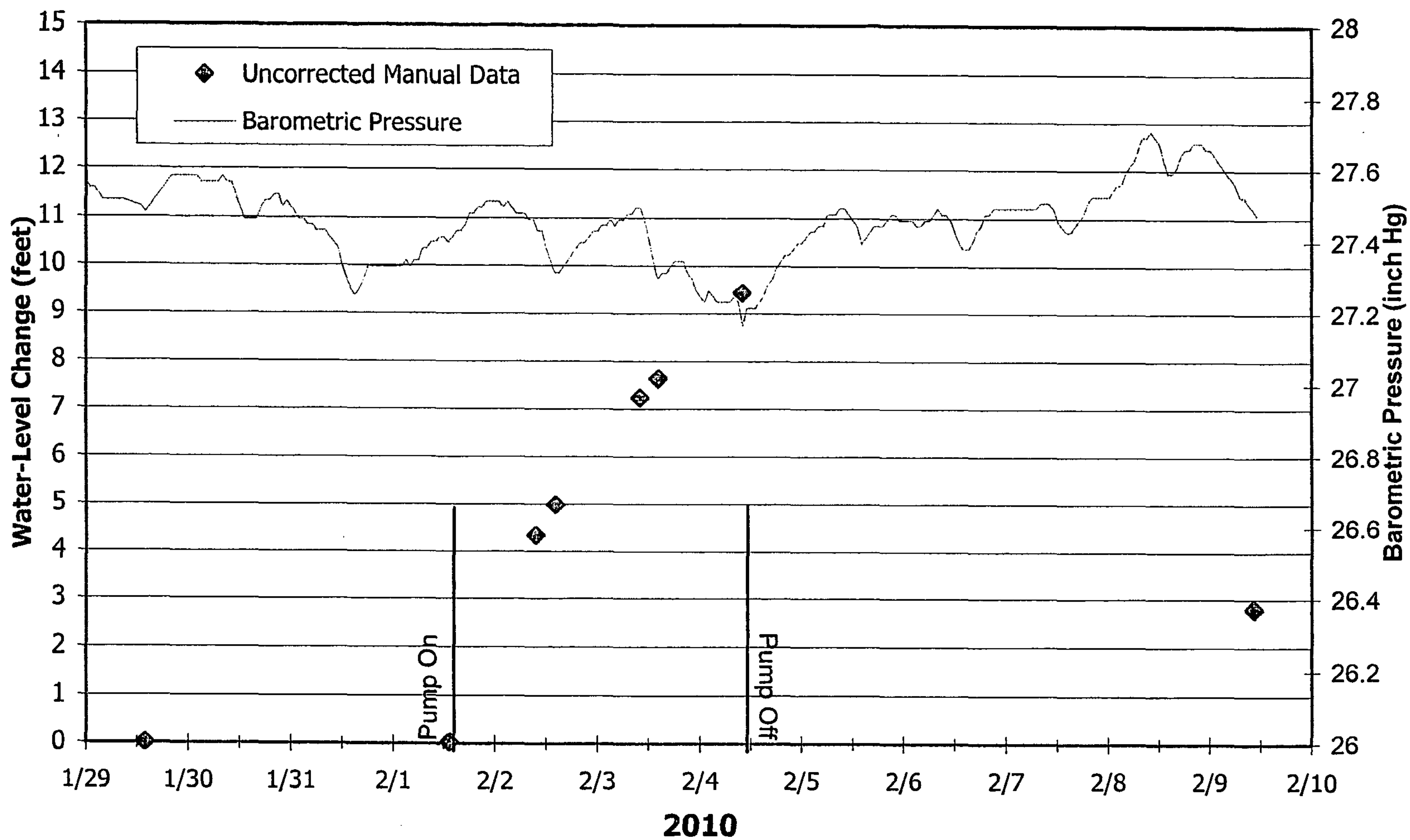

FIGURE D6B.6-10 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN A SAND OBSERVATION WELL, MN-4

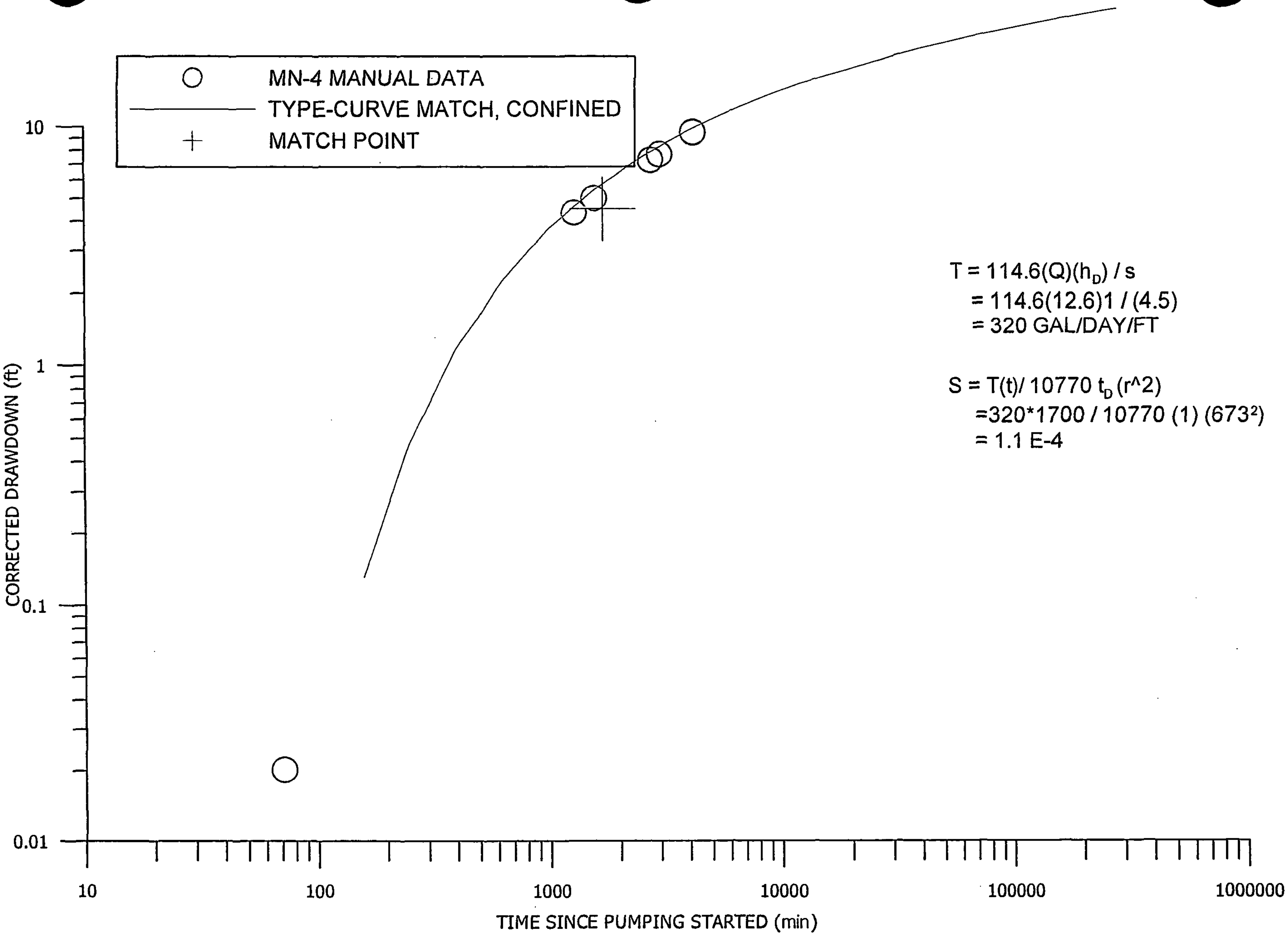

FIGURE D6B.6-11 DRAWDOWN IN OBSERVATION WELL MN-4, LOG-LOG

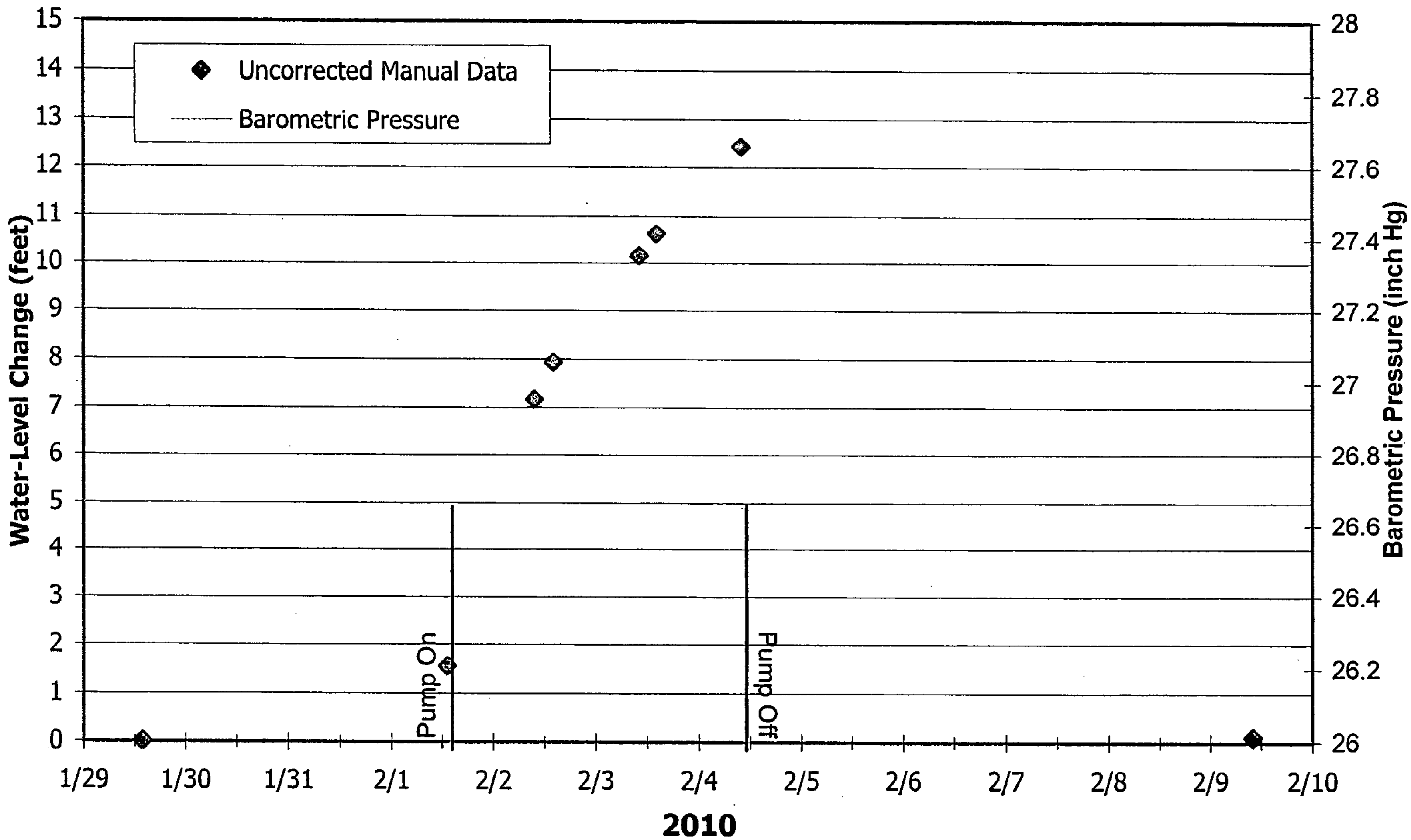

FIGURE D6B.6-12 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN A SAND OBSERVATION WELL, MN-5

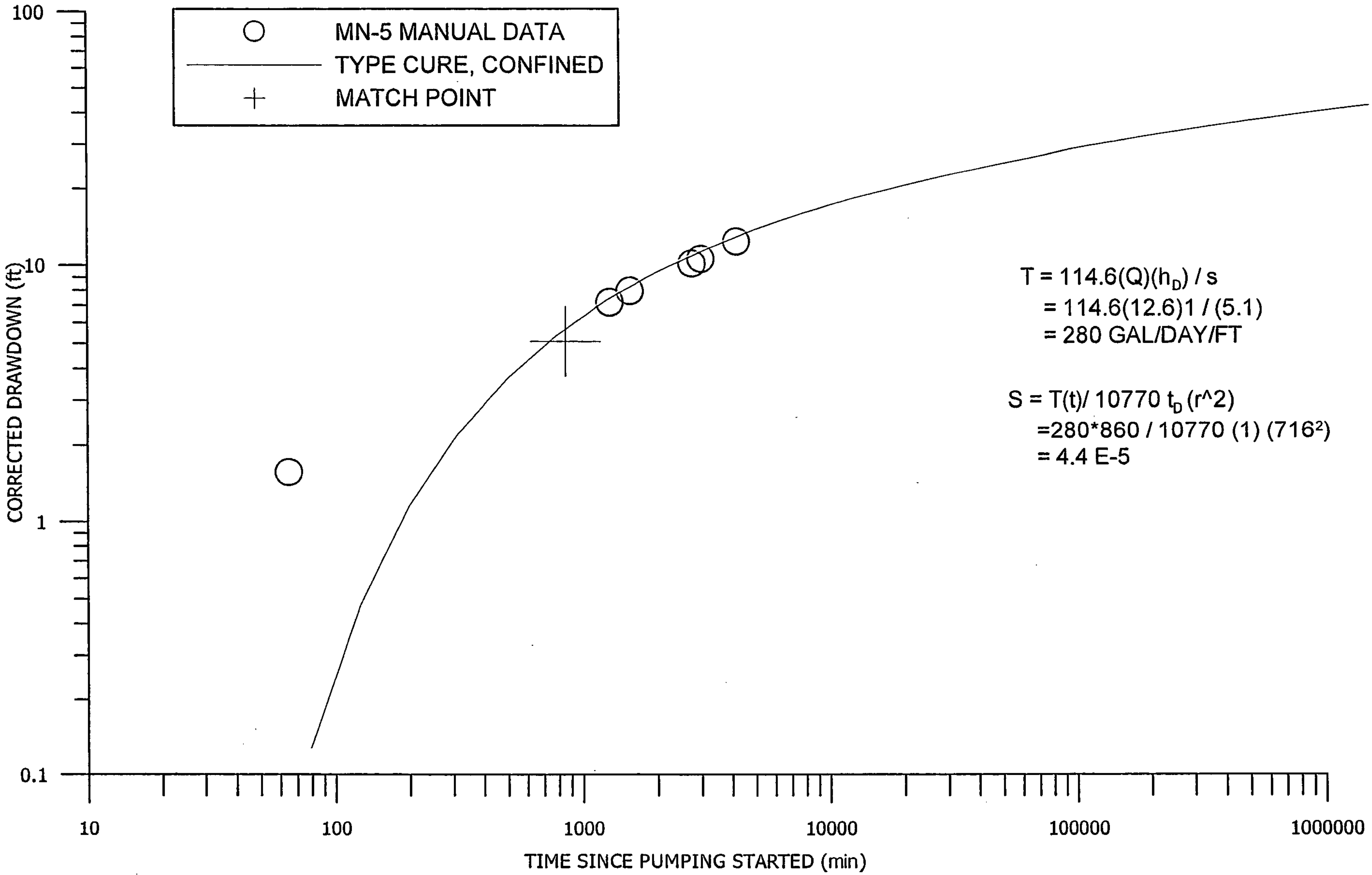

FIGURE D6B.6-13 DRAWDOWN IN OBSERVATION WELL MN-5, LOG-LOG

TABLE D6B.6-1. AQUIFER-TEST DATA FOR PUMPING WELL URZNA-9.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/29/10	13:25:00	-4239	--	--	195.36	7.15	--	--	--	--
	13:25:00	SET TRANSDUCER								
02/01/10	11:26:00	-38	--	--	188.31	0.10	--	--	--	--
	12:04:00	PUMP ON								
	12:07:00	3	--	--	--	--	21.00	--	--	--
	12:10:00	6	--	--	--	--	19.00	--	--	--
	12:12:00	8	--	--	--	--	18.30	--	--	--
	12:14:00	10	--	--	353.58	165.37	--	--	--	--
	12:17:00	13	--	--	--	--	17.40	--	--	--
	12:20:00	REMOVED TRANSDUCER								
	12:21:00	17	--	--	--	--	14.70	--	--	--
	12:34:00	30	--	--	421.35	233.14	--	--	--	--
	12:35:00	31	--	--	--	--	14.30	--	--	--
	12:36:00	32	--	--	--	--	14.50	--	--	--
	12:38:00	34	--	--	--	--	13.80	--	--	--
	12:39:00	35	--	--	427.34	239.13	--	--	--	--
	12:41:00	37	--	--	--	--	13.80	--	--	--
	12:45:00	41	--	--	428.95	240.74	--	--	--	--
	12:52:00	48	--	--	430.29	242.08	--	--	--	--
	13:07:00	63	--	--	432.38	244.17	--	--	--	--
	13:27:00	83	--	--	434.18	245.97	--	--	--	--
	13:38:00	94	--	--	--	--	13.60	--	--	--
	14:02:00	118	--	--	435.65	247.44	--	--	--	--
	14:09:00	SET TRANS (25FT BELOW WL)								
	14:14:00	TOT= 1850								
02/02/10	9:12:00	1268	--	--	424.39	236.18	--	--	--	--
	14:21:00	1577	--	--	424.14	235.93	--	--	--	--
02/03/10	9:43:00	2739	--	--	426.56	238.35	13.30	--	--	--
	10:00:00	TURN VOLTAGE UP ON GEN								
	14:27:00	3023	--	--	443.16	254.95	--	--	--	--
02/04/10	9:17:00	4153	--	--	445.25	257.04	--	--	--	--
	11:28:00	4284	--	--	445.05	256.84	--	--	--	--
	11:28:00	DOWNLOADED TRANS								
	11:50:00	PUMP OFF								
	11:51:00	TOT= 545300, SET TRANS AT 370'								
	12:00:00	4316	10	431.60	319.86	131.65	--	--	--	--
	12:04:00	4320	14	308.57	297.97	109.76	--	--	--	--
	12:07:00	4323	17	254.29	284.17	95.96	--	--	--	--
	13:40:00	4416	110	40.15	--	--	--	--	--	--
02/09/10	10:12:00	11408	7102	1.61	190.90	2.69	--	--	--	--
	10:12:00	REMOVED TRANS								

TABLE D6B.6-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-9.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/29/10	13:28	193.92	1/30/10	2:43	188.26	1/30/10	15:58	188.26	1/31/10	5:13	188.31	1/31/10	18:28	188.37
1/29/10	13:43	190.98	1/30/10	2:58	188.26	1/30/10	16:13	188.26	1/31/10	5:28	188.31	1/31/10	18:43	188.37
1/29/10	13:58	189.64	1/30/10	3:13	188.26	1/30/10	16:28	188.26	1/31/10	5:43	188.31	1/31/10	18:58	188.37
1/29/10	14:13	189.03	1/30/10	3:28	188.26	1/30/10	16:43	188.26	1/31/10	5:58	188.31	1/31/10	19:13	188.37
1/29/10	14:28	188.70	1/30/10	3:43	188.26	1/30/10	16:58	188.26	1/31/10	6:13	188.31	1/31/10	19:28	188.37
1/29/10	14:43	188.53	1/30/10	3:58	188.26	1/30/10	17:13	188.26	1/31/10	6:28	188.37	1/31/10	19:43	188.37
1/29/10	14:58	188.48	1/30/10	4:13	188.20	1/30/10	17:28	188.26	1/31/10	6:43	188.31	1/31/10	19:58	188.37
1/29/10	15:13	188.42	1/30/10	4:28	188.26	1/30/10	17:43	188.26	1/31/10	6:58	188.31	1/31/10	20:13	188.37
1/29/10	15:28	188.37	1/30/10	4:43	188.26	1/30/10	17:58	188.26	1/31/10	7:13	188.31	1/31/10	20:28	188.37
1/29/10	15:43	188.31	1/30/10	4:58	188.26	1/30/10	18:13	188.26	1/31/10	7:28	188.31	1/31/10	20:43	188.37
1/29/10	15:58	188.31	1/30/10	5:13	188.26	1/30/10	18:28	188.26	1/31/10	7:43	188.31	1/31/10	20:58	188.37
1/29/10	16:13	188.31	1/30/10	5:28	188.20	1/30/10	18:43	188.26	1/31/10	7:58	188.31	1/31/10	21:13	188.37
1/29/10	16:28	188.31	1/30/10	5:43	188.26	1/30/10	18:58	188.26	1/31/10	8:13	188.31	1/31/10	21:28	188.37
1/29/10	16:43	188.26	1/30/10	5:58	188.20	1/30/10	19:13	188.26	1/31/10	8:28	188.31	1/31/10	21:43	188.37
1/29/10	16:58	188.31	1/30/10	6:13	188.26	1/30/10	19:28	188.26	1/31/10	8:43	188.31	1/31/10	21:58	188.37
1/29/10	17:13	188.26	1/30/10	6:28	188.26	1/30/10	19:43	188.26	1/31/10	8:58	188.31	1/31/10	22:13	188.37
1/29/10	17:28	188.26	1/30/10	6:43	188.20	1/30/10	19:58	188.26	1/31/10	9:13	188.31	1/31/10	22:28	188.42
1/29/10	17:43	188.26	1/30/10	6:58	188.20	1/30/10	20:13	188.26	1/31/10	9:28	188.31	1/31/10	22:43	188.37
1/29/10	17:58	188.26	1/30/10	7:13	188.14	1/30/10	20:28	188.26	1/31/10	9:43	188.31	1/31/10	22:58	188.37
1/29/10	18:13	188.26	1/30/10	7:28	188.20	1/30/10	20:43	188.20	1/31/10	9:58	188.37	1/31/10	23:13	188.37
1/29/10	18:28	188.26	1/30/10	7:43	188.20	1/30/10	20:58	188.26	1/31/10	10:13	188.31	1/31/10	23:28	188.37
1/29/10	18:43	188.26	1/30/10	7:58	188.20	1/30/10	21:13	188.26	1/31/10	10:28	188.37	1/31/10	23:43	188.37
1/29/10	18:58	188.26	1/30/10	8:13	188.20	1/30/10	21:28	188.26	1/31/10	10:43	188.37	1/31/10	23:58	188.42
1/29/10	19:13	188.20	1/30/10	8:28	188.20	1/30/10	21:43	188.26	1/31/10	10:58	188.37	2/1/10	0:13	188.42
1/29/10	19:28	188.20	1/30/10	8:43	188.20	1/30/10	21:58	188.26	1/31/10	11:13	188.37	2/1/10	0:28	188.42
1/29/10	19:43	188.20	1/30/10	8:58	188.20	1/30/10	22:13	188.26	1/31/10	11:28	188.37	2/1/10	0:43	188.37
1/29/10	19:58	188.26	1/30/10	9:13	188.14	1/30/10	22:28	188.31	1/31/10	11:43	188.37	2/1/10	0:58	188.42
1/29/10	20:13	188.26	1/30/10	9:28	188.20	1/30/10	22:43	188.26	1/31/10	11:58	188.37	2/1/10	1:13	188.42
1/29/10	20:28	188.26	1/30/10	9:43	188.20	1/30/10	22:58	188.31	1/31/10	12:13	188.37	2/1/10	1:28	188.42
1/29/10	20:43	188.26	1/30/10	9:58	188.20	1/30/10	23:13	188.31	1/31/10	12:28	188.37	2/1/10	1:43	188.42
1/29/10	20:58	188.26	1/30/10	10:13	188.20	1/30/10	23:28	188.31	1/31/10	12:43	188.37	2/1/10	1:58	188.42
1/29/10	21:13	188.20	1/30/10	10:28	188.26	1/30/10	23:43	188.31	1/31/10	12:58	188.37	2/1/10	2:13	188.37
1/29/10	21:28	188.26	1/30/10	10:43	188.26	1/30/10	23:58	188.31	1/31/10	13:13	188.42	2/1/10	2:28	188.37
1/29/10	21:43	188.26	1/30/10	10:58	188.20	1/31/10	0:13	188.31	1/31/10	13:28	188.37	2/1/10	2:43	188.42
1/29/10	21:58	188.26	1/30/10	11:13	188.26	1/31/10	0:28	188.31	1/31/10	13:43	188.42	2/1/10	2:58	188.37
1/29/10	22:13	188.26	1/30/10	11:28	188.26	1/31/10	0:43	188.31	1/31/10	13:58	188.42	2/1/10	3:13	188.37
1/29/10	22:28	188.26	1/30/10	11:43	188.26	1/31/10	0:58	188.31	1/31/10	14:13	188.37	2/1/10	3:28	188.37
1/29/10	22:43	188.26	1/30/10	11:58	188.26	1/31/10	1:13	188.31	1/31/10	14:28	188.42	2/1/10	3:43	188.37
1/29/10	22:58	188.26	1/30/10	12:13	188.26	1/31/10	1:28	188.31	1/31/10	14:43	188.37	2/1/10	3:58	188.37
1/29/10	23:13	188.26	1/30/10	12:28	188.26	1/31/10	1:43	188.31	1/31/10	14:58	188.37	2/1/10	4:13	188.37
1/29/10	23:28	188.26	1/30/10	12:43	188.26	1/31/10	1:58	188.37	1/31/10	15:13	188.37	2/1/10	4:28	188.37
1/29/10	23:43	188.26	1/30/10	12:58	188.26	1/31/10	2:13	188.31	1/31/10	15:28	188.42	2/1/10	4:43	188.37
1/29/10	23:58	188.26	1/30/10	13:13	188.26	1/31/10	2:28	188.37	1/31/10	15:43	188.37	2/1/10	4:58	188.37
1/30/10	0:13	188.26	1/30/10	13:28	188.26	1/31/10	2:43	188.31	1/31/10	15:58	188.37	2/1/10	5:13	188.37
1/30/10	0:28	188.26	1/30/10	13:43	188.26	1/31/10	2:58	188.31	1/31/10	16:13	188.37	2/1/10	5:28	188.37
1/30/10	0:43	188.26	1/30/10	13:58	188.26	1/31/10	3:13	188.37	1/31/10	16:28	188.37	2/1/10	5:43	188.37
1/30/10	0:58	188.26	1/30/10	14:13	188.26	1/31/10	3:28	188.37	1/31/10	16:43	188.37	2/1/10	5:58	188.37
1/30/10	1:13	188.26	1/30/10	14:28	188.26	1/31/10	3:43	188.31	1/31/10	16:58	188.37	2/1/10	6:13	188.37
1/30/10	1:28	188.26	1/30/10	14:43	188.26	1/31/10	3:58	188.37	1/31/10	17:13	188.37	2/1/10	6:28	188.37
1/30/10	1:43	188.26	1/30/10	14:58	188.26	1/31/10	4:13	188.31	1/31/10	17:28	188.37	2/1/10	6:43	188.37
1/30/10	1:58	188.31	1/30/10	15:13	188.26	1/31/10	4:28	188.31	1/31/10	17:43	188.37	2/1/10	6:58	188.37
1/30/10	2:13	188.26	1/30/10	15:28	188.26	1/31/10	4:43	188.31	1/31/10	17:58	188.37	2/1/10	7:13	188.31
1/30/10	2:28	188.26	1/30/10	15:43	188.26	1/31/10	4:58	188.31	1/31/10	18:13	188.37	2/1/10	7:28	188.37

TABLE D6B.6-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-9, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/1/10	7:43	188.37	2/1/10	12:18	374.66	2/1/10	15:00	436.87	2/1/10	15:53	420.98	2/1/10	16:46	420.70
2/1/10	7:58	188.31	2/1/10	14:08	435.74	2/1/10	15:01	436.87	2/1/10	15:54	420.87	2/1/10	16:47	420.70
2/1/10	8:13	188.31	2/1/10	14:09	436.46	2/1/10	15:02	436.92	2/1/10	15:55	420.81	2/1/10	16:48	420.70
2/1/10	8:28	188.31	2/1/10	14:10	435.79	2/1/10	15:03	436.92	2/1/10	15:56	420.75	2/1/10	16:49	420.64
2/1/10	8:43	188.31	2/1/10	14:11	435.85	2/1/10	15:04	436.92	2/1/10	15:57	420.70	2/1/10	16:50	420.59
2/1/10	8:58	188.31	2/1/10	14:12	435.85	2/1/10	15:05	436.92	2/1/10	15:58	420.64	2/1/10	16:51	420.59
2/1/10	9:13	188.31	2/1/10	14:13	435.90	2/1/10	15:06	436.98	2/1/10	15:59	420.59	2/1/10	16:52	420.59
2/1/10	9:28	188.31	2/1/10	14:14	435.90	2/1/10	15:07	436.20	2/1/10	16:00	420.59	2/1/10	16:53	420.53
2/1/10	9:43	188.31	2/1/10	14:15	435.96	2/1/10	15:08	436.14	2/1/10	16:01	420.53	2/1/10	16:54	420.53
2/1/10	9:58	188.31	2/1/10	14:16	435.96	2/1/10	15:09	435.92	2/1/10	16:02	420.48	2/1/10	16:55	420.53
2/1/10	10:13	188.31	2/1/10	14:17	436.02	2/1/10	15:10	436.03	2/1/10	16:03	420.42	2/1/10	16:56	420.53
2/1/10	10:28	188.31	2/1/10	14:18	436.02	2/1/10	15:11	436.03	2/1/10	16:04	420.42	2/1/10	16:57	420.48
2/1/10	10:43	188.31	2/1/10	14:19	436.07	2/1/10	15:12	434.48	2/1/10	16:05	420.37	2/1/10	16:58	420.53
2/1/10	10:58	188.31	2/1/10	14:20	436.07	2/1/10	15:13	433.42	2/1/10	16:06	420.37	2/1/10	16:59	420.53
2/1/10	11:13	188.31	2/1/10	14:21	436.13	2/1/10	15:14	432.09	2/1/10	16:07	420.37	2/1/10	17:00	420.49
2/1/10	11:28	188.31	2/1/10	14:22	436.07	2/1/10	15:15	430.98	2/1/10	16:08	420.31	2/1/10	17:01	420.49
2/1/10	11:41	188.37	2/1/10	14:23	436.13	2/1/10	15:16	429.92	2/1/10	16:09	420.25	2/1/10	17:02	420.55
2/1/10	11:42	188.25	2/1/10	14:24	436.13	2/1/10	15:17	429.03	2/1/10	16:10	420.25	2/1/10	17:03	420.55
2/1/10	11:43	188.25	2/1/10	14:25	436.18	2/1/10	15:18	428.20	2/1/10	16:11	420.25	2/1/10	17:04	420.49
2/1/10	11:44	188.31	2/1/10	14:26	436.18	2/1/10	15:19	427.42	2/1/10	16:12	420.25	2/1/10	17:05	420.49
2/1/10	11:45	188.25	2/1/10	14:27	436.18	2/1/10	15:20	426.75	2/1/10	16:13	420.25	2/1/10	17:06	420.49
2/1/10	11:46	188.25	2/1/10	14:28	436.13	2/1/10	15:21	426.09	2/1/10	16:14	420.25	2/1/10	17:07	420.44
2/1/10	11:47	188.25	2/1/10	14:29	436.18	2/1/10	15:22	425.53	2/1/10	16:15	420.25	2/1/10	17:08	420.49
2/1/10	11:48	188.25	2/1/10	14:30	436.18	2/1/10	15:23	425.09	2/1/10	16:16	420.25	2/1/10	17:09	420.49
2/1/10	11:49	188.31	2/1/10	14:31	436.24	2/1/10	15:24	424.59	2/1/10	16:17	420.25	2/1/10	17:10	420.44
2/1/10	11:50	188.31	2/1/10	14:32	436.24	2/1/10	15:25	424.14	2/1/10	16:18	421.53	2/1/10	17:11	420.44
2/1/10	11:51	188.31	2/1/10	14:33	436.24	2/1/10	15:26	423.75	2/1/10	16:19	423.09	2/1/10	17:12	420.44
2/1/10	11:52	188.25	2/1/10	14:34	436.24	2/1/10	15:27	423.42	2/1/10	16:20	424.42	2/1/10	17:13	420.44
2/1/10	11:53	188.31	2/1/10	14:35	436.29	2/1/10	15:28	423.14	2/1/10	16:21	424.87	2/1/10	17:14	420.44
2/1/10	11:54	188.31	2/1/10	14:36	436.35	2/1/10	15:29	422.81	2/1/10	16:22	424.42	2/1/10	17:15	420.44
2/1/10	11:55	188.25	2/1/10	14:37	436.35	2/1/10	15:30	423.03	2/1/10	16:23	423.98	2/1/10	17:16	420.49
2/1/10	11:56	188.25	2/1/10	14:38	436.35	2/1/10	15:31	424.37	2/1/10	16:24	423.64	2/1/10	17:17	420.49
2/1/10	11:57	188.31	2/1/10	14:39	436.35	2/1/10	15:32	425.31	2/1/10	16:25	423.25	2/1/10	17:18	420.49
2/1/10	11:58	188.25	2/1/10	14:40	436.35	2/1/10	15:33	426.31	2/1/10	16:26	423.03	2/1/10	17:19	420.49
2/1/10	11:59	188.25	2/1/10	14:41	436.40	2/1/10	15:34	425.64	2/1/10	16:27	422.75	2/1/10	17:20	420.49
2/1/10	12:00	188.16	2/1/10	14:42	436.40	2/1/10	15:35	425.20	2/1/10	16:28	422.53	2/1/10	17:21	420.55
2/1/10	12:01	188.21	2/1/10	14:43	436.46	2/1/10	15:36	424.64	2/1/10	16:29	422.31	2/1/10	17:22	420.55
2/1/10	12:02	188.16	2/1/10	14:44	436.46	2/1/10	15:37	424.20	2/1/10	16:30	422.14	2/1/10	17:23	420.55
2/1/10	12:03	188.21	2/1/10	14:45	436.52	2/1/10	15:38	423.87	2/1/10	16:31	421.98	2/1/10	17:24	420.60
2/1/10	12:04	188.21	2/1/10	14:46	436.57	2/1/10	15:39	423.48	2/1/10	16:32	421.81	2/1/10	17:25	420.60
2/1/10	12:05	188.21	2/1/10	14:47	436.57	2/1/10	15:40	423.14	2/1/10	16:33	421.70	2/1/10	17:26	420.60
2/1/10	12:06	199.93	2/1/10	14:48	436.57	2/1/10	15:41	422.87	2/1/10	16:34	421.53	2/1/10	17:27	420.60
2/1/10	12:07	224.60	2/1/10	14:49	436.63	2/1/10	15:42	422.64	2/1/10	16:35	421.48	2/1/10	17:28	420.60
2/1/10	12:08	246.71	2/1/10	14:50	436.63	2/1/10	15:43	422.42	2/1/10	16:36	421.37	2/1/10	17:29	420.66
2/1/10	12:09	266.71	2/1/10	14:51	436.63	2/1/10	15:44	422.20	2/1/10	16:37	421.25	2/1/10	17:30	420.66
2/1/10	12:10	284.54	2/1/10	14:52	436.68	2/1/10	15:45	422.03	2/1/10	16:38	421.20	2/1/10	17:31	420.66
2/1/10	12:11	300.43	2/1/10	14:53	436.68	2/1/10	15:46	421.87	2/1/10	16:39	421.09	2/1/10	17:32	420.66
2/1/10	12:12	314.66	2/1/10	14:54	436.74	2/1/10	15:47	421.70	2/1/10	16:40	421.03	2/1/10	17:33	420.72
2/1/10	12:13	327.49	2/1/10	14:55	436.74	2/1/10	15:48	421.53	2/1/10	16:41	420.98	2/1/10	17:34	420.72
2/1/10	12:14	338.82	2/1/10	14:56	436.79	2/1/10	15:49	421.42	2/1/10	16:42	420.87	2/1/10	17:35	420.72
2/1/10	12:15	348.99	2/1/10	14:57	436.79	2/1/10	15:50	421.31	2/1/10	16:43	420.87	2/1/10	17:36	420.72
2/1/10	12:16	358.60	2/1/10	14:58	436.79	2/1/10	15:51	421.14	2/1/10	16:44	420.81	2/1/10	17:37	420.72
2/1/10	12:17	367.04	2/1/10	14:59	436.79	2/1/10	15:52	421.03	2/1/10	16:45	420.75	2/1/10	17:38	420.77

TABLE D6B.6-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-9, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/1/10	17:39	420.77	2/1/10	18:32	420.97	2/1/10	19:25	421.30	2/1/10	20:18	421.71	2/1/10	21:11	422.15
2/1/10	17:40	420.77	2/1/10	18:33	421.03	2/1/10	19:26	421.36	2/1/10	20:19	421.71	2/1/10	21:12	422.15
2/1/10	17:41	420.77	2/1/10	18:34	421.03	2/1/10	19:27	421.36	2/1/10	20:20	421.71	2/1/10	21:13	422.21
2/1/10	17:42	420.77	2/1/10	18:35	420.97	2/1/10	19:28	421.30	2/1/10	20:21	421.77	2/1/10	21:14	422.15
2/1/10	17:43	420.83	2/1/10	18:36	421.03	2/1/10	19:29	421.36	2/1/10	20:22	421.71	2/1/10	21:15	422.21
2/1/10	17:44	420.83	2/1/10	18:37	421.03	2/1/10	19:30	421.36	2/1/10	20:23	421.77	2/1/10	21:16	422.21
2/1/10	17:45	420.83	2/1/10	18:38	421.03	2/1/10	19:31	421.36	2/1/10	20:24	421.77	2/1/10	21:17	422.21
2/1/10	17:46	420.83	2/1/10	18:39	421.03	2/1/10	19:32	421.36	2/1/10	20:25	421.77	2/1/10	21:18	422.21
2/1/10	17:47	420.88	2/1/10	18:40	421.03	2/1/10	19:33	421.41	2/1/10	20:26	421.77	2/1/10	21:19	422.21
2/1/10	17:48	420.88	2/1/10	18:41	421.03	2/1/10	19:34	421.41	2/1/10	20:27	421.82	2/1/10	21:20	422.32
2/1/10	17:49	420.94	2/1/10	18:42	421.03	2/1/10	19:35	421.41	2/1/10	20:28	421.82	2/1/10	21:21	422.27
2/1/10	17:50	420.88	2/1/10	18:43	421.08	2/1/10	19:36	421.41	2/1/10	20:29	421.77	2/1/10	21:22	422.32
2/1/10	17:51	420.88	2/1/10	18:44	421.03	2/1/10	19:37	421.47	2/1/10	20:30	421.88	2/1/10	21:23	422.27
2/1/10	17:52	420.94	2/1/10	18:45	421.08	2/1/10	19:38	421.47	2/1/10	20:31	421.88	2/1/10	21:24	422.32
2/1/10	17:53	420.94	2/1/10	18:46	421.08	2/1/10	19:39	421.47	2/1/10	20:32	421.88	2/1/10	21:25	422.32
2/1/10	17:54	420.94	2/1/10	18:47	421.08	2/1/10	19:40	421.47	2/1/10	20:33	421.82	2/1/10	21:26	422.32
2/1/10	17:55	420.94	2/1/10	18:48	421.08	2/1/10	19:41	421.47	2/1/10	20:34	421.88	2/1/10	21:27	422.32
2/1/10	17:56	420.94	2/1/10	18:49	421.14	2/1/10	19:42	421.47	2/1/10	20:35	421.88	2/1/10	21:28	422.38
2/1/10	17:57	420.99	2/1/10	18:50	421.08	2/1/10	19:43	421.47	2/1/10	20:36	421.88	2/1/10	21:29	422.38
2/1/10	17:58	420.94	2/1/10	18:51	421.14	2/1/10	19:44	421.47	2/1/10	20:37	421.88	2/1/10	21:30	422.32
2/1/10	17:59	420.94	2/1/10	18:52	421.14	2/1/10	19:45	421.47	2/1/10	20:38	421.88	2/1/10	21:31	422.32
2/1/10	18:00	421.03	2/1/10	18:53	421.14	2/1/10	19:46	421.53	2/1/10	20:39	421.88	2/1/10	21:32	422.38
2/1/10	18:01	420.97	2/1/10	18:54	421.14	2/1/10	19:47	421.53	2/1/10	20:40	421.88	2/1/10	21:33	422.32
2/1/10	18:02	421.03	2/1/10	18:55	421.14	2/1/10	19:48	421.47	2/1/10	20:41	421.93	2/1/10	21:34	422.32
2/1/10	18:03	421.03	2/1/10	18:56	421.14	2/1/10	19:49	421.53	2/1/10	20:42	421.93	2/1/10	21:35	422.43
2/1/10	18:04	421.03	2/1/10	18:57	421.14	2/1/10	19:50	421.53	2/1/10	20:43	421.99	2/1/10	21:36	422.38
2/1/10	18:05	421.03	2/1/10	18:58	421.14	2/1/10	19:51	421.53	2/1/10	20:44	421.99	2/1/10	21:37	422.43
2/1/10	18:06	420.97	2/1/10	18:59	421.19	2/1/10	19:52	421.53	2/1/10	20:45	421.99	2/1/10	21:38	422.43
2/1/10	18:07	421.03	2/1/10	19:00	421.14	2/1/10	19:53	421.53	2/1/10	20:46	422.04	2/1/10	21:39	422.49
2/1/10	18:08	421.03	2/1/10	19:01	421.19	2/1/10	19:54	421.64	2/1/10	20:47	421.99	2/1/10	21:40	422.43
2/1/10	18:09	421.03	2/1/10	19:02	421.14	2/1/10	19:55	421.58	2/1/10	20:48	421.99	2/1/10	21:41	422.49
2/1/10	18:10	421.03	2/1/10	19:03	421.14	2/1/10	19:56	421.58	2/1/10	20:49	422.04	2/1/10	21:42	422.49
2/1/10	18:11	421.03	2/1/10	19:04	421.14	2/1/10	19:57	421.58	2/1/10	20:50	422.04	2/1/10	21:43	422.49
2/1/10	18:12	421.08	2/1/10	19:05	421.19	2/1/10	19:58	421.58	2/1/10	20:51	422.10	2/1/10	21:44	422.49
2/1/10	18:13	421.03	2/1/10	19:06	421.19	2/1/10	19:59	421.58	2/1/10	20:52	422.04	2/1/10	21:45	422.54
2/1/10	18:14	421.03	2/1/10	19:07	421.14	2/1/10	20:00	421.65	2/1/10	20:53	422.10	2/1/10	21:46	422.54
2/1/10	18:15	421.03	2/1/10	19:08	421.19	2/1/10	20:01	421.60	2/1/10	20:54	422.10	2/1/10	21:47	422.54
2/1/10	18:16	421.03	2/1/10	19:09	421.19	2/1/10	20:02	421.60	2/1/10	20:55	422.10	2/1/10	21:48	422.54
2/1/10	18:17	421.03	2/1/10	19:10	421.19	2/1/10	20:03	421.65	2/1/10	20:56	422.10	2/1/10	21:49	422.60
2/1/10	18:18	421.08	2/1/10	19:11	421.25	2/1/10	20:04	421.65	2/1/10	20:57	422.15	2/1/10	21:50	422.60
2/1/10	18:19	421.03	2/1/10	19:12	421.19	2/1/10	20:05	421.65	2/1/10	20:58	422.15	2/1/10	21:51	422.60
2/1/10	18:20	421.03	2/1/10	19:13	421.19	2/1/10	20:06	421.65	2/1/10	20:59	422.15	2/1/10	21:52	422.60
2/1/10	18:21	420.97	2/1/10	19:14	421.19	2/1/10	20:07	421.65	2/1/10	21:00	422.15	2/1/10	21:53	422.60
2/1/10	18:22	421.03	2/1/10	19:15	421.25	2/1/10	20:08	421.65	2/1/10	21:01	422.21	2/1/10	21:54	422.60
2/1/10	18:23	420.97	2/1/10	19:16	421.25	2/1/10	20:09	421.71	2/1/10	21:02	422.21	2/1/10	21:55	422.65
2/1/10	18:24	420.97	2/1/10	19:17	421.25	2/1/10	20:10	421.71	2/1/10	21:03	422.21	2/1/10	21:56	422.65
2/1/10	18:25	421.03	2/1/10	19:18	421.25	2/1/10	20:11	421.71	2/1/10	21:04	422.15	2/1/10	21:57	422.65
2/1/10	18:26	421.03	2/1/10	19:19	421.25	2/1/10	20:12	421.65	2/1/10	21:05	422.21	2/1/10	21:58	422.65
2/1/10	18:27	421.03	2/1/10	19:20	421.25	2/1/10	20:13	421.71	2/1/10	21:06	422.21	2/1/10	21:59	422.65
2/1/10	18:28	420.97	2/1/10	19:21	421.30	2/1/10	20:14	421.71	2/1/10	21:07	422.15	2/1/10	22:00	422.67
2/1/10	18:29	420.97	2/1/10	19:22	421.30	2/1/10	20:15	421.71	2/1/10	21:08	422.15	2/1/10	22:01	422.67
2/1/10	18:30	420.97	2/1/10	19:23	421.30	2/1/10	20:16	421.71	2/1/10	21:09	422.21	2/1/10	22:02	422.73
2/1/10	18:31	420.97	2/1/10	19:24	421.30	2/1/10	20:17	421.71	2/1/10	21:10	422.15	2/1/10	22:03	422.73

TABLE D6B.6-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-9, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/1/10	22:04	422.73	2/1/10	22:57	423.00	2/1/10	23:50	423.23	2/2/10	3:35	424.34	2/2/10	8:00	424.62
2/1/10	22:05	422.73	2/1/10	22:58	423.06	2/1/10	23:51	423.23	2/2/10	3:40	424.34	2/2/10	8:05	424.62
2/1/10	22:06	422.73	2/1/10	22:59	423.06	2/1/10	23:52	423.23	2/2/10	3:45	424.39	2/2/10	8:10	424.68
2/1/10	22:07	422.73	2/1/10	23:00	423.06	2/1/10	23:53	423.23	2/2/10	3:50	424.39	2/2/10	8:15	424.62
2/1/10	22:08	422.73	2/1/10	23:01	423.06	2/1/10	23:54	423.23	2/2/10	3:55	424.45	2/2/10	8:20	424.62
2/1/10	22:09	422.73	2/1/10	23:02	423.06	2/1/10	23:55	423.23	2/2/10	4:00	424.43	2/2/10	8:25	424.62
2/1/10	22:10	422.73	2/1/10	23:03	423.06	2/1/10	23:56	423.23	2/2/10	4:05	424.49	2/2/10	8:30	424.57
2/1/10	22:11	422.73	2/1/10	23:04	423.11	2/1/10	23:57	423.28	2/2/10	4:10	424.60	2/2/10	8:35	424.62
2/1/10	22:12	422.78	2/1/10	23:05	423.06	2/1/10	23:58	423.23	2/2/10	4:15	424.60	2/2/10	8:40	424.62
2/1/10	22:13	422.73	2/1/10	23:06	423.11	2/1/10	23:59	423.28	2/2/10	4:20	424.65	2/2/10	8:45	424.62
2/1/10	22:14	422.73	2/1/10	23:07	423.11	2/2/10	0:00	423.28	2/2/10	4:25	424.65	2/2/10	8:50	424.57
2/1/10	22:15	422.78	2/1/10	23:08	423.11	2/2/10	0:05	423.28	2/2/10	4:30	424.65	2/2/10	8:55	424.57
2/1/10	22:16	422.78	2/1/10	23:09	423.11	2/2/10	0:10	423.34	2/2/10	4:35	424.65	2/2/10	9:00	424.62
2/1/10	22:17	422.73	2/1/10	23:10	423.06	2/2/10	0:15	423.34	2/2/10	4:40	424.65	2/2/10	9:05	424.62
2/1/10	22:18	422.78	2/1/10	23:11	423.06	2/2/10	0:20	423.34	2/2/10	4:45	424.60	2/2/10	9:10	424.45
2/1/10	22:19	422.73	2/1/10	23:12	423.06	2/2/10	0:25	423.45	2/2/10	4:50	424.60	2/2/10	9:15	424.57
2/1/10	22:20	422.78	2/1/10	23:13	423.06	2/2/10	0:30	423.50	2/2/10	4:55	424.60	2/2/10	9:20	424.62
2/1/10	22:21	422.78	2/1/10	23:14	423.06	2/2/10	0:35	423.50	2/2/10	5:00	424.58	2/2/10	9:25	424.68
2/1/10	22:22	422.78	2/1/10	23:15	423.06	2/2/10	0:40	423.50	2/2/10	5:05	424.58	2/2/10	9:30	424.73
2/1/10	22:23	422.78	2/1/10	23:16	423.06	2/2/10	0:45	423.56	2/2/10	5:10	424.58	2/2/10	9:35	424.68
2/1/10	22:24	422.78	2/1/10	23:17	423.06	2/2/10	0:50	423.56	2/2/10	5:15	424.58	2/2/10	9:40	424.57
2/1/10	22:25	422.84	2/1/10	23:18	423.06	2/2/10	0:55	423.61	2/2/10	5:20	424.58	2/2/10	9:45	424.45
2/1/10	22:26	422.84	2/1/10	23:19	423.11	2/2/10	1:00	423.73	2/2/10	5:25	424.58	2/2/10	9:50	424.45
2/1/10	22:27	422.84	2/1/10	23:20	423.11	2/2/10	1:05	423.73	2/2/10	5:30	424.58	2/2/10	9:55	424.45
2/1/10	22:28	422.84	2/1/10	23:21	423.11	2/2/10	1:10	423.78	2/2/10	5:35	424.58	2/2/10	10:00	424.48
2/1/10	22:29	422.84	2/1/10	23:22	423.06	2/2/10	1:15	423.73	2/2/10	5:40	424.58	2/2/10	10:05	424.70
2/1/10	22:30	422.84	2/1/10	23:23	423.06	2/2/10	1:20	423.73	2/2/10	5:45	424.58	2/2/10	10:10	424.59
2/1/10	22:31	422.89	2/1/10	23:24	423.11	2/2/10	1:25	423.78	2/2/10	5:50	424.64	2/2/10	10:15	424.53
2/1/10	22:32	422.84	2/1/10	23:25	423.11	2/2/10	1:30	423.78	2/2/10	5:55	424.64	2/2/10	10:20	424.48
2/1/10	22:33	422.89	2/1/10	23:26	423.11	2/2/10	1:35	423.84	2/2/10	6:00	424.69	2/2/10	10:25	424.48
2/1/10	22:34	422.89	2/1/10	23:27	423.11	2/2/10	1:40	423.84	2/2/10	6:05	424.69	2/2/10	10:30	424.53
2/1/10	22:35	422.89	2/1/10	23:28	423.17	2/2/10	1:45	423.84	2/2/10	6:10	424.64	2/2/10	10:35	424.53
2/1/10	22:36	422.89	2/1/10	23:29	423.11	2/2/10	1:50	423.89	2/2/10	6:15	424.64	2/2/10	10:40	424.53
2/1/10	22:37	422.89	2/1/10	23:30	423.11	2/2/10	1:55	423.89	2/2/10	6:20	424.69	2/2/10	10:45	424.59
2/1/10	22:38	422.89	2/1/10	23:31	423.17	2/2/10	2:00	423.88	2/2/10	6:25	424.69	2/2/10	10:50	424.53
2/1/10	22:39	422.89	2/1/10	23:32	423.11	2/2/10	2:05	423.93	2/2/10	6:30	424.64	2/2/10	10:55	424.53
2/1/10	22:40	422.95	2/1/10	23:33	423.11	2/2/10	2:10	423.93	2/2/10	6:35	424.64	2/2/10	11:00	424.48
2/1/10	22:41	422.89	2/1/10	23:34	423.11	2/2/10	2:15	424.04	2/2/10	6:40	424.69	2/2/10	11:05	424.48
2/1/10	22:42	422.95	2/1/10	23:35	423.17	2/2/10	2:20	424.21	2/2/10	6:45	424.75	2/2/10	11:10	424.48
2/1/10	22:43	422.95	2/1/10	23:36	423.11	2/2/10	2:25	424.32	2/2/10	6:50	424.75	2/2/10	11:15	424.53
2/1/10	22:44	422.95	2/1/10	23:37	423.17	2/2/10	2:30	424.27	2/2/10	6:55	424.75	2/2/10	11:20	424.53
2/1/10	22:45	422.95	2/1/10	23:38	423.11	2/2/10	2:35	424.21	2/2/10	7:00	424.80	2/2/10	11:25	424.53
2/1/10	22:46	422.95	2/1/10	23:39	423.17	2/2/10	2:40	424.15	2/2/10	7:05	424.80	2/2/10	11:30	424.53
2/1/10	22:47	422.95	2/1/10	23:40	423.17	2/2/10	2:45	424.21	2/2/10	7:10	424.75	2/2/10	11:35	424.59
2/1/10	22:48	422.95	2/1/10	23:41	423.17	2/2/10	2:50	424.21	2/2/10	7:15	424.75	2/2/10	11:40	424.53
2/1/10	22:49	422.95	2/1/10	23:42	423.17	2/2/10	2:55	424.21	2/2/10	7:20	424.64	2/2/10	11:45	424.53
2/1/10	22:50	422.95	2/1/10	23:43	423.17	2/2/10	3:00	424.23	2/2/10	7:25	424.69	2/2/10	11:50	424.53
2/1/10	22:51	422.95	2/1/10	23:44	423.23	2/2/10	3:05	424.23	2/2/10	7:30	424.64	2/2/10	11:55	424.53
2/1/10	22:52	423.00	2/1/10	23:45	423.23	2/2/10	3:10	424.23	2/2/10	7:35	424.64	2/2/10	12:00	424.48
2/1/10	22:53	423.00	2/1/10	23:46	423.17	2/2/10	3:15	424.28	2/2/10	7:40	424.69	2/2/10	12:01	424.48
2/1/10	22:54	423.00	2/1/10	23:47	423.23	2/2/10	3:20	424.28	2/2/10	7:45	424.69	2/2/10	12:02	424.54
2/1/10	22:55	423.00	2/1/10	23:48	423.23	2/2/10	3:25	424.34	2/2/10	7:50	424.69	2/2/10	12:03	424.54
2/1/10	22:56	423.00	2/1/10	23:49	423.28	2/2/10	3:30	424.34	2/2/10	7:55	424.64	2/2/10	12:04	424.54

TABLE D6B.6-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-9, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/2/10	12:05	424.54	2/2/10	12:58	426.04	2/2/10	15:15	424.47	2/2/10	19:40	425.48	2/3/10	0:05	426.14
2/2/10	12:06	424.54	2/2/10	12:59	425.87	2/2/10	15:20	424.47	2/2/10	19:45	425.48	2/3/10	0:10	426.14
2/2/10	12:07	424.48	2/2/10	13:00	425.62	2/2/10	15:25	424.47	2/2/10	19:50	425.54	2/3/10	0:15	426.14
2/2/10	12:08	424.54	2/2/10	13:01	425.56	2/2/10	15:30	424.47	2/2/10	19:55	425.54	2/3/10	0:20	426.09
2/2/10	12:09	424.54	2/2/10	13:02	425.39	2/2/10	15:35	424.53	2/2/10	20:00	425.61	2/3/10	0:25	426.09
2/2/10	12:10	424.54	2/2/10	13:03	425.39	2/2/10	15:40	424.58	2/2/10	20:05	425.61	2/3/10	0:30	426.14
2/2/10	12:11	424.54	2/2/10	13:04	425.23	2/2/10	15:45	424.58	2/2/10	20:10	425.61	2/3/10	0:35	426.09
2/2/10	12:12	424.54	2/2/10	13:05	425.17	2/2/10	15:50	424.64	2/2/10	20:15	425.61	2/3/10	0:40	426.14
2/2/10	12:13	424.54	2/2/10	13:06	425.06	2/2/10	15:55	424.69	2/2/10	20:20	425.67	2/3/10	0:45	426.20
2/2/10	12:14	424.48	2/2/10	13:07	424.95	2/2/10	16:00	424.82	2/2/10	20:25	425.61	2/3/10	0:50	426.25
2/2/10	12:15	424.48	2/2/10	13:08	424.95	2/2/10	16:05	424.82	2/2/10	20:30	425.61	2/3/10	0:55	426.25
2/2/10	12:16	424.48	2/2/10	13:09	424.84	2/2/10	16:10	424.82	2/2/10	20:35	425.72	2/3/10	1:00	426.33
2/2/10	12:17	424.48	2/2/10	13:10	424.78	2/2/10	16:15	424.82	2/2/10	20:40	425.89	2/3/10	1:05	426.44
2/2/10	12:18	424.48	2/2/10	13:11	424.67	2/2/10	16:20	424.82	2/2/10	20:45	426.00	2/3/10	1:10	426.49
2/2/10	12:19	424.48	2/2/10	13:12	424.67	2/2/10	16:25	424.77	2/2/10	20:50	426.06	2/3/10	1:15	426.49
2/2/10	12:20	424.48	2/2/10	13:13	424.62	2/2/10	16:30	424.77	2/2/10	20:55	425.94	2/3/10	1:20	426.49
2/2/10	12:21	424.48	2/2/10	13:14	424.62	2/2/10	16:35	424.77	2/2/10	21:00	425.94	2/3/10	1:25	426.44
2/2/10	12:22	425.48	2/2/10	13:15	424.56	2/2/10	16:40	424.77	2/2/10	21:05	425.94	2/3/10	1:30	426.44
2/2/10	12:23	427.15	2/2/10	13:16	424.56	2/2/10	16:45	424.82	2/2/10	21:10	426.00	2/3/10	1:35	426.44
2/2/10	12:24	428.54	2/2/10	13:17	424.51	2/2/10	16:50	424.82	2/2/10	21:15	425.94	2/3/10	1:40	426.49
2/2/10	12:25	429.87	2/2/10	13:18	424.51	2/2/10	16:55	424.88	2/2/10	21:20	426.00	2/3/10	1:45	426.49
2/2/10	12:26	431.04	2/2/10	13:19	424.51	2/2/10	17:00	424.89	2/2/10	21:25	426.00	2/3/10	1:50	426.55
2/2/10	12:27	432.09	2/2/10	13:20	424.51	2/2/10	17:05	424.84	2/2/10	21:30	425.94	2/3/10	1:55	426.55
2/2/10	12:28	432.98	2/2/10	13:21	424.51	2/2/10	17:10	424.89	2/2/10	21:35	425.94	2/3/10	2:00	426.49
2/2/10	12:29	433.87	2/2/10	13:22	424.51	2/2/10	17:15	424.95	2/2/10	21:40	425.94	2/3/10	2:05	426.55
2/2/10	12:30	434.65	2/2/10	13:23	424.51	2/2/10	17:20	424.95	2/2/10	21:45	426.00	2/3/10	2:10	426.60
2/2/10	12:31	435.32	2/2/10	13:24	424.45	2/2/10	17:25	425.01	2/2/10	21:50	426.00	2/3/10	2:15	426.55
2/2/10	12:32	435.98	2/2/10	13:25	424.45	2/2/10	17:30	424.95	2/2/10	21:55	426.00	2/3/10	2:20	426.55
2/2/10	12:33	436.59	2/2/10	13:26	424.39	2/2/10	17:35	425.01	2/2/10	22:00	426.02	2/3/10	2:25	426.49
2/2/10	12:34	437.15	2/2/10	13:27	424.45	2/2/10	17:40	425.17	2/2/10	22:05	426.02	2/3/10	2:30	426.49
2/2/10	12:35	437.59	2/2/10	13:28	424.45	2/2/10	17:45	425.17	2/2/10	22:10	426.02	2/3/10	2:35	426.49
2/2/10	12:36	437.98	2/2/10	13:29	424.45	2/2/10	17:50	425.23	2/2/10	22:15	426.02	2/3/10	2:40	426.60
2/2/10	12:37	436.93	2/2/10	13:30	424.39	2/2/10	17:55	425.28	2/2/10	22:20	426.02	2/3/10	2:45	426.66
2/2/10	12:38	435.76	2/2/10	13:35	424.39	2/2/10	18:00	425.30	2/2/10	22:25	426.07	2/3/10	2:50	426.72
2/2/10	12:39	434.70	2/2/10	13:40	424.34	2/2/10	18:05	425.30	2/2/10	22:30	425.90	2/3/10	2:55	426.72
2/2/10	12:40	433.76	2/2/10	13:45	424.28	2/2/10	18:10	425.30	2/2/10	22:35	425.85	2/3/10	3:00	426.73
2/2/10	12:41	432.87	2/2/10	13:50	424.28	2/2/10	18:15	425.30	2/2/10	22:40	425.79	2/3/10	3:05	426.79
2/2/10	12:42	432.09	2/2/10	13:55	424.23	2/2/10	18:20	425.30	2/2/10	22:45	425.90	2/3/10	3:10	426.79
2/2/10	12:43	431.37	2/2/10	14:00	424.19	2/2/10	18:25	425.30	2/2/10	22:50	425.96	2/3/10	3:15	426.79
2/2/10	12:44	430.76	2/2/10	14:05	424.14	2/2/10	18:30	425.30	2/2/10	22:55	425.96	2/3/10	3:20	426.79
2/2/10	12:45	430.15	2/2/10	14:10	424.19	2/2/10	18:35	425.30	2/2/10	23:00	426.09	2/3/10	3:25	426.73
2/2/10	12:46	429.65	2/2/10	14:15	424.31	2/2/10	18:40	425.36	2/2/10	23:05	426.03	2/3/10	3:30	426.73
2/2/10	12:47	429.15	2/2/10	14:20	424.19	2/2/10	18:45	425.30	2/2/10	23:10	426.09	2/3/10	3:35	426.68
2/2/10	12:48	428.76	2/2/10	14:25	424.31	2/2/10	18:50	425.30	2/2/10	23:15	426.09	2/3/10	3:40	426.68
2/2/10	12:49	428.32	2/2/10	14:30	424.31	2/2/10	18:55	425.30	2/2/10	23:20	426.09	2/3/10	3:45	426.68
2/2/10	12:50	427.98	2/2/10	14:35	424.36	2/2/10	19:00	425.43	2/2/10	23:25	426.14	2/3/10	3:50	426.73
2/2/10	12:51	427.70	2/2/10	14:40	424.36	2/2/10	19:05	425.43	2/2/10	23:30	426.14	2/3/10	3:55	426.68
2/2/10	12:52	427.37	2/2/10	14:45	424.42	2/2/10	19:10	425.43	2/2/10	23:35	426.14	2/3/10	4:00	426.83
2/2/10	12:53	427.09	2/2/10	14:50	424.47	2/2/10	19:15	425.48	2/2/10	23:40	426.09	2/3/10	4:05	426.88
2/2/10	12:54	426.82	2/2/10	14:55	424.47	2/2/10	19:20	425.43	2/2/10	23:45	426.14	2/3/10	4:10	426.94
2/2/10	12:55	426.59	2/2/10	15:00	424.47	2/2/10	19:25	425.43	2/2/10	23:50	426.09	2/3/10	4:15	427.05
2/2/10	12:56	426.43	2/2/10	15:05	424.47	2/2/10	19:30	425.43	2/2/10	23:55	426.14	2/3/10	4:20	427.10
2/2/10	12:57	426.20	2/2/10	15:10	424.42	2/2/10	19:35	425.43	2/3/10	0:00	426.09	2/3/10	4:25	427.10

TABLE D6B.6-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-9, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/3/10	4:30	427.10	2/3/10	8:55	426.91	2/3/10	10:32	442.93	2/3/10	11:25	443.29	2/3/10	12:18	443.24
2/3/10	4:35	427.05	2/3/10	9:00	426.93	2/3/10	10:33	442.99	2/3/10	11:26	443.23	2/3/10	12:19	443.24
2/3/10	4:40	426.94	2/3/10	9:05	426.93	2/3/10	10:34	443.04	2/3/10	11:27	443.29	2/3/10	12:20	443.24
2/3/10	4:45	426.88	2/3/10	9:10	426.88	2/3/10	10:35	443.10	2/3/10	11:28	443.23	2/3/10	12:21	443.29
2/3/10	4:50	426.88	2/3/10	9:15	426.82	2/3/10	10:36	443.15	2/3/10	11:29	443.23	2/3/10	12:22	443.29
2/3/10	4:55	426.77	2/3/10	9:20	426.77	2/3/10	10:37	443.10	2/3/10	11:30	443.29	2/3/10	12:23	443.35
2/3/10	5:00	426.84	2/3/10	9:25	426.77	2/3/10	10:38	443.10	2/3/10	11:31	443.29	2/3/10	12:24	443.29
2/3/10	5:05	426.84	2/3/10	9:30	426.77	2/3/10	10:39	443.10	2/3/10	11:32	443.29	2/3/10	12:25	443.29
2/3/10	5:10	426.79	2/3/10	9:35	426.71	2/3/10	10:40	443.15	2/3/10	11:33	443.29	2/3/10	12:26	443.29
2/3/10	5:15	426.84	2/3/10	9:40	426.71	2/3/10	10:41	443.15	2/3/10	11:34	443.29	2/3/10	12:27	443.35
2/3/10	5:20	426.84	2/3/10	9:45	426.77	2/3/10	10:42	443.15	2/3/10	11:35	443.29	2/3/10	12:28	443.35
2/3/10	5:25	426.84	2/3/10	9:50	426.88	2/3/10	10:43	443.15	2/3/10	11:36	443.29	2/3/10	12:29	443.35
2/3/10	5:30	426.90	2/3/10	9:51	426.88	2/3/10	10:44	443.15	2/3/10	11:37	443.34	2/3/10	12:30	443.35
2/3/10	5:35	426.90	2/3/10	9:52	426.88	2/3/10	10:45	443.21	2/3/10	11:38	443.34	2/3/10	12:31	443.35
2/3/10	5:40	426.90	2/3/10	9:53	426.88	2/3/10	10:46	443.15	2/3/10	11:39	443.34	2/3/10	12:32	443.35
2/3/10	5:45	426.84	2/3/10	9:54	426.82	2/3/10	10:47	443.15	2/3/10	11:40	443.34	2/3/10	12:33	443.35
2/3/10	5:50	426.84	2/3/10	9:55	426.88	2/3/10	10:48	443.15	2/3/10	11:41	443.40	2/3/10	12:34	443.35
2/3/10	5:55	426.79	2/3/10	9:56	427.71	2/3/10	10:49	443.21	2/3/10	11:42	443.40	2/3/10	12:35	443.40
2/3/10	6:00	426.79	2/3/10	9:57	429.15	2/3/10	10:50	443.21	2/3/10	11:43	443.40	2/3/10	12:36	443.35
2/3/10	6:05	426.79	2/3/10	9:58	430.54	2/3/10	10:51	443.15	2/3/10	11:44	443.40	2/3/10	12:37	443.40
2/3/10	6:10	426.79	2/3/10	9:59	431.77	2/3/10	10:52	443.15	2/3/10	11:45	443.40	2/3/10	12:38	443.40
2/3/10	6:15	426.84	2/3/10	10:00	432.88	2/3/10	10:53	443.21	2/3/10	11:46	443.45	2/3/10	12:39	443.40
2/3/10	6:20	426.84	2/3/10	10:01	433.77	2/3/10	10:54	443.15	2/3/10	11:47	443.45	2/3/10	12:40	443.40
2/3/10	6:25	426.84	2/3/10	10:02	434.71	2/3/10	10:55	443.15	2/3/10	11:48	443.51	2/3/10	12:41	443.40
2/3/10	6:30	426.95	2/3/10	10:03	435.49	2/3/10	10:56	443.15	2/3/10	11:49	443.51	2/3/10	12:42	443.46
2/3/10	6:35	427.07	2/3/10	10:04	436.21	2/3/10	10:57	443.15	2/3/10	11:50	443.45	2/3/10	12:43	443.46
2/3/10	6:40	427.01	2/3/10	10:05	437.04	2/3/10	10:58	443.15	2/3/10	11:51	443.51	2/3/10	12:44	443.40
2/3/10	6:45	427.01	2/3/10	10:06	437.65	2/3/10	10:59	443.15	2/3/10	11:52	443.45	2/3/10	12:45	443.40
2/3/10	6:50	427.07	2/3/10	10:07	438.21	2/3/10	11:00	443.12	2/3/10	11:53	443.45	2/3/10	12:46	443.40
2/3/10	6:55	427.01	2/3/10	10:08	438.65	2/3/10	11:01	443.12	2/3/10	11:54	443.45	2/3/10	12:47	443.46
2/3/10	7:00	426.97	2/3/10	10:09	439.04	2/3/10	11:02	443.12	2/3/10	11:55	443.45	2/3/10	12:48	443.40
2/3/10	7:05	426.97	2/3/10	10:10	439.49	2/3/10	11:03	443.12	2/3/10	11:56	443.40	2/3/10	12:49	443.40
2/3/10	7:10	427.08	2/3/10	10:11	439.77	2/3/10	11:04	443.18	2/3/10	11:57	443.40	2/3/10	12:50	443.46
2/3/10	7:15	427.14	2/3/10	10:12	440.10	2/3/10	11:05	443.18	2/3/10	11:58	443.40	2/3/10	12:51	443.40
2/3/10	7:20	427.19	2/3/10	10:13	440.38	2/3/10	11:06	443.18	2/3/10	11:59	443.40	2/3/10	12:52	443.46
2/3/10	7:25	427.19	2/3/10	10:14	440.65	2/3/10	11:07	443.23	2/3/10	12:00	443.29	2/3/10	12:53	443.46
2/3/10	7:30	427.19	2/3/10	10:15	440.88	2/3/10	11:08	443.18	2/3/10	12:01	443.35	2/3/10	12:54	443.46
2/3/10	7:35	427.19	2/3/10	10:16	441.15	2/3/10	11:09	443.23	2/3/10	12:02	443.35	2/3/10	12:55	443.46
2/3/10	7:40	427.19	2/3/10	10:17	441.32	2/3/10	11:10	443.18	2/3/10	12:03	443.29	2/3/10	12:56	443.46
2/3/10	7:45	427.19	2/3/10	10:18	441.54	2/3/10	11:11	443.23	2/3/10	12:04	443.29	2/3/10	12:57	443.46
2/3/10	7:50	427.19	2/3/10	10:19	441.71	2/3/10	11:12	443.23	2/3/10	12:05	443.29	2/3/10	12:58	443.40
2/3/10	7:55	427.19	2/3/10	10:20	441.82	2/3/10	11:13	443.23	2/3/10	12:06	443.24	2/3/10	12:59	443.40
2/3/10	8:00	427.25	2/3/10	10:21	441.93	2/3/10	11:14	443.23	2/3/10	12:07	443.24	2/3/10	13:00	443.34
2/3/10	8:05	427.25	2/3/10	10:22	442.10	2/3/10	11:15	443.29	2/3/10	12:08	443.24	2/3/10	13:01	443.34
2/3/10	8:10	427.36	2/3/10	10:23	442.21	2/3/10	11:16	443.23	2/3/10	12:09	443.24	2/3/10	13:02	443.34
2/3/10	8:15	427.36	2/3/10	10:24	442.32	2/3/10	11:17	443.29	2/3/10	12:10	443.18	2/3/10	13:03	443.34
2/3/10	8:20	427.30	2/3/10	10:25	442.38	2/3/10	11:18	443.29	2/3/10	12:11	443.24	2/3/10	13:04	443.28
2/3/10	8:25	427.30	2/3/10	10:26	442.49	2/3/10	11:19	443.29	2/3/10	12:12	443.18	2/3/10	13:05	443.28
2/3/10	8:30	427.25	2/3/10	10:27	442.54	2/3/10	11:20	443.23	2/3/10	12:13	443.18	2/3/10	13:06	443.34
2/3/10	8:35	427.30	2/3/10	10:28	442.71	2/3/10	11:21	443.23	2/3/10	12:14	443.18	2/3/10	13:07	443.28
2/3/10	8:40	427.25	2/3/10	10:29	442.77	2/3/10	11:22	443.23	2/3/10	12:15	443.24	2/3/10	13:08	443.28
2/3/10	8:45	427.14	2/3/10	10:30	442.82	2/3/10	11:23	443.23	2/3/10	12:16	443.24	2/3/10	13:09	443.28
2/3/10	8:50	427.03	2/3/10	10:31	442.88	2/3/10	11:24	443.29	2/3/10	12:17	443.24	2/3/10	13:10	443.28

TABLE D6B.6-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-9, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/3/10	13:11	443.28	2/3/10	14:04	443.23	2/3/10	14:57	443.07	2/3/10	15:50	442.92	2/3/10	19:35	444.23
2/3/10	13:12	443.34	2/3/10	14:05	443.29	2/3/10	14:58	443.07	2/3/10	15:51	442.97	2/3/10	19:40	444.17
2/3/10	13:13	443.28	2/3/10	14:06	443.29	2/3/10	14:59	443.07	2/3/10	15:52	442.97	2/3/10	19:45	444.17
2/3/10	13:14	443.28	2/3/10	14:07	443.29	2/3/10	15:00	443.08	2/3/10	15:53	442.92	2/3/10	19:50	444.17
2/3/10	13:15	443.28	2/3/10	14:08	443.29	2/3/10	15:01	443.08	2/3/10	15:54	442.97	2/3/10	19:55	444.17
2/3/10	13:16	443.28	2/3/10	14:09	443.29	2/3/10	15:02	443.08	2/3/10	15:55	442.97	2/3/10	20:00	444.23
2/3/10	13:17	443.34	2/3/10	14:10	443.29	2/3/10	15:03	443.03	2/3/10	15:56	442.97	2/3/10	20:05	444.39
2/3/10	13:18	443.28	2/3/10	14:11	443.23	2/3/10	15:04	443.03	2/3/10	15:57	442.97	2/3/10	20:10	444.51
2/3/10	13:19	443.28	2/3/10	14:12	443.23	2/3/10	15:05	443.03	2/3/10	15:58	443.03	2/3/10	20:15	444.51
2/3/10	13:20	443.34	2/3/10	14:13	443.23	2/3/10	15:06	443.08	2/3/10	15:59	443.03	2/3/10	20:20	444.56
2/3/10	13:21	443.34	2/3/10	14:14	443.23	2/3/10	15:07	443.03	2/3/10	16:00	443.03	2/3/10	20:25	444.51
2/3/10	13:22	443.28	2/3/10	14:15	443.18	2/3/10	15:08	443.08	2/3/10	16:05	443.08	2/3/10	20:30	444.62
2/3/10	13:23	443.28	2/3/10	14:16	443.18	2/3/10	15:09	443.08	2/3/10	16:10	443.14	2/3/10	20:35	444.62
2/3/10	13:24	443.28	2/3/10	14:17	443.23	2/3/10	15:10	443.03	2/3/10	16:15	443.19	2/3/10	20:40	444.67
2/3/10	13:25	443.28	2/3/10	14:18	443.18	2/3/10	15:11	443.03	2/3/10	16:20	443.19	2/3/10	20:45	444.67
2/3/10	13:26	443.34	2/3/10	14:19	443.18	2/3/10	15:12	443.03	2/3/10	16:25	443.19	2/3/10	20:50	444.67
2/3/10	13:27	443.28	2/3/10	14:20	443.18	2/3/10	15:13	443.08	2/3/10	16:30	443.31	2/3/10	20:55	444.67
2/3/10	13:28	443.28	2/3/10	14:21	443.18	2/3/10	15:14	443.03	2/3/10	16:35	443.36	2/3/10	21:00	444.58
2/3/10	13:29	443.34	2/3/10	14:22	443.18	2/3/10	15:15	443.03	2/3/10	16:40	443.42	2/3/10	21:05	444.64
2/3/10	13:30	443.34	2/3/10	14:23	443.12	2/3/10	15:16	443.03	2/3/10	16:45	443.42	2/3/10	21:10	444.64
2/3/10	13:31	443.34	2/3/10	14:24	443.12	2/3/10	15:17	443.03	2/3/10	16:50	443.47	2/3/10	21:15	444.69
2/3/10	13:32	443.34	2/3/10	14:25	443.23	2/3/10	15:18	442.97	2/3/10	16:55	443.47	2/3/10	21:20	444.75
2/3/10	13:33	443.34	2/3/10	14:26	442.96	2/3/10	15:19	442.97	2/3/10	17:00	443.54	2/3/10	21:25	444.81
2/3/10	13:34	443.28	2/3/10	14:27	443.12	2/3/10	15:20	442.97	2/3/10	17:05	443.54	2/3/10	21:30	444.86
2/3/10	13:35	443.34	2/3/10	14:28	443.07	2/3/10	15:21	442.97	2/3/10	17:10	443.54	2/3/10	21:35	444.86
2/3/10	13:36	443.34	2/3/10	14:29	443.07	2/3/10	15:22	442.97	2/3/10	17:15	443.60	2/3/10	21:40	444.86
2/3/10	13:37	443.34	2/3/10	14:30	443.07	2/3/10	15:23	442.97	2/3/10	17:20	443.60	2/3/10	21:45	444.81
2/3/10	13:38	443.34	2/3/10	14:31	443.12	2/3/10	15:24	442.97	2/3/10	17:25	443.71	2/3/10	21:50	444.81
2/3/10	13:39	443.34	2/3/10	14:32	443.07	2/3/10	15:25	442.97	2/3/10	17:30	443.77	2/3/10	21:55	444.86
2/3/10	13:40	443.34	2/3/10	14:33	443.12	2/3/10	15:26	443.03	2/3/10	17:35	443.82	2/3/10	22:00	444.73
2/3/10	13:41	443.28	2/3/10	14:34	443.12	2/3/10	15:27	443.03	2/3/10	17:40	443.88	2/3/10	22:05	444.73
2/3/10	13:42	443.34	2/3/10	14:35	443.12	2/3/10	15:28	442.97	2/3/10	17:45	443.88	2/3/10	22:10	444.73
2/3/10	13:43	443.34	2/3/10	14:36	443.12	2/3/10	15:29	442.97	2/3/10	17:50	443.88	2/3/10	22:15	444.68
2/3/10	13:44	443.28	2/3/10	14:37	443.12	2/3/10	15:30	442.97	2/3/10	17:55	443.93	2/3/10	22:20	444.62
2/3/10	13:45	443.28	2/3/10	14:38	443.12	2/3/10	15:31	442.97	2/3/10	18:00	443.95	2/3/10	22:25	444.57
2/3/10	13:46	443.28	2/3/10	14:39	443.12	2/3/10	15:32	442.97	2/3/10	18:05	443.95	2/3/10	22:30	444.62
2/3/10	13:47	443.28	2/3/10	14:40	443.12	2/3/10	15:33	442.97	2/3/10	18:10	444.01	2/3/10	22:35	444.68
2/3/10	13:48	443.28	2/3/10	14:41	443.12	2/3/10	15:34	442.97	2/3/10	18:15	444.06	2/3/10	22:40	444.68
2/3/10	13:49	443.23	2/3/10	14:42	443.07	2/3/10	15:35	442.97	2/3/10	18:20	444.01	2/3/10	22:45	444.68
2/3/10	13:50	443.23	2/3/10	14:43	443.12	2/3/10	15:36	442.97	2/3/10	18:25	444.01	2/3/10	22:50	444.73
2/3/10	13:51	443.23	2/3/10	14:44	443.07	2/3/10	15:37	442.97	2/3/10	18:30	444.06	2/3/10	22:55	444.79
2/3/10	13:52	443.23	2/3/10	14:45	443.12	2/3/10	15:38	442.97	2/3/10	18:35	444.06	2/3/10	23:00	444.76
2/3/10	13:53	443.23	2/3/10	14:46	443.12	2/3/10	15:39	442.97	2/3/10	18:40	444.12	2/3/10	23:05	444.70
2/3/10	13:54	443.23	2/3/10	14:47	443.07	2/3/10	15:40	442.92	2/3/10	18:45	444.17	2/3/10	23:10	444.81
2/3/10	13:55	443.23	2/3/10	14:48	443.07	2/3/10	15:41	442.92	2/3/10	18:50	444.23	2/3/10	23:15	444.87
2/3/10	13:56	443.23	2/3/10	14:49	443.12	2/3/10	15:42	442.92	2/3/10	18:55	444.17	2/3/10	23:20	444.87
2/3/10	13:57	443.23	2/3/10	14:50	443.07	2/3/10	15:43	442.97	2/3/10	19:00	444.17	2/3/10	23:25	444.92
2/3/10	13:58	443.23	2/3/10	14:51	443.12	2/3/10	15:44	442.97	2/3/10	19:05	444.06	2/3/10	23:30	444.87
2/3/10	13:59	443.23	2/3/10	14:52	443.12	2/3/10	15:45	442.92	2/3/10	19:10	444.06	2/3/10	23:35	444.81
2/3/10	14:00	443.23	2/3/10	14:53	443.12	2/3/10	15:46	442.92	2/3/10	19:15	444.12	2/3/10	23:40	444.81
2/3/10	14:01	443.23	2/3/10	14:54	443.12	2/3/10	15:47	442.92	2/3/10	19:20	444.17	2/3/10	23:45	444.81
2/3/10	14:02	443.23	2/3/10	14:55	443.12	2/3/10	15:48	442.92	2/3/10	19:25	444.17	2/3/10	23:50	444.76
2/3/10	14:03	443.23	2/3/10	14:56	443.07	2/3/10	15:49	442.92	2/3/10	19:30	444.17	2/3/10	23:55	444.70

TABLE D6B.6-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-9, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/4/10	0:00	444.63	2/4/10	4:25	445.67	2/4/10	8:50	445.13	2/4/10	12:08	280.14	2/4/10	13:01	214.25
2/4/10	0:05	444.63	2/4/10	4:30	445.50	2/4/10	8:55	445.24	2/4/10	12:09	276.53	2/4/10	13:02	214.03
2/4/10	0:10	444.63	2/4/10	4:35	445.28	2/4/10	9:00	445.11	2/4/10	12:10	272.97	2/4/10	13:03	213.75
2/4/10	0:15	444.63	2/4/10	4:40	445.00	2/4/10	9:05	445.17	2/4/10	12:11	269.69	2/4/10	13:04	213.47
2/4/10	0:20	444.57	2/4/10	4:45	445.17	2/4/10	9:10	445.22	2/4/10	12:12	266.58	2/4/10	13:05	213.25
2/4/10	0:25	444.63	2/4/10	4:50	445.39	2/4/10	9:15	445.22	2/4/10	12:13	263.64	2/4/10	13:06	213.03
2/4/10	0:30	444.57	2/4/10	4:55	445.39	2/4/10	9:20	445.22	2/4/10	12:14	260.86	2/4/10	13:07	212.80
2/4/10	0:35	444.63	2/4/10	5:00	445.39	2/4/10	9:25	445.17	2/4/10	12:15	258.25	2/4/10	13:08	212.58
2/4/10	0:40	444.63	2/4/10	5:05	445.45	2/4/10	9:30	445.17	2/4/10	12:16	255.75	2/4/10	13:09	212.36
2/4/10	0:45	444.68	2/4/10	5:10	445.17	2/4/10	9:35	445.17	2/4/10	12:17	253.42	2/4/10	13:10	212.14
2/4/10	0:50	444.63	2/4/10	5:15	444.95	2/4/10	9:40	445.17	2/4/10	12:18	251.14	2/4/10	13:11	211.97
2/4/10	0:55	444.63	2/4/10	5:20	444.89	2/4/10	9:45	445.17	2/4/10	12:19	249.08	2/4/10	13:12	211.80
2/4/10	1:00	444.67	2/4/10	5:25	444.89	2/4/10	9:50	445.22	2/4/10	12:20	247.14	2/4/10	13:13	211.58
2/4/10	1:05	444.61	2/4/10	5:30	444.89	2/4/10	9:55	445.50	2/4/10	12:21	245.25	2/4/10	13:14	211.42
2/4/10	1:10	444.72	2/4/10	5:35	445.17	2/4/10	10:00	445.32	2/4/10	12:22	243.47	2/4/10	13:15	211.25
2/4/10	1:15	444.78	2/4/10	5:40	445.00	2/4/10	10:05	445.27	2/4/10	12:23	241.75	2/4/10	13:16	211.08
2/4/10	1:20	444.83	2/4/10	5:45	444.83	2/4/10	10:10	445.16	2/4/10	12:24	240.19	2/4/10	13:17	210.92
2/4/10	1:25	444.83	2/4/10	5:50	444.67	2/4/10	10:15	445.10	2/4/10	12:25	238.69	2/4/10	13:18	210.75
2/4/10	1:30	444.95	2/4/10	5:55	444.50	2/4/10	10:20	445.05	2/4/10	12:26	237.25	2/4/10	13:19	210.58
2/4/10	1:35	445.28	2/4/10	6:00	444.56	2/4/10	10:25	445.05	2/4/10	12:27	235.92	2/4/10	13:20	210.47
2/4/10	1:40	445.61	2/4/10	6:05	444.61	2/4/10	10:30	445.05	2/4/10	12:28	234.64	2/4/10	13:21	210.30
2/4/10	1:45	445.72	2/4/10	6:10	444.78	2/4/10	10:35	445.10	2/4/10	12:29	233.42	2/4/10	13:22	210.19
2/4/10	1:50	445.83	2/4/10	6:15	444.89	2/4/10	10:40	445.10	2/4/10	12:30	232.30	2/4/10	13:23	210.03
2/4/10	1:55	446.06	2/4/10	6:20	445.06	2/4/10	10:45	445.05	2/4/10	12:31	231.19	2/4/10	13:24	209.92
2/4/10	2:00	446.42	2/4/10	6:25	445.22	2/4/10	10:50	445.10	2/4/10	12:32	230.14	2/4/10	13:25	209.80
2/4/10	2:05	446.59	2/4/10	6:30	445.22	2/4/10	10:55	445.10	2/4/10	12:33	229.14	2/4/10	13:26	209.64
2/4/10	2:10	446.76	2/4/10	6:35	445.11	2/4/10	11:00	445.15	2/4/10	12:34	228.19	2/4/10	13:27	209.58
2/4/10	2:15	446.87	2/4/10	6:40	445.06	2/4/10	11:05	445.15	2/4/10	12:35	227.30	2/4/10	13:28	209.42
2/4/10	2:20	446.31	2/4/10	6:45	445.11	2/4/10	11:10	445.04	2/4/10	12:36	226.47	2/4/10	13:29	209.30
2/4/10	2:25	445.76	2/4/10	6:50	445.06	2/4/10	11:15	445.04	2/4/10	12:37	225.64	2/4/10	13:30	209.19
2/4/10	2:30	446.31	2/4/10	6:55	445.11	2/4/10	11:20	444.98	2/4/10	12:38	224.92	2/4/10	13:31	209.08
2/4/10	2:35	446.98	2/4/10	7:00	445.11	2/4/10	11:25	444.93	2/4/10	12:39	224.14	2/4/10	13:32	208.97
2/4/10	2:40	447.37	2/4/10	7:05	445.06	2/4/10	11:26	445.26	2/4/10	12:40	223.47	2/4/10	13:33	208.86
2/4/10	2:45	447.65	2/4/10	7:10	445.00	2/4/10	11:27	444.93	2/4/10	12:41	222.80	2/4/10	13:34	208.75
2/4/10	2:50	447.87	2/4/10	7:15	444.28	2/4/10	11:28	444.98	2/4/10	12:42	222.19	2/4/10	13:35	208.64
2/4/10	2:55	447.87	2/4/10	7:20	443.83	2/4/10	11:29	445.04	2/4/10	12:43	221.58	2/4/10	13:36	208.58
2/4/10	3:00	447.63	2/4/10	7:25	443.45	2/4/10	11:30	444.93	2/4/10	12:44	221.03	2/4/10	13:37	208.47
2/4/10	3:05	447.35	2/4/10	7:30	442.95	2/4/10	11:31	444.93	2/4/10	12:45	220.47	2/4/10	13:38	208.36
2/4/10	3:10	447.18	2/4/10	7:35	442.61	2/4/10	11:32	444.98	2/4/10	12:46	219.92	2/4/10	13:39	208.30
2/4/10	3:15	446.96	2/4/10	7:40	442.67	2/4/10	11:33	444.43	2/4/10	12:47	219.47	2/4/10	13:40	208.19
2/4/10	3:20	446.80	2/4/10	7:45	443.28	2/4/10	11:55	356.97	2/4/10	12:48	218.92	2/4/10	13:41	208.14
2/4/10	3:25	446.63	2/4/10	7:50	443.39	2/4/10	11:56	347.47	2/4/10	12:49	218.47	2/4/10	13:42	208.03
2/4/10	3:30	446.52	2/4/10	7:55	443.22	2/4/10	11:57	339.80	2/4/10	12:50	218.03	2/4/10	13:43	207.97
2/4/10	3:35	446.41	2/4/10	8:00	443.13	2/4/10	11:58	332.58	2/4/10	12:51	217.64	2/4/10	13:44	207.86
2/4/10	3:40	446.35	2/4/10	8:05	442.96	2/4/10	11:59	325.80	2/4/10	12:52	217.25	2/4/10	13:45	207.80
2/4/10	3:45	446.30	2/4/10	8:10	443.02	2/4/10	12:00	319.36	2/4/10	12:53	216.86	2/4/10	13:46	207.69
2/4/10	3:50	446.30	2/4/10	8:15	443.24	2/4/10	12:01	313.69	2/4/10	12:54	216.47	2/4/10	13:47	207.64
2/4/10	3:55	446.30	2/4/10	8:20	443.85	2/4/10	12:02	307.80	2/4/10	12:55	216.14	2/4/10	13:48	207.58
2/4/10	4:00	446.00	2/4/10	8:25	444.46	2/4/10	12:03	302.42	2/4/10	12:56	215.80	2/4/10	13:49	207.47
2/4/10	4:05	445.67	2/4/10	8:30	444.74	2/4/10	12:04	297.42	2/4/10	12:57	215.47	2/4/10	13:50	207.42
2/4/10	4:10	445.50	2/4/10	8:35	444.91	2/4/10	12:05	292.75	2/4/10	12:58	215.14	2/4/10	13:51	207.36
2/4/10	4:15	445.67	2/4/10	8:40	445.02	2/4/10	12:06	288.25	2/4/10	12:59	214.80	2/4/10	13:52	207.25
2/4/10	4:20	445.61	2/4/10	8:45	445.07	2/4/10	12:07	284.08	2/4/10	13:00	214.53	2/4/10	13:53	207.19

TABLE D6B.6-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-9, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/4/10	13:54	207.14	2/4/10	14:47	204.58	2/4/10	15:40	203.03	2/4/10	16:33	201.92	2/4/10	19:10	199.80
2/4/10	13:55	207.08	2/4/10	14:48	204.53	2/4/10	15:41	203.03	2/4/10	16:34	201.92	2/4/10	19:15	199.80
2/4/10	13:56	207.03	2/4/10	14:49	204.53	2/4/10	15:42	202.97	2/4/10	16:35	201.92	2/4/10	19:20	199.75
2/4/10	13:57	206.92	2/4/10	14:50	204.47	2/4/10	15:43	202.97	2/4/10	16:36	201.92	2/4/10	19:25	199.69
2/4/10	13:58	206.86	2/4/10	14:51	204.47	2/4/10	15:44	202.97	2/4/10	16:37	201.86	2/4/10	19:30	199.58
2/4/10	13:59	206.80	2/4/10	14:52	204.42	2/4/10	15:45	202.92	2/4/10	16:38	201.80	2/4/10	19:35	199.58
2/4/10	14:00	206.69	2/4/10	14:53	204.42	2/4/10	15:46	202.92	2/4/10	16:39	201.80	2/4/10	19:40	199.53
2/4/10	14:01	206.69	2/4/10	14:54	204.36	2/4/10	15:47	202.86	2/4/10	16:40	201.80	2/4/10	19:45	199.47
2/4/10	14:02	206.64	2/4/10	14:55	204.30	2/4/10	15:48	202.86	2/4/10	16:41	201.80	2/4/10	19:50	199.47
2/4/10	14:03	206.58	2/4/10	14:56	204.25	2/4/10	15:49	202.86	2/4/10	16:42	201.80	2/4/10	19:55	199.42
2/4/10	14:04	206.47	2/4/10	14:57	204.25	2/4/10	15:50	202.80	2/4/10	16:43	201.80	2/4/10	20:00	199.36
2/4/10	14:05	206.47	2/4/10	14:58	204.19	2/4/10	15:51	202.80	2/4/10	16:44	201.75	2/4/10	20:05	199.30
2/4/10	14:06	206.36	2/4/10	14:59	204.19	2/4/10	15:52	202.80	2/4/10	16:45	201.69	2/4/10	20:10	199.25
2/4/10	14:07	206.36	2/4/10	15:00	204.14	2/4/10	15:53	202.75	2/4/10	16:46	201.69	2/4/10	20:15	199.19
2/4/10	14:08	206.25	2/4/10	15:01	204.14	2/4/10	15:54	202.69	2/4/10	16:47	201.69	2/4/10	20:20	199.14
2/4/10	14:09	206.19	2/4/10	15:02	204.08	2/4/10	15:55	202.69	2/4/10	16:48	201.69	2/4/10	20:25	199.14
2/4/10	14:10	206.19	2/4/10	15:03	204.03	2/4/10	15:56	202.69	2/4/10	16:49	201.64	2/4/10	20:30	199.08
2/4/10	14:11	206.14	2/4/10	15:04	204.03	2/4/10	15:57	202.69	2/4/10	16:50	201.64	2/4/10	20:35	199.03
2/4/10	14:12	206.08	2/4/10	15:05	204.03	2/4/10	15:58	202.64	2/4/10	16:51	201.64	2/4/10	20:40	199.03
2/4/10	14:13	206.03	2/4/10	15:06	203.97	2/4/10	15:59	202.64	2/4/10	16:52	201.64	2/4/10	20:45	199.03
2/4/10	14:14	205.97	2/4/10	15:07	203.92	2/4/10	16:00	202.58	2/4/10	16:53	201.58	2/4/10	20:50	198.97
2/4/10	14:15	205.92	2/4/10	15:08	203.92	2/4/10	16:01	202.58	2/4/10	16:54	201.58	2/4/10	20:55	198.92
2/4/10	14:16	205.86	2/4/10	15:09	203.86	2/4/10	16:02	202.58	2/4/10	16:55	201.58	2/4/10	21:00	198.86
2/4/10	14:17	205.80	2/4/10	15:10	203.86	2/4/10	16:03	202.53	2/4/10	16:56	201.53	2/4/10	21:05	198.80
2/4/10	14:18	205.80	2/4/10	15:11	203.80	2/4/10	16:04	202.47	2/4/10	16:57	201.53	2/4/10	21:10	198.80
2/4/10	14:19	205.69	2/4/10	15:12	203.80	2/4/10	16:05	202.47	2/4/10	16:58	201.53	2/4/10	21:15	198.75
2/4/10	14:20	205.69	2/4/10	15:13	203.75	2/4/10	16:06	202.47	2/4/10	16:59	201.47	2/4/10	21:20	198.69
2/4/10	14:21	205.58	2/4/10	15:14	203.69	2/4/10	16:07	202.47	2/4/10	17:00	201.47	2/4/10	21:25	198.69
2/4/10	14:22	205.58	2/4/10	15:15	203.69	2/4/10	16:08	202.42	2/4/10	17:05	201.42	2/4/10	21:30	198.64
2/4/10	14:23	205.53	2/4/10	15:16	203.69	2/4/10	16:09	202.36	2/4/10	17:10	201.36	2/4/10	21:35	198.58
2/4/10	14:24	205.47	2/4/10	15:17	203.64	2/4/10	16:10	202.36	2/4/10	17:15	201.25	2/4/10	21:40	198.58
2/4/10	14:25	205.47	2/4/10	15:18	203.58	2/4/10	16:11	202.36	2/4/10	17:20	201.19	2/4/10	21:45	198.53
2/4/10	14:26	205.42	2/4/10	15:19	203.58	2/4/10	16:12	202.36	2/4/10	17:25	201.14	2/4/10	21:50	198.53
2/4/10	14:27	205.36	2/4/10	15:20	203.58	2/4/10	16:13	202.30	2/4/10	17:30	201.03	2/4/10	21:55	198.47
2/4/10	14:28	205.30	2/4/10	15:21	203.53	2/4/10	16:14	202.36	2/4/10	17:35	200.97	2/4/10	22:00	198.42
2/4/10	14:29	205.25	2/4/10	15:22	203.47	2/4/10	16:15	202.25	2/4/10	17:40	200.86	2/4/10	22:05	198.42
2/4/10	14:30	205.25	2/4/10	15:23	203.47	2/4/10	16:16	202.25	2/4/10	17:45	200.80	2/4/10	22:10	198.36
2/4/10	14:31	205.19	2/4/10	15:24	203.47	2/4/10	16:17	202.25	2/4/10	17:50	200.75	2/4/10	22:15	198.36
2/4/10	14:32	205.14	2/4/10	15:25	203.47	2/4/10	16:18	202.25	2/4/10	17:55	200.69	2/4/10	22:20	198.30
2/4/10	14:33	205.08	2/4/10	15:26	203.42	2/4/10	16:19	202.19	2/4/10	18:00	200.64	2/4/10	22:25	198.25
2/4/10	14:34	205.08	2/4/10	15:27	203.36	2/4/10	16:20	202.19	2/4/10	18:05	200.58	2/4/10	22:30	198.25
2/4/10	14:35	205.03	2/4/10	15:28	203.36	2/4/10	16:21	202.19	2/4/10	18:10	200.47	2/4/10	22:35	198.25
2/4/10	14:36	204.97	2/4/10	15:29	203.30	2/4/10	16:22	202.14	2/4/10	18:15	200.47	2/4/10	22:40	198.19
2/4/10	14:37	204.92	2/4/10	15:30	203.30	2/4/10	16:23	202.14	2/4/10	18:20	200.36	2/4/10	22:45	198.14
2/4/10	14:38	204.92	2/4/10	15:31	203.30	2/4/10	16:24	202.14	2/4/10	18:25	200.30	2/4/10	22:50	198.14
2/4/10	14:39	204.86	2/4/10	15:32	203.25	2/4/10	16:25	202.08	2/4/10	18:30	200.25	2/4/10	22:55	198.08
2/4/10	14:40	204.80	2/4/10	15:33	203.25	2/4/10	16:26	202.08	2/4/10	18:35	200.19	2/4/10	23:00	198.08
2/4/10	14:41	204.80	2/4/10	15:34	203.19	2/4/10	16:27	202.03	2/4/10	18:40	200.14	2/4/10	23:05	198.03
2/4/10	14:42	204.75	2/4/10	15:35	203.14	2/4/10	16:28	202.03	2/4/10	18:45	200.08	2/4/10	23:10	198.03
2/4/10	14:43	204.69	2/4/10	15:36	203.14	2/4/10	16:29	202.03	2/4/10	18:50	200.03	2/4/10	23:15	197.97
2/4/10	14:44	204.69	2/4/10	15:37	203.14	2/4/10	16:30	202.03	2/4/10	18:55	199.97	2/4/10	23:20	197.92
2/4/10	14:45	204.64	2/4/10	15:38	203.08	2/4/10	16:31	201.97	2/4/10	19:00	199.92	2/4/10	23:25	197.92
2/4/10	14:46	204.64	2/4/10	15:39	203.08	2/4/10	16:32	201.97	2/4/10	19:05	199.86	2/4/10	23:30	197.86

TABLE D6B.6-2. TRANSDUCER DATA FOR PUMPING WELL URZNA-9, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/4/10	23:35	197.86	2/7/10	12:00	192.03									
2/4/10	23:40	197.80	2/7/10	13:15	192.03									
2/4/10	23:45	197.80	2/7/10	14:30	191.97									
2/4/10	23:50	197.75	2/7/10	15:45	191.92									
2/4/10	23:55	197.75	2/7/10	17:00	191.86									
2/5/10	0:00	197.75	2/7/10	18:15	191.80									
2/5/10	1:15	197.36	2/7/10	19:30	191.80									
2/5/10	2:30	196.97	2/7/10	20:45	191.75									
2/5/10	3:45	196.69	2/7/10	22:00	191.69									
2/5/10	5:00	196.42	2/7/10	23:15	191.69									
2/5/10	6:15	196.14	2/8/10	0:30	191.58									
2/5/10	7:30	195.92	2/8/10	1:45	191.58									
2/5/10	8:45	195.69	2/8/10	3:00	191.53									
2/5/10	10:00	195.47	2/8/10	4:15	191.47									
2/5/10	11:15	195.30	2/8/10	5:30	191.42									
2/5/10	12:30	195.14	2/8/10	6:45	191.36									
2/5/10	13:45	195.03	2/8/10	8:00	191.30									
2/5/10	15:00	194.86	2/8/10	9:15	191.25									
2/5/10	16:15	194.75	2/8/10	10:30	191.25									
2/5/10	17:30	194.58	2/8/10	11:45	191.25									
2/5/10	18:45	194.47	2/8/10	13:00	191.25									
2/5/10	20:00	194.30	2/8/10	14:15	191.19									
2/5/10	21:15	194.19	2/8/10	15:30	191.14									
2/5/10	22:30	194.08	2/8/10	16:45	191.14									
2/5/10	23:45	193.97	2/8/10	18:00	191.14									
2/6/10	1:00	193.86	2/8/10	19:15	191.14									
2/6/10	2:15	193.75	2/8/10	20:30	191.08									
2/6/10	3:30	193.69	2/8/10	21:45	191.08									
2/6/10	4:45	193.58	2/8/10	23:00	191.03									
2/6/10	6:00	193.47	2/9/10	0:15	191.03									
2/6/10	7:15	193.36	2/9/10	1:30	190.97									
2/6/10	8:30	193.30	2/9/10	2:45	190.97									
2/6/10	9:45	193.25	2/9/10	4:00	190.97									
2/6/10	11:00	193.14	2/9/10	5:15	190.92									
2/6/10	12:15	193.08	2/9/10	6:30	190.92									
2/6/10	13:30	193.03	2/9/10	7:45	190.92									
2/6/10	14:45	192.97	2/9/10	9:00	190.92									
2/6/10	16:00	192.92												
2/6/10	17:15	192.86												
2/6/10	18:30	192.75												
2/6/10	19:45	192.69												
2/6/10	21:00	192.64												
2/6/10	22:15	192.58												
2/6/10	23:30	192.47												
2/7/10	0:45	192.47												
2/7/10	2:00	192.36												
2/7/10	3:15	192.30												
2/7/10	4:30	192.25												
2/7/10	5:45	192.25												
2/7/10	7:00	192.19												
2/7/10	8:15	192.14												
2/7/10	9:30	192.08												
2/7/10	10:45	192.03												

TABLE D6B.6-3. AQUIFER-TEST DATA FOR OBSERVATION WELL URZNA-8.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/26/10	14:32:00	-8492	--	--	194.05	-0.06	--	--	--	--
	14:40:00	-8484	--	--	193.92	-0.19	--	--	--	--
	14:40:00	SET TRANSDUCER								
01/29/10	13:58:00	-4206	--	--	194.15	0.04	--	--	--	--
02/01/10	11:58:00	-6	--	--	194.11	0.00	--	--	--	--
	14:18:00	134	--	--	194.32	0.21	--	--	--	--
02/02/10	9:20:00	1276	--	--	204.81	10.70	--	--	--	--
	14:16:00	1572	--	--	206.17	12.06	--	--	--	--
02/03/10	9:50:00	2746	--	--	206.77	12.66	--	--	--	--
	14:21:00	3017	--	--	210.33	16.22	--	--	--	--
02/04/10	9:28:00	4164	--	--	212.94	18.83	--	--	--	--
	11:07:00	4263	--	--	213.15	19.04	--	--	--	--
02/09/10	9:42:00	11378	7072	1.61	197.26	3.15	--	--	--	--

TABLE D6B.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZNA-8.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/26/10	14:45	194.27	1/27/10	4:00	194.38	1/27/10	17:15	194.38	1/28/10	6:30	194.48	1/28/10	19:45	194.38
1/26/10	15:00	194.11	1/27/10	4:15	194.38	1/27/10	17:30	194.38	1/28/10	6:45	194.38	1/28/10	20:00	194.38
1/26/10	15:15	194.11	1/27/10	4:30	194.38	1/27/10	17:45	194.38	1/28/10	7:00	194.38	1/28/10	20:15	194.38
1/26/10	15:30	194.11	1/27/10	4:45	194.38	1/27/10	18:00	194.38	1/28/10	7:15	194.38	1/28/10	20:30	194.38
1/26/10	15:45	194.11	1/27/10	5:00	194.38	1/27/10	18:15	194.38	1/28/10	7:30	194.38	1/28/10	20:45	194.38
1/26/10	16:00	194.27	1/27/10	5:15	194.38	1/27/10	18:30	194.38	1/28/10	7:45	194.38	1/28/10	21:00	194.38
1/26/10	16:15	194.27	1/27/10	5:30	194.38	1/27/10	18:45	194.38	1/28/10	8:00	194.38	1/28/10	21:15	194.38
1/26/10	16:30	194.27	1/27/10	5:45	194.38	1/27/10	19:00	194.38	1/28/10	8:15	194.38	1/28/10	21:30	194.38
1/26/10	16:45	194.27	1/27/10	6:00	194.38	1/27/10	19:15	194.38	1/28/10	8:30	194.38	1/28/10	21:45	194.38
1/26/10	17:00	194.27	1/27/10	6:15	194.38	1/27/10	19:30	194.38	1/28/10	8:45	194.38	1/28/10	22:00	194.38
1/26/10	17:15	194.27	1/27/10	6:30	194.38	1/27/10	19:45	194.38	1/28/10	9:00	194.38	1/28/10	22:15	194.38
1/26/10	17:30	194.27	1/27/10	6:45	194.38	1/27/10	20:00	194.38	1/28/10	9:15	194.38	1/28/10	22:30	194.38
1/26/10	17:45	194.27	1/27/10	7:00	194.38	1/27/10	20:15	194.38	1/28/10	9:30	194.38	1/28/10	22:45	194.38
1/26/10	18:00	194.27	1/27/10	7:15	194.38	1/27/10	20:30	194.38	1/28/10	9:45	194.38	1/28/10	23:00	194.38
1/26/10	18:15	194.27	1/27/10	7:30	194.38	1/27/10	20:45	194.38	1/28/10	10:00	194.38	1/28/10	23:15	194.38
1/26/10	18:30	194.27	1/27/10	7:45	194.38	1/27/10	21:00	194.48	1/28/10	10:15	194.38	1/28/10	23:30	194.38
1/26/10	18:45	194.27	1/27/10	8:00	194.38	1/27/10	21:15	194.38	1/28/10	10:30	194.38	1/28/10	23:45	194.38
1/26/10	19:00	194.38	1/27/10	8:15	194.38	1/27/10	21:30	194.48	1/28/10	10:45	194.38	1/29/10	0:00	194.38
1/26/10	19:15	194.38	1/27/10	8:30	194.38	1/27/10	21:45	194.48	1/28/10	11:00	194.38	1/29/10	0:15	194.38
1/26/10	19:30	194.38	1/27/10	8:45	194.38	1/27/10	22:00	194.48	1/28/10	11:15	194.38	1/29/10	0:30	194.38
1/26/10	19:45	194.38	1/27/10	9:00	194.38	1/27/10	22:15	194.48	1/28/10	11:30	194.38	1/29/10	0:45	194.38
1/26/10	20:00	194.38	1/27/10	9:15	194.38	1/27/10	22:30	194.48	1/28/10	11:45	194.38	1/29/10	1:00	194.38
1/26/10	20:15	194.38	1/27/10	9:30	194.38	1/27/10	22:45	194.48	1/28/10	12:00	194.38	1/29/10	1:15	194.38
1/26/10	20:30	194.38	1/27/10	9:45	194.38	1/27/10	23:00	194.48	1/28/10	12:15	194.38	1/29/10	1:30	194.38
1/26/10	20:45	194.38	1/27/10	10:00	194.38	1/27/10	23:15	194.48	1/28/10	12:30	194.27	1/29/10	1:45	194.38
1/26/10	21:00	194.38	1/27/10	10:15	194.38	1/27/10	23:30	194.48	1/28/10	12:45	194.27	1/29/10	2:00	194.38
1/26/10	21:15	194.38	1/27/10	10:30	194.38	1/27/10	23:45	194.48	1/28/10	13:00	194.27	1/29/10	2:15	194.38
1/26/10	21:30	194.38	1/27/10	10:45	194.38	1/28/10	0:00	194.48	1/28/10	13:15	194.27	1/29/10	2:30	194.38
1/26/10	21:45	194.38	1/27/10	11:00	194.38	1/28/10	0:15	194.48	1/28/10	13:30	194.27	1/29/10	2:45	194.38
1/26/10	22:00	194.38	1/27/10	11:15	194.38	1/28/10	0:30	194.48	1/28/10	13:45	194.27	1/29/10	3:00	194.38
1/26/10	22:15	194.38	1/27/10	11:30	194.38	1/28/10	0:45	194.48	1/28/10	14:00	194.27	1/29/10	3:15	194.38
1/26/10	22:30	194.38	1/27/10	11:45	194.38	1/28/10	1:00	194.48	1/28/10	14:15	194.27	1/29/10	3:30	194.38
1/26/10	22:45	194.38	1/27/10	12:00	194.38	1/28/10	1:15	194.48	1/28/10	14:30	194.27	1/29/10	3:45	194.38
1/26/10	23:00	194.38	1/27/10	12:15	194.38	1/28/10	1:30	194.48	1/28/10	14:45	194.27	1/29/10	4:00	194.38
1/26/10	23:15	194.38	1/27/10	12:30	194.38	1/28/10	1:45	194.48	1/28/10	15:00	194.27	1/29/10	4:15	194.38
1/26/10	23:30	194.38	1/27/10	12:45	194.38	1/28/10	2:00	194.48	1/28/10	15:15	194.27	1/29/10	4:30	194.38
1/26/10	23:45	194.38	1/27/10	13:00	194.38	1/28/10	2:15	194.48	1/28/10	15:30	194.27	1/29/10	4:45	194.38
1/27/10	0:00	194.38	1/27/10	13:15	194.38	1/28/10	2:30	194.48	1/28/10	15:45	194.27	1/29/10	5:00	194.38
1/27/10	0:15	194.38	1/27/10	13:30	194.38	1/28/10	2:45	194.48	1/28/10	16:00	194.27	1/29/10	5:15	194.38
1/27/10	0:30	194.38	1/27/10	13:45	194.38	1/28/10	3:00	194.48	1/28/10	16:15	194.27	1/29/10	5:30	194.38
1/27/10	0:45	194.38	1/27/10	14:00	194.38	1/28/10	3:15	194.48	1/28/10	16:30	194.27	1/29/10	5:45	194.38
1/27/10	1:00	194.38	1/27/10	14:15	194.38	1/28/10	3:30	194.48	1/28/10	16:45	194.27	1/29/10	6:00	194.38
1/27/10	1:15	194.38	1/27/10	14:30	194.38	1/28/10	3:45	194.48	1/28/10	17:00	194.27	1/29/10	6:15	194.38
1/27/10	1:30	194.38	1/27/10	14:45	194.38	1/28/10	4:00	194.48	1/28/10	17:15	194.27	1/29/10	6:30	194.38
1/27/10	1:45	194.38	1/27/10	15:00	194.38	1/28/10	4:15	194.48	1/28/10	17:30	194.27	1/29/10	6:45	194.38
1/27/10	2:00	194.38	1/27/10	15:15	194.38	1/28/10	4:30	194.48	1/28/10	17:45	194.27	1/29/10	7:00	194.38
1/27/10	2:15	194.38	1/27/10	15:30	194.38	1/28/10	4:45	194.48	1/28/10	18:00	194.27	1/29/10	7:15	194.38
1/27/10	2:30	194.38	1/27/10	15:45	194.38	1/28/10	5:00	194.48	1/28/10	18:15	194.27	1/29/10	7:30	194.38
1/27/10	2:45	194.38	1/27/10	16:00	194.38	1/28/10	5:15	194.48	1/28/10	18:30	194.27	1/29/10	7:45	194.38
1/27/10	3:00	194.38	1/27/10	16:15	194.38	1/28/10	5:30	194.48	1/28/10	18:45	194.38	1/29/10	8:00	194.38
1/27/10	3:15	194.38	1/27/10	16:30	194.38	1/28/10	5:45	194.48	1/28/10	19:00	194.38	1/29/10	8:15	194.38
1/27/10	3:30	194.38	1/27/10	16:45	194.38	1/28/10	6:00	194.38	1/28/10	19:15	194.38	1/29/10	8:30	194.27
1/27/10	3:45	194.38	1/27/10	17:00	194.38	1/28/10	6:15	194.38	1/28/10	19:30	194.38	1/29/10	8:45	194.27

TABLE D6B.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZNA-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/29/10	9:00	194.27	1/29/10	22:15	194.27	1/30/10	11:30	194.11	1/31/10	0:45	194.27	1/31/10	14:00	194.11
1/29/10	9:15	194.27	1/29/10	22:30	194.27	1/30/10	11:45	194.11	1/31/10	1:00	194.27	1/31/10	14:15	194.01
1/29/10	9:30	194.27	1/29/10	22:45	194.27	1/30/10	12:00	194.11	1/31/10	1:15	194.27	1/31/10	14:30	194.01
1/29/10	9:45	194.27	1/29/10	23:00	194.27	1/30/10	12:15	194.11	1/31/10	1:30	194.27	1/31/10	14:45	194.01
1/29/10	10:00	194.27	1/29/10	23:15	194.27	1/30/10	12:30	194.11	1/31/10	1:45	194.27	1/31/10	15:00	194.01
1/29/10	10:15	194.27	1/29/10	23:30	194.27	1/30/10	12:45	194.11	1/31/10	2:00	194.27	1/31/10	15:15	194.01
1/29/10	10:30	194.27	1/29/10	23:45	194.27	1/30/10	13:00	194.11	1/31/10	2:15	194.27	1/31/10	15:30	194.01
1/29/10	10:45	194.27	1/30/10	0:00	194.27	1/30/10	13:15	194.11	1/31/10	2:30	194.27	1/31/10	15:45	194.01
1/29/10	11:00	194.27	1/30/10	0:15	194.27	1/30/10	13:30	194.11	1/31/10	2:45	194.27	1/31/10	16:00	194.01
1/29/10	11:15	194.27	1/30/10	0:30	194.38	1/30/10	13:45	194.11	1/31/10	3:00	194.27	1/31/10	16:15	194.01
1/29/10	11:30	194.27	1/30/10	0:45	194.38	1/30/10	14:00	194.11	1/31/10	3:15	194.27	1/31/10	16:30	194.01
1/29/10	11:45	194.11	1/30/10	1:00	194.38	1/30/10	14:15	194.11	1/31/10	3:30	194.27	1/31/10	16:45	194.01
1/29/10	12:00	194.11	1/30/10	1:15	194.38	1/30/10	14:30	194.11	1/31/10	3:45	194.27	1/31/10	17:00	194.11
1/29/10	12:15	194.11	1/30/10	1:30	194.38	1/30/10	14:45	194.11	1/31/10	4:00	194.27	1/31/10	17:15	194.11
1/29/10	12:30	194.11	1/30/10	1:45	194.38	1/30/10	15:00	194.11	1/31/10	4:15	194.27	1/31/10	17:30	194.11
1/29/10	12:45	194.11	1/30/10	2:00	194.38	1/30/10	15:15	194.11	1/31/10	4:30	194.27	1/31/10	17:45	194.11
1/29/10	13:00	194.11	1/30/10	2:15	194.38	1/30/10	15:30	194.11	1/31/10	4:45	194.27	1/31/10	18:00	194.11
1/29/10	13:15	194.11	1/30/10	2:30	194.38	1/30/10	15:45	194.11	1/31/10	5:00	194.27	1/31/10	18:15	194.11
1/29/10	13:30	194.11	1/30/10	2:45	194.38	1/30/10	16:00	194.11	1/31/10	5:15	194.27	1/31/10	18:30	194.11
1/29/10	13:45	194.11	1/30/10	3:00	194.38	1/30/10	16:15	194.11	1/31/10	5:30	194.27	1/31/10	18:45	194.11
1/29/10	14:00	194.11	1/30/10	3:15	194.38	1/30/10	16:30	194.11	1/31/10	5:45	194.27	1/31/10	19:00	194.11
1/29/10	14:15	194.11	1/30/10	3:30	194.38	1/30/10	16:45	194.11	1/31/10	6:00	194.27	1/31/10	19:15	194.11
1/29/10	14:30	194.11	1/30/10	3:45	194.27	1/30/10	17:00	194.11	1/31/10	6:15	194.27	1/31/10	19:30	194.11
1/29/10	14:45	194.11	1/30/10	4:00	194.27	1/30/10	17:15	194.11	1/31/10	6:30	194.27	1/31/10	19:45	194.11
1/29/10	15:00	194.11	1/30/10	4:15	194.27	1/30/10	17:30	194.11	1/31/10	6:45	194.27	1/31/10	20:00	194.11
1/29/10	15:15	194.11	1/30/10	4:30	194.27	1/30/10	17:45	194.11	1/31/10	7:00	194.27	1/31/10	20:15	194.11
1/29/10	15:30	194.11	1/30/10	4:45	194.27	1/30/10	18:00	194.11	1/31/10	7:15	194.27	1/31/10	20:30	194.11
1/29/10	15:45	194.11	1/30/10	5:00	194.27	1/30/10	18:15	194.11	1/31/10	7:30	194.27	1/31/10	20:45	194.11
1/29/10	16:00	194.11	1/30/10	5:15	194.27	1/30/10	18:30	194.11	1/31/10	7:45	194.27	1/31/10	21:00	194.11
1/29/10	16:15	194.11	1/30/10	5:30	194.27	1/30/10	18:45	194.11	1/31/10	8:00	194.27	1/31/10	21:15	194.11
1/29/10	16:30	194.11	1/30/10	5:45	194.27	1/30/10	19:00	194.11	1/31/10	8:15	194.27	1/31/10	21:30	194.11
1/29/10	16:45	194.11	1/30/10	6:00	194.27	1/30/10	19:15	194.11	1/31/10	8:30	194.11	1/31/10	21:45	194.11
1/29/10	17:00	194.11	1/30/10	6:15	194.27	1/30/10	19:30	194.11	1/31/10	8:45	194.11	1/31/10	22:00	194.11
1/29/10	17:15	194.11	1/30/10	6:30	194.27	1/30/10	19:45	194.11	1/31/10	9:00	194.11	1/31/10	22:15	194.11
1/29/10	17:30	194.11	1/30/10	6:45	194.27	1/30/10	20:00	194.11	1/31/10	9:15	194.11	1/31/10	22:30	194.11
1/29/10	17:45	194.11	1/30/10	7:00	194.27	1/30/10	20:15	194.11	1/31/10	9:30	194.11	1/31/10	22:45	194.11
1/29/10	18:00	194.27	1/30/10	7:15	194.27	1/30/10	20:30	194.11	1/31/10	9:45	194.11	1/31/10	23:00	194.11
1/29/10	18:15	194.27	1/30/10	7:30	194.27	1/30/10	20:45	194.11	1/31/10	10:00	194.11	1/31/10	23:15	194.11
1/29/10	18:30	194.27	1/30/10	7:45	194.27	1/30/10	21:00	194.11	1/31/10	10:15	194.11	1/31/10	23:30	194.11
1/29/10	18:45	194.27	1/30/10	8:00	194.27	1/30/10	21:15	194.11	1/31/10	10:30	194.11	1/31/10	23:45	194.11
1/29/10	19:00	194.27	1/30/10	8:15	194.27	1/30/10	21:30	194.11	1/31/10	10:45	194.11	2/1/10	0:00	194.11
1/29/10	19:15	194.27	1/30/10	8:30	194.27	1/30/10	21:45	194.11	1/31/10	11:00	194.11	2/1/10	0:15	194.11
1/29/10	19:30	194.27	1/30/10	8:45	194.27	1/30/10	22:00	194.11	1/31/10	11:15	194.11	2/1/10	0:30	194.11
1/29/10	19:45	194.27	1/30/10	9:00	194.27	1/30/10	22:15	194.11	1/31/10	11:30	194.11	2/1/10	0:45	194.11
1/29/10	20:00	194.27	1/30/10	9:15	194.27	1/30/10	22:30	194.11	1/31/10	11:45	194.11	2/1/10	1:00	194.11
1/29/10	20:15	194.27	1/30/10	9:30	194.27	1/30/10	22:45	194.27	1/31/10	12:00	194.11	2/1/10	1:15	194.11
1/29/10	20:30	194.27	1/30/10	9:45	194.27	1/30/10	23:00	194.27	1/31/10	12:15	194.11	2/1/10	1:30	194.11
1/29/10	20:45	194.27	1/30/10	10:00	194.11	1/30/10	23:15	194.27	1/31/10	12:30	194.11	2/1/10	1:45	194.11
1/29/10	21:00	194.27	1/30/10	10:15	194.11	1/30/10	23:30	194.27	1/31/10	12:45	194.11	2/1/10	2:00	194.11
1/29/10	21:15	194.27	1/30/10	10:30	194.11	1/30/10	23:45	194.27	1/31/10	13:00	194.11	2/1/10	2:15	194.11
1/29/10	21:30	194.27	1/30/10	10:45	194.11	1/31/10	0:00	194.27	1/31/10	13:15	194.11	2/1/10	2:30	194.11
1/29/10	21:45	194.27	1/30/10	11:00	194.11	1/31/10	0:15	194.27	1/31/10	13:30	194.11	2/1/10	2:45	194.11
1/29/10	22:00	194.27	1/30/10	11:15	194.11	1/31/10	0:30	194.27	1/31/10	13:45	194.11	2/1/10	3:00	194.11

TABLE D6B.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZNA-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/1/10	3:15	194.11	2/1/10	12:12	194.11	2/1/10	13:05	194.11	2/1/10	13:58	194.11	2/1/10	18:50	197.28
2/1/10	3:30	194.11	2/1/10	12:13	194.11	2/1/10	13:06	194.11	2/1/10	13:59	194.11	2/1/10	19:00	197.49
2/1/10	3:45	194.11	2/1/10	12:14	194.11	2/1/10	13:07	194.11	2/1/10	14:00	194.27	2/1/10	19:10	197.60
2/1/10	4:00	194.11	2/1/10	12:15	194.11	2/1/10	13:08	194.11	2/1/10	14:01	194.11	2/1/10	19:20	197.70
2/1/10	4:15	194.11	2/1/10	12:16	194.11	2/1/10	13:09	194.11	2/1/10	14:02	194.27	2/1/10	19:30	197.81
2/1/10	4:30	194.11	2/1/10	12:17	194.11	2/1/10	13:10	194.11	2/1/10	14:03	194.27	2/1/10	19:40	197.91
2/1/10	4:45	194.11	2/1/10	12:18	194.11	2/1/10	13:11	194.11	2/1/10	14:04	194.27	2/1/10	19:50	198.02
2/1/10	5:00	194.11	2/1/10	12:19	194.11	2/1/10	13:12	194.11	2/1/10	14:05	194.27	2/1/10	20:00	198.23
2/1/10	5:15	194.11	2/1/10	12:20	194.11	2/1/10	13:13	194.11	2/1/10	14:06	194.27	2/1/10	20:10	198.34
2/1/10	5:30	194.11	2/1/10	12:21	194.11	2/1/10	13:14	194.11	2/1/10	14:07	194.27	2/1/10	20:20	198.44
2/1/10	5:45	194.11	2/1/10	12:22	194.11	2/1/10	13:15	194.11	2/1/10	14:08	194.27	2/1/10	20:30	198.55
2/1/10	6:00	194.11	2/1/10	12:23	194.11	2/1/10	13:16	194.11	2/1/10	14:09	194.27	2/1/10	20:40	198.65
2/1/10	6:15	194.11	2/1/10	12:24	194.11	2/1/10	13:17	194.11	2/1/10	14:10	194.27	2/1/10	20:50	198.81
2/1/10	6:30	194.11	2/1/10	12:25	194.11	2/1/10	13:18	194.11	2/1/10	14:11	194.27	2/1/10	21:00	198.92
2/1/10	6:45	194.11	2/1/10	12:26	194.11	2/1/10	13:19	194.11	2/1/10	14:12	194.27	2/1/10	21:10	199.02
2/1/10	7:00	194.11	2/1/10	12:27	194.11	2/1/10	13:20	194.11	2/1/10	14:13	194.27	2/1/10	21:20	199.13
2/1/10	7:15	194.11	2/1/10	12:28	194.11	2/1/10	13:21	194.11	2/1/10	14:14	194.27	2/1/10	21:30	199.34
2/1/10	7:30	194.11	2/1/10	12:29	194.11	2/1/10	13:22	194.11	2/1/10	14:15	194.27	2/1/10	21:40	199.45
2/1/10	7:45	194.11	2/1/10	12:30	194.11	2/1/10	13:23	194.11	2/1/10	14:16	194.27	2/1/10	21:50	199.55
2/1/10	8:00	194.11	2/1/10	12:31	194.11	2/1/10	13:24	194.11	2/1/10	14:17	194.27	2/1/10	22:00	199.55
2/1/10	8:15	194.11	2/1/10	12:32	194.11	2/1/10	13:25	194.11	2/1/10	14:18	194.27	2/1/10	22:10	199.76
2/1/10	8:30	194.11	2/1/10	12:33	194.11	2/1/10	13:26	194.11	2/1/10	14:19	194.38	2/1/10	22:20	199.87
2/1/10	8:45	194.11	2/1/10	12:34	194.11	2/1/10	13:27	194.11	2/1/10	14:20	194.38	2/1/10	22:30	199.97
2/1/10	9:00	194.11	2/1/10	12:35	194.11	2/1/10	13:28	194.11	2/1/10	14:21	194.38	2/1/10	22:40	199.97
2/1/10	9:15	194.11	2/1/10	12:36	194.11	2/1/10	13:29	194.11	2/1/10	14:22	194.38	2/1/10	22:50	200.19
2/1/10	9:30	194.11	2/1/10	12:37	194.11	2/1/10	13:30	194.11	2/1/10	14:23	194.38	2/1/10	23:00	200.19
2/1/10	9:45	194.11	2/1/10	12:38	194.01	2/1/10	13:31	194.11	2/1/10	14:24	194.38	2/1/10	23:10	200.29
2/1/10	10:00	194.11	2/1/10	12:39	194.11	2/1/10	13:32	194.11	2/1/10	14:30	194.48	2/1/10	23:20	200.40
2/1/10	10:15	194.11	2/1/10	12:40	194.11	2/1/10	13:33	194.11	2/1/10	14:40	194.48	2/1/10	23:30	200.50
2/1/10	10:30	194.11	2/1/10	12:41	194.01	2/1/10	13:34	194.11	2/1/10	14:50	194.59	2/1/10	23:40	200.61
2/1/10	10:45	194.11	2/1/10	12:42	194.11	2/1/10	13:35	194.11	2/1/10	15:00	194.59	2/1/10	23:50	200.71
2/1/10	11:00	194.11	2/1/10	12:43	194.11	2/1/10	13:36	194.11	2/1/10	15:10	194.69	2/2/10	0:00	200.82
2/1/10	11:15	194.11	2/1/10	12:44	194.11	2/1/10	13:37	194.11	2/1/10	15:20	194.80	2/2/10	0:10	200.92
2/1/10	11:30	194.11	2/1/10	12:45	194.11	2/1/10	13:38	194.11	2/1/10	15:30	194.90	2/2/10	0:20	201.08
2/1/10	11:45	194.11	2/1/10	12:46	194.11	2/1/10	13:39	194.11	2/1/10	15:40	194.90	2/2/10	0:30	201.08
2/1/10	11:54	194.11	2/1/10	12:47	194.11	2/1/10	13:40	194.11	2/1/10	15:50	195.11	2/2/10	0:40	201.19
2/1/10	11:55	194.01	2/1/10	12:48	194.11	2/1/10	13:41	194.11	2/1/10	16:00	195.22	2/2/10	0:50	201.29
2/1/10	11:56	194.11	2/1/10	12:49	194.01	2/1/10	13:42	194.11	2/1/10	16:10	195.33	2/2/10	1:00	201.40
2/1/10	11:57	194.11	2/1/10	12:50	194.01	2/1/10	13:43	194.11	2/1/10	16:20	195.43	2/2/10	1:10	201.51
2/1/10	11:58	194.11	2/1/10	12:51	194.01	2/1/10	13:44	194.11	2/1/10	16:30	195.54	2/2/10	1:20	201.61
2/1/10	11:59	194.11	2/1/10	12:52	194.11	2/1/10	13:45	194.11	2/1/10	16:40	195.64	2/2/10	1:30	201.61
2/1/10	12:00	194.11	2/1/10	12:53	194.11	2/1/10	13:46	194.11	2/1/10	16:50	195.75	2/2/10	1:40	201.82
2/1/10	12:01	194.11	2/1/10	12:54	194.11	2/1/10	13:47	194.11	2/1/10	17:00	195.85	2/2/10	1:50	201.82
2/1/10	12:02	194.11	2/1/10	12:55	194.01	2/1/10	13:48	194.11	2/1/10	17:10	196.07	2/2/10	2:00	201.93
2/1/10	12:03	194.11	2/1/10	12:56	194.11	2/1/10	13:49	194.11	2/1/10	17:20	196.17	2/2/10	2:10	202.03
2/1/10	12:04	194.11	2/1/10	12:57	194.11	2/1/10	13:50	194.11	2/1/10	17:30	196.28	2/2/10	2:20	202.03
2/1/10	12:05	194.11	2/1/10	12:58	194.11	2/1/10	13:51	194.11	2/1/10	17:40	196.38	2/2/10	2:30	202.14
2/1/10	12:06	194.11	2/1/10	12:59	194.01	2/1/10	13:52	194.11	2/1/10	17:50	196.65	2/2/10	2:40	202.25
2/1/10	12:07	194.11	2/1/10	13:00	194.11	2/1/10	13:53	194.11	2/1/10	18:00	196.75	2/2/10	2:50	202.25
2/1/10	12:08	194.11	2/1/10	13:01	194.11	2/1/10	13:54	194.11	2/1/10	18:10	196.86	2/2/10	3:00	202.35
2/1/10	12:09	194.11	2/1/10	13:02	194.11	2/1/10	13:55	194.11	2/1/10	18:20	196.96	2/2/10	3:10	202.46
2/1/10	12:10	194.11	2/1/10	13:03	194.11	2/1/10	13:56	194.11	2/1/10	18:30	197.07	2/2/10	3:20	202.56
2/1/10	12:11	194.11	2/1/10	13:04	194.11	2/1/10	13:57	194.11	2/1/10	18:40	197.17	2/2/10	3:30	202.67

TABLE D6B.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZNA-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/2/10	3:40	202.67	2/2/10	12:30	205.63	2/2/10	21:20	207.53	2/3/10	6:10	209.06	2/3/10	15:00	210.27
2/2/10	3:50	202.77	2/2/10	12:40	205.63	2/2/10	21:30	207.53	2/3/10	6:20	209.16	2/3/10	15:10	210.27
2/2/10	4:00	202.77	2/2/10	12:50	205.73	2/2/10	21:40	207.63	2/3/10	6:30	209.16	2/3/10	15:20	210.27
2/2/10	4:10	202.88	2/2/10	13:00	205.73	2/2/10	21:50	207.63	2/3/10	6:40	209.16	2/3/10	15:30	210.38
2/2/10	4:20	202.98	2/2/10	13:10	205.84	2/2/10	22:00	207.63	2/3/10	6:50	209.16	2/3/10	15:40	210.38
2/2/10	4:30	202.98	2/2/10	13:20	205.84	2/2/10	22:10	207.74	2/3/10	7:00	209.16	2/3/10	15:50	210.38
2/2/10	4:40	203.09	2/2/10	13:30	205.84	2/2/10	22:20	207.74	2/3/10	7:10	209.16	2/3/10	16:00	210.49
2/2/10	4:50	203.09	2/2/10	13:40	205.94	2/2/10	22:30	207.74	2/3/10	7:20	209.27	2/3/10	16:10	210.49
2/2/10	5:00	203.20	2/2/10	13:50	205.94	2/2/10	22:40	207.74	2/3/10	7:30	209.27	2/3/10	16:20	210.49
2/2/10	5:10	203.35	2/2/10	14:00	205.94	2/2/10	22:50	207.90	2/3/10	7:40	209.27	2/3/10	16:30	210.49
2/2/10	5:20	203.35	2/2/10	14:10	206.05	2/2/10	23:00	207.90	2/3/10	7:50	209.27	2/3/10	16:40	210.49
2/2/10	5:30	203.46	2/2/10	14:20	206.05	2/2/10	23:10	208.00	2/3/10	8:00	209.38	2/3/10	16:50	210.59
2/2/10	5:40	203.57	2/2/10	14:30	206.05	2/2/10	23:20	208.00	2/3/10	8:10	209.38	2/3/10	17:00	210.59
2/2/10	5:50	203.57	2/2/10	14:40	206.15	2/2/10	23:30	208.00	2/3/10	8:20	209.38	2/3/10	17:10	210.59
2/2/10	6:00	203.57	2/2/10	14:50	206.15	2/2/10	23:40	208.00	2/3/10	8:30	209.38	2/3/10	17:20	210.70
2/2/10	6:10	203.67	2/2/10	15:00	206.26	2/2/10	23:50	208.00	2/3/10	8:40	209.38	2/3/10	17:30	210.70
2/2/10	6:20	203.78	2/2/10	15:10	206.26	2/3/10	0:00	208.11	2/3/10	8:50	209.38	2/3/10	17:40	210.70
2/2/10	6:30	203.78	2/2/10	15:20	206.26	2/3/10	0:10	208.11	2/3/10	9:00	209.38	2/3/10	17:50	210.70
2/2/10	6:40	203.88	2/2/10	15:30	206.26	2/3/10	0:20	208.21	2/3/10	9:10	209.48	2/3/10	18:00	210.70
2/2/10	6:50	203.99	2/2/10	15:40	206.37	2/3/10	0:30	208.21	2/3/10	9:20	209.48	2/3/10	18:10	210.80
2/2/10	7:00	203.99	2/2/10	15:50	206.37	2/3/10	0:40	208.21	2/3/10	9:30	209.48	2/3/10	18:20	210.80
2/2/10	7:10	203.99	2/2/10	16:00	206.47	2/3/10	0:50	208.21	2/3/10	9:40	209.48	2/3/10	18:30	210.91
2/2/10	7:20	204.09	2/2/10	16:10	206.47	2/3/10	1:00	208.21	2/3/10	9:50	209.48	2/3/10	18:40	210.91
2/2/10	7:30	204.20	2/2/10	16:20	206.47	2/3/10	1:10	208.32	2/3/10	10:00	209.59	2/3/10	18:50	210.91
2/2/10	7:40	204.20	2/2/10	16:30	206.58	2/3/10	1:20	208.32	2/3/10	10:10	209.59	2/3/10	19:00	210.91
2/2/10	7:50	204.20	2/2/10	16:40	206.58	2/3/10	1:30	208.43	2/3/10	10:20	209.59	2/3/10	19:10	210.91
2/2/10	8:00	204.31	2/2/10	16:50	206.68	2/3/10	1:40	208.43	2/3/10	10:30	209.59	2/3/10	19:20	210.91
2/2/10	8:10	204.41	2/2/10	17:00	206.68	2/3/10	1:50	208.43	2/3/10	10:40	209.59	2/3/10	19:30	211.01
2/2/10	8:20	204.41	2/2/10	17:10	206.68	2/3/10	2:00	208.43	2/3/10	10:50	209.59	2/3/10	19:40	211.01
2/2/10	8:30	204.41	2/2/10	17:20	206.79	2/3/10	2:10	208.53	2/3/10	11:00	209.59	2/3/10	19:50	211.01
2/2/10	8:40	204.52	2/2/10	17:30	206.79	2/3/10	2:20	208.53	2/3/10	11:10	209.69	2/3/10	20:00	211.12
2/2/10	8:50	204.52	2/2/10	17:40	206.79	2/3/10	2:30	208.53	2/3/10	11:20	209.69	2/3/10	20:10	211.12
2/2/10	9:00	204.62	2/2/10	17:50	206.89	2/3/10	2:40	208.53	2/3/10	11:30	209.69	2/3/10	20:20	211.12
2/2/10	9:10	204.62	2/2/10	18:00	206.89	2/3/10	2:50	208.53	2/3/10	11:40	209.80	2/3/10	20:30	211.12
2/2/10	9:20	204.73	2/2/10	18:10	206.89	2/3/10	3:00	208.64	2/3/10	11:50	209.80	2/3/10	20:40	211.22
2/2/10	9:30	204.73	2/2/10	18:20	206.89	2/3/10	3:10	208.64	2/3/10	12:00	209.80	2/3/10	20:50	211.22
2/2/10	9:40	204.83	2/2/10	18:30	207.00	2/3/10	3:20	208.74	2/3/10	12:10	209.80	2/3/10	21:00	211.22
2/2/10	9:50	204.83	2/2/10	18:40	207.00	2/3/10	3:30	208.74	2/3/10	12:20	209.80	2/3/10	21:10	211.22
2/2/10	10:00	204.83	2/2/10	18:50	207.10	2/3/10	3:40	208.74	2/3/10	12:30	209.90	2/3/10	21:20	211.33
2/2/10	10:10	204.94	2/2/10	19:00	207.10	2/3/10	3:50	208.74	2/3/10	12:40	209.90	2/3/10	21:30	211.33
2/2/10	10:20	204.94	2/2/10	19:10	207.10	2/3/10	4:00	208.74	2/3/10	12:50	209.90	2/3/10	21:40	211.33
2/2/10	10:30	205.04	2/2/10	19:20	207.21	2/3/10	4:10	208.74	2/3/10	13:00	210.01	2/3/10	21:50	211.33
2/2/10	10:40	205.04	2/2/10	19:30	207.21	2/3/10	4:20	208.85	2/3/10	13:10	210.01	2/3/10	22:00	211.33
2/2/10	10:50	205.15	2/2/10	19:40	207.21	2/3/10	4:30	208.85	2/3/10	13:20	210.01	2/3/10	22:10	211.44
2/2/10	11:00	205.15	2/2/10	19:50	207.32	2/3/10	4:40	208.85	2/3/10	13:30	210.01	2/3/10	22:20	211.44
2/2/10	11:10	205.15	2/2/10	20:00	207.32	2/3/10	4:50	208.95	2/3/10	13:40	210.01	2/3/10	22:30	211.44
2/2/10	11:20	205.26	2/2/10	20:10	207.32	2/3/10	5:00	208.95	2/3/10	13:50	210.01	2/3/10	22:40	211.44
2/2/10	11:30	205.36	2/2/10	20:20	207.32	2/3/10	5:10	208.95	2/3/10	14:00	210.01	2/3/10	22:50	211.54
2/2/10	11:40	205.36	2/2/10	20:30	207.42	2/3/10	5:20	208.95	2/3/10	14:10	210.17	2/3/10	23:00	211.54
2/2/10	11:50	205.36	2/2/10	20:40	207.42	2/3/10	5:30	208.95	2/3/10	14:20	210.17	2/3/10	23:10	211.54
2/2/10	12:00	205.47	2/2/10	20:50	207.42	2/3/10	5:40	208.95	2/3/10	14:30	210.17	2/3/10	23:20	211.54
2/2/10	12:10	205.47	2/2/10	21:00	207.53	2/3/10	5:50	209.06	2/3/10	14:40	210.17	2/3/10	23:30	211.54
2/2/10	12:20	205.63	2/2/10	21:10	207.53	2/3/10	6:00	209.06	2/3/10	14:50	210.27	2/3/10	23:40	211.54

TABLE D6B.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZNA-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/3/10	23:50	211.65	2/4/10	8:40	212.76	2/4/10	17:30	211.44	2/5/10	2:20	206.26	2/5/10	11:10	203.35
2/4/10	0:00	211.65	2/4/10	8:50	212.76	2/4/10	17:40	211.33	2/5/10	2:30	206.26	2/5/10	11:20	203.20
2/4/10	0:10	211.65	2/4/10	9:00	212.76	2/4/10	17:50	211.22	2/5/10	2:40	206.15	2/5/10	11:30	203.20
2/4/10	0:20	211.65	2/4/10	9:10	212.76	2/4/10	18:00	211.12	2/5/10	2:50	206.05	2/5/10	11:40	203.09
2/4/10	0:30	211.75	2/4/10	9:20	212.76	2/4/10	18:10	211.01	2/5/10	3:00	206.05	2/5/10	11:50	203.09
2/4/10	0:40	211.75	2/4/10	9:30	212.76	2/4/10	18:20	210.91	2/5/10	3:10	205.94	2/5/10	12:00	203.09
2/4/10	0:50	211.75	2/4/10	9:40	212.76	2/4/10	18:30	210.80	2/5/10	3:20	205.84	2/5/10	12:10	203.09
2/4/10	1:00	211.75	2/4/10	9:50	212.76	2/4/10	18:40	210.70	2/5/10	3:30	205.84	2/5/10	12:20	202.98
2/4/10	1:10	211.75	2/4/10	10:00	212.86	2/4/10	18:50	210.59	2/5/10	3:40	205.73	2/5/10	12:30	202.98
2/4/10	1:20	211.75	2/4/10	10:10	212.86	2/4/10	19:00	210.49	2/5/10	3:50	205.63	2/5/10	12:40	202.88
2/4/10	1:30	211.75	2/4/10	10:20	212.86	2/4/10	19:10	210.38	2/5/10	4:00	205.63	2/5/10	12:50	202.88
2/4/10	1:40	211.86	2/4/10	10:30	212.86	2/4/10	19:20	210.27	2/5/10	4:10	205.47	2/5/10	13:00	202.88
2/4/10	1:50	211.86	2/4/10	10:40	212.86	2/4/10	19:30	210.17	2/5/10	4:20	205.36	2/5/10	13:10	202.77
2/4/10	2:00	211.86	2/4/10	10:50	212.86	2/4/10	19:40	210.01	2/5/10	4:30	205.36	2/5/10	13:20	202.77
2/4/10	2:10	211.96	2/4/10	11:00	212.97	2/4/10	19:50	209.90	2/5/10	4:40	205.26	2/5/10	13:30	202.67
2/4/10	2:20	211.96	2/4/10	11:10	212.97	2/4/10	20:00	209.80	2/5/10	4:50	205.15	2/5/10	13:40	202.67
2/4/10	2:30	211.96	2/4/10	11:20	212.97	2/4/10	20:10	209.69	2/5/10	5:00	205.15	2/5/10	13:50	202.67
2/4/10	2:40	211.96	2/4/10	11:30	212.97	2/4/10	20:20	209.59	2/5/10	5:10	205.04	2/5/10	14:00	202.67
2/4/10	2:50	211.96	2/4/10	11:40	212.97	2/4/10	20:30	209.48	2/5/10	5:20	205.04	2/5/10	14:10	202.56
2/4/10	3:00	212.07	2/4/10	11:50	212.97	2/4/10	20:40	209.38	2/5/10	5:30	204.94	2/5/10	14:20	202.56
2/4/10	3:10	212.07	2/4/10	12:00	212.97	2/4/10	20:50	209.27	2/5/10	5:40	204.83	2/5/10	14:30	202.56
2/4/10	3:20	212.07	2/4/10	12:10	212.97	2/4/10	21:00	209.16	2/5/10	5:50	204.83	2/5/10	14:40	202.46
2/4/10	3:30	212.07	2/4/10	12:20	213.07	2/4/10	21:10	209.06	2/5/10	6:00	204.83	2/5/10	14:50	202.46
2/4/10	3:40	212.07	2/4/10	12:30	213.07	2/4/10	21:20	208.95	2/5/10	6:10	204.73	2/5/10	15:00	202.46
2/4/10	3:50	212.07	2/4/10	12:40	213.07	2/4/10	21:30	208.85	2/5/10	6:20	204.62	2/5/10	15:10	202.46
2/4/10	4:00	212.07	2/4/10	12:50	213.07	2/4/10	21:40	208.74	2/5/10	6:30	204.62	2/5/10	15:20	202.35
2/4/10	4:10	212.18	2/4/10	13:00	213.07	2/4/10	21:50	208.74	2/5/10	6:40	204.62	2/5/10	15:30	202.35
2/4/10	4:20	212.18	2/4/10	13:10	213.07	2/4/10	22:00	208.53	2/5/10	6:50	204.52	2/5/10	15:40	202.35
2/4/10	4:30	212.18	2/4/10	13:20	213.07	2/4/10	22:10	208.53	2/5/10	7:00	204.41	2/5/10	15:50	202.25
2/4/10	4:40	212.18	2/4/10	13:30	213.07	2/4/10	22:20	208.43	2/5/10	7:10	204.41	2/5/10	16:00	202.25
2/4/10	4:50	212.28	2/4/10	13:40	213.07	2/4/10	22:30	208.32	2/5/10	7:20	204.41	2/5/10	16:10	202.25
2/4/10	5:00	212.28	2/4/10	13:50	213.07	2/4/10	22:40	208.21	2/5/10	7:30	204.31	2/5/10	16:20	202.25
2/4/10	5:10	212.28	2/4/10	14:00	213.07	2/4/10	22:50	208.11	2/5/10	7:40	204.31	2/5/10	16:30	202.25
2/4/10	5:20	212.28	2/4/10	14:10	212.97	2/4/10	23:00	208.00	2/5/10	7:50	204.20	2/5/10	16:40	202.14
2/4/10	5:30	212.28	2/4/10	14:20	212.97	2/4/10	23:10	207.90	2/5/10	8:00	204.20	2/5/10	16:50	202.14
2/4/10	5:40	212.28	2/4/10	14:30	212.97	2/4/10	23:20	207.74	2/5/10	8:10	204.09	2/5/10	17:00	202.14
2/4/10	5:50	212.44	2/4/10	14:40	212.86	2/4/10	23:30	207.63	2/5/10	8:20	204.09	2/5/10	17:10	202.03
2/4/10	6:00	212.44	2/4/10	14:50	212.86	2/4/10	23:40	207.53	2/5/10	8:30	203.99	2/5/10	17:20	202.03
2/4/10	6:10	212.44	2/4/10	15:00	212.76	2/4/10	23:50	207.53	2/5/10	8:40	203.99	2/5/10	17:30	202.03
2/4/10	6:20	212.44	2/4/10	15:10	212.76	2/5/10	0:00	207.42	2/5/10	8:50	203.99	2/5/10	17:40	202.03
2/4/10	6:30	212.44	2/4/10	15:20	212.65	2/5/10	0:10	207.32	2/5/10	9:00	203.88	2/5/10	17:50	202.03
2/4/10	6:40	212.44	2/4/10	15:30	212.55	2/5/10	0:20	207.21	2/5/10	9:10	203.88	2/5/10	18:00	201.93
2/4/10	6:50	212.55	2/4/10	15:40	212.55	2/5/10	0:30	207.10	2/5/10	9:20	203.78	2/5/10	18:10	201.93
2/4/10	7:00	212.55	2/4/10	15:50	212.44	2/5/10	0:40	207.10	2/5/10	9:30	203.78	2/5/10	18:20	201.93
2/4/10	7:10	212.55	2/4/10	16:00	212.28	2/5/10	0:50	207.00	2/5/10	9:40	203.67	2/5/10	18:30	201.93
2/4/10	7:20	212.55	2/4/10	16:10	212.28	2/5/10	1:00	206.89	2/5/10	9:50	203.67	2/5/10	18:40	201.82
2/4/10	7:30	212.55	2/4/10	16:20	212.07	2/5/10	1:10	206.79	2/5/10	10:00	203.57	2/5/10	18:50	201.82
2/4/10	7:40	212.55	2/4/10	16:30	212.07	2/5/10	1:20	206.79	2/5/10	10:10	203.57	2/5/10	19:00	201.82
2/4/10	7:50	212.55	2/4/10	16:40	211.96	2/5/10	1:30	206.68	2/5/10	10:20	203.57	2/5/10	19:10	201.82
2/4/10	8:00	212.65	2/4/10	16:50	211.86	2/5/10	1:40	206.58	2/5/10	10:30	203.46	2/5/10	19:20	201.82
2/4/10	8:10	212.65	2/4/10	17:00	211.75	2/5/10	1:50	206.47	2/5/10	10:40	203.46	2/5/10	19:30	201.82
2/4/10	8:20	212.65	2/4/10	17:10	211.65	2/5/10	2:00	206.47	2/5/10	10:50	203.35	2/5/10	19:40	201.72
2/4/10	8:30	212.65	2/4/10	17:20	211.54	2/5/10	2:10	206.37	2/5/10	11:00	203.35	2/5/10	19:50	201.72

TABLE D6B.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZNA-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/5/10	20:00	201.72	2/6/10	4:50	200.61	2/6/10	13:40	199.76	2/6/10	22:30	199.13	2/7/10	7:20	198.65
2/5/10	20:10	201.61	2/6/10	5:00	200.50	2/6/10	13:50	199.76	2/6/10	22:40	199.13	2/7/10	7:30	198.65
2/5/10	20:20	201.61	2/6/10	5:10	200.50	2/6/10	14:00	199.66	2/6/10	22:50	199.13	2/7/10	7:40	198.65
2/5/10	20:30	201.61	2/6/10	5:20	200.50	2/6/10	14:10	199.66	2/6/10	23:00	199.13	2/7/10	7:50	198.65
2/5/10	20:40	201.61	2/6/10	5:30	200.50	2/6/10	14:20	199.66	2/6/10	23:10	199.13	2/7/10	8:00	198.65
2/5/10	20:50	201.51	2/6/10	5:40	200.40	2/6/10	14:30	199.66	2/6/10	23:20	199.13	2/7/10	8:10	198.65
2/5/10	21:00	201.51	2/6/10	5:50	200.40	2/6/10	14:40	199.55	2/6/10	23:30	199.13	2/7/10	8:20	198.55
2/5/10	21:10	201.51	2/6/10	6:00	200.40	2/6/10	14:50	199.55	2/6/10	23:40	199.13	2/7/10	8:30	198.55
2/5/10	21:20	201.51	2/6/10	6:10	200.40	2/6/10	15:00	199.55	2/6/10	23:50	199.13	2/7/10	8:40	198.55
2/5/10	21:30	201.51	2/6/10	6:20	200.40	2/6/10	15:10	199.55	2/7/10	0:00	199.13	2/7/10	8:50	198.55
2/5/10	21:40	201.51	2/6/10	6:30	200.40	2/6/10	15:20	199.55	2/7/10	0:10	199.13	2/7/10	9:00	198.55
2/5/10	21:50	201.40	2/6/10	6:40	200.40	2/6/10	15:30	199.55	2/7/10	0:20	199.13	2/7/10	9:10	198.55
2/5/10	22:00	201.40	2/6/10	6:50	200.40	2/6/10	15:40	199.55	2/7/10	0:30	199.02	2/7/10	9:20	198.55
2/5/10	22:10	201.40	2/6/10	7:00	200.29	2/6/10	15:50	199.55	2/7/10	0:40	199.02	2/7/10	9:30	198.55
2/5/10	22:20	201.29	2/6/10	7:10	200.29	2/6/10	16:00	199.55	2/7/10	0:50	199.02	2/7/10	9:40	198.55
2/5/10	22:30	201.29	2/6/10	7:20	200.29	2/6/10	16:10	199.55	2/7/10	1:00	199.02	2/7/10	9:50	198.55
2/5/10	22:40	201.29	2/6/10	7:30	200.29	2/6/10	16:20	199.55	2/7/10	1:10	199.02	2/7/10	10:00	198.55
2/5/10	22:50	201.29	2/6/10	7:40	200.29	2/6/10	16:30	199.45	2/7/10	1:20	199.02	2/7/10	10:10	198.44
2/5/10	23:00	201.29	2/6/10	7:50	200.29	2/6/10	16:40	199.45	2/7/10	1:30	199.02	2/7/10	10:20	198.44
2/5/10	23:10	201.29	2/6/10	8:00	200.19	2/6/10	16:50	199.45	2/7/10	1:40	199.02	2/7/10	10:30	198.44
2/5/10	23:20	201.19	2/6/10	8:10	200.19	2/6/10	17:00	199.45	2/7/10	1:50	199.02	2/7/10	10:40	198.44
2/5/10	23:30	201.19	2/6/10	8:20	200.19	2/6/10	17:10	199.45	2/7/10	2:00	199.02	2/7/10	10:50	198.44
2/5/10	23:40	201.19	2/6/10	8:30	200.19	2/6/10	17:20	199.45	2/7/10	2:10	198.92	2/7/10	11:00	198.44
2/5/10	23:50	201.19	2/6/10	8:40	200.19	2/6/10	17:30	199.45	2/7/10	2:20	198.92	2/7/10	11:10	198.44
2/6/10	0:00	201.19	2/6/10	8:50	200.19	2/6/10	17:40	199.45	2/7/10	2:30	198.92	2/7/10	11:20	198.44
2/6/10	0:10	201.08	2/6/10	9:00	200.19	2/6/10	17:50	199.45	2/7/10	2:40	198.92	2/7/10	11:30	198.44
2/6/10	0:20	201.08	2/6/10	9:10	200.08	2/6/10	18:00	199.45	2/7/10	2:50	198.92	2/7/10	11:40	198.44
2/6/10	0:30	201.08	2/6/10	9:20	200.08	2/6/10	18:10	199.34	2/7/10	3:00	198.92	2/7/10	11:50	198.44
2/6/10	0:40	201.08	2/6/10	9:30	200.08	2/6/10	18:20	199.34	2/7/10	3:10	198.92	2/7/10	12:00	198.44
2/6/10	0:50	201.08	2/6/10	9:40	200.08	2/6/10	18:30	199.34	2/7/10	3:20	198.92	2/7/10	12:10	198.44
2/6/10	1:00	201.08	2/6/10	9:50	200.08	2/6/10	18:40	199.34	2/7/10	3:30	198.92	2/7/10	12:20	198.44
2/6/10	1:10	200.92	2/6/10	10:00	199.97	2/6/10	18:50	199.34	2/7/10	3:40	198.92	2/7/10	12:30	198.44
2/6/10	1:20	200.92	2/6/10	10:10	199.97	2/6/10	19:00	199.34	2/7/10	3:50	198.92	2/7/10	12:40	198.44
2/6/10	1:30	200.92	2/6/10	10:20	199.97	2/6/10	19:10	199.34	2/7/10	4:00	198.92	2/7/10	12:50	198.44
2/6/10	1:40	200.92	2/6/10	10:30	199.97	2/6/10	19:20	199.34	2/7/10	4:10	198.92	2/7/10	13:00	198.34
2/6/10	1:50	200.82	2/6/10	10:40	199.97	2/6/10	19:30	199.34	2/7/10	4:20	198.81	2/7/10	13:10	198.34
2/6/10	2:00	200.82	2/6/10	10:50	199.97	2/6/10	19:40	199.34	2/7/10	4:30	198.81	2/7/10	13:20	198.34
2/6/10	2:10	200.82	2/6/10	11:00	199.97	2/6/10	19:50	199.34	2/7/10	4:40	198.81	2/7/10	13:30	198.34
2/6/10	2:20	200.82	2/6/10	11:10	199.87	2/6/10	20:00	199.34	2/7/10	4:50	198.81	2/7/10	13:40	198.34
2/6/10	2:30	200.82	2/6/10	11:20	199.87	2/6/10	20:10	199.34	2/7/10	5:00	198.81	2/7/10	13:50	198.34
2/6/10	2:40	200.82	2/6/10	11:30	199.87	2/6/10	20:20	199.34	2/7/10	5:10	198.81	2/7/10	14:00	198.34
2/6/10	2:50	200.82	2/6/10	11:40	199.87	2/6/10	20:30	199.34	2/7/10	5:20	198.81	2/7/10	14:10	198.34
2/6/10	3:00	200.71	2/6/10	11:50	199.87	2/6/10	20:40	199.23	2/7/10	5:30	198.81	2/7/10	14:20	198.23
2/6/10	3:10	200.71	2/6/10	12:00	199.87	2/6/10	20:50	199.23	2/7/10	5:40	198.81	2/7/10	14:30	198.23
2/6/10	3:20	200.71	2/6/10	12:10	199.87	2/6/10	21:00	199.23	2/7/10	5:50	198.65	2/7/10	14:40	198.23
2/6/10	3:30	200.71	2/6/10	12:20	199.87	2/6/10	21:10	199.23	2/7/10	6:00	198.65	2/7/10	14:50	198.23
2/6/10	3:40	200.71	2/6/10	12:30	199.87	2/6/10	21:20	199.23	2/7/10	6:10	198.65	2/7/10	15:00	198.23
2/6/10	3:50	200.61	2/6/10	12:40	199.76	2/6/10	21:30	199.23	2/7/10	6:20	198.65	2/7/10	15:10	198.23
2/6/10	4:00	200.61	2/6/10	12:50	199.76	2/6/10	21:40	199.23	2/7/10	6:30	198.65	2/7/10	15:20	198.23
2/6/10	4:10	200.61	2/6/10	13:00	199.76	2/6/10	21:50	199.13	2/7/10	6:40	198.65	2/7/10	15:30	198.23
2/6/10	4:20	200.61	2/6/10	13:10	199.76	2/6/10	22:00	199.13	2/7/10	6:50	198.65	2/7/10	15:40	198.23
2/6/10	4:30	200.61	2/6/10	13:20	199.76	2/6/10	22:10	199.13	2/7/10	7:00	198.65	2/7/10	15:50	198.23
2/6/10	4:40	200.61	2/6/10	13:30	199.76	2/6/10	22:20	199.13	2/7/10	7:10	198.65	2/7/10	16:00	198.23

TABLE D6B.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZNA-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/7/10	16:10	198.23	2/8/10	1:00	197.91	2/8/10	9:50	197.70	2/8/10	18:40	197.49	2/9/10	3:30	197.39
2/7/10	16:20	198.23	2/8/10	1:10	197.91	2/8/10	10:00	197.70	2/8/10	18:50	197.49	2/9/10	3:40	197.39
2/7/10	16:30	198.23	2/8/10	1:20	197.91	2/8/10	10:10	197.70	2/8/10	19:00	197.49	2/9/10	3:50	197.39
2/7/10	16:40	198.23	2/8/10	1:30	197.91	2/8/10	10:20	197.70	2/8/10	19:10	197.49	2/9/10	4:00	197.39
2/7/10	16:50	198.23	2/8/10	1:40	197.91	2/8/10	10:30	197.70	2/8/10	19:20	197.49	2/9/10	4:10	197.39
2/7/10	17:00	198.23	2/8/10	1:50	197.91	2/8/10	10:40	197.70	2/8/10	19:30	197.49	2/9/10	4:20	197.39
2/7/10	17:10	198.23	2/8/10	2:00	197.91	2/8/10	10:50	197.70	2/8/10	19:40	197.49	2/9/10	4:30	197.28
2/7/10	17:20	198.23	2/8/10	2:10	197.91	2/8/10	11:00	197.70	2/8/10	19:50	197.49	2/9/10	4:40	197.39
2/7/10	17:30	198.23	2/8/10	2:20	197.91	2/8/10	11:10	197.70	2/8/10	20:00	197.49	2/9/10	4:50	197.28
2/7/10	17:40	198.13	2/8/10	2:30	197.91	2/8/10	11:20	197.60	2/8/10	20:10	197.49	2/9/10	5:00	197.28
2/7/10	17:50	198.13	2/8/10	2:40	197.91	2/8/10	11:30	197.70	2/8/10	20:20	197.49	2/9/10	5:10	197.28
2/7/10	18:00	198.13	2/8/10	2:50	197.91	2/8/10	11:40	197.60	2/8/10	20:30	197.49	2/9/10	5:20	197.28
2/7/10	18:10	198.13	2/8/10	3:00	197.91	2/8/10	11:50	197.60	2/8/10	20:40	197.49	2/9/10	5:30	197.28
2/7/10	18:20	198.13	2/8/10	3:10	197.91	2/8/10	12:00	197.60	2/8/10	20:50	197.49	2/9/10	5:40	197.28
2/7/10	18:30	198.13	2/8/10	3:20	197.91	2/8/10	12:10	197.60	2/8/10	21:00	197.49	2/9/10	5:50	197.28
2/7/10	18:40	198.13	2/8/10	3:30	197.91	2/8/10	12:20	197.60	2/8/10	21:10	197.49	2/9/10	6:00	197.28
2/7/10	18:50	198.13	2/8/10	3:40	197.91	2/8/10	12:30	197.60	2/8/10	21:20	197.49	2/9/10	6:10	197.28
2/7/10	19:00	198.13	2/8/10	3:50	197.91	2/8/10	12:40	197.60	2/8/10	21:30	197.49	2/9/10	6:20	197.28
2/7/10	19:10	198.13	2/8/10	4:00	197.91	2/8/10	12:50	197.60	2/8/10	21:40	197.49	2/9/10	6:30	197.28
2/7/10	19:20	198.13	2/8/10	4:10	197.91	2/8/10	13:00	197.60	2/8/10	21:50	197.49	2/9/10	6:40	197.28
2/7/10	19:30	198.13	2/8/10	4:20	197.81	2/8/10	13:10	197.60	2/8/10	22:00	197.49	2/9/10	6:50	197.28
2/7/10	19:40	198.13	2/8/10	4:30	197.81	2/8/10	13:20	197.60	2/8/10	22:10	197.49	2/9/10	7:00	197.28
2/7/10	19:50	198.13	2/8/10	4:40	197.81	2/8/10	13:30	197.60	2/8/10	22:20	197.49	2/9/10	7:10	197.28
2/7/10	20:00	198.13	2/8/10	4:50	197.81	2/8/10	13:40	197.60	2/8/10	22:30	197.49	2/9/10	7:20	197.28
2/7/10	20:10	198.13	2/8/10	5:00	197.81	2/8/10	13:50	197.60	2/8/10	22:40	197.49	2/9/10	7:30	197.28
2/7/10	20:20	198.13	2/8/10	5:10	197.81	2/8/10	14:00	197.49	2/8/10	22:50	197.49	2/9/10	7:40	197.28
2/7/10	20:30	198.13	2/8/10	5:20	197.81	2/8/10	14:10	197.49	2/8/10	23:00	197.49	2/9/10	7:50	197.17
2/7/10	20:40	198.02	2/8/10	5:30	197.81	2/8/10	14:20	197.49	2/8/10	23:10	197.49	2/9/10	8:00	197.17
2/7/10	20:50	198.13	2/8/10	5:40	197.81	2/8/10	14:30	197.49	2/8/10	23:20	197.49	2/9/10	8:10	197.17
2/7/10	21:00	198.02	2/8/10	5:50	197.81	2/8/10	14:40	197.49	2/8/10	23:30	197.49	2/9/10	8:20	197.17
2/7/10	21:10	198.02	2/8/10	6:00	197.81	2/8/10	14:50	197.49	2/8/10	23:40	197.49	2/9/10	8:30	197.17
2/7/10	21:20	198.02	2/8/10	6:10	197.81	2/8/10	15:00	197.49	2/8/10	23:50	197.49	2/9/10	8:40	197.17
2/7/10	21:30	198.02	2/8/10	6:20	197.81	2/8/10	15:10	197.49	2/9/10	0:00	197.49	2/9/10	8:50	197.17
2/7/10	21:40	198.02	2/8/10	6:30	197.81	2/8/10	15:20	197.49	2/9/10	0:10	197.49	2/9/10	9:00	197.17
2/7/10	21:50	198.02	2/8/10	6:40	197.81	2/8/10	15:30	197.49	2/9/10	0:20	197.49	2/9/10	9:10	197.17
2/7/10	22:00	198.02	2/8/10	6:50	197.81	2/8/10	15:40	197.49	2/9/10	0:30	197.49	2/9/10	9:20	197.07
2/7/10	22:10	198.02	2/8/10	7:00	197.81	2/8/10	15:50	197.49	2/9/10	0:40	197.49			
2/7/10	22:20	198.02	2/8/10	7:10	197.81	2/8/10	16:00	197.49	2/9/10	0:50	197.49			
2/7/10	22:30	198.02	2/8/10	7:20	197.81	2/8/10	16:10	197.49	2/9/10	1:00	197.49			
2/7/10	22:40	198.02	2/8/10	7:30	197.81	2/8/10	16:20	197.49	2/9/10	1:10	197.39			
2/7/10	22:50	198.02	2/8/10	7:40	197.81	2/8/10	16:30	197.49	2/9/10	1:20	197.39			
2/7/10	23:00	198.02	2/8/10	7:50	197.70	2/8/10	16:40	197.49	2/9/10	1:30	197.39			
2/7/10	23:10	198.02	2/8/10	8:00	197.81	2/8/10	16:50	197.49	2/9/10	1:40	197.39			
2/7/10	23:20	198.02	2/8/10	8:10	197.81	2/8/10	17:00	197.49	2/9/10	1:50	197.39			
2/7/10	23:30	198.02	2/8/10	8:20	197.70	2/8/10	17:10	197.49	2/9/10	2:00	197.39			
2/7/10	23:40	198.02	2/8/10	8:30	197.70	2/8/10	17:20	197.49	2/9/10	2:10	197.39			
2/7/10	23:50	198.02	2/8/10	8:40	197.70	2/8/10	17:30	197.49	2/9/10	2:20	197.39			
2/8/10	0:00	198.02	2/8/10	8:50	197.70	2/8/10	17:40	197.49	2/9/10	2:30	197.39			
2/8/10	0:10	197.91	2/8/10	9:00	197.70	2/8/10	17:50	197.49	2/9/10	2:40	197.39			
2/8/10	0:20	197.91	2/8/10	9:10	197.70	2/8/10	18:00	197.49	2/9/10	2:50	197.39			
2/8/10	0:30	197.91	2/8/10	9:20	197.70	2/8/10	18:10	197.49	2/9/10	3:00	197.39			
2/8/10	0:40	197.91	2/8/10	9:30	197.70	2/8/10	18:20	197.49	2/9/10	3:10	197.39			
2/8/10	0:50	197.91	2/8/10	9:40	197.70	2/8/10	18:30	197.49	2/9/10	3:20	197.39			

TABLE D6B.6-5. AQUIFER-TEST DATA FOR OBSERVATION WELL MN-2.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/29/10	12:36:00	-4288	--	--	176.40	0.00	--	--	--	--
	12:36:00	SET TRANSDUCER								
02/01/10	12:55:00	51	--	--	175.89	-0.51	--	--	--	--
	15:03:00	179	--	--	176.37	-0.03	--	--	--	--
02/02/10	9:45:00	1301	--	--	176.36	-0.04	--	--	--	--
	13:53:00	1549	--	--	176.45	0.05	--	--	--	--
02/03/10	10:11:00	2767	--	--	176.89	0.49	--	--	--	--
	13:57:00	2993	--	--	176.95	0.55	--	--	--	--
02/04/10	10:08:00	4204	--	--	177.45	1.05	--	--	--	--
	10:08:00	DOWNLOADED TRANS								
	10:37:00	4233	--	--	177.54	1.14	--	--	--	--
02/09/10	8:45:00	11321	7015	1.614	177.99	1.59	--	--	--	--

TABLE D6B.6-6. TRANSDUCER DATA FOR OBSERVATION WELL MN-2.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/29/10	12:45	176.40	1/30/10	2:00	176.45	1/30/10	15:15	176.35	1/31/10	4:30	176.40	1/31/10	17:45	176.29
1/29/10	13:00	176.40	1/30/10	2:15	176.45	1/30/10	15:30	176.35	1/31/10	4:45	176.40	1/31/10	18:00	176.29
1/29/10	13:15	176.40	1/30/10	2:30	176.45	1/30/10	15:45	176.35	1/31/10	5:00	176.40	1/31/10	18:15	176.29
1/29/10	13:30	176.40	1/30/10	2:45	176.45	1/30/10	16:00	176.35	1/31/10	5:15	176.40	1/31/10	18:30	176.29
1/29/10	13:45	176.40	1/30/10	3:00	176.45	1/30/10	16:15	176.35	1/31/10	5:30	176.40	1/31/10	18:45	176.29
1/29/10	14:00	176.40	1/30/10	3:15	176.45	1/30/10	16:30	176.35	1/31/10	5:45	176.40	1/31/10	19:00	176.29
1/29/10	14:15	176.40	1/30/10	3:30	176.45	1/30/10	16:45	176.35	1/31/10	6:00	176.40	1/31/10	19:15	176.29
1/29/10	14:30	176.40	1/30/10	3:45	176.45	1/30/10	17:00	176.35	1/31/10	6:15	176.35	1/31/10	19:30	176.29
1/29/10	14:45	176.40	1/30/10	4:00	176.45	1/30/10	17:15	176.35	1/31/10	6:30	176.35	1/31/10	19:45	176.29
1/29/10	15:00	176.40	1/30/10	4:15	176.45	1/30/10	17:30	176.35	1/31/10	6:45	176.35	1/31/10	20:00	176.29
1/29/10	15:15	176.40	1/30/10	4:30	176.45	1/30/10	17:45	176.35	1/31/10	7:00	176.35	1/31/10	20:15	176.29
1/29/10	15:30	176.40	1/30/10	4:45	176.45	1/30/10	18:00	176.35	1/31/10	7:15	176.35	1/31/10	20:30	176.29
1/29/10	15:45	176.40	1/30/10	5:00	176.45	1/30/10	18:15	176.35	1/31/10	7:30	176.35	1/31/10	20:45	176.29
1/29/10	16:00	176.40	1/30/10	5:15	176.45	1/30/10	18:30	176.35	1/31/10	7:45	176.35	1/31/10	21:00	176.29
1/29/10	16:15	176.40	1/30/10	5:30	176.40	1/30/10	18:45	176.35	1/31/10	8:00	176.35	1/31/10	21:15	176.29
1/29/10	16:30	176.40	1/30/10	5:45	176.40	1/30/10	19:00	176.35	1/31/10	8:15	176.35	1/31/10	21:30	176.29
1/29/10	16:45	176.40	1/30/10	6:00	176.40	1/30/10	19:15	176.35	1/31/10	8:30	176.35	1/31/10	21:45	176.29
1/29/10	17:00	176.40	1/30/10	6:15	176.40	1/30/10	19:30	176.35	1/31/10	8:45	176.35	1/31/10	22:00	176.29
1/29/10	17:15	176.40	1/30/10	6:30	176.40	1/30/10	19:45	176.35	1/31/10	9:00	176.35	1/31/10	22:15	176.29
1/29/10	17:30	176.40	1/30/10	6:45	176.40	1/30/10	20:00	176.35	1/31/10	9:15	176.35	1/31/10	22:30	176.29
1/29/10	17:45	176.40	1/30/10	7:00	176.40	1/30/10	20:15	176.35	1/31/10	9:30	176.35	1/31/10	22:45	176.29
1/29/10	18:00	176.40	1/30/10	7:15	176.40	1/30/10	20:30	176.35	1/31/10	9:45	176.35	1/31/10	23:00	176.29
1/29/10	18:15	176.40	1/30/10	7:30	176.40	1/30/10	20:45	176.35	1/31/10	10:00	176.35	1/31/10	23:15	176.29
1/29/10	18:30	176.40	1/30/10	7:45	176.40	1/30/10	21:00	176.40	1/31/10	10:15	176.29	1/31/10	23:30	176.29
1/29/10	18:45	176.40	1/30/10	8:00	176.40	1/30/10	21:15	176.40	1/31/10	10:30	176.29	1/31/10	23:45	176.29
1/29/10	19:00	176.40	1/30/10	8:15	176.40	1/30/10	21:30	176.40	1/31/10	10:45	176.29	2/1/10	0:00	176.29
1/29/10	19:15	176.40	1/30/10	8:30	176.40	1/30/10	21:45	176.40	1/31/10	11:00	176.29	2/1/10	0:15	176.29
1/29/10	19:30	176.40	1/30/10	8:45	176.40	1/30/10	22:00	176.40	1/31/10	11:15	176.29	2/1/10	0:30	176.29
1/29/10	19:45	176.40	1/30/10	9:00	176.40	1/30/10	22:15	176.40	1/31/10	11:30	176.29	2/1/10	0:45	176.29
1/29/10	20:00	176.40	1/30/10	9:15	176.40	1/30/10	22:30	176.40	1/31/10	11:45	176.29	2/1/10	1:00	176.29
1/29/10	20:15	176.40	1/30/10	9:30	176.40	1/30/10	22:45	176.40	1/31/10	12:00	176.29	2/1/10	1:15	176.29
1/29/10	20:30	176.40	1/30/10	9:45	176.40	1/30/10	23:00	176.40	1/31/10	12:15	176.29	2/1/10	1:30	176.29
1/29/10	20:45	176.40	1/30/10	10:00	176.40	1/30/10	23:15	176.40	1/31/10	12:30	176.29	2/1/10	1:45	176.29
1/29/10	21:00	176.40	1/30/10	10:15	176.40	1/30/10	23:30	176.40	1/31/10	12:45	176.29	2/1/10	2:00	176.29
1/29/10	21:15	176.40	1/30/10	10:30	176.40	1/30/10	23:45	176.40	1/31/10	13:00	176.29	2/1/10	2:15	176.35
1/29/10	21:30	176.40	1/30/10	10:45	176.40	1/31/10	0:00	176.40	1/31/10	13:15	176.29	2/1/10	2:30	176.29
1/29/10	21:45	176.45	1/30/10	11:00	176.40	1/31/10	0:15	176.40	1/31/10	13:30	176.29	2/1/10	2:45	176.35
1/29/10	22:00	176.45	1/30/10	11:15	176.40	1/31/10	0:30	176.40	1/31/10	13:45	176.29	2/1/10	3:00	176.29
1/29/10	22:15	176.45	1/30/10	11:30	176.40	1/31/10	0:45	176.40	1/31/10	14:00	176.29	2/1/10	3:15	176.29
1/29/10	22:30	176.45	1/30/10	11:45	176.40	1/31/10	1:00	176.40	1/31/10	14:15	176.29	2/1/10	3:30	176.29
1/29/10	22:45	176.45	1/30/10	12:00	176.40	1/31/10	1:15	176.40	1/31/10	14:30	176.29	2/1/10	3:45	176.29
1/29/10	23:00	176.45	1/30/10	12:15	176.40	1/31/10	1:30	176.40	1/31/10	14:45	176.29	2/1/10	4:00	176.29
1/29/10	23:15	176.45	1/30/10	12:30	176.40	1/31/10	1:45	176.40	1/31/10	15:00	176.29	2/1/10	4:15	176.29
1/29/10	23:30	176.45	1/30/10	12:45	176.40	1/31/10	2:00	176.40	1/31/10	15:15	176.29	2/1/10	4:30	176.29
1/29/10	23:45	176.45	1/30/10	13:00	176.40	1/31/10	2:15	176.40	1/31/10	15:30	176.29	2/1/10	4:45	176.29
1/30/10	0:00	176.45	1/30/10	13:15	176.40	1/31/10	2:30	176.40	1/31/10	15:45	176.29	2/1/10	5:00	176.29
1/30/10	0:15	176.45	1/30/10	13:30	176.40	1/31/10	2:45	176.40	1/31/10	16:00	176.29	2/1/10	5:15	176.29
1/30/10	0:30	176.51	1/30/10	13:45	176.40	1/31/10	3:00	176.40	1/31/10	16:15	176.29	2/1/10	5:30	176.29
1/30/10	0:45	176.45	1/30/10	14:00	176.40	1/31/10	3:15	176.40	1/31/10	16:30	176.29	2/1/10	5:45	176.29
1/30/10	1:00	176.45	1/30/10	14:15	176.40	1/31/10	3:30	176.40	1/31/10	16:45	176.24	2/1/10	6:00	176.29
1/30/10	1:15	176.45	1/30/10	14:30	176.40	1/31/10	3:45	176.40	1/31/10	17:00	176.29	2/1/10	6:15	176.29
1/30/10	1:30	176.45	1/30/10	14:45	176.40	1/31/10	4:00	176.40	1/31/10	17:15	176.29	2/1/10	6:30	176.29
1/30/10	1:45	176.45	1/30/10	15:00	176.35	1/31/10	4:15	176.40	1/31/10	17:30	176.29	2/1/10	6:45	176.29

TABLE D6B.6-6. TRANSDUCER DATA FOR OBSERVATION WELL MN-2, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/1/10	7:00	176.29	2/1/10	20:15	176.29	2/2/10	9:30	176.40	2/2/10	22:45	176.61	2/3/10	12:00	176.90
2/1/10	7:15	176.29	2/1/10	20:30	176.29	2/2/10	9:45	176.40	2/2/10	23:00	176.61	2/3/10	12:15	176.90
2/1/10	7:30	176.29	2/1/10	20:45	176.29	2/2/10	10:00	176.40	2/2/10	23:15	176.61	2/3/10	12:30	176.90
2/1/10	7:45	176.29	2/1/10	21:00	176.29	2/2/10	10:15	176.40	2/2/10	23:30	176.61	2/3/10	12:45	176.90
2/1/10	8:00	176.29	2/1/10	21:15	176.29	2/2/10	10:30	176.40	2/2/10	23:45	176.61	2/3/10	13:00	176.90
2/1/10	8:15	176.29	2/1/10	21:30	176.29	2/2/10	10:45	176.40	2/3/10	0:00	176.61	2/3/10	13:15	176.90
2/1/10	8:30	176.29	2/1/10	21:45	176.29	2/2/10	11:00	176.40	2/3/10	0:15	176.61	2/3/10	13:30	176.95
2/1/10	8:45	176.29	2/1/10	22:00	176.29	2/2/10	11:15	176.40	2/3/10	0:30	176.61	2/3/10	13:45	176.90
2/1/10	9:00	176.29	2/1/10	22:15	176.29	2/2/10	11:30	176.40	2/3/10	0:45	176.69	2/3/10	14:00	176.95
2/1/10	9:15	176.29	2/1/10	22:30	176.35	2/2/10	11:45	176.40	2/3/10	1:00	176.69	2/3/10	14:15	176.95
2/1/10	9:30	176.29	2/1/10	22:45	176.35	2/2/10	12:00	176.40	2/3/10	1:15	176.69	2/3/10	14:30	176.95
2/1/10	9:45	176.29	2/1/10	23:00	176.35	2/2/10	12:15	176.40	2/3/10	1:30	176.69	2/3/10	14:45	176.95
2/1/10	10:00	176.29	2/1/10	23:15	176.35	2/2/10	12:30	176.40	2/3/10	1:45	176.69	2/3/10	15:00	176.95
2/1/10	10:15	176.29	2/1/10	23:30	176.35	2/2/10	12:45	176.40	2/3/10	2:00	176.74	2/3/10	15:15	176.95
2/1/10	10:30	176.29	2/1/10	23:45	176.35	2/2/10	13:00	176.40	2/3/10	2:15	176.74	2/3/10	15:30	176.95
2/1/10	10:45	176.29	2/2/10	0:00	176.35	2/2/10	13:15	176.40	2/3/10	2:30	176.74	2/3/10	15:45	176.95
2/1/10	11:00	176.29	2/2/10	0:15	176.35	2/2/10	13:30	176.40	2/3/10	2:45	176.74	2/3/10	16:00	177.01
2/1/10	11:15	176.29	2/2/10	0:30	176.35	2/2/10	13:45	176.40	2/3/10	3:00	176.74	2/3/10	16:15	177.01
2/1/10	11:30	176.29	2/2/10	0:45	176.35	2/2/10	14:00	176.40	2/3/10	3:15	176.74	2/3/10	16:30	177.01
2/1/10	11:45	176.29	2/2/10	1:00	176.35	2/2/10	14:15	176.40	2/3/10	3:30	176.74	2/3/10	16:45	177.01
2/1/10	12:00	176.29	2/2/10	1:15	176.35	2/2/10	14:30	176.40	2/3/10	3:45	176.74	2/3/10	17:00	177.01
2/1/10	12:15	176.29	2/2/10	1:30	176.35	2/2/10	14:45	176.40	2/3/10	4:00	176.80	2/3/10	17:15	177.01
2/1/10	12:30	176.29	2/2/10	1:45	176.40	2/2/10	15:00	176.45	2/3/10	4:15	176.80	2/3/10	17:30	177.01
2/1/10	12:45	176.29	2/2/10	2:00	176.40	2/2/10	15:15	176.45	2/3/10	4:30	176.80	2/3/10	17:45	177.01
2/1/10	13:00	176.29	2/2/10	2:15	176.40	2/2/10	15:30	176.45	2/3/10	4:45	176.80	2/3/10	18:00	177.06
2/1/10	13:15	176.29	2/2/10	2:30	176.40	2/2/10	15:45	176.45	2/3/10	5:00	176.80	2/3/10	18:15	177.06
2/1/10	13:30	176.29	2/2/10	2:45	176.40	2/2/10	16:00	176.45	2/3/10	5:15	176.80	2/3/10	18:30	177.06
2/1/10	13:45	176.29	2/2/10	3:00	176.40	2/2/10	16:15	176.45	2/3/10	5:30	176.80	2/3/10	18:45	177.06
2/1/10	14:00	176.29	2/2/10	3:15	176.40	2/2/10	16:30	176.45	2/3/10	5:45	176.80	2/3/10	19:00	177.06
2/1/10	14:15	176.29	2/2/10	3:30	176.40	2/2/10	16:45	176.45	2/3/10	6:00	176.85	2/3/10	19:15	177.06
2/1/10	14:30	176.29	2/2/10	3:45	176.40	2/2/10	17:00	176.45	2/3/10	6:15	176.85	2/3/10	19:30	177.06
2/1/10	14:45	176.29	2/2/10	4:00	176.40	2/2/10	17:15	176.45	2/3/10	6:30	176.85	2/3/10	19:45	177.06
2/1/10	15:00	176.29	2/2/10	4:15	176.40	2/2/10	17:30	176.51	2/3/10	6:45	176.85	2/3/10	20:00	177.06
2/1/10	15:15	176.29	2/2/10	4:30	176.40	2/2/10	17:45	176.51	2/3/10	7:00	176.85	2/3/10	20:15	177.06
2/1/10	15:30	176.29	2/2/10	4:45	176.40	2/2/10	18:00	176.51	2/3/10	7:15	176.85	2/3/10	20:30	177.06
2/1/10	15:45	176.29	2/2/10	5:00	176.40	2/2/10	18:15	176.51	2/3/10	7:30	176.85	2/3/10	20:45	177.06
2/1/10	16:00	176.29	2/2/10	5:15	176.40	2/2/10	18:30	176.51	2/3/10	7:45	176.85	2/3/10	21:00	177.11
2/1/10	16:15	176.29	2/2/10	5:30	176.40	2/2/10	18:45	176.51	2/3/10	8:00	176.85	2/3/10	21:15	177.11
2/1/10	16:30	176.29	2/2/10	5:45	176.40	2/2/10	19:00	176.51	2/3/10	8:15	176.85	2/3/10	21:30	177.11
2/1/10	16:45	176.29	2/2/10	6:00	176.40	2/2/10	19:15	176.51	2/3/10	8:30	176.85	2/3/10	21:45	177.11
2/1/10	17:00	176.29	2/2/10	6:15	176.40	2/2/10	19:30	176.51	2/3/10	8:45	176.85	2/3/10	22:00	177.11
2/1/10	17:15	176.29	2/2/10	6:30	176.40	2/2/10	19:45	176.51	2/3/10	9:00	176.85	2/3/10	22:15	177.11
2/1/10	17:30	176.29	2/2/10	6:45	176.40	2/2/10	20:00	176.51	2/3/10	9:15	176.85	2/3/10	22:30	177.11
2/1/10	17:45	176.29	2/2/10	7:00	176.40	2/2/10	20:15	176.56	2/3/10	9:30	176.85	2/3/10	22:45	177.17
2/1/10	18:00	176.29	2/2/10	7:15	176.40	2/2/10	20:30	176.56	2/3/10	9:45	176.85	2/3/10	23:00	177.11
2/1/10	18:15	176.29	2/2/10	7:30	176.40	2/2/10	20:45	176.56	2/3/10	10:00	176.85	2/3/10	23:15	177.17
2/1/10	18:30	176.29	2/2/10	7:45	176.40	2/2/10	21:00	176.56	2/3/10	10:15	176.85	2/3/10	23:30	177.17
2/1/10	18:45	176.29	2/2/10	8:00	176.40	2/2/10	21:15	176.56	2/3/10	10:30	176.85	2/3/10	23:45	177.17
2/1/10	19:00	176.29	2/2/10	8:15	176.40	2/2/10	21:30	176.56	2/3/10	10:45	176.90	2/4/10	0:00	177.17
2/1/10	19:15	176.29	2/2/10	8:30	176.40	2/2/10	21:45	176.56	2/3/10	11:00	176.90	2/4/10	0:15	177.17
2/1/10	19:30	176.29	2/2/10	8:45	176.40	2/2/10	22:00	176.61	2/3/10	11:15	176.90	2/4/10	0:30	177.17
2/1/10	19:45	176.29	2/2/10	9:00	176.40	2/2/10	22:15	176.61	2/3/10	11:30	176.90	2/4/10	0:45	177.17
2/1/10	20:00	176.29	2/2/10	9:15	176.40	2/2/10	22:30	176.61	2/3/10	11:45	176.90	2/4/10	1:00	177.17

TABLE D6B.6-6. TRANSDUCER DATA FOR OBSERVATION WELL MN-2, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/4/10	1:15	177.17	2/4/10	14:30	177.56	2/5/10	3:45	177.93	2/5/10	17:00	178.12	2/6/10	6:15	178.17
2/4/10	1:30	177.17	2/4/10	14:45	177.56	2/5/10	4:00	177.93	2/5/10	17:15	178.12	2/6/10	6:30	178.17
2/4/10	1:45	177.22	2/4/10	15:00	177.56	2/5/10	4:15	177.93	2/5/10	17:30	178.12	2/6/10	6:45	178.17
2/4/10	2:00	177.22	2/4/10	15:15	177.56	2/5/10	4:30	177.93	2/5/10	17:45	178.12	2/6/10	7:00	178.17
2/4/10	2:15	177.22	2/4/10	15:30	177.56	2/5/10	4:45	177.93	2/5/10	18:00	178.12	2/6/10	7:15	178.17
2/4/10	2:30	177.22	2/4/10	15:45	177.56	2/5/10	5:00	177.93	2/5/10	18:15	178.12	2/6/10	7:30	178.17
2/4/10	2:45	177.22	2/4/10	16:00	177.56	2/5/10	5:15	177.98	2/5/10	18:30	178.12	2/6/10	7:45	178.17
2/4/10	3:00	177.22	2/4/10	16:15	177.61	2/5/10	5:30	177.93	2/5/10	18:45	178.12	2/6/10	8:00	178.17
2/4/10	3:15	177.22	2/4/10	16:30	177.61	2/5/10	5:45	177.98	2/5/10	19:00	178.12	2/6/10	8:15	178.17
2/4/10	3:30	177.27	2/4/10	16:45	177.61	2/5/10	6:00	177.98	2/5/10	19:15	178.12	2/6/10	8:30	178.17
2/4/10	3:45	177.27	2/4/10	17:00	177.61	2/5/10	6:15	177.98	2/5/10	19:30	178.12	2/6/10	8:45	178.17
2/4/10	4:00	177.27	2/4/10	17:15	177.61	2/5/10	6:30	177.98	2/5/10	19:45	178.12	2/6/10	9:00	178.12
2/4/10	4:15	177.27	2/4/10	17:30	177.61	2/5/10	6:45	177.98	2/5/10	20:00	178.12	2/6/10	9:15	178.12
2/4/10	4:30	177.27	2/4/10	17:45	177.67	2/5/10	7:00	177.98	2/5/10	20:15	178.12	2/6/10	9:30	178.17
2/4/10	4:45	177.27	2/4/10	18:00	177.67	2/5/10	7:15	177.98	2/5/10	20:30	178.12	2/6/10	9:45	178.17
2/4/10	5:00	177.27	2/4/10	18:15	177.67	2/5/10	7:30	177.98	2/5/10	20:45	178.12	2/6/10	10:00	178.12
2/4/10	5:15	177.27	2/4/10	18:30	177.67	2/5/10	7:45	177.98	2/5/10	21:00	178.12	2/6/10	10:15	178.12
2/4/10	5:30	177.27	2/4/10	18:45	177.67	2/5/10	8:00	177.98	2/5/10	21:15	178.12	2/6/10	10:30	178.12
2/4/10	5:45	177.27	2/4/10	19:00	177.67	2/5/10	8:15	177.98	2/5/10	21:30	178.12	2/6/10	10:45	178.12
2/4/10	6:00	177.27	2/4/10	19:15	177.72	2/5/10	8:30	177.98	2/5/10	21:45	178.17	2/6/10	11:00	178.12
2/4/10	6:15	177.27	2/4/10	19:30	177.72	2/5/10	8:45	177.98	2/5/10	22:00	178.17	2/6/10	11:15	178.12
2/4/10	6:30	177.27	2/4/10	19:45	177.72	2/5/10	9:00	178.06	2/5/10	22:15	178.12	2/6/10	11:30	178.12
2/4/10	6:45	177.27	2/4/10	20:00	177.72	2/5/10	9:15	177.98	2/5/10	22:30	178.17	2/6/10	11:45	178.12
2/4/10	7:00	177.32	2/4/10	20:15	177.72	2/5/10	9:30	177.98	2/5/10	22:45	178.17	2/6/10	12:00	178.12
2/4/10	7:15	177.32	2/4/10	20:30	177.77	2/5/10	9:45	178.06	2/5/10	23:00	178.17	2/6/10	12:15	178.12
2/4/10	7:30	177.32	2/4/10	20:45	177.77	2/5/10	10:00	178.06	2/5/10	23:15	178.17	2/6/10	12:30	178.12
2/4/10	7:45	177.32	2/4/10	21:00	177.77	2/5/10	10:15	178.06	2/5/10	23:30	178.17	2/6/10	12:45	178.12
2/4/10	8:00	177.32	2/4/10	21:15	177.77	2/5/10	10:30	178.06	2/5/10	23:45	178.17	2/6/10	13:00	178.12
2/4/10	8:15	177.40	2/4/10	21:30	177.77	2/5/10	10:45	178.06	2/6/10	0:00	178.17	2/6/10	13:15	178.12
2/4/10	8:30	177.40	2/4/10	21:45	177.77	2/5/10	11:00	178.06	2/6/10	0:15	178.17	2/6/10	13:30	178.12
2/4/10	8:45	177.40	2/4/10	22:00	177.77	2/5/10	11:15	178.06	2/6/10	0:30	178.17	2/6/10	13:45	178.12
2/4/10	9:00	177.40	2/4/10	22:15	177.77	2/5/10	11:30	178.06	2/6/10	0:45	178.17	2/6/10	14:00	178.12
2/4/10	9:15	177.40	2/4/10	22:30	177.77	2/5/10	11:45	178.06	2/6/10	1:00	178.17	2/6/10	14:15	178.12
2/4/10	9:30	177.40	2/4/10	22:45	177.77	2/5/10	12:00	178.06	2/6/10	1:15	178.17	2/6/10	14:30	178.12
2/4/10	9:45	177.40	2/4/10	23:00	177.77	2/5/10	12:15	178.06	2/6/10	1:30	178.17	2/6/10	14:45	178.12
2/4/10	10:00	177.40	2/4/10	23:15	177.83	2/5/10	12:30	178.06	2/6/10	1:45	178.17	2/6/10	15:00	178.12
2/4/10	10:15	177.40	2/4/10	23:30	177.83	2/5/10	12:45	178.06	2/6/10	2:00	178.17	2/6/10	15:15	178.12
2/4/10	10:30	177.40	2/4/10	23:45	177.83	2/5/10	13:00	178.06	2/6/10	2:15	178.17	2/6/10	15:30	178.12
2/4/10	10:45	177.46	2/5/10	0:00	177.83	2/5/10	13:15	178.06	2/6/10	2:30	178.17	2/6/10	15:45	178.12
2/4/10	11:00	177.46	2/5/10	0:15	177.83	2/5/10	13:30	178.06	2/6/10	2:45	178.17	2/6/10	16:00	178.12
2/4/10	11:15	177.46	2/5/10	0:30	177.83	2/5/10	13:45	178.06	2/6/10	3:00	178.17	2/6/10	16:15	178.12
2/4/10	11:30	177.46	2/5/10	0:45	177.83	2/5/10	14:00	178.06	2/6/10	3:15	178.17	2/6/10	16:30	178.12
2/4/10	11:45	177.46	2/5/10	1:00	177.83	2/5/10	14:15	178.06	2/6/10	3:30	178.17	2/6/10	16:45	178.12
2/4/10	12:00	177.46	2/5/10	1:15	177.88	2/5/10	14:30	178.06	2/6/10	3:45	178.17	2/6/10	17:00	178.12
2/4/10	12:15	177.46	2/5/10	1:30	177.88	2/5/10	14:45	178.06	2/6/10	4:00	178.17	2/6/10	17:15	178.12
2/4/10	12:30	177.46	2/5/10	1:45	177.88	2/5/10	15:00	178.06	2/6/10	4:15	178.17	2/6/10	17:30	178.12
2/4/10	12:45	177.46	2/5/10	2:00	177.88	2/5/10	15:15	178.06	2/6/10	4:30	178.17	2/6/10	17:45	178.12
2/4/10	13:00	177.46	2/5/10	2:15	177.88	2/5/10	15:30	178.12	2/6/10	4:45	178.17	2/6/10	18:00	178.12
2/4/10	13:15	177.46	2/5/10	2:30	177.88	2/5/10	15:45	178.12	2/6/10	5:00	178.17	2/6/10	18:15	178.12
2/4/10	13:30	177.51	2/5/10	2:45	177.88	2/5/10	16:00	178.12	2/6/10	5:15	178.17	2/6/10	18:30	178.12
2/4/10	13:45	177.51	2/5/10	3:00	177.88	2/5/10	16:15	178.12	2/6/10	5:30	178.17	2/6/10	18:45	178.12
2/4/10	14:00	177.51	2/5/10	3:15	177.88	2/5/10	16:30	178.12	2/6/10	5:45	178.17	2/6/10	19:00	178.12
2/4/10	14:15	177.56	2/5/10	3:30	177.88	2/5/10	16:45	178.12	2/6/10	6:00	178.17	2/6/10	19:15	178.12

TABLE D6B.6-6. TRANSDUCER DATA FOR OBSERVATION WELL MN-2, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/6/10	19:30	178.12	2/7/10	8:45	178.06	2/7/10	22:00	178.06	2/8/10	11:15	177.98	2/9/10	0:30	177.93
2/6/10	19:45	178.12	2/7/10	9:00	178.06	2/7/10	22:15	178.06	2/8/10	11:30	177.98	2/9/10	0:45	177.93
2/6/10	20:00	178.12	2/7/10	9:15	178.06	2/7/10	22:30	178.06	2/8/10	11:45	177.98	2/9/10	1:00	177.93
2/6/10	20:15	178.12	2/7/10	9:30	178.06	2/7/10	22:45	178.06	2/8/10	12:00	177.98	2/9/10	1:15	177.93
2/6/10	20:30	178.12	2/7/10	9:45	178.06	2/7/10	23:00	178.06	2/8/10	12:15	177.98	2/9/10	1:30	177.93
2/6/10	20:45	178.12	2/7/10	10:00	178.06	2/7/10	23:15	178.06	2/8/10	12:30	177.93	2/9/10	1:45	177.93
2/6/10	21:00	178.12	2/7/10	10:15	178.06	2/7/10	23:30	178.06	2/8/10	12:45	177.93	2/9/10	2:00	177.93
2/6/10	21:15	178.17	2/7/10	10:30	178.06	2/7/10	23:45	178.06	2/8/10	13:00	177.93	2/9/10	2:15	177.93
2/6/10	21:30	178.12	2/7/10	10:45	178.06	2/8/10	0:00	178.06	2/8/10	13:15	177.93	2/9/10	2:30	177.93
2/6/10	21:45	178.12	2/7/10	11:00	178.06	2/8/10	0:15	178.06	2/8/10	13:30	177.93	2/9/10	2:45	177.93
2/6/10	22:00	178.12	2/7/10	11:15	178.06	2/8/10	0:30	178.06	2/8/10	13:45	177.93	2/9/10	3:00	177.93
2/6/10	22:15	178.12	2/7/10	11:30	178.06	2/8/10	0:45	177.98	2/8/10	14:00	177.93	2/9/10	3:15	177.88
2/6/10	22:30	178.12	2/7/10	11:45	178.06	2/8/10	1:00	177.98	2/8/10	14:15	177.93	2/9/10	3:30	177.88
2/6/10	22:45	178.12	2/7/10	12:00	178.06	2/8/10	1:15	177.98	2/8/10	14:30	177.93	2/9/10	3:45	177.88
2/6/10	23:00	178.12	2/7/10	12:15	178.06	2/8/10	1:30	177.98	2/8/10	14:45	177.93	2/9/10	4:00	177.88
2/6/10	23:15	178.12	2/7/10	12:30	178.06	2/8/10	1:45	177.98	2/8/10	15:00	177.93	2/9/10	4:15	177.88
2/6/10	23:30	178.12	2/7/10	12:45	178.06	2/8/10	2:00	177.98	2/8/10	15:15	177.93	2/9/10	4:30	177.88
2/6/10	23:45	178.12	2/7/10	13:00	178.06	2/8/10	2:15	177.98	2/8/10	15:30	177.93	2/9/10	4:45	177.88
2/7/10	0:00	178.12	2/7/10	13:15	178.06	2/8/10	2:30	177.98	2/8/10	15:45	177.88	2/9/10	5:00	177.88
2/7/10	0:15	178.12	2/7/10	13:30	178.06	2/8/10	2:45	177.98	2/8/10	16:00	177.93	2/9/10	5:15	177.88
2/7/10	0:30	178.12	2/7/10	13:45	178.06	2/8/10	3:00	177.98	2/8/10	16:15	177.93	2/9/10	5:30	177.88
2/7/10	0:45	178.12	2/7/10	14:00	177.98	2/8/10	3:15	177.98	2/8/10	16:30	177.93	2/9/10	5:45	177.88
2/7/10	1:00	178.12	2/7/10	14:15	177.98	2/8/10	3:30	177.98	2/8/10	16:45	177.93	2/9/10	6:00	177.88
2/7/10	1:15	178.12	2/7/10	14:30	177.98	2/8/10	3:45	177.98	2/8/10	17:00	177.93	2/9/10	6:15	177.88
2/7/10	1:30	178.12	2/7/10	14:45	177.98	2/8/10	4:00	177.98	2/8/10	17:15	177.93	2/9/10	6:30	177.88
2/7/10	1:45	178.12	2/7/10	15:00	177.98	2/8/10	4:15	177.98	2/8/10	17:30	177.88	2/9/10	6:45	177.88
2/7/10	2:00	178.12	2/7/10	15:15	177.98	2/8/10	4:30	177.98	2/8/10	17:45	177.93	2/9/10	7:00	177.88
2/7/10	2:15	178.12	2/7/10	15:30	177.98	2/8/10	4:45	177.98	2/8/10	18:00	177.93	2/9/10	7:15	177.83
2/7/10	2:30	178.12	2/7/10	15:45	177.98	2/8/10	5:00	177.98	2/8/10	18:15	177.93	2/9/10	7:30	177.83
2/7/10	2:45	178.12	2/7/10	16:00	177.98	2/8/10	5:15	177.98	2/8/10	18:30	177.93	2/9/10	7:45	177.83
2/7/10	3:00	178.12	2/7/10	16:15	177.98	2/8/10	5:30	177.98	2/8/10	18:45	177.93	2/9/10	8:00	177.83
2/7/10	3:15	178.12	2/7/10	16:30	177.98	2/8/10	5:45	177.98	2/8/10	19:00	177.93	2/9/10	8:15	177.83
2/7/10	3:30	178.12	2/7/10	16:45	177.98	2/8/10	6:00	177.98	2/8/10	19:15	177.93	2/9/10	8:30	177.83
2/7/10	3:45	178.12	2/7/10	17:00	177.98	2/8/10	6:15	177.98	2/8/10	19:30	177.93	2/9/10	8:45	177.83
2/7/10	4:00	178.12	2/7/10	17:15	177.98	2/8/10	6:30	177.98	2/8/10	19:45	177.93			
2/7/10	4:15	178.12	2/7/10	17:30	177.98	2/8/10	6:45	177.98	2/8/10	20:00	177.93			
2/7/10	4:30	178.12	2/7/10	17:45	177.98	2/8/10	7:00	177.98	2/8/10	20:15	177.93			
2/7/10	4:45	178.12	2/7/10	18:00	177.98	2/8/10	7:15	177.98	2/8/10	20:30	177.93			
2/7/10	5:00	178.12	2/7/10	18:15	177.98	2/8/10	7:30	177.98	2/8/10	20:45	177.98			
2/7/10	5:15	178.12	2/7/10	18:30	177.98	2/8/10	7:45	177.98	2/8/10	21:00	177.98			
2/7/10	5:30	178.12	2/7/10	18:45	178.06	2/8/10	8:00	177.98	2/8/10	21:15	177.93			
2/7/10	5:45	178.12	2/7/10	19:00	178.06	2/8/10	8:15	177.98	2/8/10	21:30	177.98			
2/7/10	6:00	178.12	2/7/10	19:15	177.98	2/8/10	8:30	177.98	2/8/10	21:45	177.98			
2/7/10	6:15	178.12	2/7/10	19:30	178.06	2/8/10	8:45	177.98	2/8/10	22:00	177.98			
2/7/10	6:30	178.12	2/7/10	19:45	178.06	2/8/10	9:00	177.98	2/8/10	22:15	177.98			
2/7/10	6:45	178.12	2/7/10	20:00	178.06	2/8/10	9:15	177.98	2/8/10	22:30	177.93			
2/7/10	7:00	178.12	2/7/10	20:15	178.06	2/8/10	9:30	177.98	2/8/10	22:45	177.98			
2/7/10	7:15	178.12	2/7/10	20:30	178.06	2/8/10	9:45	177.98	2/8/10	23:00	177.93			
2/7/10	7:30	178.06	2/7/10	20:45	178.06	2/8/10	10:00	177.98	2/8/10	23:15	177.93			
2/7/10	7:45	178.06	2/7/10	21:00	178.06	2/8/10	10:15	177.98	2/8/10	23:30	177.98			
2/7/10	8:00	178.12	2/7/10	21:15	178.06	2/8/10	10:30	177.98	2/8/10	23:45	177.93			
2/7/10	8:15	178.06	2/7/10	21:30	178.06	2/8/10	10:45	177.98	2/9/10	0:00	177.93			
2/7/10	8:30	178.06	2/7/10	21:45	178.06	2/8/10	11:00	177.98	2/9/10	0:15	177.93			

TABLE D6B.6-7. AQUIFER-TEST DATA FOR OBSERVATION WELL MN-4.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/29/10	13:50:00	-4214	--	--	142.73	0.00	--	--	--	--
02/01/10	13:15:00	71	--	--	142.75	0.02	--	--	--	--
02/02/10	9:27:00	1283	--	--	147.05	4.32	--	--	--	--
	14:07:00	1563	--	--	147.70	4.97	--	--	--	--
02/03/10	9:57:00	2753	--	--	149.96	7.23	--	--	--	--
	14:12:00	3008	--	--	150.36	7.63	--	--	--	--
02/04/10	9:55:00	4191	--	--	152.16	9.43	--	--	--	--
02/09/10	10:22:00	11418	7112	1.605	145.52	2.79	--	--	--	--

TABLE D6B.6-8. AQUIFER-TEST DATA FOR OBSERVATION WELL MN-5.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/29/10	13:46:00	-4218	--	--	222.83	0.00	--	--	--	--
02/01/10	13:09:00	65	--	--	224.38	1.55	--	--	--	--
02/02/10	9:37:00	1293	--	--	230.00	7.17	--	--	--	--
	14:03:00	1559	--	--	230.76	7.93	--	--	--	--
02/03/10	10:04:00	2760	--	--	232.98	10.15	--	--	--	--
	14:05:00	3001	--	--	233.44	10.61	--	--	--	--
02/04/10	9:55:00	4191	--	--	235.25	12.42	--	--	--	--
02/09/10	10:02:00	11398	7092	1.607	222.93	0.10	--	--	--	--

HANK UNIT PUMP TESTS ADDENDUM D6C

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D6C.6 HANK1, SECOND MULTI WELL TEST

A multi-well pump test was performed on the F Sand by pumping well HANK1 for over 6 days while observing F Sand wells URZHF-8, URZHF-11 and URZHF-12. Overlying and underlying wells URZHG-15 and URZHC-16 were also monitored during this pump test to observe if there is any connection between the F Sand and these sand layers. The results of this multi-well pump test were used to calculate the aquifer properties of the F Sand in the area around HANK1 and the observation wells.

D6C.6.1 PUMPING WELL HANK1, 2ND TEST

The F Sand fully penetrating HANK1 well was pumped from January 18 to January 24th for a total of 155 hrs, at an average rate of 16.2 gpm. Figure D6C.6-1 presents the barometric pressure data collected during this test versus the water-level change in the pumping well. This figure shows that the HANK1 well had a maximum drawdown of less than 42 ft and that it started to recover before the pump was shut off. This recovery is due to the fluctuation in discharge rate of the pump. Figure D6C.6-2 presents the straight-line fit to the residual drawdown for the recovery data. This fit results in a transmissivity of 2,300 gal/day/ft. The manual recorded data and the transducer recorded data for HANK1 are presented in Tables D6C.6-1 and D6C.6-2, respectively.

A straight line fit was applied to the recovery data and not the drawdown data due to the fluctuation in the discharge. The unconfined condition of the aquifer resulted in the late-time recovery data not yielding a representative transmissivity of F Sand at the HANK1 well.

D6C.6.2 OBSERVATION WELL URZHF-8

Well URZHF-8 is located 91 ft from the pumping well and is completed in the F Sand. A plot of barometric pressure versus water-level change is presented on Figure D6C.6-3. A barometric correction of 0.6 ft of water/in of Hg was used to correct water levels affected by barometric change. Figure D6C.6-4 is a semi-log plot with a straight-line fit applied to the corrected drawdown. This fit yields a transmissivity of 670 gal/day/ft, a storage coefficient of 8.0E-4 and a specific yield of 0.13. Figure D6C.6-5 presents a log-log fit of the drawdown data for URZHF-8. This log-log fit results in a transmissivity of 530 gal/day/ft, specific yield of 0.032 and a storage coefficient of 2.0E-4. Tables D6C.6-3 and D6C.6-4 present the manual and transducer recorded water-level data for well URZHF-8.

A WTAQ type curve was developed for well URZHF-8 with a KV/KH of 0.08 and a SIGMA of 0.006. Comparing the slope and intercept of this designed WTAQ type curve to a WTAQ type curve with fully penetrating and isotropic properties produced the adjustments in the coefficients used to calculate the transmissivity and storage coefficient. The transmissivity coefficient of 264 was changed to 270, and the coefficient used to calculate the storage coefficient was adjusted from 1,200 to 1.89. The values given by the straight-line fit are believed to be the best representation of the aquifer properties. This is because the straight line fit method is an easier fit and therefore thought to produce more accurate aquifer properties near URZHF-8 than that of the log-log fit for this test. Figure D6C.6-5 presents the log-log match of the URZHF-8 drawdown data to the partially penetrating unconfined WTAQ type curve.

D6C.6.3 OBSERVATION WELL URZHF-11

URZHF-11 is located 620 ft east of the pumping well. This well is completed in the F sand with a open hole interval of 330-420 feet and with an underream diameter of 10 inches. At this location the F Sand is 97 ft thick with an interval from 319-416 feet from the land surface. The well has a depth to water of 340.65 ft. The aquifer thickness of 84 ft at the pumping well is used for this observation well. Figure D6C.6-6 presented the barometric pressure versus water-level change in this observation well. A barometric correction of 1.0 ft of water/in of Hg was used to correct water levels. A straight line fit was applied to the drawdown data for this well (see Figure D6C.6-7). The results from this fit yield a transmissivity of 570 gal/day/ft, a specific yield of 0.11 and a storage coefficient of 7.6E-4. Tables D6C.6-5 and D6C.6-6 present the manual and transducer recorded water-level data for this well.

A WTAQ type curve was developed for this well with a KV/KH of 0.08 and a SIGMA of 0.007. This calculated type curve was compared to another WTAQ type curve with the same properties as URZHF-11, but with it being a fully penetrating pumping well and isotropic. This comparison yields a change in the transmissivity coefficient from 264 to 9.1 and a change in the coefficient in the storage equation from 1,200 to 0.118

D6C.6.4 OBSERVATION WELL URZHF-12

The F Sand well URZHF-12 is located 500 ft west of the pumping well. It has an open hole completion with an interval of 380-482 and an underream diameter of 10 inches. The sand interval at this well is 376-475 feet below the land surface. The depth to water in well URZHF-12 is 380.78 ft. A plot of the barometric pressure versus water-level change in this observation well is shown on Figure D6C.6-8. A barometric correction of 1.0 ft of water/in of Hg was used. Figure D6C.6-9 presents a straight line fit of the drawdown data collected in well URZHF-12. This fit yields a transmissivity of 710 gal/day/ft, a specific yield of 0.11 and a storage coefficient of 5.6E-4. Tables D6C.6-7 and D6C.6-8 present the manual and transducer recorded water-level data.

The WTAQ type curve calculated for this observation well has a KV/KH of 0.1 and a SIGMA of 0.005. This type curve compared to the fully penetrating isotropic WTAQ type cure changes the coefficient in the transmissivity equation from 264 to 13.2 and the coefficient in the storage equation from 1,200 to 0.43.

D6C.6.5 OVERLYING OBSERVATION WELL URZHG-15

Observation well URZHG-15 is completed in the overlying G Sand. This well located 96 ft from the pumping well. A plot of the barometric pressure versus water-level change for this observation well with a barometric correction of 0.5 ft of water/in of Hg is presented in Figure D6C.6-10. This figure shows that there was no drawdown due to the pumping of HANK1 and that water levels recovered during the pumping of the HANK1 well. Tables D6C.6-9 and D6C.6-10 present the manual and transducer recorded water-level data for this overlying observation well.

D6C.6.6 UNDERLYING OBSERVATION WELL URZHC-16

Observation well URZHC-16 is completed in the underlying C Sand. This well is located 119 ft from the pumping well. Figure D6C.7-11 presented the barometric pressure versus water-level change in this observation well with a correction of 0.5 ft of water/in of Hg. This figure shows no drawdown resulting from the pumping of the HANK1 well. Tables D6C.6-11 and D6C.6-12 presents the manual and transducer recorded water-level data for this underlying observation well.

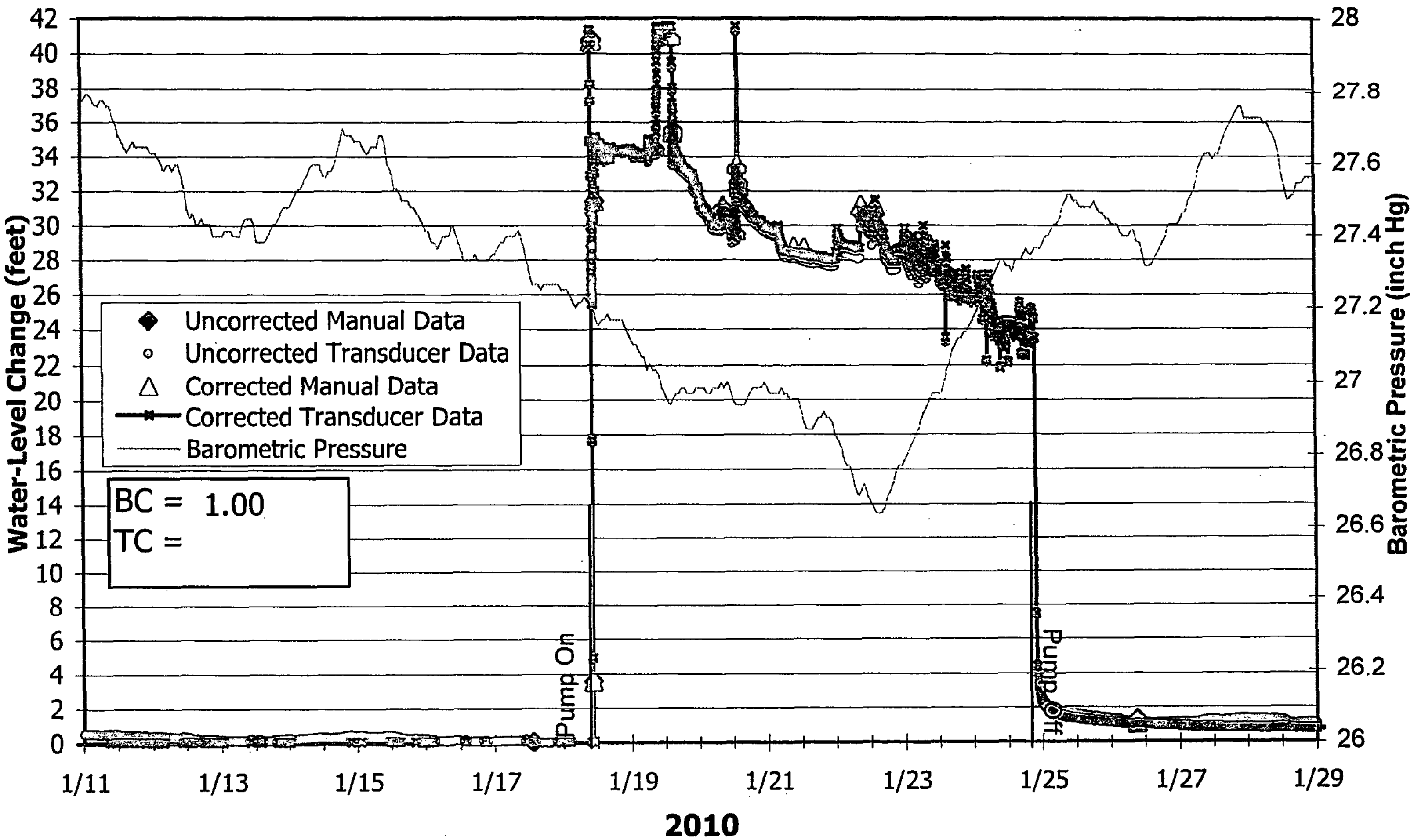

FIGURE D6C.6-1 BARORETRIC PRESSURE AND WATER-LEVEL CHANGE IN F SAND PUMPING WELL, HANK1

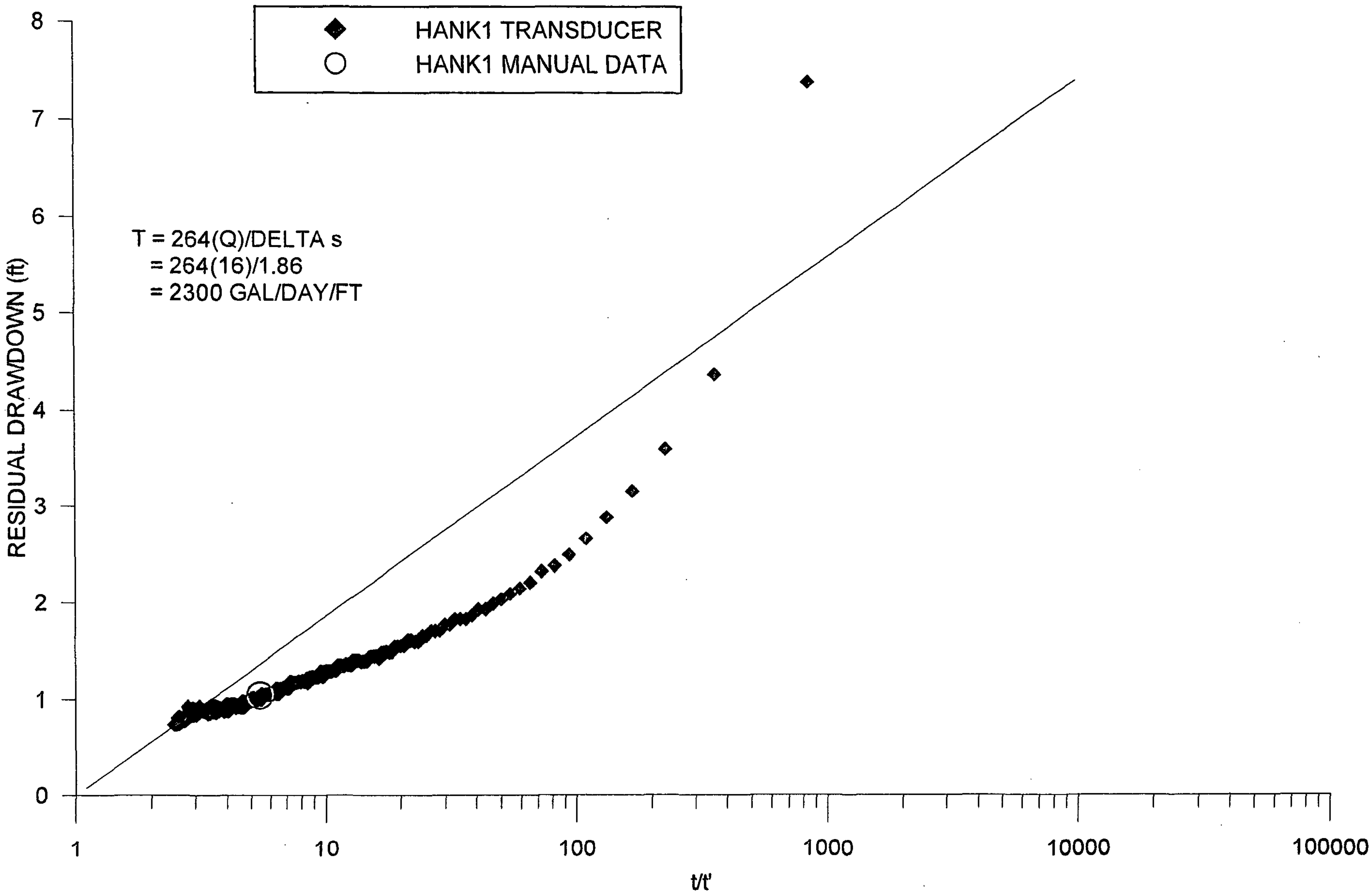

FIGURE D6C.6-2 RECOVERY IN PUMPING WELL HANK1, 2ND TEST

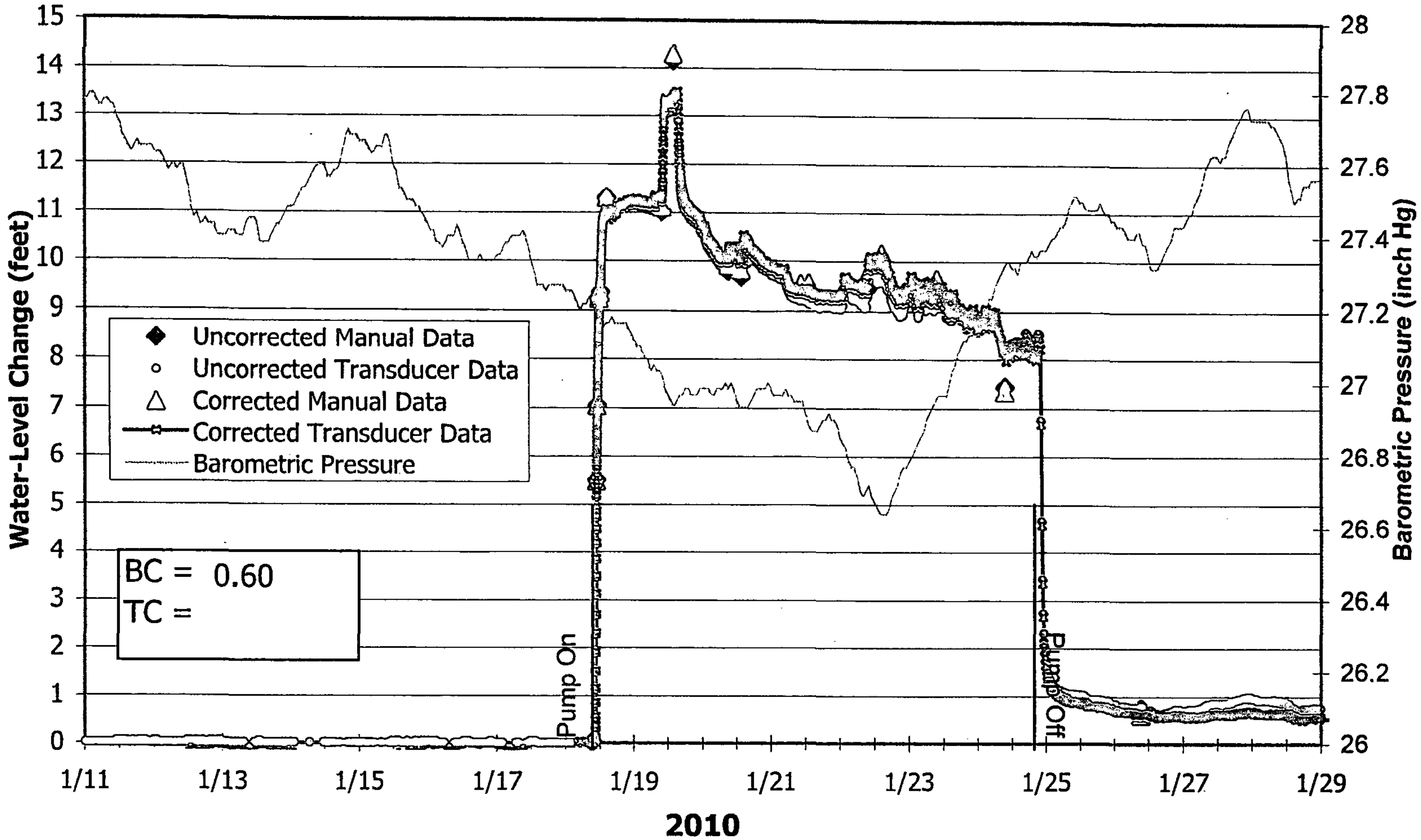

FIGURE D6C.6-3 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN F SAND OBSERVATION WELL, URZHF-8

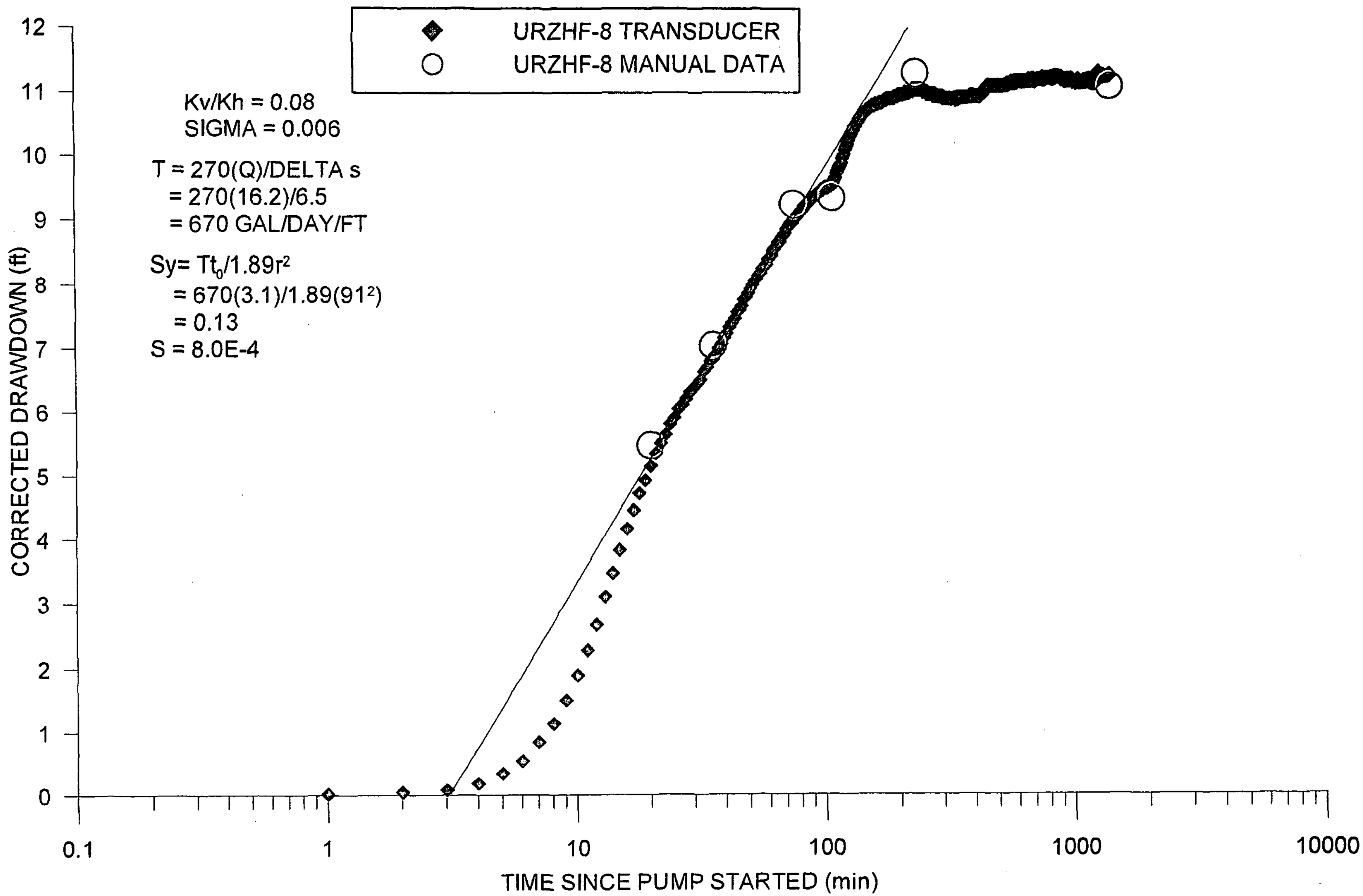

FIGURE D6C.6-4 DRAWDOWN IN OBSERVATION WELL URZHF-8, 2ND TEST

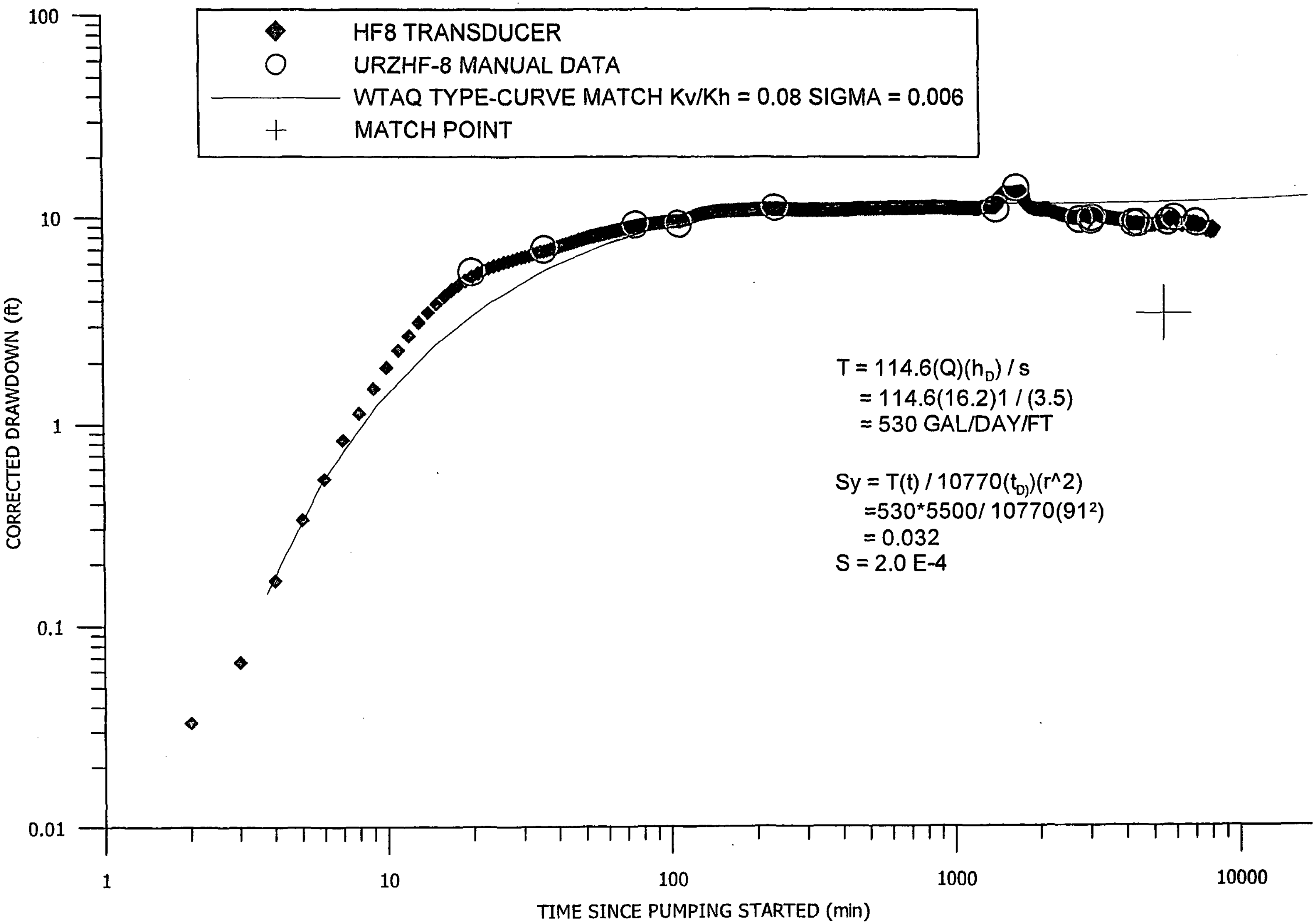

FIGURE D6C.6-5 DRAWDOWN IN OBSERVATION WELL URZHF8, LOG-LOG, 2ND TEST.

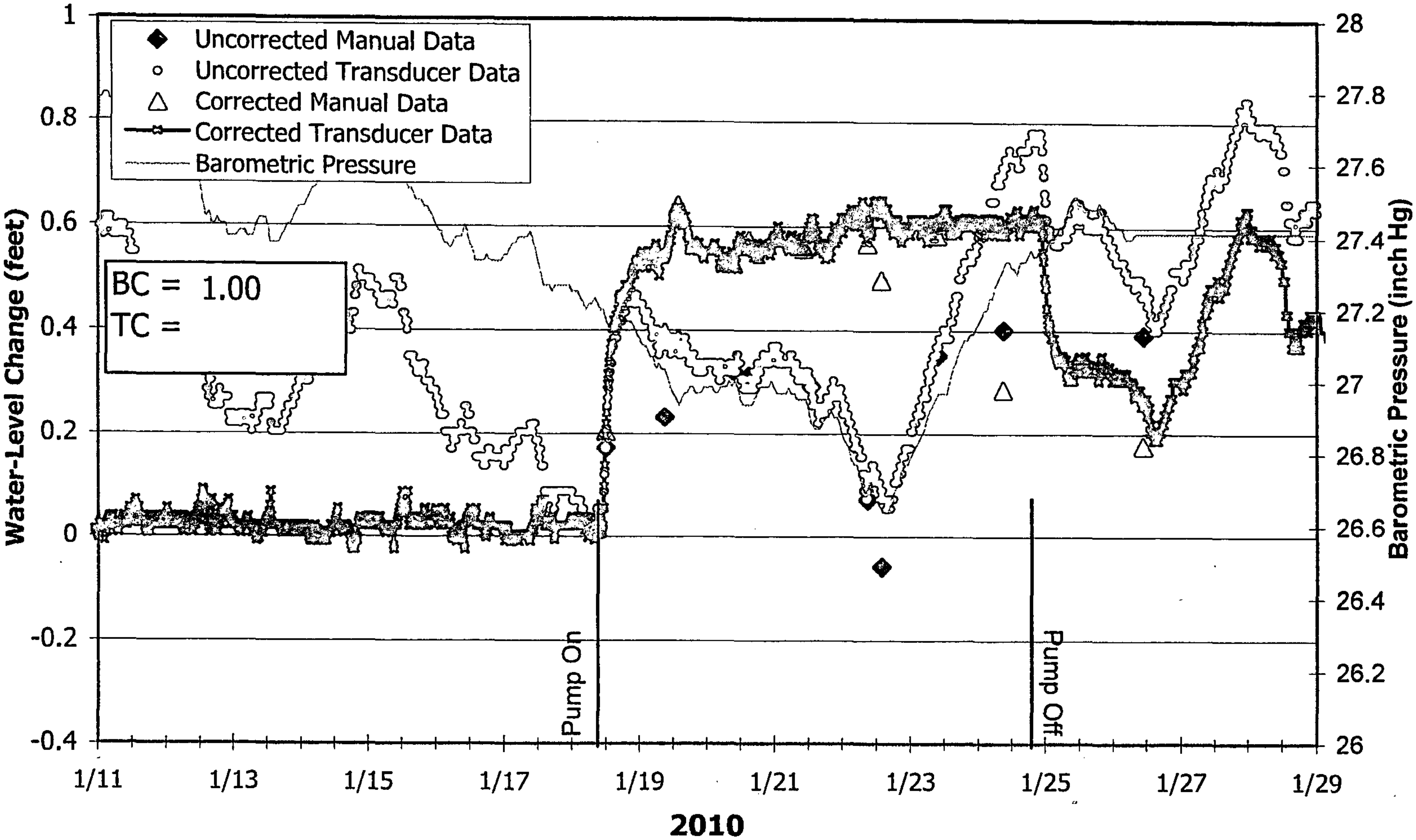

FIGURE D6C.6-6 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN F SAND OBSERVATION WELL, URZHF-11

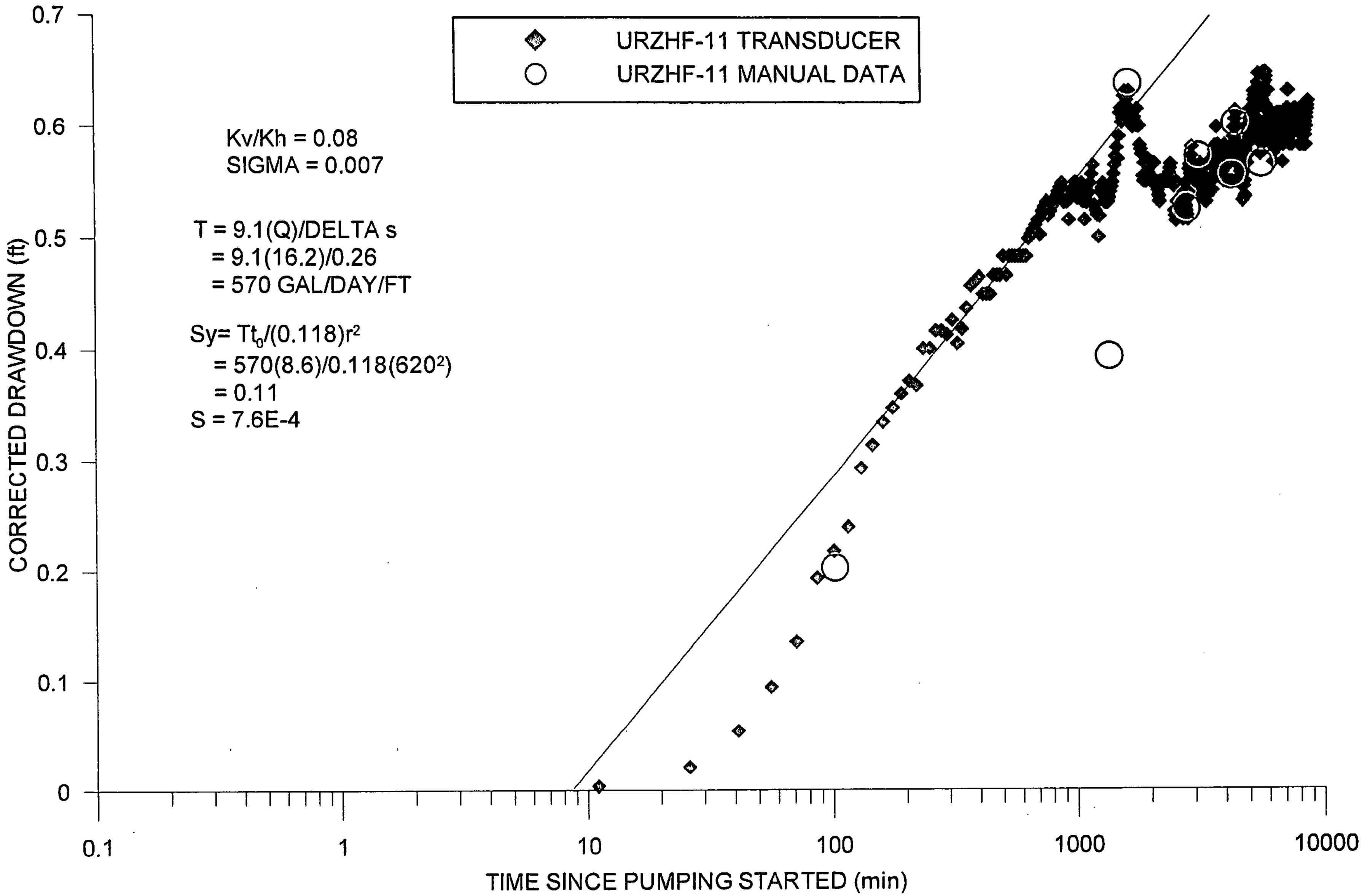

FIGURE D6C.6-7 DRAWDOWN IN OBSERVATION WELL URZHF-11

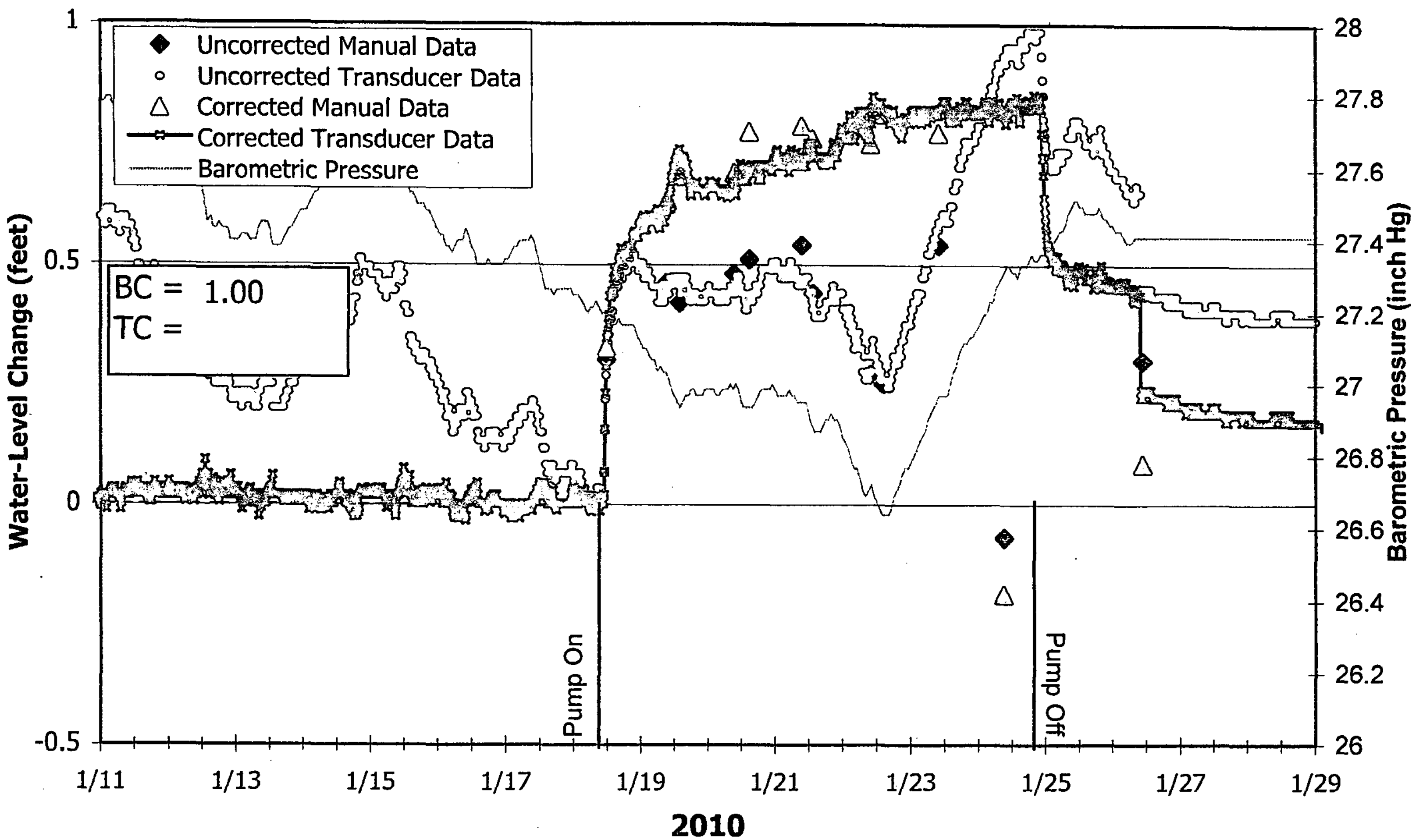

FIGURE D6C.6-8 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN F SAND OBSERVATION WELL, URZHF-12

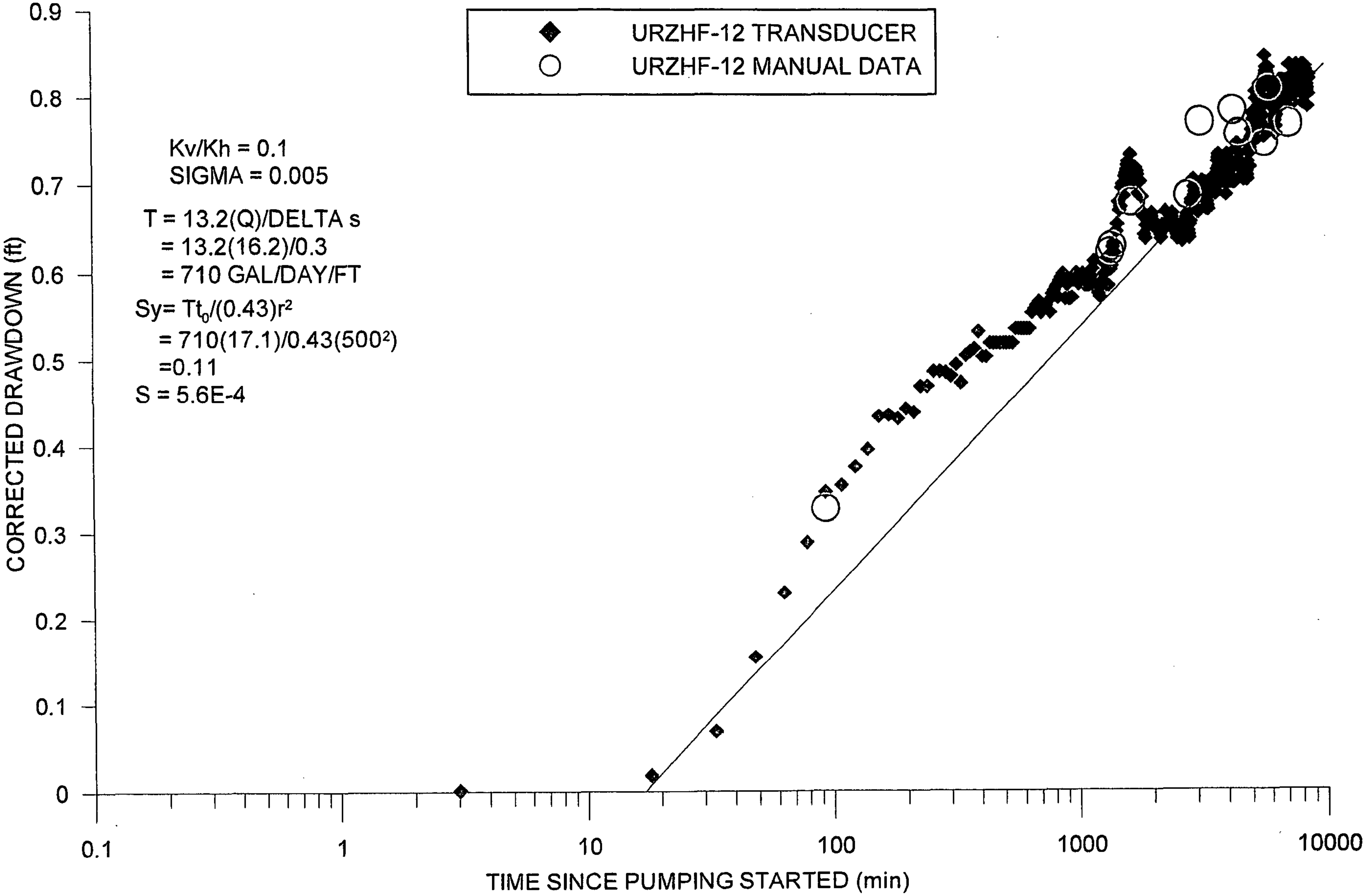

FIGURE D6C.6-9 DRAWDOWN IN OBSERVATION WELL URZHF-12

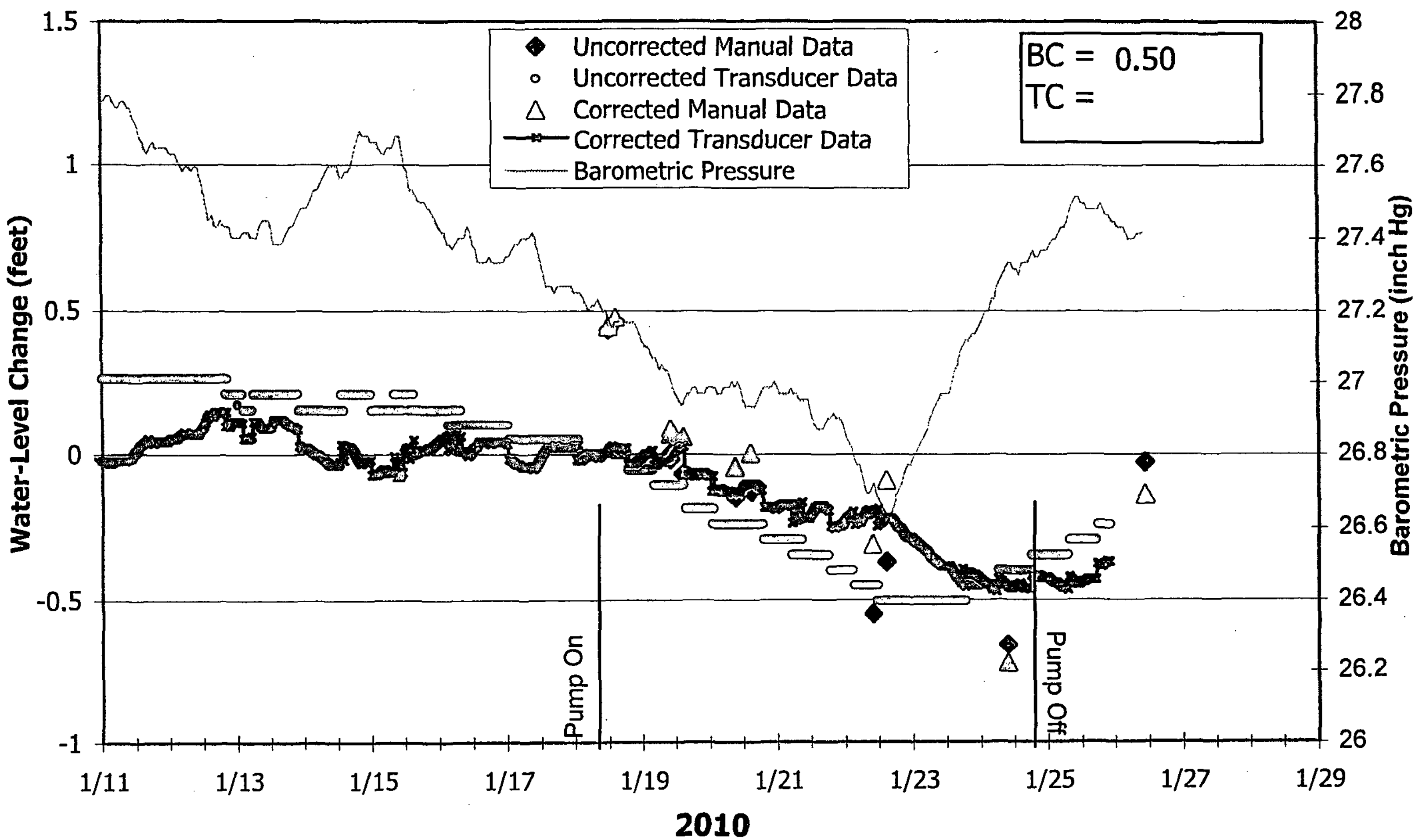

FIGURE D6C.6-10 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN G SAND OBSERVATION WELL, URZHG-15

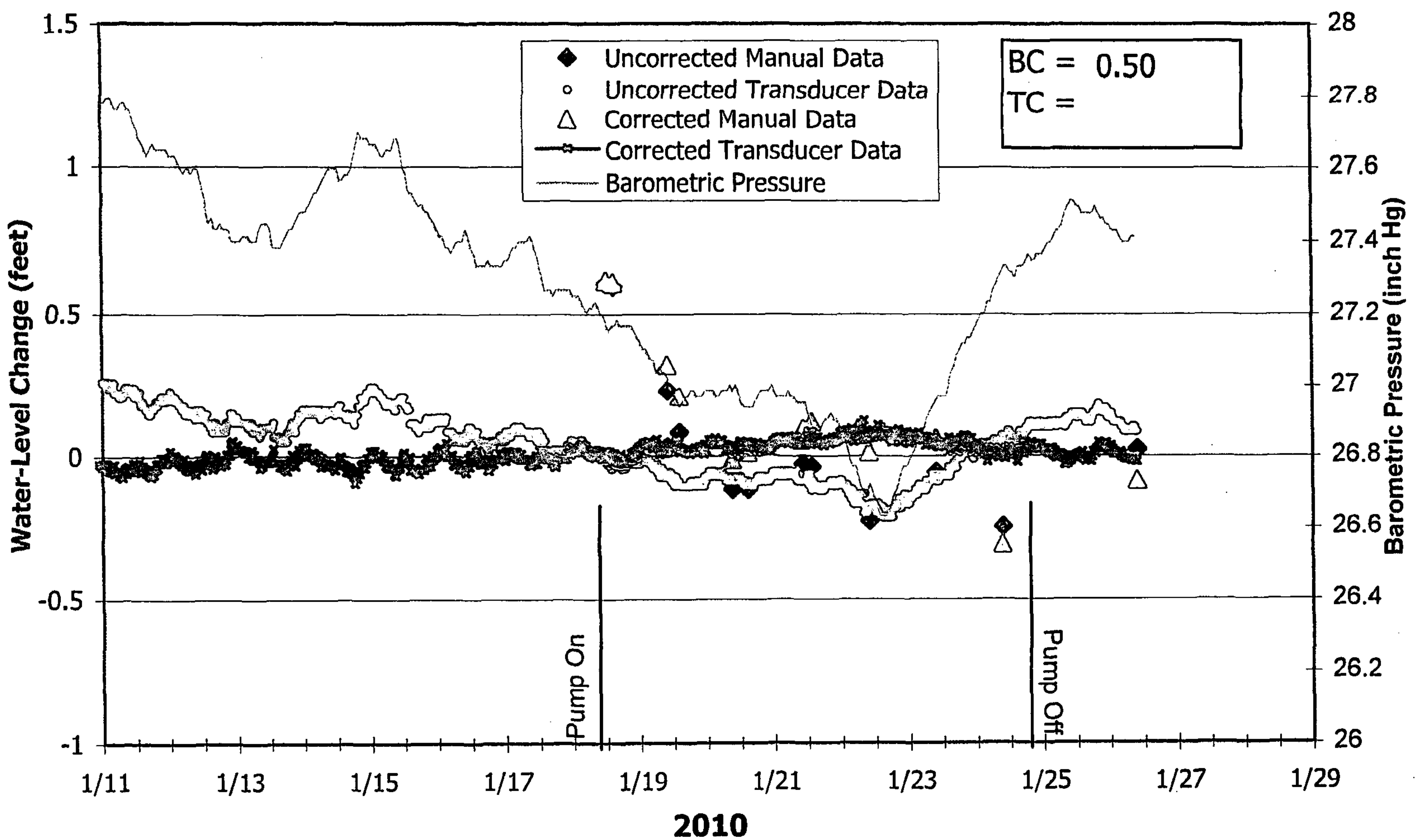

FIGURE D6C.6-11 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN C SAND OBSERVATION WELL, URZHC-16

TABLE D6C.6-1. AQUIFER-TEST DATA FOR PUMPING WELL HANK1.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/17/10	13:19:00	-1258	--	--	355.18	0.00	--	--	--	--
01/18/10	9:30:00	-47	--	--	355.08	-0.10	--	--	--	--
	9:35:00	SET TRANSDUCER TO 1 MIN								
	9:40:00	-37	--	--	355.06	-0.12	--	--	--	--
	9:50:00	TOT= 1984280								
	10:17:00	PUMP ON								
	10:22:00	5	--	--	--	--	24.00	--	--	--
	10:24:00	7	--	--	--	--	20.00	--	--	--
	10:28:00	11	--	--	358.70	3.52	--	--	--	--
	10:35:00	SLOWED LEAK ON METER								
	10:40:00	23	--	--	395.84	40.66	--	--	--	--
	10:47:00	30	--	--	--	--	20.00	--	--	--
	10:50:00	33	--	--	395.85	40.67	--	--	--	--
	10:55:00	38	--	--	--	--	20.00	--	--	--
	10:57:00	40	--	--	395.83	40.65	--	--	--	--
	11:10:00	53	--	--	395.89	40.71	--	--	--	--
	11:15:00	58	--	--	--	--	20.00	--	--	--
	11:28:00	71	--	--	395.88	40.70	--	--	--	--
	11:56:00	99	--	--	386.55	31.37	--	--	--	--
	12:06:00	109	--	--	--	--	20.00	--	--	--
	14:30:00	253	--	--	389.57	34.39	--	--	--	--
	14:36:00	259	--	--	--	--	20.00	--	--	--
	14:36:00	TOT= 1989000								
01/19/10	9:39:00	1402	--	--	389.53	34.35	--	--	--	--
	9:42:00	TOT= 2009800								
	9:43:00	1406	--	--	--	--	18.80	--	--	--
	9:45:00	1408	--	--	--	--	20.00	--	--	--
	13:55:00	TOT= 2014500								
	15:28:00	WL NEAR PUMP								
	15:29:00	1752	--	--	--	--	16.00	--	--	--
	15:29:00	VALVED BACK								
	15:33:00	1756	--	--	395.93	40.75	--	--	--	--
	15:39:00	1762	--	--	390.30	35.12	--	--	--	--
	15:52:00	1775	--	--	--	--	18.00	--	--	--
	15:52:00	VALVED UP								
	15:53:00	1776	--	--	390.67	35.49	--	--	--	--
	15:56:00	1779	--	--	390.54	35.36	--	--	--	--
01/20/10	8:27:00	2770	--	--	385.10	29.92	--	--	--	--
	8:31:00	2774	--	--	--	--	16.30	--	--	--
	8:31:00	TOT= 2033500								
	8:35:00	2778	--	--	--	--	--	--	--	--
	8:44:00	2787	--	--	--	--	17.00	--	--	--
	8:44:00	VALVED UP								
	9:05:00	2808	--	--	386.15	30.97	--	--	--	--
	9:08:00	2811	--	--	--	--	16.80	--	--	--

TABLE D6C.6-1. AQUIFER-TEST DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/20/10	9:11:00	2814	--	--	386.15	30.97	--	--	--	--
	11:38:00	2961	--	--	385.35	30.17	--	--	--	--
	11:39:00	2962	--	--	385.32	30.14	--	--	--	--
	11:39:00	DON'S TAPE LEFT IN HOLE								
	11:40:00	2963	--	--	--	--	16.50	--	--	--
	13:39:00	3082	--	--	384.61	29.43	--	--	--	--
	13:40:00	TOT= 2038500								
	13:41:00	3084	--	--	--	--	17.00	--	--	--
	13:41:00	VALVED UP								
	14:06:00	3109	--	--	388.41	33.23	--	--	--	--
	14:16:00	3119	--	--	388.49	33.31	--	--	--	--
	14:16:00	RESET TRANSDUCER TO 15 MIN								
	14:30:00	3133	--	--	--	--	17.00	--	--	--
	14:32:00	3135	--	--	387.59	32.41	--	--	--	--
	14:42:00	3145	--	--	--	--	17.00	--	--	--
	14:48:00	3151	--	--	387.12	31.94	--	--	--	--
01/21/10	9:54:00	4297	--	--	383.68	28.50	16.20	--	--	--
	13:25:00	4508	--	--	383.58	28.40	16.60	--	--	--
01/22/10	9:10:00	5693	--	--	--	--	15.30	--	--	--
	9:13:00	5696	--	--	--	--	16.50	--	--	--
	9:13:00	VALVED UP								
	9:14:00	TOT= 2078000								
	9:18:00	5701	--	--	385.90	30.72	--	--	--	--
	9:22:00	5705	--	--	--	--	--	8.2	--	8.11
	9:45:00	5728	--	--	385.88	30.70	16.50	--	--	--
	9:45:00	TOT= 2079400								
	14:20:00	6003	--	--	--	--	16.00	--	--	--
	14:20:00	TOT= 2083200								
	14:23:00	6006	--	--	385.83	30.65	--	--	--	--
	14:47:00	6030	--	--	--	--	--	11.3	--	7.35
	21:47:00	PUMP OFF								
01/23/10	9:22:00	7145	--	--	383.83	28.65	15.00	--	--	--
	9:22:00	TOT= 2100000								
01/24/10	9:22:00	8585	--	--	379.20	24.02	12.00	--	--	--
01/26/10	9:10:00	11453	2123	5.39	356.43	1.25	--	--	--	--
	9:10:00	DOWNLOADED TRANSDUCER								

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/11/10	0:04	355.70	1/12/10	2:34	355.55	1/13/10	5:04	355.32	1/14/10	7:34	355.49	1/15/10	10:04	355.60
1/11/10	0:34	355.70	1/12/10	3:04	355.59	1/13/10	5:34	355.32	1/14/10	8:04	355.50	1/15/10	10:34	355.60
1/11/10	1:04	355.70	1/12/10	3:34	355.59	1/13/10	6:04	355.32	1/14/10	8:34	355.50	1/15/10	11:04	355.57
1/11/10	1:34	355.70	1/12/10	4:04	355.52	1/13/10	6:34	355.32	1/14/10	9:04	355.52	1/15/10	11:34	355.62
1/11/10	2:04	355.72	1/12/10	4:34	355.52	1/13/10	7:04	355.32	1/14/10	9:34	355.52	1/15/10	12:04	355.52
1/11/10	2:34	355.72	1/12/10	5:04	355.50	1/13/10	7:34	355.32	1/14/10	10:04	355.52	1/15/10	12:34	355.52
1/11/10	3:04	355.72	1/12/10	5:34	355.50	1/13/10	8:04	355.36	1/14/10	10:34	355.52	1/15/10	13:04	355.50
1/11/10	3:34	355.72	1/12/10	6:04	355.52	1/13/10	8:34	355.36	1/14/10	11:04	355.52	1/15/10	13:34	355.56
1/11/10	4:04	355.70	1/12/10	6:34	355.52	1/13/10	9:04	355.37	1/14/10	11:34	355.52	1/15/10	14:04	355.45
1/11/10	4:34	355.70	1/12/10	7:04	355.52	1/13/10	9:34	355.37	1/14/10	12:04	355.52	1/15/10	14:34	355.45
1/11/10	5:04	355.68	1/12/10	7:34	355.52	1/13/10	10:04	355.37	1/14/10	12:34	355.52	1/15/10	15:04	355.45
1/11/10	5:34	355.68	1/12/10	8:04	355.50	1/13/10	10:34	355.37	1/14/10	13:04	355.49	1/15/10	15:34	355.45
1/11/10	6:04	355.68	1/12/10	8:34	355.50	1/13/10	11:04	355.37	1/14/10	13:34	355.49	1/15/10	16:04	355.44
1/11/10	6:34	355.68	1/12/10	9:04	355.52	1/13/10	11:34	355.37	1/14/10	14:04	355.49	1/15/10	16:34	355.44
1/11/10	7:04	355.70	1/12/10	9:34	355.52	1/13/10	12:04	355.36	1/14/10	14:34	355.49	1/15/10	17:04	355.42
1/11/10	7:34	355.70	1/12/10	10:04	355.52	1/13/10	12:34	355.36	1/14/10	15:04	355.50	1/15/10	17:34	355.42
1/11/10	8:04	355.70	1/12/10	10:34	355.52	1/13/10	13:04	355.31	1/14/10	15:34	355.50	1/15/10	18:04	355.42
1/11/10	8:34	355.70	1/12/10	11:04	355.49	1/13/10	13:34	355.31	1/14/10	16:04	355.50	1/15/10	18:34	355.42
1/11/10	9:04	355.74	1/12/10	11:34	355.54	1/13/10	14:04	355.31	1/14/10	16:34	355.50	1/15/10	19:04	355.42
1/11/10	9:34	355.68	1/12/10	12:04	355.45	1/13/10	14:34	355.31	1/14/10	17:04	355.52	1/15/10	19:34	355.42
1/11/10	10:04	355.68	1/12/10	12:34	355.51	1/13/10	15:04	355.31	1/14/10	17:34	355.52	1/15/10	20:04	355.40
1/11/10	10:34	355.68	1/12/10	13:04	355.46	1/13/10	15:34	355.31	1/14/10	18:04	355.55	1/15/10	20:34	355.40
1/11/10	11:04	355.65	1/12/10	13:34	355.46	1/13/10	16:04	355.31	1/14/10	18:34	355.55	1/15/10	21:04	355.40
1/11/10	11:34	355.65	1/12/10	14:04	355.43	1/13/10	16:34	355.31	1/14/10	19:04	355.59	1/15/10	21:34	355.40
1/11/10	12:04	355.64	1/12/10	14:34	355.43	1/13/10	17:04	355.32	1/14/10	19:34	355.59	1/15/10	22:04	355.39
1/11/10	12:34	355.64	1/12/10	15:04	355.39	1/13/10	17:34	355.32	1/14/10	20:04	355.62	1/15/10	22:34	355.44
1/11/10	13:04	355.66	1/12/10	15:34	355.44	1/13/10	18:04	355.34	1/14/10	20:34	355.62	1/15/10	23:04	355.43
1/11/10	13:34	355.60	1/12/10	16:04	355.36	1/13/10	18:34	355.34	1/14/10	21:04	355.60	1/15/10	23:34	355.37
1/11/10	14:04	355.59	1/12/10	16:34	355.36	1/13/10	19:04	355.36	1/14/10	21:34	355.66	1/16/10	0:04	355.41
1/11/10	14:34	355.59	1/12/10	17:04	355.36	1/13/10	19:34	355.36	1/14/10	22:04	355.60	1/16/10	0:34	355.41
1/11/10	15:04	355.57	1/12/10	17:34	355.36	1/13/10	20:04	355.36	1/14/10	22:34	355.60	1/16/10	1:04	355.34
1/11/10	15:34	355.62	1/12/10	18:04	355.43	1/13/10	20:34	355.36	1/14/10	23:04	355.60	1/16/10	1:34	355.34
1/11/10	16:04	355.55	1/12/10	18:34	355.43	1/13/10	21:04	355.43	1/14/10	23:34	355.60	1/16/10	2:04	355.34
1/11/10	16:34	355.55	1/12/10	19:04	355.36	1/13/10	21:34	355.37	1/15/10	0:04	355.59	1/16/10	2:34	355.39
1/11/10	17:04	355.62	1/12/10	19:34	355.41	1/13/10	22:04	355.39	1/15/10	0:34	355.59	1/16/10	3:04	355.31
1/11/10	17:34	355.57	1/12/10	20:04	355.36	1/13/10	22:34	355.44	1/15/10	1:04	355.64	1/16/10	3:34	355.31
1/11/10	18:04	355.59	1/12/10	20:34	355.41	1/13/10	23:04	355.40	1/15/10	1:34	355.59	1/16/10	4:04	355.31
1/11/10	18:34	355.64	1/12/10	21:04	355.41	1/13/10	23:34	355.46	1/15/10	2:04	355.59	1/16/10	4:34	355.31
1/11/10	19:04	355.62	1/12/10	21:34	355.41	1/14/10	0:04	355.46	1/15/10	2:34	355.59	1/16/10	5:04	355.29
1/11/10	19:34	355.57	1/12/10	22:04	355.32	1/14/10	0:34	355.40	1/15/10	3:04	355.57	1/16/10	5:34	355.29
1/11/10	20:04	355.57	1/12/10	22:34	355.32	1/14/10	1:04	355.40	1/15/10	3:34	355.57	1/16/10	6:04	355.31
1/11/10	20:34	355.62	1/12/10	23:04	355.38	1/14/10	1:34	355.40	1/15/10	4:04	355.55	1/16/10	6:34	355.31
1/11/10	21:04	355.62	1/12/10	23:34	355.32	1/14/10	2:04	355.42	1/15/10	4:34	355.55	1/16/10	7:04	355.27
1/11/10	21:34	355.57	1/13/10	0:04	355.38	1/14/10	2:34	355.42	1/15/10	5:04	355.55	1/16/10	7:34	355.32
1/11/10	22:04	355.57	1/13/10	0:34	355.32	1/14/10	3:04	355.44	1/15/10	5:34	355.55	1/16/10	8:04	355.32
1/11/10	22:34	355.57	1/13/10	1:04	355.32	1/14/10	3:34	355.44	1/15/10	6:04	355.57	1/16/10	8:34	355.32
1/11/10	23:04	355.57	1/13/10	1:34	355.32	1/14/10	4:04	355.45	1/15/10	6:34	355.57	1/16/10	9:04	355.32
1/11/10	23:34	355.57	1/13/10	2:04	355.34	1/14/10	4:34	355.45	1/15/10	7:04	355.57	1/16/10	9:34	355.32
1/12/10	0:04	355.61	1/13/10	2:34	355.34	1/14/10	5:04	355.45	1/15/10	7:34	355.57	1/16/10	10:04	355.36
1/12/10	0:34	355.55	1/13/10	3:04	355.34	1/14/10	5:34	355.45	1/15/10	8:04	355.57	1/16/10	10:34	355.36
1/12/10	1:04	355.55	1/13/10	3:34	355.34	1/14/10	6:04	355.47	1/15/10	8:34	355.57	1/16/10	11:04	355.34
1/12/10	1:34	355.55	1/13/10	4:04	355.34	1/14/10	6:34	355.47	1/15/10	9:04	355.60	1/16/10	11:34	355.34
1/12/10	2:04	355.55	1/13/10	4:34	355.34	1/14/10	7:04	355.49	1/15/10	9:34	355.60	1/16/10	12:04	355.31

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/16/10	12:34	355.31	1/17/10	15:04	355.19	1/18/10	10:05	355.18	1/18/10	10:58	385.51	1/18/10	11:51	386.24
1/16/10	13:04	355.29	1/17/10	15:34	355.19	1/18/10	10:06	355.18	1/18/10	10:59	385.51	1/18/10	11:52	386.24
1/16/10	13:34	355.34	1/17/10	16:04	355.19	1/18/10	10:07	355.18	1/18/10	11:00	385.51	1/18/10	11:53	386.29
1/16/10	14:04	355.26	1/17/10	16:34	355.19	1/18/10	10:08	355.18	1/18/10	11:01	385.46	1/18/10	11:54	386.24
1/16/10	14:34	355.26	1/17/10	17:04	355.17	1/18/10	10:09	355.18	1/18/10	11:02	385.46	1/18/10	11:55	386.24
1/16/10	15:04	355.26	1/17/10	17:34	355.17	1/18/10	10:10	355.18	1/18/10	11:03	385.46	1/18/10	11:56	386.24
1/16/10	15:34	355.26	1/17/10	18:04	355.19	1/18/10	10:11	355.18	1/18/10	11:04	385.40	1/18/10	11:57	386.24
1/16/10	16:04	355.26	1/17/10	18:34	355.19	1/18/10	10:12	355.18	1/18/10	11:05	385.40	1/18/10	11:58	386.29
1/16/10	16:34	355.26	1/17/10	19:04	355.19	1/18/10	10:13	355.18	1/18/10	11:06	385.40	1/18/10	11:59	386.29
1/16/10	17:04	355.26	1/17/10	19:34	355.19	1/18/10	10:14	355.18	1/18/10	11:07	385.40	1/18/10	12:00	386.20
1/16/10	17:34	355.26	1/17/10	20:04	355.19	1/18/10	10:15	355.18	1/18/10	11:08	385.40	1/18/10	12:01	386.20
1/16/10	18:04	355.27	1/17/10	20:34	355.19	1/18/10	10:16	355.18	1/18/10	11:09	385.40	1/18/10	12:02	387.09
1/16/10	18:34	355.27	1/17/10	21:04	355.19	1/18/10	10:17	355.18	1/18/10	11:10	385.46	1/18/10	12:03	388.09
1/16/10	19:04	355.26	1/17/10	21:34	355.19	1/18/10	10:18	360.01	1/18/10	11:11	385.40	1/18/10	12:04	388.76
1/16/10	19:34	355.26	1/17/10	22:04	355.25	1/18/10	10:19	372.74	1/18/10	11:12	385.40	1/18/10	12:05	389.20
1/16/10	20:04	355.26	1/17/10	22:34	355.19	1/18/10	10:20	380.90	1/18/10	11:13	385.40	1/18/10	12:06	389.54
1/16/10	20:34	355.26	1/17/10	23:04	355.19	1/18/10	10:21	385.90	1/18/10	11:14	385.46	1/18/10	12:07	389.81
1/16/10	21:04	355.31	1/17/10	23:34	355.19	1/18/10	10:22	390.01	1/18/10	11:15	385.57	1/18/10	12:08	389.98
1/16/10	21:34	355.26	1/18/10	0:04	355.17	1/18/10	10:23	393.40	1/18/10	11:16	385.96	1/18/10	12:09	390.04
1/16/10	22:04	355.26	1/18/10	0:34	355.17	1/18/10	10:24	396.46	1/18/10	11:17	386.18	1/18/10	12:10	390.15
1/16/10	22:34	355.26	1/18/10	1:04	355.17	1/18/10	10:25	396.40	1/18/10	11:18	386.29	1/18/10	12:11	390.15
1/16/10	23:04	355.26	1/18/10	1:34	355.17	1/18/10	10:26	396.40	1/18/10	11:19	386.40	1/18/10	12:12	390.20
1/16/10	23:34	355.26	1/18/10	2:04	355.23	1/18/10	10:27	396.40	1/18/10	11:20	386.40	1/18/10	12:13	390.20
1/17/10	0:04	355.27	1/18/10	2:34	355.17	1/18/10	10:28	395.57	1/18/10	11:21	386.40	1/18/10	12:14	390.20
1/17/10	0:34	355.27	1/18/10	3:04	355.16	1/18/10	10:29	392.35	1/18/10	11:22	386.46	1/18/10	12:15	390.20
1/17/10	1:04	355.27	1/18/10	3:34	355.16	1/18/10	10:30	389.96	1/18/10	11:23	386.46	1/18/10	12:16	390.20
1/17/10	1:34	355.27	1/18/10	4:04	355.14	1/18/10	10:31	387.96	1/18/10	11:24	386.40	1/18/10	12:17	390.20
1/17/10	2:04	355.29	1/18/10	4:34	355.14	1/18/10	10:32	386.35	1/18/10	11:25	386.40	1/18/10	12:18	390.15
1/17/10	2:34	355.29	1/18/10	5:04	355.12	1/18/10	10:33	385.01	1/18/10	11:26	386.35	1/18/10	12:19	390.09
1/17/10	3:04	355.31	1/18/10	5:34	355.12	1/18/10	10:34	384.01	1/18/10	11:27	386.35	1/18/10	12:20	390.15
1/17/10	3:34	355.31	1/18/10	6:04	355.14	1/18/10	10:35	383.24	1/18/10	11:28	386.35	1/18/10	12:21	390.09
1/17/10	4:04	355.31	1/18/10	6:34	355.14	1/18/10	10:36	382.62	1/18/10	11:29	386.29	1/18/10	12:22	390.09
1/17/10	4:34	355.31	1/18/10	7:04	355.14	1/18/10	10:37	382.12	1/18/10	11:30	386.35	1/18/10	12:23	390.09
1/17/10	5:04	355.32	1/18/10	7:34	355.14	1/18/10	10:38	381.74	1/18/10	11:31	386.29	1/18/10	12:24	390.04
1/17/10	5:34	355.32	1/18/10	8:04	355.16	1/18/10	10:39	381.46	1/18/10	11:32	386.29	1/18/10	12:25	390.04
1/17/10	6:04	355.32	1/18/10	8:34	355.16	1/18/10	10:40	381.18	1/18/10	11:33	386.29	1/18/10	12:26	390.04
1/17/10	6:34	355.32	1/18/10	9:04	355.14	1/18/10	10:41	380.90	1/18/10	11:34	386.24	1/18/10	12:27	390.04
1/17/10	7:04	355.32	1/18/10	9:38	355.18	1/18/10	10:42	380.74	1/18/10	11:35	386.24	1/18/10	12:28	390.04
1/17/10	7:34	355.32	1/18/10	9:40	355.12	1/18/10	10:43	380.51	1/18/10	11:36	386.18	1/18/10	12:29	390.04
1/17/10	8:04	355.32	1/18/10	9:42	355.18	1/18/10	10:44	380.96	1/18/10	11:37	386.12	1/18/10	12:30	390.04
1/17/10	8:34	355.32	1/18/10	9:44	355.18	1/18/10	10:45	381.85	1/18/10	11:38	386.18	1/18/10	12:31	389.98
1/17/10	9:04	355.34	1/18/10	9:46	355.18	1/18/10	10:46	382.07	1/18/10	11:39	386.12	1/18/10	12:32	390.04
1/17/10	9:34	355.34	1/18/10	9:48	355.18	1/18/10	10:47	382.74	1/18/10	11:40	386.12	1/18/10	12:33	389.98
1/17/10	10:04	355.32	1/18/10	9:50	355.18	1/18/10	10:48	383.40	1/18/10	11:41	386.18	1/18/10	12:34	389.98
1/17/10	10:34	355.32	1/18/10	9:52	355.18	1/18/10	10:49	383.79	1/18/10	11:42	386.24	1/18/10	12:35	389.98
1/17/10	11:04	355.29	1/18/10	9:54	355.18	1/18/10	10:50	383.90	1/18/10	11:43	386.18	1/18/10	12:36	389.98
1/17/10	11:34	355.29	1/18/10	9:56	355.18	1/18/10	10:51	383.96	1/18/10	11:44	386.24	1/18/10	12:37	389.98
1/17/10	12:04	355.26	1/18/10	9:58	355.18	1/18/10	10:52	383.96	1/18/10	11:45	386.18	1/18/10	12:38	389.92
1/17/10	12:34	355.26	1/18/10	10:00	355.18	1/18/10	10:53	384.51	1/18/10	11:46	386.24	1/18/10	12:39	389.92
1/17/10	13:04	355.22	1/18/10	10:01	355.18	1/18/10	10:54	385.01	1/18/10	11:47	386.24	1/18/10	12:40	389.92
1/17/10	13:34	355.22	1/18/10	10:02	355.18	1/18/10	10:55	385.35	1/18/10	11:48	386.24	1/18/10	12:41	389.87
1/17/10	14:04	355.19	1/18/10	10:03	355.18	1/18/10	10:56	385.46	1/18/10	11:49	386.24	1/18/10	12:42	389.92
1/17/10	14:34	355.19	1/18/10	10:04	355.18	1/18/10	10:57	385.51	1/18/10	11:50	386.24	1/18/10	12:43	389.87

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/18/10	12:44	389.87	1/18/10	13:37	389.85	1/18/10	14:30	389.26	1/18/10	15:23	388.87	1/18/10	16:16	388.94
1/18/10	12:45	389.87	1/18/10	13:38	389.85	1/18/10	14:31	389.26	1/18/10	15:24	388.87	1/18/10	16:17	388.94
1/18/10	12:46	389.87	1/18/10	13:39	389.85	1/18/10	14:32	389.31	1/18/10	15:25	388.87	1/18/10	16:18	388.89
1/18/10	12:47	389.87	1/18/10	13:40	389.80	1/18/10	14:33	389.26	1/18/10	15:26	388.92	1/18/10	16:19	388.94
1/18/10	12:48	389.87	1/18/10	13:41	389.80	1/18/10	14:34	389.26	1/18/10	15:27	388.92	1/18/10	16:20	388.94
1/18/10	12:49	389.81	1/18/10	13:42	389.80	1/18/10	14:35	389.20	1/18/10	15:28	388.92	1/18/10	16:21	388.94
1/18/10	12:50	389.81	1/18/10	13:43	389.74	1/18/10	14:36	389.20	1/18/10	15:29	388.87	1/18/10	16:22	388.94
1/18/10	12:51	389.81	1/18/10	13:44	389.74	1/18/10	14:37	389.20	1/18/10	15:30	388.92	1/18/10	16:23	388.94
1/18/10	12:52	389.81	1/18/10	13:45	389.74	1/18/10	14:38	389.20	1/18/10	15:31	388.87	1/18/10	16:24	388.94
1/18/10	12:53	389.81	1/18/10	13:46	389.74	1/18/10	14:39	389.20	1/18/10	15:32	388.87	1/18/10	16:25	388.94
1/18/10	12:54	389.81	1/18/10	13:47	389.74	1/18/10	14:40	389.15	1/18/10	15:33	388.87	1/18/10	16:26	388.94
1/18/10	12:55	389.81	1/18/10	13:48	389.74	1/18/10	14:41	389.15	1/18/10	15:34	388.92	1/18/10	16:27	388.94
1/18/10	12:56	389.81	1/18/10	13:49	389.74	1/18/10	14:42	389.15	1/18/10	15:35	388.87	1/18/10	16:28	388.94
1/18/10	12:57	389.81	1/18/10	13:50	389.74	1/18/10	14:43	389.15	1/18/10	15:36	388.87	1/18/10	16:29	388.94
1/18/10	12:58	389.81	1/18/10	13:51	389.74	1/18/10	14:44	389.15	1/18/10	15:37	388.92	1/18/10	16:30	388.94
1/18/10	12:59	389.81	1/18/10	13:52	389.74	1/18/10	14:45	389.15	1/18/10	15:38	388.87	1/18/10	16:31	388.94
1/18/10	13:00	389.74	1/18/10	13:53	389.74	1/18/10	14:46	389.15	1/18/10	15:39	388.87	1/18/10	16:32	388.94
1/18/10	13:01	389.74	1/18/10	13:54	389.74	1/18/10	14:47	389.15	1/18/10	15:40	388.87	1/18/10	16:33	388.94
1/18/10	13:02	389.80	1/18/10	13:55	389.74	1/18/10	14:48	389.09	1/18/10	15:41	388.87	1/18/10	16:34	388.94
1/18/10	13:03	389.80	1/18/10	13:56	389.74	1/18/10	14:49	389.15	1/18/10	15:42	388.87	1/18/10	16:35	388.94
1/18/10	13:04	389.74	1/18/10	13:57	389.74	1/18/10	14:50	389.09	1/18/10	15:43	388.87	1/18/10	16:36	389.00
1/18/10	13:05	389.74	1/18/10	13:58	389.74	1/18/10	14:51	389.09	1/18/10	15:44	388.87	1/18/10	16:37	388.94
1/18/10	13:06	389.80	1/18/10	13:59	389.74	1/18/10	14:52	389.09	1/18/10	15:45	388.87	1/18/10	16:38	388.94
1/18/10	13:07	389.80	1/18/10	14:00	389.81	1/18/10	14:53	389.09	1/18/10	15:46	388.87	1/18/10	16:39	389.00
1/18/10	13:08	389.80	1/18/10	14:01	389.76	1/18/10	14:54	389.09	1/18/10	15:47	388.87	1/18/10	16:40	388.94
1/18/10	13:09	389.74	1/18/10	14:02	389.76	1/18/10	14:55	389.09	1/18/10	15:48	388.87	1/18/10	16:41	388.94
1/18/10	13:10	389.74	1/18/10	14:03	389.76	1/18/10	14:56	389.09	1/18/10	15:49	388.87	1/18/10	16:42	388.94
1/18/10	13:11	389.74	1/18/10	14:04	389.76	1/18/10	14:57	389.09	1/18/10	15:50	388.87	1/18/10	16:43	389.00
1/18/10	13:12	389.74	1/18/10	14:05	389.70	1/18/10	14:58	389.09	1/18/10	15:51	388.87	1/18/10	16:44	389.00
1/18/10	13:13	389.74	1/18/10	14:06	389.70	1/18/10	14:59	389.09	1/18/10	15:52	388.87	1/18/10	16:45	389.00
1/18/10	13:14	389.74	1/18/10	14:07	389.70	1/18/10	15:00	389.09	1/18/10	15:53	388.87	1/18/10	16:46	388.94
1/18/10	13:15	389.74	1/18/10	14:08	389.70	1/18/10	15:01	389.09	1/18/10	15:54	388.87	1/18/10	16:47	389.00
1/18/10	13:16	389.74	1/18/10	14:09	389.70	1/18/10	15:02	389.09	1/18/10	15:55	388.87	1/18/10	16:48	389.00
1/18/10	13:17	389.74	1/18/10	14:10	389.65	1/18/10	15:03	389.09	1/18/10	15:56	388.87	1/18/10	16:49	388.94
1/18/10	13:18	389.80	1/18/10	14:11	389.65	1/18/10	15:04	389.09	1/18/10	15:57	388.87	1/18/10	16:50	389.00
1/18/10	13:19	389.80	1/18/10	14:12	389.65	1/18/10	15:05	389.09	1/18/10	15:58	388.87	1/18/10	16:51	389.00
1/18/10	13:20	389.80	1/18/10	14:13	389.59	1/18/10	15:06	389.09	1/18/10	15:59	388.87	1/18/10	16:52	389.00
1/18/10	13:21	389.80	1/18/10	14:14	389.59	1/18/10	15:07	389.09	1/18/10	16:00	388.89	1/18/10	16:53	389.00
1/18/10	13:22	389.80	1/18/10	14:15	389.59	1/18/10	15:08	389.04	1/18/10	16:01	388.89	1/18/10	16:54	389.00
1/18/10	13:23	389.80	1/18/10	14:16	389.59	1/18/10	15:09	389.04	1/18/10	16:02	388.94	1/18/10	16:55	389.00
1/18/10	13:24	389.80	1/18/10	14:17	389.54	1/18/10	15:10	389.04	1/18/10	16:03	388.89	1/18/10	16:56	389.00
1/18/10	13:25	389.80	1/18/10	14:18	389.48	1/18/10	15:11	389.04	1/18/10	16:04	388.89	1/18/10	16:57	389.00
1/18/10	13:26	389.80	1/18/10	14:19	389.48	1/18/10	15:12	388.98	1/18/10	16:05	388.89	1/18/10	16:58	389.00
1/18/10	13:27	389.80	1/18/10	14:20	389.42	1/18/10	15:13	389.04	1/18/10	16:06	388.89	1/18/10	16:59	389.00
1/18/10	13:28	389.80	1/18/10	14:21	389.42	1/18/10	15:14	388.98	1/18/10	16:07	388.94	1/18/10	17:00	388.98
1/18/10	13:29	389.85	1/18/10	14:22	389.37	1/18/10	15:15	388.92	1/18/10	16:08	388.94	1/18/10	17:01	388.98
1/18/10	13:30	389.85	1/18/10	14:23	389.37	1/18/10	15:16	388.92	1/18/10	16:09	388.89	1/18/10	17:02	388.98
1/18/10	13:31	389.80	1/18/10	14:24	389.37	1/18/10	15:17	388.92	1/18/10	16:10	388.94	1/18/10	17:03	388.98
1/18/10	13:32	389.80	1/18/10	14:25	389.37	1/18/10	15:18	388.92	1/18/10	16:11	388.89	1/18/10	17:04	388.98
1/18/10	13:33	389.80	1/18/10	14:26	389.37	1/18/10	15:19	388.92	1/18/10	16:12	388.94	1/18/10	17:05	388.98
1/18/10	13:34	389.80	1/18/10	14:27	389.31	1/18/10	15:20	388.92	1/18/10	16:13	388.94	1/18/10	17:06	388.98
1/18/10	13:35	389.80	1/18/10	14:28	389.31	1/18/10	15:21	388.92	1/18/10	16:14	388.94	1/18/10	17:07	388.98
1/18/10	13:36	389.85	1/18/10	14:29	389.31	1/18/10	15:22	388.92	1/18/10	16:15	388.89	1/18/10	17:08	388.98

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/18/10	17:09	388.98	1/18/10	18:02	389.37	1/18/10	18:55	389.37	1/18/10	19:48	389.37	1/18/10	20:41	389.42
1/18/10	17:10	388.98	1/18/10	18:03	389.37	1/18/10	18:56	389.37	1/18/10	19:49	389.42	1/18/10	20:42	389.42
1/18/10	17:11	388.98	1/18/10	18:04	389.37	1/18/10	18:57	389.37	1/18/10	19:50	389.42	1/18/10	20:43	389.42
1/18/10	17:12	388.98	1/18/10	18:05	389.37	1/18/10	18:58	389.37	1/18/10	19:51	389.42	1/18/10	20:44	389.42
1/18/10	17:13	388.98	1/18/10	18:06	389.37	1/18/10	18:59	389.37	1/18/10	19:52	389.42	1/18/10	20:45	389.42
1/18/10	17:14	388.98	1/18/10	18:07	389.37	1/18/10	19:00	389.37	1/18/10	19:53	389.42	1/18/10	20:46	389.42
1/18/10	17:15	388.98	1/18/10	18:08	389.37	1/18/10	19:01	389.37	1/18/10	19:54	389.42	1/18/10	20:47	389.42
1/18/10	17:16	388.98	1/18/10	18:09	389.37	1/18/10	19:02	389.37	1/18/10	19:55	389.42	1/18/10	20:48	389.42
1/18/10	17:17	388.98	1/18/10	18:10	389.37	1/18/10	19:03	389.37	1/18/10	19:56	389.42	1/18/10	20:49	389.42
1/18/10	17:18	388.98	1/18/10	18:11	389.31	1/18/10	19:04	389.37	1/18/10	19:57	389.42	1/18/10	20:50	389.42
1/18/10	17:19	388.98	1/18/10	18:12	389.31	1/18/10	19:05	389.37	1/18/10	19:58	389.42	1/18/10	20:51	389.42
1/18/10	17:20	388.98	1/18/10	18:13	389.31	1/18/10	19:06	389.37	1/18/10	19:59	389.42	1/18/10	20:52	389.42
1/18/10	17:21	388.98	1/18/10	18:14	389.31	1/18/10	19:07	389.37	1/18/10	20:00	389.42	1/18/10	20:53	389.42
1/18/10	17:22	388.92	1/18/10	18:15	389.31	1/18/10	19:08	389.37	1/18/10	20:01	389.42	1/18/10	20:54	389.42
1/18/10	17:23	389.15	1/18/10	18:16	389.31	1/18/10	19:09	389.37	1/18/10	20:02	389.42	1/18/10	20:55	389.42
1/18/10	17:24	389.26	1/18/10	18:17	389.31	1/18/10	19:10	389.37	1/18/10	20:03	389.42	1/18/10	20:56	389.42
1/18/10	17:25	389.37	1/18/10	18:18	389.31	1/18/10	19:11	389.37	1/18/10	20:04	389.42	1/18/10	20:57	389.42
1/18/10	17:26	389.48	1/18/10	18:19	389.31	1/18/10	19:12	389.37	1/18/10	20:05	389.42	1/18/10	20:58	389.42
1/18/10	17:27	389.48	1/18/10	18:20	389.31	1/18/10	19:13	389.37	1/18/10	20:06	389.42	1/18/10	20:59	389.42
1/18/10	17:28	389.54	1/18/10	18:21	389.31	1/18/10	19:14	389.37	1/18/10	20:07	389.42	1/18/10	21:00	389.42
1/18/10	17:29	389.54	1/18/10	18:22	389.31	1/18/10	19:15	389.37	1/18/10	20:08	389.42	1/18/10	21:01	389.42
1/18/10	17:30	389.54	1/18/10	18:23	389.31	1/18/10	19:16	389.37	1/18/10	20:09	389.42	1/18/10	21:02	389.42
1/18/10	17:31	389.59	1/18/10	18:24	389.31	1/18/10	19:17	389.37	1/18/10	20:10	389.42	1/18/10	21:03	389.42
1/18/10	17:32	389.59	1/18/10	18:25	389.31	1/18/10	19:18	389.37	1/18/10	20:11	389.42	1/18/10	21:04	389.42
1/18/10	17:33	389.59	1/18/10	18:26	389.37	1/18/10	19:19	389.37	1/18/10	20:12	389.42	1/18/10	21:05	389.42
1/18/10	17:34	389.59	1/18/10	18:27	389.31	1/18/10	19:20	389.37	1/18/10	20:13	389.48	1/18/10	21:06	389.42
1/18/10	17:35	389.59	1/18/10	18:28	389.31	1/18/10	19:21	389.37	1/18/10	20:14	389.42	1/18/10	21:07	389.42
1/18/10	17:36	389.65	1/18/10	18:29	389.31	1/18/10	19:22	389.37	1/18/10	20:15	389.48	1/18/10	21:08	389.42
1/18/10	17:37	389.65	1/18/10	18:30	389.31	1/18/10	19:23	389.37	1/18/10	20:16	389.48	1/18/10	21:09	389.42
1/18/10	17:38	389.65	1/18/10	18:31	389.31	1/18/10	19:24	389.37	1/18/10	20:17	389.48	1/18/10	21:10	389.42
1/18/10	17:39	389.65	1/18/10	18:32	389.31	1/18/10	19:25	389.37	1/18/10	20:18	389.48	1/18/10	21:11	389.42
1/18/10	17:40	389.65	1/18/10	18:33	389.31	1/18/10	19:26	389.37	1/18/10	20:19	389.42	1/18/10	21:12	389.42
1/18/10	17:41	389.65	1/18/10	18:34	389.31	1/18/10	19:27	389.37	1/18/10	20:20	389.48	1/18/10	21:13	389.42
1/18/10	17:42	389.65	1/18/10	18:35	389.31	1/18/10	19:28	389.37	1/18/10	20:21	389.48	1/18/10	21:14	389.42
1/18/10	17:43	389.65	1/18/10	18:36	389.31	1/18/10	19:29	389.42	1/18/10	20:22	389.48	1/18/10	21:15	389.42
1/18/10	17:44	389.65	1/18/10	18:37	389.31	1/18/10	19:30	389.42	1/18/10	20:23	389.42	1/18/10	21:16	389.42
1/18/10	17:45	389.65	1/18/10	18:38	389.31	1/18/10	19:31	389.42	1/18/10	20:24	389.42	1/18/10	21:17	389.42
1/18/10	17:46	389.65	1/18/10	18:39	389.31	1/18/10	19:32	389.42	1/18/10	20:25	389.42	1/18/10	21:18	389.42
1/18/10	17:47	389.65	1/18/10	18:40	389.31	1/18/10	19:33	389.42	1/18/10	20:26	389.42	1/18/10	21:19	389.42
1/18/10	17:48	389.65	1/18/10	18:41	389.31	1/18/10	19:34	389.42	1/18/10	20:27	389.48	1/18/10	21:20	389.42
1/18/10	17:49	389.65	1/18/10	18:42	389.31	1/18/10	19:35	389.42	1/18/10	20:28	389.48	1/18/10	21:21	389.42
1/18/10	17:50	389.65	1/18/10	18:43	389.31	1/18/10	19:36	389.42	1/18/10	20:29	389.48	1/18/10	21:22	389.42
1/18/10	17:51	389.59	1/18/10	18:44	389.37	1/18/10	19:37	389.42	1/18/10	20:30	389.48	1/18/10	21:23	389.42
1/18/10	17:52	389.59	1/18/10	18:45	389.37	1/18/10	19:38	389.42	1/18/10	20:31	389.48	1/18/10	21:24	389.42
1/18/10	17:53	389.54	1/18/10	18:46	389.31	1/18/10	19:39	389.42	1/18/10	20:32	389.48	1/18/10	21:25	389.42
1/18/10	17:54	389.54	1/18/10	18:47	389.31	1/18/10	19:40	389.42	1/18/10	20:33	389.48	1/18/10	21:26	389.42
1/18/10	17:55	389.48	1/18/10	18:48	389.31	1/18/10	19:41	389.42	1/18/10	20:34	389.48	1/18/10	21:27	389.37
1/18/10	17:56	389.48	1/18/10	18:49	389.31	1/18/10	19:42	389.42	1/18/10	20:35	389.48	1/18/10	21:28	389.42
1/18/10	17:57	389.42	1/18/10	18:50	389.31	1/18/10	19:43	389.42	1/18/10	20:36	389.48	1/18/10	21:29	389.42
1/18/10	17:58	389.42	1/18/10	18:51	389.37	1/18/10	19:44	389.42	1/18/10	20:37	389.42	1/18/10	21:30	389.42
1/18/10	17:59	389.42	1/18/10	18:52	389.37	1/18/10	19:45	389.37	1/18/10	20:38	389.42	1/18/10	21:31	389.42
1/18/10	18:00	389.42	1/18/10	18:53	389.37	1/18/10	19:46	389.42	1/18/10	20:39	389.42	1/18/10	21:32	389.42
1/18/10	18:01	389.37	1/18/10	18:54	389.31	1/18/10	19:47	389.42	1/18/10	20:40	389.42	1/18/10	21:33	389.42

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/18/10	21:34	389.42	1/18/10	22:27	389.41	1/18/10	23:20	389.45	1/19/10	0:26	389.43	1/19/10	2:12	389.25
1/18/10	21:35	389.42	1/18/10	22:28	389.41	1/18/10	23:21	389.45	1/19/10	0:28	389.43	1/19/10	2:14	389.25
1/18/10	21:36	389.42	1/18/10	22:29	389.41	1/18/10	23:22	389.45	1/19/10	0:30	389.43	1/19/10	2:16	389.25
1/18/10	21:37	389.42	1/18/10	22:30	389.41	1/18/10	23:23	389.45	1/19/10	0:32	389.43	1/19/10	2:18	389.25
1/18/10	21:38	389.42	1/18/10	22:31	389.41	1/18/10	23:24	389.45	1/19/10	0:34	389.43	1/19/10	2:20	389.25
1/18/10	21:39	389.42	1/18/10	22:32	389.41	1/18/10	23:25	389.45	1/19/10	0:36	389.43	1/19/10	2:22	389.25
1/18/10	21:40	389.42	1/18/10	22:33	389.41	1/18/10	23:26	389.45	1/19/10	0:38	389.49	1/19/10	2:24	389.25
1/18/10	21:41	389.42	1/18/10	22:34	389.41	1/18/10	23:27	389.45	1/19/10	0:40	389.49	1/19/10	2:26	389.25
1/18/10	21:42	389.42	1/18/10	22:35	389.41	1/18/10	23:28	389.45	1/19/10	0:42	389.43	1/19/10	2:28	389.25
1/18/10	21:43	389.42	1/18/10	22:36	389.41	1/18/10	23:29	389.45	1/19/10	0:44	389.43	1/19/10	2:30	389.25
1/18/10	21:44	389.42	1/18/10	22:37	389.41	1/18/10	23:30	389.45	1/19/10	0:46	389.43	1/19/10	2:32	389.25
1/18/10	21:45	389.42	1/18/10	22:38	389.41	1/18/10	23:31	389.45	1/19/10	0:48	389.49	1/19/10	2:34	389.25
1/18/10	21:46	389.42	1/18/10	22:39	389.41	1/18/10	23:32	389.45	1/19/10	0:50	389.43	1/19/10	2:36	389.25
1/18/10	21:47	389.42	1/18/10	22:40	389.41	1/18/10	23:33	389.45	1/19/10	0:52	389.43	1/19/10	2:38	389.19
1/18/10	21:48	389.42	1/18/10	22:41	389.41	1/18/10	23:34	389.45	1/19/10	0:54	389.43	1/19/10	2:40	389.19
1/18/10	21:49	389.42	1/18/10	22:42	389.41	1/18/10	23:35	389.45	1/19/10	0:56	389.49	1/19/10	2:42	389.19
1/18/10	21:50	389.42	1/18/10	22:43	389.46	1/18/10	23:36	389.45	1/19/10	0:58	389.43	1/19/10	2:44	389.19
1/18/10	21:51	389.42	1/18/10	22:44	389.41	1/18/10	23:37	389.45	1/19/10	1:00	389.30	1/19/10	2:46	389.19
1/18/10	21:52	389.42	1/18/10	22:45	389.41	1/18/10	23:38	389.45	1/19/10	1:02	389.30	1/19/10	2:48	389.19
1/18/10	21:53	389.42	1/18/10	22:46	389.41	1/18/10	23:39	389.45	1/19/10	1:04	389.30	1/19/10	2:50	389.19
1/18/10	21:54	389.42	1/18/10	22:47	389.46	1/18/10	23:40	389.45	1/19/10	1:06	389.30	1/19/10	2:52	389.19
1/18/10	21:55	389.42	1/18/10	22:48	389.46	1/18/10	23:41	389.45	1/19/10	1:08	389.30	1/19/10	2:54	389.19
1/18/10	21:56	389.42	1/18/10	22:49	389.46	1/18/10	23:42	389.45	1/19/10	1:10	389.25	1/19/10	2:56	389.19
1/18/10	21:57	389.42	1/18/10	22:50	389.46	1/18/10	23:43	389.45	1/19/10	1:12	389.30	1/19/10	2:58	389.14
1/18/10	21:58	389.42	1/18/10	22:51	389.46	1/18/10	23:44	389.45	1/19/10	1:14	389.25	1/19/10	3:00	389.18
1/18/10	21:59	389.42	1/18/10	22:52	389.46	1/18/10	23:45	389.45	1/19/10	1:16	389.25	1/19/10	3:02	389.18
1/18/10	22:00	389.41	1/18/10	22:53	389.46	1/18/10	23:46	389.45	1/19/10	1:18	389.25	1/19/10	3:04	389.18
1/18/10	22:01	389.41	1/18/10	22:54	389.46	1/18/10	23:47	389.45	1/19/10	1:20	389.25	1/19/10	3:06	389.18
1/18/10	22:02	389.41	1/18/10	22:55	389.41	1/18/10	23:48	389.45	1/19/10	1:22	389.25	1/19/10	3:08	389.18
1/18/10	22:03	389.41	1/18/10	22:56	389.46	1/18/10	23:49	389.45	1/19/10	1:24	389.25	1/19/10	3:10	389.18
1/18/10	22:04	389.41	1/18/10	22:57	389.46	1/18/10	23:50	389.45	1/19/10	1:26	389.25	1/19/10	3:12	389.12
1/18/10	22:05	389.41	1/18/10	22:58	389.46	1/18/10	23:51	389.45	1/19/10	1:28	389.25	1/19/10	3:14	389.18
1/18/10	22:06	389.41	1/18/10	22:59	389.46	1/18/10	23:52	389.45	1/19/10	1:30	389.25	1/19/10	3:16	389.18
1/18/10	22:07	389.41	1/18/10	23:00	389.45	1/18/10	23:53	389.45	1/19/10	1:32	389.25	1/19/10	3:18	389.12
1/18/10	22:08	389.41	1/18/10	23:01	389.45	1/18/10	23:54	389.45	1/19/10	1:34	389.25	1/19/10	3:20	389.18
1/18/10	22:09	389.41	1/18/10	23:02	389.45	1/18/10	23:55	389.45	1/19/10	1:36	389.25	1/19/10	3:22	389.12
1/18/10	22:10	389.41	1/18/10	23:03	389.45	1/18/10	23:56	389.45	1/19/10	1:38	389.25	1/19/10	3:24	389.18
1/18/10	22:11	389.41	1/18/10	23:04	389.45	1/18/10	23:57	389.45	1/19/10	1:40	389.25	1/19/10	3:26	389.18
1/18/10	22:12	389.41	1/18/10	23:05	389.45	1/18/10	23:58	389.45	1/19/10	1:42	389.25	1/19/10	3:28	389.18
1/18/10	22:13	389.41	1/18/10	23:06	389.45	1/18/10	23:59	389.45	1/19/10	1:44	389.19	1/19/10	3:30	389.12
1/18/10	22:14	389.41	1/18/10	23:07	389.45	1/19/10	0:00	389.43	1/19/10	1:46	389.25	1/19/10	3:32	389.12
1/18/10	22:15	389.41	1/18/10	23:08	389.45	1/19/10	0:02	389.43	1/19/10	1:48	389.25	1/19/10	3:34	389.12
1/18/10	22:16	389.41	1/18/10	23:09	389.45	1/19/10	0:04	389.43	1/19/10	1:50	389.30	1/19/10	3:36	389.18
1/18/10	22:17	389.41	1/18/10	23:10	389.45	1/19/10	0:06	389.43	1/19/10	1:52	389.30	1/19/10	3:38	389.18
1/18/10	22:18	389.41	1/18/10	23:11	389.45	1/19/10	0:08	389.43	1/19/10	1:54	389.30	1/19/10	3:40	389.12
1/18/10	22:19	389.41	1/18/10	23:12	389.45	1/19/10	0:10	389.43	1/19/10	1:56	389.30	1/19/10	3:42	389.12
1/18/10	22:20	389.41	1/18/10	23:13	389.45	1/19/10	0:12	389.43	1/19/10	1:58	389.30	1/19/10	3:44	389.18
1/18/10	22:21	389.41	1/18/10	23:14	389.45	1/19/10	0:14	389.43	1/19/10	2:00	389.30	1/19/10	3:46	389.18
1/18/10	22:22	389.41	1/18/10	23:15	389.45	1/19/10	0:16	389.43	1/19/10	2:02	389.30	1/19/10	3:48	389.12
1/18/10	22:23	389.41	1/18/10	23:16	389.45	1/19/10	0:18	389.43	1/19/10	2:04	389.25	1/19/10	3:50	389.18
1/18/10	22:24	389.41	1/18/10	23:17	389.45	1/19/10	0:20	389.43	1/19/10	2:06	389.25	1/19/10	3:52	389.12
1/18/10	22:25	389.41	1/18/10	23:18	389.45	1/19/10	0:22	389.43	1/19/10	2:08	389.25	1/19/10	3:54	389.12
1/18/10	22:26	389.41	1/18/10	23:19	389.45	1/19/10	0:24	389.43	1/19/10	2:10	389.25	1/19/10	3:56	389.12

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/19/10	3:58	389.12	1/19/10	5:44	389.10	1/19/10	7:30	389.53	1/19/10	9:16	389.24	1/19/10	11:02	396.41
1/19/10	4:00	389.10	1/19/10	5:46	389.10	1/19/10	7:32	389.53	1/19/10	9:18	389.24	1/19/10	11:04	396.41
1/19/10	4:02	389.10	1/19/10	5:48	389.10	1/19/10	7:34	389.53	1/19/10	9:20	389.24	1/19/10	11:06	396.41
1/19/10	4:04	389.10	1/19/10	5:50	389.10	1/19/10	7:36	389.48	1/19/10	9:22	389.24	1/19/10	11:08	396.41
1/19/10	4:06	389.10	1/19/10	5:52	389.10	1/19/10	7:38	389.48	1/19/10	9:24	389.24	1/19/10	11:10	396.41
1/19/10	4:08	389.10	1/19/10	5:54	389.10	1/19/10	7:40	389.48	1/19/10	9:26	389.24	1/19/10	11:12	396.41
1/19/10	4:10	389.10	1/19/10	5:56	389.10	1/19/10	7:42	389.48	1/19/10	9:28	389.24	1/19/10	11:14	396.41
1/19/10	4:12	389.10	1/19/10	5:58	389.10	1/19/10	7:44	389.48	1/19/10	9:30	389.24	1/19/10	11:16	396.41
1/19/10	4:14	389.10	1/19/10	6:00	389.07	1/19/10	7:46	389.42	1/19/10	9:32	389.24	1/19/10	11:18	396.41
1/19/10	4:16	389.10	1/19/10	6:02	389.07	1/19/10	7:48	389.48	1/19/10	9:34	389.24	1/19/10	11:20	396.41
1/19/10	4:18	389.16	1/19/10	6:04	389.07	1/19/10	7:50	389.48	1/19/10	9:36	389.24	1/19/10	11:22	396.41
1/19/10	4:20	389.10	1/19/10	6:06	389.07	1/19/10	7:52	389.48	1/19/10	9:38	389.24	1/19/10	11:24	396.41
1/19/10	4:22	389.10	1/19/10	6:08	389.07	1/19/10	7:54	389.48	1/19/10	9:40	389.24	1/19/10	11:26	396.41
1/19/10	4:24	389.10	1/19/10	6:10	389.07	1/19/10	7:56	389.48	1/19/10	9:42	389.24	1/19/10	11:28	396.41
1/19/10	4:26	389.10	1/19/10	6:12	389.07	1/19/10	7:58	389.48	1/19/10	9:44	389.24	1/19/10	11:30	396.30
1/19/10	4:28	389.10	1/19/10	6:14	389.07	1/19/10	8:00	389.40	1/19/10	9:46	389.24	1/19/10	11:32	396.24
1/19/10	4:30	389.10	1/19/10	6:16	389.07	1/19/10	8:02	389.46	1/19/10	9:48	389.24	1/19/10	11:34	396.19
1/19/10	4:32	389.10	1/19/10	6:18	389.07	1/19/10	8:04	389.46	1/19/10	9:50	390.29	1/19/10	11:36	396.19
1/19/10	4:34	389.10	1/19/10	6:20	389.07	1/19/10	8:06	389.18	1/19/10	9:52	391.63	1/19/10	11:38	396.08
1/19/10	4:36	389.10	1/19/10	6:22	389.07	1/19/10	8:08	389.46	1/19/10	9:54	392.52	1/19/10	11:40	396.08
1/19/10	4:38	389.10	1/19/10	6:24	389.07	1/19/10	8:10	389.52	1/19/10	9:56	392.90	1/19/10	11:42	396.02
1/19/10	4:40	389.10	1/19/10	6:26	389.07	1/19/10	8:12	389.52	1/19/10	9:58	392.79	1/19/10	11:44	396.02
1/19/10	4:42	389.10	1/19/10	6:28	389.07	1/19/10	8:14	389.40	1/19/10	10:00	392.72	1/19/10	11:46	395.97
1/19/10	4:44	389.10	1/19/10	6:30	389.07	1/19/10	8:16	389.40	1/19/10	10:02	392.72	1/19/10	11:48	395.97
1/19/10	4:46	389.10	1/19/10	6:32	389.07	1/19/10	8:18	389.35	1/19/10	10:04	392.72	1/19/10	11:50	395.97
1/19/10	4:48	389.16	1/19/10	6:34	389.07	1/19/10	8:20	389.35	1/19/10	10:06	393.78	1/19/10	11:52	395.97
1/19/10	4:50	389.10	1/19/10	6:36	389.07	1/19/10	8:22	389.35	1/19/10	10:08	395.00	1/19/10	11:54	395.91
1/19/10	4:52	389.10	1/19/10	6:38	389.07	1/19/10	8:24	389.35	1/19/10	10:10	395.72	1/19/10	11:56	395.91
1/19/10	4:54	389.10	1/19/10	6:40	389.13	1/19/10	8:26	389.35	1/19/10	10:12	396.11	1/19/10	11:58	395.91
1/19/10	4:56	389.16	1/19/10	6:42	389.07	1/19/10	8:28	389.35	1/19/10	10:14	396.39	1/19/10	12:00	395.89
1/19/10	4:58	389.10	1/19/10	6:44	389.07	1/19/10	8:30	389.35	1/19/10	10:16	396.44	1/19/10	12:02	395.84
1/19/10	5:00	389.10	1/19/10	6:46	389.07	1/19/10	8:32	389.35	1/19/10	10:18	396.44	1/19/10	12:04	395.89
1/19/10	5:02	389.10	1/19/10	6:48	389.07	1/19/10	8:34	389.29	1/19/10	10:20	396.44	1/19/10	12:06	395.84
1/19/10	5:04	389.10	1/19/10	6:50	389.07	1/19/10	8:36	389.29	1/19/10	10:22	396.44	1/19/10	12:08	395.84
1/19/10	5:06	389.10	1/19/10	6:52	389.13	1/19/10	8:38	389.29	1/19/10	10:24	396.44	1/19/10	12:10	395.89
1/19/10	5:08	389.16	1/19/10	6:54	389.13	1/19/10	8:40	389.29	1/19/10	10:26	396.44	1/19/10	12:12	395.84
1/19/10	5:10	389.10	1/19/10	6:56	389.13	1/19/10	8:42	389.24	1/19/10	10:28	396.39	1/19/10	12:14	395.89
1/19/10	5:12	389.10	1/19/10	6:58	389.13	1/19/10	8:44	389.29	1/19/10	10:30	396.44	1/19/10	12:16	395.84
1/19/10	5:14	389.10	1/19/10	7:00	388.86	1/19/10	8:46	389.29	1/19/10	10:32	396.44	1/19/10	12:18	395.78
1/19/10	5:16	389.10	1/19/10	7:02	389.59	1/19/10	8:48	389.29	1/19/10	10:34	396.44	1/19/10	12:20	396.00
1/19/10	5:18	389.10	1/19/10	7:04	389.92	1/19/10	8:50	389.29	1/19/10	10:36	396.44	1/19/10	12:22	396.06
1/19/10	5:20	389.10	1/19/10	7:06	389.98	1/19/10	8:52	389.29	1/19/10	10:38	396.44	1/19/10	12:24	396.12
1/19/10	5:22	389.10	1/19/10	7:08	389.98	1/19/10	8:54	389.29	1/19/10	10:40	396.44	1/19/10	12:26	396.17
1/19/10	5:24	389.10	1/19/10	7:10	389.98	1/19/10	8:56	389.29	1/19/10	10:42	396.44	1/19/10	12:28	396.17
1/19/10	5:26	389.10	1/19/10	7:12	389.92	1/19/10	8:58	389.29	1/19/10	10:44	396.44	1/19/10	12:30	396.17
1/19/10	5:28	389.10	1/19/10	7:14	389.81	1/19/10	9:00	389.29	1/19/10	10:46	396.44	1/19/10	12:32	396.17
1/19/10	5:30	389.10	1/19/10	7:16	389.75	1/19/10	9:02	389.24	1/19/10	10:48	396.44	1/19/10	12:34	396.23
1/19/10	5:32	389.10	1/19/10	7:18	389.64	1/19/10	9:04	389.24	1/19/10	10:50	396.44	1/19/10	12:36	396.23
1/19/10	5:34	389.10	1/19/10	7:20	389.59	1/19/10	9:06	389.24	1/19/10	10:52	396.44	1/19/10	12:38	396.23
1/19/10	5:36	389.10	1/19/10	7:22	389.59	1/19/10	9:08	389.24	1/19/10	10:54	396.44	1/19/10	12:40	396.23
1/19/10	5:38	389.10	1/19/10	7:24	389.53	1/19/10	9:10	389.24	1/19/10	10:56	396.44	1/19/10	12:42	396.23
1/19/10	5:40	389.10	1/19/10	7:26	389.53	1/19/10	9:12	389.24	1/19/10	10:58	396.44	1/19/10	12:44	396.23
1/19/10	5:42	389.10	1/19/10	7:28	389.53	1/19/10	9:14	389.24	1/19/10	11:00	396.41	1/19/10	12:46	396.23

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/19/10	12:48	396.23	1/19/10	14:34	396.42	1/19/10	16:20	389.23	1/19/10	18:06	388.47	1/19/10	19:52	388.13
1/19/10	12:50	396.17	1/19/10	14:36	396.42	1/19/10	16:22	389.17	1/19/10	18:08	388.52	1/19/10	19:54	388.13
1/19/10	12:52	396.23	1/19/10	14:38	396.42	1/19/10	16:24	389.12	1/19/10	18:10	388.52	1/19/10	19:56	388.13
1/19/10	12:54	396.23	1/19/10	14:40	396.42	1/19/10	16:26	389.12	1/19/10	18:12	388.52	1/19/10	19:58	388.13
1/19/10	12:56	396.23	1/19/10	14:42	396.42	1/19/10	16:28	389.06	1/19/10	18:14	388.52	1/19/10	20:00	388.12
1/19/10	12:58	396.23	1/19/10	14:44	396.42	1/19/10	16:30	389.12	1/19/10	18:16	388.52	1/19/10	20:02	388.12
1/19/10	13:00	396.16	1/19/10	14:46	396.42	1/19/10	16:32	389.17	1/19/10	18:18	388.52	1/19/10	20:04	388.17
1/19/10	13:02	396.16	1/19/10	14:48	396.42	1/19/10	16:34	389.17	1/19/10	18:20	388.52	1/19/10	20:06	388.17
1/19/10	13:04	396.21	1/19/10	14:50	396.42	1/19/10	16:36	389.17	1/19/10	18:22	388.58	1/19/10	20:08	388.12
1/19/10	13:06	396.16	1/19/10	14:52	396.42	1/19/10	16:38	389.17	1/19/10	18:24	388.52	1/19/10	20:10	388.12
1/19/10	13:08	396.21	1/19/10	14:54	396.42	1/19/10	16:40	389.17	1/19/10	18:26	388.52	1/19/10	20:12	388.12
1/19/10	13:10	396.16	1/19/10	14:56	396.42	1/19/10	16:42	389.17	1/19/10	18:28	388.52	1/19/10	20:14	388.17
1/19/10	13:12	396.21	1/19/10	14:58	396.42	1/19/10	16:44	389.12	1/19/10	18:30	388.52	1/19/10	20:16	388.17
1/19/10	13:14	396.21	1/19/10	15:00	396.43	1/19/10	16:46	389.12	1/19/10	18:32	388.52	1/19/10	20:18	388.12
1/19/10	13:16	396.21	1/19/10	15:02	396.43	1/19/10	16:48	389.17	1/19/10	18:34	388.52	1/19/10	20:20	388.12
1/19/10	13:18	396.21	1/19/10	15:04	396.43	1/19/10	16:50	389.12	1/19/10	18:36	388.52	1/19/10	20:22	388.12
1/19/10	13:20	396.21	1/19/10	15:06	396.43	1/19/10	16:52	389.06	1/19/10	18:38	388.52	1/19/10	20:24	388.12
1/19/10	13:22	396.21	1/19/10	15:08	396.43	1/19/10	16:54	389.06	1/19/10	18:40	388.30	1/19/10	20:26	388.12
1/19/10	13:24	396.21	1/19/10	15:10	396.43	1/19/10	16:56	389.00	1/19/10	18:42	388.47	1/19/10	20:28	388.06
1/19/10	13:26	396.21	1/19/10	15:12	396.43	1/19/10	16:58	389.00	1/19/10	18:44	388.47	1/19/10	20:30	388.12
1/19/10	13:28	396.21	1/19/10	15:14	396.43	1/19/10	17:00	389.00	1/19/10	18:46	388.47	1/19/10	20:32	388.06
1/19/10	13:30	396.16	1/19/10	15:16	396.43	1/19/10	17:02	388.95	1/19/10	18:48	388.47	1/19/10	20:34	388.12
1/19/10	13:32	396.16	1/19/10	15:18	396.43	1/19/10	17:04	388.95	1/19/10	18:50	388.41	1/19/10	20:36	388.06
1/19/10	13:34	396.16	1/19/10	15:20	396.43	1/19/10	17:06	388.89	1/19/10	18:52	388.35	1/19/10	20:38	388.06
1/19/10	13:36	396.16	1/19/10	15:22	396.43	1/19/10	17:08	388.89	1/19/10	18:54	388.30	1/19/10	20:40	388.06
1/19/10	13:38	396.16	1/19/10	15:24	396.43	1/19/10	17:10	388.89	1/19/10	18:56	388.35	1/19/10	20:42	388.06
1/19/10	13:40	396.16	1/19/10	15:26	396.43	1/19/10	17:12	388.89	1/19/10	18:58	388.35	1/19/10	20:44	388.06
1/19/10	13:42	396.16	1/19/10	15:28	396.38	1/19/10	17:14	388.84	1/19/10	19:00	388.30	1/19/10	20:46	388.06
1/19/10	13:44	396.27	1/19/10	15:30	396.43	1/19/10	17:16	388.84	1/19/10	19:02	388.30	1/19/10	20:48	388.06
1/19/10	13:46	396.38	1/19/10	15:32	394.38	1/19/10	17:18	388.84	1/19/10	19:04	388.30	1/19/10	20:50	388.06
1/19/10	13:48	396.43	1/19/10	15:34	391.99	1/19/10	17:20	388.84	1/19/10	19:06	388.30	1/19/10	20:52	388.06
1/19/10	13:50	396.43	1/19/10	15:36	390.60	1/19/10	17:22	388.84	1/19/10	19:08	388.30	1/19/10	20:54	388.06
1/19/10	13:52	396.43	1/19/10	15:38	389.54	1/19/10	17:24	388.84	1/19/10	19:10	388.30	1/19/10	20:56	388.06
1/19/10	13:54	396.43	1/19/10	15:40	388.88	1/19/10	17:26	388.84	1/19/10	19:12	388.24	1/19/10	20:58	388.00
1/19/10	13:56	396.43	1/19/10	15:42	388.88	1/19/10	17:28	388.84	1/19/10	19:14	388.24	1/19/10	21:00	388.00
1/19/10	13:58	396.43	1/19/10	15:44	390.49	1/19/10	17:30	388.78	1/19/10	19:16	388.24	1/19/10	21:02	387.95
1/19/10	14:00	396.42	1/19/10	15:46	391.71	1/19/10	17:32	388.78	1/19/10	19:18	388.24	1/19/10	21:04	387.95
1/19/10	14:02	396.42	1/19/10	15:48	390.71	1/19/10	17:34	388.78	1/19/10	19:20	388.24	1/19/10	21:06	388.00
1/19/10	14:04	396.42	1/19/10	15:50	390.43	1/19/10	17:36	388.73	1/19/10	19:22	388.24	1/19/10	21:08	387.95
1/19/10	14:06	396.42	1/19/10	15:52	390.27	1/19/10	17:38	388.67	1/19/10	19:24	388.24	1/19/10	21:10	387.95
1/19/10	14:08	396.36	1/19/10	15:54	390.10	1/19/10	17:40	388.62	1/19/10	19:26	388.24	1/19/10	21:12	387.95
1/19/10	14:10	396.42	1/19/10	15:56	390.04	1/19/10	17:42	388.62	1/19/10	19:28	388.19	1/19/10	21:14	387.95
1/19/10	14:12	396.42	1/19/10	15:58	389.93	1/19/10	17:44	388.56	1/19/10	19:30	388.19	1/19/10	21:16	388.00
1/19/10	14:14	396.42	1/19/10	16:00	389.84	1/19/10	17:46	388.56	1/19/10	19:32	388.19	1/19/10	21:18	387.95
1/19/10	14:16	396.42	1/19/10	16:02	389.73	1/19/10	17:48	388.56	1/19/10	19:34	388.19	1/19/10	21:20	387.95
1/19/10	14:18	396.42	1/19/10	16:04	389.67	1/19/10	17:50	388.56	1/19/10	19:36	388.19	1/19/10	21:22	387.95
1/19/10	14:20	396.42	1/19/10	16:06	389.56	1/19/10	17:52	388.56	1/19/10	19:38	388.19	1/19/10	21:24	387.95
1/19/10	14:22	396.42	1/19/10	16:08	389.50	1/19/10	17:54	388.50	1/19/10	19:40	388.19	1/19/10	21:26	387.95
1/19/10	14:24	396.42	1/19/10	16:10	389.39	1/19/10	17:56	388.50	1/19/10	19:42	388.19	1/19/10	21:28	387.95
1/19/10	14:26	396.42	1/19/10	16:12	389.39	1/19/10	17:58	388.50	1/19/10	19:44	388.19	1/19/10	21:30	387.89
1/19/10	14:28	396.42	1/19/10	16:14	389.34	1/19/10	18:00	388.52	1/19/10	19:46	388.19	1/19/10	21:32	387.89
1/19/10	14:30	396.42	1/19/10	16:16	389.28	1/19/10	18:02	388.47	1/19/10	19:48	388.19	1/19/10	21:34	387.89
1/19/10	14:32	396.42	1/19/10	16:18	389.23	1/19/10	18:04	388.52	1/19/10	19:50	388.19	1/19/10	21:36	387.89

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/19/10	21:38	387.89	1/19/10	23:24	387.08	1/20/10	2:55	385.85	1/20/10	7:20	384.91	1/20/10	11:45	385.02
1/19/10	21:40	387.89	1/19/10	23:26	387.08	1/20/10	3:00	385.84	1/20/10	7:25	384.91	1/20/10	11:50	384.97
1/19/10	21:42	387.89	1/19/10	23:28	387.08	1/20/10	3:05	385.84	1/20/10	7:30	384.91	1/20/10	11:55	384.97
1/19/10	21:44	387.89	1/19/10	23:30	387.08	1/20/10	3:10	385.78	1/20/10	7:35	384.91	1/20/10	12:00	384.93
1/19/10	21:46	387.89	1/19/10	23:32	387.08	1/20/10	3:15	385.84	1/20/10	7:40	384.91	1/20/10	12:05	384.93
1/19/10	21:48	387.89	1/19/10	23:34	387.13	1/20/10	3:20	385.78	1/20/10	7:45	384.97	1/20/10	12:10	384.93
1/19/10	21:50	387.84	1/19/10	23:36	387.13	1/20/10	3:25	385.78	1/20/10	7:50	385.02	1/20/10	12:15	384.99
1/19/10	21:52	387.84	1/19/10	23:38	387.13	1/20/10	3:30	385.73	1/20/10	7:55	384.97	1/20/10	12:20	385.38
1/19/10	21:54	387.84	1/19/10	23:40	387.13	1/20/10	3:35	385.67	1/20/10	8:00	384.93	1/20/10	12:25	385.71
1/19/10	21:56	387.89	1/19/10	23:42	387.13	1/20/10	3:40	385.62	1/20/10	8:05	384.93	1/20/10	12:30	385.60
1/19/10	21:58	387.84	1/19/10	23:44	387.13	1/20/10	3:45	385.62	1/20/10	8:10	384.93	1/20/10	12:35	385.38
1/19/10	22:00	387.84	1/19/10	23:46	387.13	1/20/10	3:50	385.62	1/20/10	8:15	384.93	1/20/10	12:40	385.32
1/19/10	22:02	387.84	1/19/10	23:48	387.13	1/20/10	3:55	385.62	1/20/10	8:20	384.93	1/20/10	12:45	385.16
1/19/10	22:04	387.84	1/19/10	23:50	387.13	1/20/10	4:00	385.56	1/20/10	8:25	384.93	1/20/10	12:50	385.04
1/19/10	22:06	387.84	1/19/10	23:52	387.13	1/20/10	4:05	385.50	1/20/10	8:30	384.93	1/20/10	12:55	384.99
1/19/10	22:08	387.84	1/19/10	23:54	387.08	1/20/10	4:10	385.50	1/20/10	8:35	384.93	1/20/10	13:00	384.75
1/19/10	22:10	387.84	1/19/10	23:56	387.08	1/20/10	4:15	385.45	1/20/10	8:40	385.43	1/20/10	13:05	384.64
1/19/10	22:12	387.84	1/19/10	23:58	387.08	1/20/10	4:20	385.45	1/20/10	8:45	385.76	1/20/10	13:10	384.64
1/19/10	22:14	387.78	1/20/10	0:00	387.08	1/20/10	4:25	385.45	1/20/10	8:50	385.87	1/20/10	13:15	384.58
1/19/10	22:16	387.84	1/20/10	0:05	387.13	1/20/10	4:30	385.39	1/20/10	8:55	385.87	1/20/10	13:20	384.58
1/19/10	22:18	387.78	1/20/10	0:10	387.08	1/20/10	4:35	385.39	1/20/10	9:00	385.91	1/20/10	13:25	384.58
1/19/10	22:20	387.78	1/20/10	0:15	387.02	1/20/10	4:40	385.39	1/20/10	9:05	385.91	1/20/10	13:30	384.53
1/19/10	22:22	387.78	1/20/10	0:20	386.97	1/20/10	4:45	385.39	1/20/10	9:10	385.91	1/20/10	13:35	384.36
1/19/10	22:24	387.78	1/20/10	0:25	386.91	1/20/10	4:50	385.39	1/20/10	9:15	385.97	1/20/10	13:40	384.86
1/19/10	22:26	387.78	1/20/10	0:30	386.85	1/20/10	4:55	385.34	1/20/10	9:20	385.97	1/20/10	13:45	387.69
1/19/10	22:28	387.78	1/20/10	0:35	386.74	1/20/10	5:00	385.30	1/20/10	9:25	385.91	1/20/10	13:50	388.03
1/19/10	22:30	387.78	1/20/10	0:40	386.52	1/20/10	5:05	385.30	1/20/10	9:30	385.85	1/20/10	13:55	388.08
1/19/10	22:32	387.78	1/20/10	0:45	386.47	1/20/10	5:10	385.08	1/20/10	9:35	385.80	1/20/10	14:00	388.19
1/19/10	22:34	387.50	1/20/10	0:50	386.41	1/20/10	5:15	385.02	1/20/10	9:40	385.80	1/20/10	14:43	387.12
1/19/10	22:36	387.78	1/20/10	0:55	386.35	1/20/10	5:20	385.02	1/20/10	9:45	385.80	1/20/10	14:58	386.79
1/19/10	22:38	387.89	1/20/10	1:00	386.30	1/20/10	5:25	384.97	1/20/10	9:50	385.74	1/20/10	15:13	386.69
1/19/10	22:40	387.89	1/20/10	1:05	386.30	1/20/10	5:30	384.97	1/20/10	9:55	385.74	1/20/10	15:28	386.75
1/19/10	22:42	387.78	1/20/10	1:10	386.24	1/20/10	5:35	384.97	1/20/10	10:00	385.70	1/20/10	15:43	386.64
1/19/10	22:44	387.67	1/20/10	1:15	386.24	1/20/10	5:40	384.97	1/20/10	10:05	385.70	1/20/10	15:58	386.58
1/19/10	22:46	387.56	1/20/10	1:20	386.19	1/20/10	5:45	384.97	1/20/10	10:10	385.70	1/20/10	16:13	386.42
1/19/10	22:48	387.56	1/20/10	1:25	386.13	1/20/10	5:50	384.97	1/20/10	10:15	385.70	1/20/10	16:28	386.19
1/19/10	22:50	387.45	1/20/10	1:30	386.02	1/20/10	5:55	384.91	1/20/10	10:20	385.70	1/20/10	16:43	386.14
1/19/10	22:52	387.45	1/20/10	1:35	386.02	1/20/10	6:00	384.91	1/20/10	10:25	385.65	1/20/10	16:58	386.08
1/19/10	22:54	387.39	1/20/10	1:40	386.02	1/20/10	6:05	384.91	1/20/10	10:30	385.65	1/20/10	17:13	386.04
1/19/10	22:56	387.34	1/20/10	1:45	386.08	1/20/10	6:10	384.97	1/20/10	10:35	385.65	1/20/10	17:28	385.99
1/19/10	22:58	387.34	1/20/10	1:50	386.08	1/20/10	6:15	384.97	1/20/10	10:40	385.65	1/20/10	17:43	385.93
1/19/10	23:00	387.30	1/20/10	1:55	386.02	1/20/10	6:20	384.97	1/20/10	10:45	385.65	1/20/10	17:58	385.88
1/19/10	23:02	387.24	1/20/10	2:00	385.97	1/20/10	6:25	384.97	1/20/10	10:50	385.65	1/20/10	18:13	385.84
1/19/10	23:04	387.19	1/20/10	2:05	385.97	1/20/10	6:30	384.97	1/20/10	10:55	385.65	1/20/10	18:28	385.78
1/19/10	23:06	387.19	1/20/10	2:10	385.97	1/20/10	6:35	384.97	1/20/10	11:00	385.63	1/20/10	18:43	385.67
1/19/10	23:08	387.19	1/20/10	2:15	385.91	1/20/10	6:40	384.91	1/20/10	11:05	385.52	1/20/10	18:58	385.61
1/19/10	23:10	387.13	1/20/10	2:20	385.91	1/20/10	6:45	384.91	1/20/10	11:10	385.47	1/20/10	19:13	385.58
1/19/10	23:12	387.19	1/20/10	2:25	385.91	1/20/10	6:50	384.91	1/20/10	11:15	385.24	1/20/10	19:28	385.52
1/19/10	23:14	387.13	1/20/10	2:30	385.85	1/20/10	6:55	384.91	1/20/10	11:20	385.19	1/20/10	19:43	385.52
1/19/10	23:16	387.13	1/20/10	2:35	385.85	1/20/10	7:00	384.97	1/20/10	11:25	385.13	1/20/10	19:58	385.47
1/19/10	23:18	387.13	1/20/10	2:40	385.85	1/20/10	7:05	384.91	1/20/10	11:30	385.13	1/20/10	20:13	385.30
1/19/10	23:20	387.08	1/20/10	2:45	385.80	1/20/10	7:10	384.91	1/20/10	11:35	385.08	1/20/10	20:28	385.24
1/19/10	23:22	387.08	1/20/10	2:50	385.85	1/20/10	7:15	384.91	1/20/10	11:40	385.08	1/20/10	20:43	385.24

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/20/10	20:58	385.19	1/21/10	10:13	383.27	1/21/10	23:28	382.87	1/22/10	12:43	384.65	1/23/10	1:58	382.73
1/20/10	21:13	385.19	1/21/10	10:28	383.27	1/21/10	23:43	382.87	1/22/10	12:58	384.60	1/23/10	2:13	382.63
1/20/10	21:28	385.19	1/21/10	10:43	383.27	1/21/10	23:58	382.87	1/22/10	13:13	384.02	1/23/10	2:28	382.58
1/20/10	21:43	385.19	1/21/10	10:58	383.27	1/22/10	0:13	382.83	1/22/10	13:28	385.41	1/23/10	2:43	382.41
1/20/10	21:58	385.13	1/21/10	11:13	383.27	1/22/10	0:28	383.22	1/22/10	13:43	385.36	1/23/10	2:58	382.24
1/20/10	22:13	385.19	1/21/10	11:28	383.27	1/22/10	0:43	383.17	1/22/10	13:58	385.36	1/23/10	3:13	383.76
1/20/10	22:28	385.02	1/21/10	11:43	383.27	1/22/10	0:58	384.56	1/22/10	14:13	385.12	1/23/10	3:28	384.15
1/20/10	22:43	384.97	1/21/10	11:58	383.21	1/22/10	1:13	384.26	1/22/10	14:28	386.06	1/23/10	3:43	383.76
1/20/10	22:58	384.91	1/21/10	12:13	383.18	1/22/10	1:28	384.09	1/22/10	14:43	385.12	1/23/10	3:58	383.59
1/20/10	23:13	384.87	1/21/10	12:28	383.18	1/22/10	1:43	384.04	1/22/10	14:58	384.62	1/23/10	4:13	383.33
1/20/10	23:28	384.93	1/21/10	12:43	383.18	1/22/10	1:58	383.82	1/22/10	15:13	384.62	1/23/10	4:28	383.06
1/20/10	23:43	384.87	1/21/10	12:58	383.18	1/22/10	2:13	383.74	1/22/10	15:28	384.56	1/23/10	4:43	382.83
1/20/10	23:58	384.81	1/21/10	13:13	383.09	1/22/10	2:28	383.63	1/22/10	15:43	384.51	1/23/10	4:58	383.00
1/21/10	0:13	384.74	1/21/10	13:28	383.14	1/22/10	2:43	383.63	1/22/10	15:58	384.34	1/23/10	5:13	382.96
1/21/10	0:28	384.74	1/21/10	13:43	383.09	1/22/10	2:58	383.63	1/22/10	16:13	384.28	1/23/10	5:28	381.79
1/21/10	0:43	384.69	1/21/10	13:58	383.14	1/22/10	3:13	383.60	1/22/10	16:28	384.17	1/23/10	5:43	383.40
1/21/10	0:58	384.80	1/21/10	14:13	383.07	1/22/10	3:28	383.55	1/22/10	16:43	384.17	1/23/10	5:58	382.90
1/21/10	1:13	384.73	1/21/10	14:28	383.13	1/22/10	3:43	383.55	1/22/10	16:58	384.12	1/23/10	6:13	382.72
1/21/10	1:28	384.73	1/21/10	14:43	383.02	1/22/10	3:58	383.55	1/22/10	17:13	384.08	1/23/10	6:28	382.83
1/21/10	1:43	384.73	1/21/10	14:58	383.02	1/22/10	4:13	383.53	1/22/10	17:28	383.64	1/23/10	6:43	382.60
1/21/10	1:58	384.67	1/21/10	15:13	383.02	1/22/10	4:28	383.53	1/22/10	17:43	383.36	1/23/10	6:58	384.83
1/21/10	2:13	384.67	1/21/10	15:28	383.02	1/22/10	4:43	383.53	1/22/10	17:58	383.19	1/23/10	7:13	384.18
1/21/10	2:28	384.61	1/21/10	15:43	383.02	1/22/10	4:58	383.53	1/22/10	18:13	383.11	1/23/10	7:28	383.23
1/21/10	2:43	384.56	1/21/10	15:58	382.96	1/22/10	5:13	383.53	1/22/10	18:28	383.11	1/23/10	7:43	382.73
1/21/10	2:58	384.56	1/21/10	16:13	383.02	1/22/10	5:28	383.53	1/22/10	18:43	383.11	1/23/10	7:58	382.57
1/21/10	3:13	384.56	1/21/10	16:28	383.02	1/22/10	5:43	383.53	1/22/10	18:58	383.06	1/23/10	8:13	382.08
1/21/10	3:28	384.56	1/21/10	16:43	382.96	1/22/10	5:58	383.47	1/22/10	19:13	383.02	1/23/10	8:28	382.25
1/21/10	3:43	384.50	1/21/10	16:58	382.96	1/22/10	6:13	383.44	1/22/10	19:28	382.80	1/23/10	8:43	383.08
1/21/10	3:58	384.50	1/21/10	17:13	383.03	1/22/10	6:28	383.44	1/22/10	19:43	382.68	1/23/10	8:58	383.42
1/21/10	4:13	384.89	1/21/10	17:28	383.03	1/22/10	6:43	383.44	1/22/10	19:58	382.57	1/23/10	9:13	383.43
1/21/10	4:28	384.67	1/21/10	17:43	383.03	1/22/10	6:58	383.44	1/22/10	20:13	382.65	1/23/10	9:28	383.54
1/21/10	4:43	384.17	1/21/10	17:58	383.03	1/22/10	7:13	383.35	1/22/10	20:28	382.59	1/23/10	9:43	383.27
1/21/10	4:58	384.00	1/21/10	18:13	383.05	1/22/10	7:28	383.35	1/22/10	20:43	382.59	1/23/10	9:58	382.93
1/21/10	5:13	383.85	1/21/10	18:28	382.99	1/22/10	7:43	383.35	1/22/10	20:58	382.59	1/23/10	10:13	382.78
1/21/10	5:28	383.74	1/21/10	18:43	383.05	1/22/10	7:58	383.35	1/22/10	21:13	382.62	1/23/10	10:28	382.56
1/21/10	5:43	383.63	1/21/10	18:58	383.05	1/22/10	8:13	383.28	1/22/10	21:28	382.62	1/23/10	10:43	383.78
1/21/10	5:58	383.58	1/21/10	19:13	383.05	1/22/10	8:28	383.28	1/22/10	21:43	382.62	1/23/10	10:58	383.61
1/21/10	6:13	383.45	1/21/10	19:28	382.99	1/22/10	8:43	383.28	1/22/10	21:58	383.29	1/23/10	11:13	383.23
1/21/10	6:28	383.39	1/21/10	19:43	383.05	1/22/10	8:58	383.28	1/22/10	22:13	383.31	1/23/10	11:28	382.50
1/21/10	6:43	383.39	1/21/10	19:58	382.99	1/22/10	9:13	385.02	1/22/10	22:28	383.31	1/23/10	11:43	382.39
1/21/10	6:58	383.34	1/21/10	20:13	382.95	1/22/10	9:28	385.52	1/22/10	22:43	383.31	1/23/10	11:58	382.45
1/21/10	7:13	383.34	1/21/10	20:28	382.90	1/22/10	9:43	385.41	1/22/10	22:58	383.36	1/23/10	12:13	382.50
1/21/10	7:28	383.39	1/21/10	20:43	382.90	1/22/10	9:58	385.46	1/22/10	23:13	383.36	1/23/10	12:28	382.34
1/21/10	7:43	383.34	1/21/10	20:58	382.90	1/22/10	10:13	385.37	1/22/10	23:28	383.36	1/23/10	12:43	382.00
1/21/10	7:58	383.34	1/21/10	21:13	382.88	1/22/10	10:28	385.31	1/22/10	23:43	383.36	1/23/10	12:58	381.84
1/21/10	8:13	383.32	1/21/10	21:28	382.88	1/22/10	10:43	385.26	1/22/10	23:58	383.42	1/23/10	13:13	381.78
1/21/10	8:28	383.32	1/21/10	21:43	382.88	1/22/10	10:58	385.15	1/23/10	0:13	384.16	1/23/10	13:28	381.78
1/21/10	8:43	383.32	1/21/10	21:58	382.83	1/22/10	11:13	385.00	1/23/10	0:28	384.55	1/23/10	13:43	381.73
1/21/10	8:58	383.27	1/21/10	22:13	382.83	1/22/10	11:28	385.00	1/23/10	0:43	383.71	1/23/10	13:58	381.61
1/21/10	9:13	383.27	1/21/10	22:28	382.83	1/22/10	11:43	384.83	1/23/10	0:58	383.55	1/23/10	14:13	381.65
1/21/10	9:28	383.27	1/21/10	22:43	382.83	1/22/10	11:58	384.78	1/23/10	1:13	383.34	1/23/10	14:28	381.76
1/21/10	9:43	383.27	1/21/10	22:58	382.88	1/22/10	12:13	384.71	1/23/10	1:28	382.95	1/23/10	14:43	378.43
1/21/10	9:58	383.27	1/21/10	23:13	382.81	1/22/10	12:28	384.71	1/23/10	1:43	382.95	1/23/10	14:58	383.76

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/23/10	15:13	383.01	1/24/10	4:28	381.32	1/24/10	17:43	379.98	1/25/10	6:58	356.85	1/26/10	4:13	356.39
1/23/10	15:28	382.29	1/24/10	4:43	381.10	1/24/10	17:58	379.20	1/25/10	7:13	356.87	1/26/10	4:43	356.39
1/23/10	15:43	382.24	1/24/10	4:58	377.38	1/24/10	18:13	379.11	1/25/10	7:28	356.87	1/26/10	5:13	356.38
1/23/10	15:58	382.01	1/24/10	5:13	381.77	1/24/10	18:28	378.72	1/25/10	7:43	356.87	1/26/10	5:43	356.38
1/23/10	16:13	381.86	1/24/10	5:28	381.05	1/24/10	18:43	377.77	1/25/10	7:58	356.82	1/26/10	6:13	356.38
1/23/10	16:28	381.70	1/24/10	5:43	382.32	1/24/10	18:58	378.77	1/25/10	8:13	356.85	1/26/10	6:43	356.38
1/23/10	16:43	381.03	1/24/10	5:58	381.49	1/24/10	19:13	378.68	1/25/10	8:28	356.85	1/26/10	7:13	356.38
1/23/10	16:58	381.53	1/24/10	6:13	380.63	1/24/10	19:28	378.68	1/25/10	8:43	356.85	1/26/10	7:43	356.38
1/23/10	17:13	382.01	1/24/10	6:28	380.47	1/24/10	19:43	378.73	1/25/10	8:58	356.85	1/26/10	8:13	356.39
1/23/10	17:28	382.01	1/24/10	6:43	380.41	1/24/10	19:58	378.40	1/25/10	9:13	356.81	1/26/10	8:43	356.39
1/23/10	17:43	381.79	1/24/10	6:58	378.91	1/24/10	20:13	378.61	1/25/10	9:28	356.81	1/26/10	9:13	356.34
1/23/10	17:58	381.23	1/24/10	7:13	379.98	1/24/10	20:28	380.33	1/25/10	9:43	356.81	1/26/10	9:43	356.34
1/23/10	18:13	381.91	1/24/10	7:28	379.65	1/24/10	20:43	380.38	1/25/10	9:58	356.81	1/26/10	10:13	356.30
1/23/10	18:28	382.25	1/24/10	7:43	379.54	1/24/10	20:58	380.16	1/25/10	10:13	356.83	1/26/10	10:43	356.30
1/23/10	18:43	381.64	1/24/10	7:58	379.26	1/24/10	21:13	379.88	1/25/10	10:28	356.83	1/26/10	11:13	356.30
1/23/10	18:58	381.41	1/24/10	8:13	378.94	1/24/10	21:28	379.83	1/25/10	10:43	356.83	1/26/10	11:43	356.30
1/23/10	19:13	381.43	1/24/10	8:28	378.89	1/24/10	21:43	378.72	1/25/10	10:58	356.83	1/26/10	12:13	356.27
1/23/10	19:28	381.10	1/24/10	8:43	378.78	1/24/10	21:58	362.72	1/25/10	11:13	356.77	1/26/10	12:43	356.27
1/23/10	19:43	380.76	1/24/10	8:58	379.06	1/24/10	22:13	359.68	1/25/10	11:28	356.77	1/26/10	13:13	356.24
1/23/10	19:58	381.26	1/24/10	9:13	379.07	1/24/10	22:28	358.90	1/25/10	11:43	356.77	1/26/10	13:43	356.24
1/23/10	20:13	381.37	1/24/10	9:28	378.52	1/24/10	22:43	358.46	1/25/10	11:58	356.77	1/26/10	14:13	356.24
1/23/10	20:28	381.32	1/24/10	9:43	377.07	1/24/10	22:58	358.18	1/25/10	12:13	356.75	1/26/10	14:43	356.24
1/23/10	20:43	381.21	1/24/10	9:58	379.07	1/24/10	23:13	357.96	1/25/10	12:43	356.75	1/26/10	15:13	356.24
1/23/10	20:58	381.10	1/24/10	10:13	378.81	1/24/10	23:28	357.79	1/25/10	13:13	356.75	1/26/10	15:43	356.24
1/23/10	21:13	381.00	1/24/10	10:28	378.70	1/24/10	23:43	357.68	1/25/10	13:43	356.70	1/26/10	16:13	356.20
1/23/10	21:28	380.89	1/24/10	10:43	378.53	1/24/10	23:58	357.62	1/25/10	14:13	356.68	1/26/10	16:43	356.26
1/23/10	21:43	382.00	1/24/10	10:58	378.14	1/25/10	0:13	357.51	1/25/10	14:43	356.68	1/26/10	17:13	356.22
1/23/10	21:58	382.50	1/24/10	11:13	379.64	1/25/10	0:28	357.46	1/25/10	15:13	356.68	1/26/10	17:43	356.27
1/23/10	22:13	381.89	1/24/10	11:28	379.64	1/25/10	0:43	357.40	1/25/10	15:43	356.63	1/26/10	18:13	356.23
1/23/10	22:28	381.22	1/24/10	11:43	379.42	1/25/10	0:58	357.34	1/25/10	16:13	356.68	1/26/10	18:43	356.23
1/23/10	22:43	381.06	1/24/10	11:58	379.20	1/25/10	1:13	357.30	1/25/10	16:43	356.63	1/26/10	19:13	356.25
1/23/10	22:58	380.89	1/24/10	12:13	379.13	1/25/10	1:28	357.25	1/25/10	17:13	356.63	1/26/10	19:43	356.25
1/23/10	23:13	380.80	1/24/10	12:28	377.35	1/25/10	1:43	357.25	1/25/10	17:43	356.63	1/26/10	20:13	356.27
1/23/10	23:28	380.74	1/24/10	12:43	379.63	1/25/10	1:58	357.19	1/25/10	18:13	356.63	1/26/10	20:43	356.27
1/23/10	23:43	380.68	1/24/10	12:58	379.63	1/25/10	2:13	357.16	1/25/10	18:43	356.57	1/26/10	21:13	356.30
1/23/10	23:58	380.85	1/24/10	13:13	379.57	1/25/10	2:28	357.16	1/25/10	19:13	356.59	1/26/10	21:43	356.30
1/24/10	0:13	381.04	1/24/10	13:28	379.57	1/25/10	2:43	357.16	1/25/10	19:43	356.59	1/26/10	22:13	356.30
1/24/10	0:28	381.04	1/24/10	13:43	379.52	1/25/10	2:58	357.10	1/25/10	20:13	356.57	1/26/10	22:43	356.30
1/24/10	0:43	381.15	1/24/10	13:58	379.18	1/25/10	3:13	357.10	1/25/10	20:43	356.57	1/26/10	23:13	356.30
1/24/10	0:58	381.09	1/24/10	14:13	378.94	1/25/10	3:28	357.04	1/25/10	21:13	356.55	1/26/10	23:43	356.30
1/24/10	1:13	381.00	1/24/10	14:28	379.56	1/25/10	3:43	357.04	1/25/10	21:43	356.55	1/27/10	0:13	356.30
1/24/10	1:28	380.77	1/24/10	14:43	379.06	1/25/10	3:58	357.04	1/25/10	22:13	356.55	1/27/10	0:43	356.30
1/24/10	1:43	380.72	1/24/10	14:58	378.83	1/25/10	4:13	357.00	1/25/10	22:43	356.55	1/27/10	1:13	356.32
1/24/10	1:58	382.22	1/24/10	15:13	378.81	1/25/10	4:28	357.00	1/25/10	23:13	356.48	1/27/10	1:43	356.32
1/24/10	2:13	382.23	1/24/10	15:28	378.76	1/25/10	4:43	356.95	1/25/10	23:43	356.48	1/27/10	2:13	356.28
1/24/10	2:28	381.96	1/24/10	15:43	379.31	1/25/10	4:58	356.95	1/26/10	0:13	356.48	1/27/10	2:43	356.28
1/24/10	2:43	381.73	1/24/10	15:58	379.31	1/25/10	5:13	356.97	1/26/10	0:43	356.48	1/27/10	3:13	356.28
1/24/10	2:58	381.40	1/24/10	16:13	380.37	1/25/10	5:28	356.97	1/26/10	1:13	356.47	1/27/10	3:43	356.28
1/24/10	3:13	381.29	1/24/10	16:28	380.76	1/25/10	5:43	356.91	1/26/10	1:43	356.47	1/27/10	4:13	356.31
1/24/10	3:28	379.68	1/24/10	16:43	380.09	1/25/10	5:58	356.91	1/26/10	2:13	356.41	1/27/10	4:43	356.31
1/24/10	3:43	381.07	1/24/10	16:58	379.92	1/25/10	6:13	356.91	1/26/10	2:43	356.47	1/27/10	5:13	356.33
1/24/10	3:58	381.90	1/24/10	17:13	377.81	1/25/10	6:28	356.91	1/26/10	3:13	356.47	1/27/10	5:43	356.33
1/24/10	4:13	381.71	1/24/10	17:28	380.20	1/25/10	6:43	356.85	1/26/10	3:43	356.41	1/27/10	6:13	356.34

TABLE D6C.6-2. TRANSDUCER DATA FOR PUMPING WELL HANK1, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/27/10	6:43	356.34	1/28/10	9:13	356.40									
1/27/10	7:13	356.37	1/28/10	9:43	356.45									
1/27/10	7:43	356.37	1/28/10	10:13	356.38									
1/27/10	8:13	356.41	1/28/10	10:43	356.38									
1/27/10	8:43	356.41	1/28/10	11:13	356.42									
1/27/10	9:13	356.42	1/28/10	11:43	356.42									
1/27/10	9:43	356.37	1/28/10	12:13	356.33									
1/27/10	10:13	356.44	1/28/10	12:43	356.33									
1/27/10	10:43	356.44	1/28/10	13:13	356.26									
1/27/10	11:13	356.39	1/28/10	13:43	356.26									
1/27/10	11:43	356.39	1/28/10	14:13	356.23									
1/27/10	12:13	356.39	1/28/10	14:43	356.23									
1/27/10	12:43	356.44	1/28/10	15:13	356.20									
1/27/10	13:13	356.42	1/28/10	15:43	356.20									
1/27/10	13:43	356.37	1/28/10	16:13	356.21									
1/27/10	14:13	356.39	1/28/10	16:43	356.21									
1/27/10	14:43	356.39	1/28/10	17:13	356.21									
1/27/10	15:13	356.39	1/28/10	17:43	356.21									
1/27/10	15:43	356.39	1/28/10	18:13	356.25									
1/27/10	16:13	356.42	1/28/10	18:43	356.25									
1/27/10	16:43	356.42	1/28/10	19:13	356.25									
1/27/10	17:13	356.44	1/28/10	19:43	356.25									
1/27/10	17:43	356.44	1/28/10	20:13	356.25									
1/27/10	18:13	356.45	1/28/10	20:43	356.25									
1/27/10	18:43	356.45	1/28/10	21:13	356.26									
1/27/10	19:13	356.47	1/28/10	21:43	356.26									
1/27/10	19:43	356.47	1/28/10	22:13	356.26									
1/27/10	20:13	356.48	1/28/10	22:43	356.26									
1/27/10	20:43	356.48	1/28/10	23:13	356.26									
1/27/10	21:13	356.50	1/28/10	23:43	356.26									
1/27/10	21:43	356.50	1/29/10	0:13	356.26									
1/27/10	22:13	356.52	1/29/10	0:43	356.26									
1/27/10	22:43	356.52	1/29/10	1:13	356.19									
1/27/10	23:13	356.52	1/29/10	1:43	356.19									
1/27/10	23:43	356.52	1/29/10	2:13	356.19									
1/28/10	0:13	356.48	1/29/10	2:43	356.25									
1/28/10	0:43	356.48	1/29/10	3:13	356.17									
1/28/10	1:13	356.48	1/29/10	3:43	356.23									
1/28/10	1:43	356.48	1/29/10	4:13	356.16									
1/28/10	2:13	356.48	1/29/10	4:43	356.16									
1/28/10	2:43	356.48	1/29/10	5:13	356.16									
1/28/10	3:13	356.48	1/29/10	5:43	356.16									
1/28/10	3:43	356.48	1/29/10	6:13	356.16									
1/28/10	4:13	356.48	1/29/10	6:43	356.16									
1/28/10	4:43	356.48	1/29/10	7:13	356.16									
1/28/10	5:13	356.48	1/29/10	7:43	356.16									
1/28/10	5:43	356.43	1/29/10	8:13	356.16									
1/28/10	6:13	356.43	1/29/10	8:43	356.16									
1/28/10	6:43	356.48	1/29/10	9:13	356.16									
1/28/10	7:13	356.47												
1/28/10	7:43	356.47												
1/28/10	8:13	356.47												
1/28/10	8:43	356.47												

TABLE D6C.6-3. AQUIFER-TEST DATA FOR OBSERVATION WELL URZHF-8.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/17/10	12:56:00	-1281	--	--	354.38	-0.39	--	--	--	--
01/18/10	9:12:00	-65	--	--	354.77	0.00	--	--	--	--
	9:20:00	SET TRANSDUCER TO 1 MIN								
	9:27:00	-50	--	--	354.73	-0.04	--	--	--	--
	10:37:00	20	--	--	360.25	5.48	--	--	--	--
	10:53:00	36	--	--	361.81	7.04	--	--	--	--
	11:07:00	50	--	--	262.90	-91.87	--	--	--	--
	11:33:00	76	--	--	364.00	9.23	--	--	--	--
	12:05:00	108	--	--	364.10	9.33	--	--	--	--
	14:12:00	235	--	--	366.05	11.28	--	--	--	--
01/19/10	9:54:00	1417	--	--	365.77	11.00	--	--	--	--
	14:09:00	1672	--	--	368.90	14.13	--	--	--	--
01/20/10	8:59:00	2802	--	--	364.55	9.78	--	--	--	--
	13:37:00	3080	--	--	364.43	9.66	--	--	--	--
	13:37:00	RESET TRANSDUCER TO 15 MIN								
	14:01:00	3104	--	--	364.70	9.93	--	--	--	--
01/21/10	10:19:00	4322	--	--	364.15	9.38	--	--	--	--
	13:05:00	4488	--	--	364.13	9.36	--	--	--	--
01/22/10	9:28:00	5711	--	--	364.19	9.42	--	--	--	--
	14:31:00	6014	--	--	364.60	9.83	--	--	--	--
01/23/10	9:40:00	7163	--	--	364.27	9.50	--	--	--	--
01/24/10	9:28:00	8591	--	--	362.20	7.43	--	--	--	--
01/26/10	9:25:00	11468	2181	5.26	355.50	0.73	--	--	--	--
	9:25:00	DOWNLOADED TRANSDUCER								

TABLE D6C.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-8.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/11/10	0:07	354.77	1/12/10	2:37	354.77	1/13/10	5:07	354.77	1/14/10	7:37	354.74	1/15/10	10:07	354.77
1/11/10	0:37	354.77	1/12/10	3:07	354.77	1/13/10	5:37	354.77	1/14/10	8:07	354.74	1/15/10	10:37	354.77
1/11/10	1:07	354.77	1/12/10	3:37	354.77	1/13/10	6:07	354.77	1/14/10	8:37	354.74	1/15/10	11:07	354.77
1/11/10	1:37	354.74	1/12/10	4:07	354.77	1/13/10	6:37	354.77	1/14/10	9:07	354.74	1/15/10	11:37	354.80
1/11/10	2:07	354.74	1/12/10	4:37	354.77	1/13/10	7:07	354.77	1/14/10	9:37	354.74	1/15/10	12:07	354.80
1/11/10	2:37	354.74	1/12/10	5:07	354.77	1/13/10	7:37	354.74	1/14/10	10:07	354.74	1/15/10	12:37	354.80
1/11/10	3:07	354.77	1/12/10	5:37	354.77	1/13/10	8:07	354.74	1/14/10	10:37	354.74	1/15/10	13:07	354.80
1/11/10	3:37	354.74	1/12/10	6:07	354.77	1/13/10	8:37	354.74	1/14/10	11:07	354.74	1/15/10	13:37	354.80
1/11/10	4:07	354.77	1/12/10	6:37	354.77	1/13/10	9:07	354.74	1/14/10	11:37	354.77	1/15/10	14:07	354.77
1/11/10	4:37	354.77	1/12/10	7:07	354.77	1/13/10	9:37	354.74	1/14/10	12:07	354.74	1/15/10	14:37	354.77
1/11/10	5:07	354.77	1/12/10	7:37	354.77	1/13/10	10:07	354.74	1/14/10	12:37	354.77	1/15/10	15:07	354.77
1/11/10	5:37	354.74	1/12/10	8:07	354.77	1/13/10	10:37	354.74	1/14/10	13:07	354.77	1/15/10	15:37	354.77
1/11/10	6:07	354.77	1/12/10	8:37	354.77	1/13/10	11:07	354.77	1/14/10	13:37	354.77	1/15/10	16:07	354.77
1/11/10	6:37	354.77	1/12/10	9:07	354.77	1/13/10	11:37	354.77	1/14/10	14:07	354.77	1/15/10	16:37	354.77
1/11/10	7:07	354.77	1/12/10	9:37	354.77	1/13/10	12:07	354.77	1/14/10	14:37	354.74	1/15/10	17:07	354.77
1/11/10	7:37	354.77	1/12/10	10:07	354.77	1/13/10	12:37	354.77	1/14/10	15:07	354.74	1/15/10	17:37	354.77
1/11/10	8:07	354.77	1/12/10	10:37	354.77	1/13/10	13:07	354.80	1/14/10	15:37	354.74	1/15/10	18:07	354.77
1/11/10	8:37	354.77	1/12/10	11:07	354.77	1/13/10	13:37	354.77	1/14/10	16:07	354.74	1/15/10	18:37	354.77
1/11/10	9:07	354.77	1/12/10	11:37	354.80	1/13/10	14:07	354.77	1/14/10	16:37	354.74	1/15/10	19:07	354.77
1/11/10	9:37	354.77	1/12/10	12:07	354.80	1/13/10	14:37	354.77	1/14/10	17:07	354.77	1/15/10	19:37	354.80
1/11/10	10:07	354.77	1/12/10	12:37	354.80	1/13/10	15:07	354.77	1/14/10	17:37	354.74	1/15/10	20:07	354.77
1/11/10	10:37	354.77	1/12/10	13:07	354.80	1/13/10	15:37	354.74	1/14/10	18:07	354.74	1/15/10	20:37	354.77
1/11/10	11:07	354.80	1/12/10	13:37	354.80	1/13/10	16:07	354.77	1/14/10	18:37	354.74	1/15/10	21:07	354.77
1/11/10	11:37	354.77	1/12/10	14:07	354.80	1/13/10	16:37	354.74	1/14/10	19:07	354.74	1/15/10	21:37	354.77
1/11/10	12:07	354.80	1/12/10	14:37	354.80	1/13/10	17:07	354.77	1/14/10	19:37	354.77	1/15/10	22:07	354.80
1/11/10	12:37	354.80	1/12/10	15:07	354.80	1/13/10	17:37	354.74	1/14/10	20:07	354.74	1/15/10	22:37	354.77
1/11/10	13:07	354.80	1/12/10	15:37	354.77	1/13/10	18:07	354.77	1/14/10	20:37	354.77	1/15/10	23:07	354.80
1/11/10	13:37	354.77	1/12/10	16:07	354.77	1/13/10	18:37	354.77	1/14/10	21:07	354.77	1/15/10	23:37	354.80
1/11/10	14:07	354.80	1/12/10	16:37	354.77	1/13/10	19:07	354.77	1/14/10	21:37	354.77	1/16/10	0:07	354.80
1/11/10	14:37	354.80	1/12/10	17:07	354.80	1/13/10	19:37	354.77	1/14/10	22:07	354.77	1/16/10	0:37	354.80
1/11/10	15:07	354.77	1/12/10	17:37	354.77	1/13/10	20:07	354.77	1/14/10	22:37	354.77	1/16/10	1:07	354.80
1/11/10	15:37	354.77	1/12/10	18:07	354.77	1/13/10	20:37	354.77	1/14/10	23:07	354.77	1/16/10	1:37	354.77
1/11/10	16:07	354.77	1/12/10	18:37	354.77	1/13/10	21:07	354.77	1/14/10	23:37	354.77	1/16/10	2:07	354.77
1/11/10	16:37	354.80	1/12/10	19:07	354.77	1/13/10	21:37	354.77	1/15/10	0:07	354.77	1/16/10	2:37	354.77
1/11/10	17:07	354.77	1/12/10	19:37	354.80	1/13/10	22:07	354.77	1/15/10	0:37	354.77	1/16/10	3:07	354.77
1/11/10	17:37	354.77	1/12/10	20:07	354.80	1/13/10	22:37	354.77	1/15/10	1:07	354.77	1/16/10	3:37	354.77
1/11/10	18:07	354.77	1/12/10	20:37	354.80	1/13/10	23:07	354.77	1/15/10	1:37	354.77	1/16/10	4:07	354.77
1/11/10	18:37	354.80	1/12/10	21:07	354.80	1/13/10	23:37	354.77	1/15/10	2:07	354.77	1/16/10	4:37	354.77
1/11/10	19:07	354.77	1/12/10	21:37	354.80	1/14/10	0:07	354.77	1/15/10	2:37	354.77	1/16/10	5:07	354.77
1/11/10	19:37	354.80	1/12/10	22:07	354.80	1/14/10	0:37	354.77	1/15/10	3:07	354.77	1/16/10	5:37	354.77
1/11/10	20:07	354.77	1/12/10	22:37	354.80	1/14/10	1:07	354.77	1/15/10	3:37	354.77	1/16/10	6:07	354.74
1/11/10	20:37	354.80	1/12/10	23:07	354.80	1/14/10	1:37	354.74	1/15/10	4:07	354.77	1/16/10	6:37	354.74
1/11/10	21:07	354.77	1/12/10	23:37	354.77	1/14/10	2:07	354.74	1/15/10	4:37	354.77	1/16/10	7:07	354.74
1/11/10	21:37	354.77	1/13/10	0:07	354.77	1/14/10	2:37	354.74	1/15/10	5:07	354.77	1/16/10	7:37	354.74
1/11/10	22:07	354.77	1/13/10	0:37	354.77	1/14/10	3:07	354.74	1/15/10	5:37	354.74	1/16/10	8:07	354.74
1/11/10	22:37	354.77	1/13/10	1:07	354.77	1/14/10	3:37	354.74	1/15/10	6:07	354.74	1/16/10	8:37	354.74
1/11/10	23:07	354.77	1/13/10	1:37	354.77	1/14/10	4:07	354.74	1/15/10	6:37	354.74	1/16/10	9:07	354.77
1/11/10	23:37	354.80	1/13/10	2:07	354.74	1/14/10	4:37	354.74	1/15/10	7:07	354.74	1/16/10	9:37	354.74
1/12/10	0:07	354.77	1/13/10	2:37	354.74	1/14/10	5:07	354.74	1/15/10	7:37	354.77	1/16/10	10:07	354.77
1/12/10	0:37	354.80	1/13/10	3:07	354.74	1/14/10	5:37	354.74	1/15/10	8:07	354.74	1/16/10	10:37	354.77
1/12/10	1:07	354.77	1/13/10	3:37	354.74	1/14/10	6:07	354.74	1/15/10	8:37	354.74	1/16/10	11:07	354.77
1/12/10	1:37	354.77	1/13/10	4:07	354.77	1/14/10	6:37	354.77	1/15/10	9:07	354.74	1/16/10	11:37	354.77
1/12/10	2:07	354.77	1/13/10	4:37	354.77	1/14/10	7:07	354.74	1/15/10	9:37	354.74	1/16/10	12:07	354.77

TABLE D6C.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/16/10	12:37	354.77	1/17/10	15:07	354.77	1/18/10	10:15	354.77	1/18/10	11:08	362.68	1/18/10	12:01	364.23
1/16/10	13:07	354.80	1/17/10	15:37	354.77	1/18/10	10:16	354.77	1/18/10	11:09	362.75	1/18/10	12:02	364.23
1/16/10	13:37	354.80	1/17/10	16:07	354.77	1/18/10	10:17	354.77	1/18/10	11:10	362.81	1/18/10	12:03	364.26
1/16/10	14:07	354.80	1/17/10	16:37	354.77	1/18/10	10:18	354.77	1/18/10	11:11	362.85	1/18/10	12:04	364.26
1/16/10	14:37	354.77	1/17/10	17:07	354.77	1/18/10	10:19	354.80	1/18/10	11:12	362.91	1/18/10	12:05	364.26
1/16/10	15:07	354.77	1/17/10	17:37	354.77	1/18/10	10:20	354.84	1/18/10	11:13	362.95	1/18/10	12:06	364.30
1/16/10	15:37	354.77	1/17/10	18:07	354.77	1/18/10	10:21	354.94	1/18/10	11:14	363.01	1/18/10	12:07	364.33
1/16/10	16:07	354.77	1/17/10	18:37	354.77	1/18/10	10:22	355.10	1/18/10	11:15	363.05	1/18/10	12:08	364.36
1/16/10	16:37	354.74	1/17/10	19:07	354.77	1/18/10	10:23	355.30	1/18/10	11:16	363.08	1/18/10	12:09	364.40
1/16/10	17:07	354.77	1/17/10	19:37	354.77	1/18/10	10:24	355.59	1/18/10	11:17	363.14	1/18/10	12:10	364.46
1/16/10	17:37	354.77	1/17/10	20:07	354.77	1/18/10	10:25	355.89	1/18/10	11:18	363.18	1/18/10	12:11	364.50
1/16/10	18:07	354.74	1/17/10	20:37	354.77	1/18/10	10:26	356.25	1/18/10	11:19	363.21	1/18/10	12:12	364.53
1/16/10	18:37	354.77	1/17/10	21:07	354.77	1/18/10	10:27	356.65	1/18/10	11:20	363.28	1/18/10	12:13	364.56
1/16/10	19:07	354.77	1/17/10	21:37	354.77	1/18/10	10:28	357.05	1/18/10	11:21	363.31	1/18/10	12:14	364.59
1/16/10	19:37	354.77	1/17/10	22:07	354.77	1/18/10	10:29	357.44	1/18/10	11:22	363.34	1/18/10	12:15	364.63
1/16/10	20:07	354.77	1/17/10	22:37	354.77	1/18/10	10:30	357.87	1/18/10	11:23	363.41	1/18/10	12:16	364.69
1/16/10	20:37	354.77	1/17/10	23:07	354.77	1/18/10	10:31	358.23	1/18/10	11:24	363.41	1/18/10	12:17	364.73
1/16/10	21:07	354.77	1/17/10	23:37	354.77	1/18/10	10:32	358.59	1/18/10	11:25	363.47	1/18/10	12:18	364.76
1/16/10	21:37	354.77	1/18/10	0:07	354.77	1/18/10	10:33	358.92	1/18/10	11:26	363.51	1/18/10	12:19	364.83
1/16/10	22:07	354.80	1/18/10	0:37	354.77	1/18/10	10:34	359.22	1/18/10	11:27	363.54	1/18/10	12:20	364.86
1/16/10	22:37	354.77	1/18/10	1:07	354.77	1/18/10	10:35	359.48	1/18/10	11:28	363.61	1/18/10	12:21	364.89
1/16/10	23:07	354.77	1/18/10	1:37	354.77	1/18/10	10:36	359.68	1/18/10	11:29	363.64	1/18/10	12:22	364.92
1/16/10	23:37	354.74	1/18/10	2:07	354.77	1/18/10	10:37	359.91	1/18/10	11:30	363.67	1/18/10	12:23	364.96
1/17/10	0:07	354.77	1/18/10	2:37	354.77	1/18/10	10:38	360.11	1/18/10	11:31	363.70	1/18/10	12:24	364.99
1/17/10	0:37	354.74	1/18/10	3:07	354.77	1/18/10	10:39	360.28	1/18/10	11:32	363.70	1/18/10	12:25	365.02
1/17/10	1:07	354.74	1/18/10	3:37	354.77	1/18/10	10:40	360.41	1/18/10	11:33	363.77	1/18/10	12:26	365.06
1/17/10	1:37	354.77	1/18/10	4:07	354.77	1/18/10	10:41	360.57	1/18/10	11:34	363.77	1/18/10	12:27	365.09
1/17/10	2:07	354.77	1/18/10	4:37	354.77	1/18/10	10:42	360.67	1/18/10	11:35	363.80	1/18/10	12:28	365.12
1/17/10	2:37	354.74	1/18/10	5:07	354.77	1/18/10	10:43	360.80	1/18/10	11:36	363.84	1/18/10	12:29	365.12
1/17/10	3:07	354.74	1/18/10	5:37	354.77	1/18/10	10:44	360.87	1/18/10	11:37	363.84	1/18/10	12:30	365.19
1/17/10	3:37	354.74	1/18/10	6:07	354.74	1/18/10	10:45	360.97	1/18/10	11:38	363.87	1/18/10	12:31	365.19
1/17/10	4:07	354.74	1/18/10	6:37	354.77	1/18/10	10:46	361.07	1/18/10	11:39	363.90	1/18/10	12:32	365.19
1/17/10	4:37	354.74	1/18/10	7:07	354.74	1/18/10	10:47	361.13	1/18/10	11:40	363.90	1/18/10	12:33	365.22
1/17/10	5:07	354.74	1/18/10	7:37	354.74	1/18/10	10:48	361.20	1/18/10	11:41	363.97	1/18/10	12:34	365.25
1/17/10	5:37	354.74	1/18/10	8:07	354.74	1/18/10	10:49	361.27	1/18/10	11:42	363.97	1/18/10	12:35	365.25
1/17/10	6:07	354.74	1/18/10	8:37	354.77	1/18/10	10:50	361.40	1/18/10	11:43	363.97	1/18/10	12:36	365.29
1/17/10	6:37	354.77	1/18/10	9:07	354.77	1/18/10	10:51	361.46	1/18/10	11:44	364.00	1/18/10	12:37	365.32
1/17/10	7:07	354.74	1/18/10	9:30	354.77	1/18/10	10:52	361.56	1/18/10	11:45	364.03	1/18/10	12:38	365.32
1/17/10	7:37	354.77	1/18/10	10:00	354.77	1/18/10	10:53	361.59	1/18/10	11:46	364.03	1/18/10	12:39	365.35
1/17/10	8:07	354.74	1/18/10	10:01	354.77	1/18/10	10:54	361.66	1/18/10	11:47	364.07	1/18/10	12:40	365.35
1/17/10	8:37	354.74	1/18/10	10:02	354.77	1/18/10	10:55	361.76	1/18/10	11:48	364.07	1/18/10	12:41	365.39
1/17/10	9:07	354.74	1/18/10	10:03	354.77	1/18/10	10:56	361.83	1/18/10	11:49	364.10	1/18/10	12:42	365.39
1/17/10	9:37	354.74	1/18/10	10:04	354.77	1/18/10	10:57	361.92	1/18/10	11:50	364.10	1/18/10	12:43	365.39
1/17/10	10:07	354.74	1/18/10	10:05	354.77	1/18/10	10:58	361.99	1/18/10	11:51	364.13	1/18/10	12:44	365.42
1/17/10	10:37	354.77	1/18/10	10:06	354.77	1/18/10	10:59	362.09	1/18/10	11:52	364.13	1/18/10	12:45	365.42
1/17/10	11:07	354.77	1/18/10	10:07	354.80	1/18/10	11:00	362.16	1/18/10	11:53	364.17	1/18/10	12:46	365.42
1/17/10	11:37	354.77	1/18/10	10:08	354.80	1/18/10	11:01	362.22	1/18/10	11:54	364.17	1/18/10	12:47	365.45
1/17/10	12:07	354.80	1/18/10	10:09	354.77	1/18/10	11:02	362.32	1/18/10	11:55	364.20	1/18/10	12:48	365.45
1/17/10	12:37	354.80	1/18/10	10:10	354.77	1/18/10	11:03	362.35	1/18/10	11:56	364.20	1/18/10	12:49	365.45
1/17/10	13:07	354.80	1/18/10	10:11	354.77	1/18/10	11:04	362.42	1/18/10	11:57	364.20	1/18/10	12:50	365.48
1/17/10	13:37	354.80	1/18/10	10:12	354.77	1/18/10	11:05	362.52	1/18/10	11:58	364.23	1/18/10	12:51	365.48
1/17/10	14:07	354.77	1/18/10	10:13	354.77	1/18/10	11:06	362.55	1/18/10	11:59	364.23	1/18/10	12:52	365.48
1/17/10	14:37	354.77	1/18/10	10:14	354.77	1/18/10	11:07	362.62	1/18/10	12:00	364.23	1/18/10	12:53	365.52

TABLE D6C.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/18/10	12:54	365.52	1/18/10	13:47	365.70	1/18/10	14:40	365.75	1/18/10	15:33	365.65	1/18/10	16:26	365.67
1/18/10	12:55	365.52	1/18/10	13:48	365.70	1/18/10	14:41	365.72	1/18/10	15:34	365.65	1/18/10	16:27	365.67
1/18/10	12:56	365.52	1/18/10	13:49	365.73	1/18/10	14:42	365.72	1/18/10	15:35	365.65	1/18/10	16:28	365.67
1/18/10	12:57	365.52	1/18/10	13:50	365.70	1/18/10	14:43	365.72	1/18/10	15:36	365.65	1/18/10	16:29	365.67
1/18/10	12:58	365.52	1/18/10	13:51	365.70	1/18/10	14:44	365.72	1/18/10	15:37	365.65	1/18/10	16:30	365.67
1/18/10	12:59	365.55	1/18/10	13:52	365.73	1/18/10	14:45	365.72	1/18/10	15:38	365.65	1/18/10	16:31	365.67
1/18/10	13:00	365.53	1/18/10	13:53	365.73	1/18/10	14:46	365.72	1/18/10	15:39	365.65	1/18/10	16:32	365.67
1/18/10	13:01	365.53	1/18/10	13:54	365.73	1/18/10	14:47	365.72	1/18/10	15:40	365.65	1/18/10	16:33	365.67
1/18/10	13:02	365.53	1/18/10	13:55	365.73	1/18/10	14:48	365.72	1/18/10	15:41	365.65	1/18/10	16:34	365.67
1/18/10	13:03	365.53	1/18/10	13:56	365.73	1/18/10	14:49	365.72	1/18/10	15:42	365.65	1/18/10	16:35	365.67
1/18/10	13:04	365.57	1/18/10	13:57	365.73	1/18/10	14:50	365.72	1/18/10	15:43	365.65	1/18/10	16:36	365.67
1/18/10	13:05	365.57	1/18/10	13:58	365.73	1/18/10	14:51	365.72	1/18/10	15:44	365.65	1/18/10	16:37	365.67
1/18/10	13:06	365.57	1/18/10	13:59	365.73	1/18/10	14:52	365.72	1/18/10	15:45	365.65	1/18/10	16:38	365.67
1/18/10	13:07	365.57	1/18/10	14:00	365.75	1/18/10	14:53	365.72	1/18/10	15:46	365.65	1/18/10	16:39	365.67
1/18/10	13:08	365.57	1/18/10	14:01	365.75	1/18/10	14:54	365.72	1/18/10	15:47	365.65	1/18/10	16:40	365.67
1/18/10	13:09	365.57	1/18/10	14:02	365.75	1/18/10	14:55	365.72	1/18/10	15:48	365.65	1/18/10	16:41	365.67
1/18/10	13:10	365.57	1/18/10	14:03	365.75	1/18/10	14:56	365.68	1/18/10	15:49	365.65	1/18/10	16:42	365.67
1/18/10	13:11	365.60	1/18/10	14:04	365.78	1/18/10	14:57	365.72	1/18/10	15:50	365.65	1/18/10	16:43	365.67
1/18/10	13:12	365.60	1/18/10	14:05	365.78	1/18/10	14:58	365.72	1/18/10	15:51	365.65	1/18/10	16:44	365.67
1/18/10	13:13	365.60	1/18/10	14:06	365.75	1/18/10	14:59	365.68	1/18/10	15:52	365.65	1/18/10	16:45	365.70
1/18/10	13:14	365.60	1/18/10	14:07	365.78	1/18/10	15:00	365.72	1/18/10	15:53	365.65	1/18/10	16:46	365.67
1/18/10	13:15	365.63	1/18/10	14:08	365.78	1/18/10	15:01	365.68	1/18/10	15:54	365.65	1/18/10	16:47	365.67
1/18/10	13:16	365.60	1/18/10	14:09	365.78	1/18/10	15:02	365.68	1/18/10	15:55	365.65	1/18/10	16:48	365.67
1/18/10	13:17	365.63	1/18/10	14:10	365.78	1/18/10	15:03	365.68	1/18/10	15:56	365.65	1/18/10	16:49	365.67
1/18/10	13:18	365.63	1/18/10	14:11	365.78	1/18/10	15:04	365.68	1/18/10	15:57	365.65	1/18/10	16:50	365.70
1/18/10	13:19	365.63	1/18/10	14:12	365.78	1/18/10	15:05	365.68	1/18/10	15:58	365.65	1/18/10	16:51	365.67
1/18/10	13:20	365.63	1/18/10	14:13	365.78	1/18/10	15:06	365.68	1/18/10	15:59	365.62	1/18/10	16:52	365.70
1/18/10	13:21	365.63	1/18/10	14:14	365.78	1/18/10	15:07	365.68	1/18/10	16:00	365.67	1/18/10	16:53	365.70
1/18/10	13:22	365.63	1/18/10	14:15	365.78	1/18/10	15:08	365.68	1/18/10	16:01	365.67	1/18/10	16:54	365.67
1/18/10	13:23	365.63	1/18/10	14:16	365.78	1/18/10	15:09	365.68	1/18/10	16:02	365.67	1/18/10	16:55	365.67
1/18/10	13:24	365.63	1/18/10	14:17	365.78	1/18/10	15:10	365.68	1/18/10	16:03	365.63	1/18/10	16:56	365.70
1/18/10	13:25	365.63	1/18/10	14:18	365.78	1/18/10	15:11	365.68	1/18/10	16:04	365.67	1/18/10	16:57	365.70
1/18/10	13:26	365.63	1/18/10	14:19	365.78	1/18/10	15:12	365.68	1/18/10	16:05	365.67	1/18/10	16:58	365.70
1/18/10	13:27	365.63	1/18/10	14:20	365.78	1/18/10	15:13	365.68	1/18/10	16:06	365.63	1/18/10	16:59	365.70
1/18/10	13:28	365.63	1/18/10	14:21	365.78	1/18/10	15:14	365.68	1/18/10	16:07	365.63	1/18/10	17:00	365.68
1/18/10	13:29	365.67	1/18/10	14:22	365.78	1/18/10	15:15	365.68	1/18/10	16:08	365.67	1/18/10	17:01	365.68
1/18/10	13:30	365.63	1/18/10	14:23	365.78	1/18/10	15:16	365.68	1/18/10	16:09	365.63	1/18/10	17:02	365.68
1/18/10	13:31	365.67	1/18/10	14:24	365.78	1/18/10	15:17	365.68	1/18/10	16:10	365.67	1/18/10	17:03	365.68
1/18/10	13:32	365.67	1/18/10	14:25	365.78	1/18/10	15:18	365.68	1/18/10	16:11	365.67	1/18/10	17:04	365.68
1/18/10	13:33	365.67	1/18/10	14:26	365.78	1/18/10	15:19	365.68	1/18/10	16:12	365.67	1/18/10	17:05	365.68
1/18/10	13:34	365.67	1/18/10	14:27	365.78	1/18/10	15:20	365.68	1/18/10	16:13	365.67	1/18/10	17:06	365.68
1/18/10	13:35	365.67	1/18/10	14:28	365.75	1/18/10	15:21	365.65	1/18/10	16:14	365.67	1/18/10	17:07	365.68
1/18/10	13:36	365.70	1/18/10	14:29	365.75	1/18/10	15:22	365.68	1/18/10	16:15	365.67	1/18/10	17:08	365.68
1/18/10	13:37	365.67	1/18/10	14:30	365.75	1/18/10	15:23	365.65	1/18/10	16:16	365.67	1/18/10	17:09	365.68
1/18/10	13:38	365.70	1/18/10	14:31	365.78	1/18/10	15:24	365.65	1/18/10	16:17	365.67	1/18/10	17:10	365.68
1/18/10	13:39	365.70	1/18/10	14:32	365.75	1/18/10	15:25	365.65	1/18/10	16:18	365.67	1/18/10	17:11	365.68
1/18/10	13:40	365.70	1/18/10	14:33	365.75	1/18/10	15:26	365.65	1/18/10	16:19	365.67	1/18/10	17:12	365.68
1/18/10	13:41	365.70	1/18/10	14:34	365.75	1/18/10	15:27	365.65	1/18/10	16:20	365.67	1/18/10	17:13	365.68
1/18/10	13:42	365.70	1/18/10	14:35	365.75	1/18/10	15:28	365.65	1/18/10	16:21	365.67	1/18/10	17:14	365.68
1/18/10	13:43	365.70	1/18/10	14:36	365.75	1/18/10	15:29	365.65	1/18/10	16:22	365.67	1/18/10	17:15	365.68
1/18/10	13:44	365.70	1/18/10	14:37	365.75	1/18/10	15:30	365.65	1/18/10	16:23	365.67	1/18/10	17:16	365.68
1/18/10	13:45	365.70	1/18/10	14:38	365.72	1/18/10	15:31	365.65	1/18/10	16:24	365.67	1/18/10	17:17	365.68
1/18/10	13:46	365.70	1/18/10	14:39	365.75	1/18/10	15:32	365.65	1/18/10	16:25	365.67	1/18/10	17:18	365.68

TABLE D6C.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/18/10	17:19	365.68	1/18/10	18:12	365.85	1/18/10	19:05	365.85	1/18/10	19:58	365.88	1/18/10	20:51	365.91
1/18/10	17:20	365.68	1/18/10	18:13	365.85	1/18/10	19:06	365.85	1/18/10	19:59	365.88	1/18/10	20:52	365.91
1/18/10	17:21	365.68	1/18/10	18:14	365.85	1/18/10	19:07	365.85	1/18/10	20:00	365.88	1/18/10	20:53	365.91
1/18/10	17:22	365.68	1/18/10	18:15	365.85	1/18/10	19:08	365.85	1/18/10	20:01	365.88	1/18/10	20:54	365.91
1/18/10	17:23	365.68	1/18/10	18:16	365.85	1/18/10	19:09	365.85	1/18/10	20:02	365.88	1/18/10	20:55	365.91
1/18/10	17:24	365.68	1/18/10	18:17	365.85	1/18/10	19:10	365.85	1/18/10	20:03	365.88	1/18/10	20:56	365.91
1/18/10	17:25	365.68	1/18/10	18:18	365.85	1/18/10	19:11	365.85	1/18/10	20:04	365.88	1/18/10	20:57	365.91
1/18/10	17:26	365.68	1/18/10	18:19	365.85	1/18/10	19:12	365.85	1/18/10	20:05	365.91	1/18/10	20:58	365.91
1/18/10	17:27	365.68	1/18/10	18:20	365.85	1/18/10	19:13	365.85	1/18/10	20:06	365.88	1/18/10	20:59	365.91
1/18/10	17:28	365.68	1/18/10	18:21	365.85	1/18/10	19:14	365.85	1/18/10	20:07	365.91	1/18/10	21:00	365.91
1/18/10	17:29	365.72	1/18/10	18:22	365.85	1/18/10	19:15	365.85	1/18/10	20:08	365.91	1/18/10	21:01	365.91
1/18/10	17:30	365.72	1/18/10	18:23	365.85	1/18/10	19:16	365.85	1/18/10	20:09	365.91	1/18/10	21:02	365.91
1/18/10	17:31	365.72	1/18/10	18:24	365.85	1/18/10	19:17	365.85	1/18/10	20:10	365.91	1/18/10	21:03	365.91
1/18/10	17:32	365.72	1/18/10	18:25	365.85	1/18/10	19:18	365.85	1/18/10	20:11	365.88	1/18/10	21:04	365.91
1/18/10	17:33	365.72	1/18/10	18:26	365.85	1/18/10	19:19	365.85	1/18/10	20:12	365.88	1/18/10	21:05	365.91
1/18/10	17:34	365.72	1/18/10	18:27	365.85	1/18/10	19:20	365.85	1/18/10	20:13	365.91	1/18/10	21:06	365.91
1/18/10	17:35	365.72	1/18/10	18:28	365.85	1/18/10	19:21	365.85	1/18/10	20:14	365.91	1/18/10	21:07	365.91
1/18/10	17:36	365.75	1/18/10	18:29	365.85	1/18/10	19:22	365.85	1/18/10	20:15	365.91	1/18/10	21:08	365.91
1/18/10	17:37	365.75	1/18/10	18:30	365.85	1/18/10	19:23	365.85	1/18/10	20:16	365.91	1/18/10	21:09	365.91
1/18/10	17:38	365.75	1/18/10	18:31	365.85	1/18/10	19:24	365.85	1/18/10	20:17	365.91	1/18/10	21:10	365.91
1/18/10	17:39	365.75	1/18/10	18:32	365.85	1/18/10	19:25	365.85	1/18/10	20:18	365.91	1/18/10	21:11	365.91
1/18/10	17:40	365.75	1/18/10	18:33	365.85	1/18/10	19:26	365.88	1/18/10	20:19	365.91	1/18/10	21:12	365.91
1/18/10	17:41	365.78	1/18/10	18:34	365.85	1/18/10	19:27	365.85	1/18/10	20:20	365.88	1/18/10	21:13	365.91
1/18/10	17:42	365.78	1/18/10	18:35	365.85	1/18/10	19:28	365.88	1/18/10	20:21	365.91	1/18/10	21:14	365.91
1/18/10	17:43	365.78	1/18/10	18:36	365.85	1/18/10	19:29	365.85	1/18/10	20:22	365.91	1/18/10	21:15	365.91
1/18/10	17:44	365.78	1/18/10	18:37	365.85	1/18/10	19:30	365.88	1/18/10	20:23	365.91	1/18/10	21:16	365.91
1/18/10	17:45	365.78	1/18/10	18:38	365.85	1/18/10	19:31	365.88	1/18/10	20:24	365.91	1/18/10	21:17	365.91
1/18/10	17:46	365.81	1/18/10	18:39	365.85	1/18/10	19:32	365.88	1/18/10	20:25	365.91	1/18/10	21:18	365.91
1/18/10	17:47	365.78	1/18/10	18:40	365.85	1/18/10	19:33	365.88	1/18/10	20:26	365.91	1/18/10	21:19	365.91
1/18/10	17:48	365.81	1/18/10	18:41	365.85	1/18/10	19:34	365.88	1/18/10	20:27	365.91	1/18/10	21:20	365.91
1/18/10	17:49	365.81	1/18/10	18:42	365.85	1/18/10	19:35	365.85	1/18/10	20:28	365.91	1/18/10	21:21	365.91
1/18/10	17:50	365.81	1/18/10	18:43	365.85	1/18/10	19:36	365.88	1/18/10	20:29	365.91	1/18/10	21:22	365.91
1/18/10	17:51	365.81	1/18/10	18:44	365.85	1/18/10	19:37	365.88	1/18/10	20:30	365.91	1/18/10	21:23	365.91
1/18/10	17:52	365.81	1/18/10	18:45	365.85	1/18/10	19:38	365.88	1/18/10	20:31	365.91	1/18/10	21:24	365.91
1/18/10	17:53	365.85	1/18/10	18:46	365.85	1/18/10	19:39	365.88	1/18/10	20:32	365.91	1/18/10	21:25	365.91
1/18/10	17:54	365.81	1/18/10	18:47	365.85	1/18/10	19:40	365.88	1/18/10	20:33	365.91	1/18/10	21:26	365.91
1/18/10	17:55	365.85	1/18/10	18:48	365.85	1/18/10	19:41	365.88	1/18/10	20:34	365.91	1/18/10	21:27	365.91
1/18/10	17:56	365.85	1/18/10	18:49	365.85	1/18/10	19:42	365.88	1/18/10	20:35	365.91	1/18/10	21:28	365.91
1/18/10	17:57	365.85	1/18/10	18:50	365.85	1/18/10	19:43	365.88	1/18/10	20:36	365.91	1/18/10	21:29	365.91
1/18/10	17:58	365.85	1/18/10	18:51	365.85	1/18/10	19:44	365.88	1/18/10	20:37	365.91	1/18/10	21:30	365.95
1/18/10	17:59	365.85	1/18/10	18:52	365.85	1/18/10	19:45	365.88	1/18/10	20:38	365.91	1/18/10	21:31	365.91
1/18/10	18:00	365.85	1/18/10	18:53	365.85	1/18/10	19:46	365.88	1/18/10	20:39	365.91	1/18/10	21:32	365.91
1/18/10	18:01	365.85	1/18/10	18:54	365.85	1/18/10	19:47	365.88	1/18/10	20:40	365.91	1/18/10	21:33	365.91
1/18/10	18:02	365.85	1/18/10	18:55	365.85	1/18/10	19:48	365.88	1/18/10	20:41	365.91	1/18/10	21:34	365.91
1/18/10	18:03	365.85	1/18/10	18:56	365.85	1/18/10	19:49	365.88	1/18/10	20:42	365.91	1/18/10	21:35	365.91
1/18/10	18:04	365.85	1/18/10	18:57	365.85	1/18/10	19:50	365.88	1/18/10	20:43	365.91	1/18/10	21:36	365.91
1/18/10	18:05	365.85	1/18/10	18:58	365.85	1/18/10	19:51	365.91	1/18/10	20:44	365.91	1/18/10	21:37	365.91
1/18/10	18:06	365.85	1/18/10	18:59	365.85	1/18/10	19:52	365.88	1/18/10	20:45	365.91	1/18/10	21:38	365.91
1/18/10	18:07	365.85	1/18/10	19:00	365.85	1/18/10	19:53	365.88	1/18/10	20:46	365.91	1/18/10	21:39	365.91
1/18/10	18:08	365.85	1/18/10	19:01	365.85	1/18/10	19:54	365.88	1/18/10	20:47	365.91	1/18/10	21:40	365.91
1/18/10	18:09	365.85	1/18/10	19:02	365.85	1/18/10	19:55	365.88	1/18/10	20:48	365.91	1/18/10	21:41	365.91
1/18/10	18:10	365.85	1/18/10	19:03	365.85	1/18/10	19:56	365.88	1/18/10	20:49	365.91	1/18/10	21:42	365.91
1/18/10	18:11	365.85	1/18/10	19:04	365.85	1/18/10	19:57	365.88	1/18/10	20:50	365.91	1/18/10	21:43	365.91

TABLE D6C.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/18/10	21:44	365.91	1/18/10	22:37	365.93	1/18/10	23:30	365.95	1/19/10	1:55	365.91	1/19/10	6:20	365.85
1/18/10	21:45	365.91	1/18/10	22:38	365.93	1/18/10	23:31	365.95	1/19/10	2:00	365.91	1/19/10	6:25	365.81
1/18/10	21:46	365.95	1/18/10	22:39	365.93	1/18/10	23:32	365.95	1/19/10	2:05	365.88	1/19/10	6:30	365.81
1/18/10	21:47	365.95	1/18/10	22:40	365.93	1/18/10	23:33	365.95	1/19/10	2:10	365.91	1/19/10	6:35	365.81
1/18/10	21:48	365.91	1/18/10	22:41	365.93	1/18/10	23:34	365.95	1/19/10	2:15	365.91	1/19/10	6:40	365.81
1/18/10	21:49	365.91	1/18/10	22:42	365.93	1/18/10	23:35	365.95	1/19/10	2:20	365.91	1/19/10	6:45	365.81
1/18/10	21:50	365.91	1/18/10	22:43	365.93	1/18/10	23:36	365.95	1/19/10	2:25	365.91	1/19/10	6:50	365.81
1/18/10	21:51	365.95	1/18/10	22:44	365.93	1/18/10	23:37	365.95	1/19/10	2:30	365.91	1/19/10	6:55	365.81
1/18/10	21:52	365.91	1/18/10	22:45	365.93	1/18/10	23:38	365.95	1/19/10	2:35	365.91	1/19/10	7:00	365.83
1/18/10	21:53	365.91	1/18/10	22:46	365.93	1/18/10	23:39	365.95	1/19/10	2:40	365.91	1/19/10	7:05	365.83
1/18/10	21:54	365.95	1/18/10	22:47	365.93	1/18/10	23:40	365.95	1/19/10	2:45	365.91	1/19/10	7:10	365.86
1/18/10	21:55	365.91	1/18/10	22:48	365.93	1/18/10	23:41	365.95	1/19/10	2:50	365.91	1/19/10	7:15	365.90
1/18/10	21:56	365.95	1/18/10	22:49	365.93	1/18/10	23:42	365.95	1/19/10	2:55	365.91	1/19/10	7:20	365.93
1/18/10	21:57	365.95	1/18/10	22:50	365.93	1/18/10	23:43	365.95	1/19/10	3:00	365.90	1/19/10	7:25	365.96
1/18/10	21:58	365.91	1/18/10	22:51	365.93	1/18/10	23:44	365.95	1/19/10	3:05	365.86	1/19/10	7:30	365.96
1/18/10	21:59	365.91	1/18/10	22:52	365.93	1/18/10	23:45	365.95	1/19/10	3:10	365.86	1/19/10	7:35	365.96
1/18/10	22:00	365.93	1/18/10	22:53	365.93	1/18/10	23:46	365.95	1/19/10	3:15	365.86	1/19/10	7:40	366.00
1/18/10	22:01	365.93	1/18/10	22:54	365.93	1/18/10	23:47	365.95	1/19/10	3:20	365.86	1/19/10	7:45	365.96
1/18/10	22:02	365.93	1/18/10	22:55	365.93	1/18/10	23:48	365.95	1/19/10	3:25	365.86	1/19/10	7:50	365.96
1/18/10	22:03	365.93	1/18/10	22:56	365.93	1/18/10	23:49	365.95	1/19/10	3:30	365.86	1/19/10	7:55	365.96
1/18/10	22:04	365.93	1/18/10	22:57	365.96	1/18/10	23:50	365.95	1/19/10	3:35	365.86	1/19/10	8:00	365.95
1/18/10	22:05	365.93	1/18/10	22:58	365.93	1/18/10	23:51	365.95	1/19/10	3:40	365.86	1/19/10	8:05	365.95
1/18/10	22:06	365.90	1/18/10	22:59	365.93	1/18/10	23:52	365.95	1/19/10	3:45	365.86	1/19/10	8:10	365.95
1/18/10	22:07	365.93	1/18/10	23:00	365.91	1/18/10	23:53	365.95	1/19/10	3:50	365.86	1/19/10	8:15	365.95
1/18/10	22:08	365.90	1/18/10	23:01	365.95	1/18/10	23:54	365.95	1/19/10	3:55	365.86	1/19/10	8:20	365.91
1/18/10	22:09	365.93	1/18/10	23:02	365.91	1/18/10	23:55	365.95	1/19/10	4:00	365.85	1/19/10	8:25	365.91
1/18/10	22:10	365.93	1/18/10	23:03	365.95	1/18/10	23:56	365.95	1/19/10	4:05	365.85	1/19/10	8:30	365.91
1/18/10	22:11	365.90	1/18/10	23:04	365.95	1/18/10	23:57	365.95	1/19/10	4:10	365.85	1/19/10	8:35	365.91
1/18/10	22:12	365.90	1/18/10	23:05	365.91	1/18/10	23:58	365.95	1/19/10	4:15	365.85	1/19/10	8:40	365.91
1/18/10	22:13	365.93	1/18/10	23:06	365.95	1/18/10	23:59	365.95	1/19/10	4:20	365.85	1/19/10	8:45	365.91
1/18/10	22:14	365.93	1/18/10	23:07	365.91	1/19/10	0:00	365.93	1/19/10	4:25	365.85	1/19/10	8:50	365.91
1/18/10	22:15	365.93	1/18/10	23:08	365.95	1/19/10	0:05	365.93	1/19/10	4:30	365.85	1/19/10	8:55	365.91
1/18/10	22:16	365.93	1/18/10	23:09	365.95	1/19/10	0:10	365.93	1/19/10	4:35	365.85	1/19/10	9:00	365.91
1/18/10	22:17	365.93	1/18/10	23:10	365.95	1/19/10	0:15	365.93	1/19/10	4:40	365.85	1/19/10	9:05	365.91
1/18/10	22:18	365.93	1/18/10	23:11	365.95	1/19/10	0:20	365.93	1/19/10	4:45	365.85	1/19/10	9:10	365.91
1/18/10	22:19	365.93	1/18/10	23:12	365.95	1/19/10	0:25	365.96	1/19/10	4:50	365.85	1/19/10	9:15	365.91
1/18/10	22:20	365.93	1/18/10	23:13	365.95	1/19/10	0:30	365.93	1/19/10	4:55	365.85	1/19/10	9:20	365.91
1/18/10	22:21	365.93	1/18/10	23:14	365.95	1/19/10	0:35	365.96	1/19/10	5:00	365.85	1/19/10	9:25	365.91
1/18/10	22:22	365.93	1/18/10	23:15	365.95	1/19/10	0:40	365.96	1/19/10	5:05	365.85	1/19/10	9:30	365.91
1/18/10	22:23	365.93	1/18/10	23:16	365.95	1/19/10	0:45	365.96	1/19/10	5:10	365.85	1/19/10	9:35	365.91
1/18/10	22:24	365.93	1/18/10	23:17	365.91	1/19/10	0:50	365.96	1/19/10	5:15	365.85	1/19/10	9:40	365.91
1/18/10	22:25	365.93	1/18/10	23:18	365.95	1/19/10	0:55	365.96	1/19/10	5:20	365.88	1/19/10	9:45	365.91
1/18/10	22:26	365.93	1/18/10	23:19	365.95	1/19/10	1:00	365.95	1/19/10	5:25	365.85	1/19/10	9:50	365.91
1/18/10	22:27	365.93	1/18/10	23:20	365.95	1/19/10	1:05	365.95	1/19/10	5:30	365.85	1/19/10	9:55	365.95
1/18/10	22:28	365.93	1/18/10	23:21	365.95	1/19/10	1:10	365.95	1/19/10	5:35	365.85	1/19/10	10:00	366.03
1/18/10	22:29	365.93	1/18/10	23:22	365.95	1/19/10	1:15	365.95	1/19/10	5:40	365.85	1/19/10	10:05	366.19
1/18/10	22:30	365.93	1/18/10	23:23	365.95	1/19/10	1:20	365.91	1/19/10	5:45	365.88	1/19/10	10:10	366.36
1/18/10	22:31	365.93	1/18/10	23:24	365.95	1/19/10	1:25	365.91	1/19/10	5:50	365.85	1/19/10	10:15	366.56
1/18/10	22:32	365.93	1/18/10	23:25	365.95	1/19/10	1:30	365.91	1/19/10	5:55	365.85	1/19/10	10:20	366.82
1/18/10	22:33	365.93	1/18/10	23:26	365.95	1/19/10	1:35	365.91	1/19/10	6:00	365.81	1/19/10	10:25	367.05
1/18/10	22:34	365.93	1/18/10	23:27	365.95	1/19/10	1:40	365.91	1/19/10	6:05	365.85	1/19/10	10:30	367.21
1/18/10	22:35	365.93	1/18/10	23:28	365.95	1/19/10	1:45	365.91	1/19/10	6:10	365.81	1/19/10	10:35	367.41
1/18/10	22:36	365.93	1/18/10	23:29	365.95	1/19/10	1:50	365.91	1/19/10	6:15	365.81	1/19/10	10:40	367.51

TABLE D6C.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/19/10	10:45	367.64	1/19/10	15:10	368.07	1/19/10	19:35	365.67	1/20/10	0:00	365.34	1/20/10	4:25	364.86
1/19/10	10:50	367.71	1/19/10	15:15	368.11	1/19/10	19:40	365.67	1/20/10	0:05	365.34	1/20/10	4:30	364.83
1/19/10	10:55	367.81	1/19/10	15:20	368.11	1/19/10	19:45	365.67	1/20/10	0:10	365.34	1/20/10	4:35	364.83
1/19/10	11:00	367.81	1/19/10	15:25	368.11	1/19/10	19:50	365.67	1/20/10	0:15	365.34	1/20/10	4:40	364.83
1/19/10	11:05	367.88	1/19/10	15:30	368.11	1/19/10	19:55	365.67	1/20/10	0:20	365.34	1/20/10	4:45	364.79
1/19/10	11:10	367.91	1/19/10	15:35	368.11	1/19/10	20:00	365.62	1/20/10	0:25	365.34	1/20/10	4:50	364.79
1/19/10	11:15	367.91	1/19/10	15:40	367.97	1/19/10	20:05	365.65	1/20/10	0:30	365.34	1/20/10	4:55	364.79
1/19/10	11:20	367.94	1/19/10	15:45	367.68	1/19/10	20:10	365.62	1/20/10	0:35	365.34	1/20/10	5:00	364.81
1/19/10	11:25	367.94	1/19/10	15:50	367.38	1/19/10	20:15	365.62	1/20/10	0:40	365.30	1/20/10	5:05	364.81
1/19/10	11:30	367.97	1/19/10	15:55	367.15	1/19/10	20:20	365.62	1/20/10	0:45	365.27	1/20/10	5:10	364.81
1/19/10	11:35	367.94	1/19/10	16:00	367.00	1/19/10	20:25	365.62	1/20/10	0:50	365.27	1/20/10	5:15	364.81
1/19/10	11:40	367.94	1/19/10	16:05	366.84	1/19/10	20:30	365.62	1/20/10	0:55	365.24	1/20/10	5:20	364.78
1/19/10	11:45	367.94	1/19/10	16:10	366.70	1/19/10	20:35	365.62	1/20/10	1:00	365.24	1/20/10	5:25	364.78
1/19/10	11:50	367.91	1/19/10	16:15	366.57	1/19/10	20:40	365.62	1/20/10	1:05	365.20	1/20/10	5:30	364.74
1/19/10	11:55	367.88	1/19/10	16:20	366.47	1/19/10	20:45	365.58	1/20/10	1:10	365.17	1/20/10	5:35	364.74
1/19/10	12:00	367.89	1/19/10	16:25	366.37	1/19/10	20:50	365.58	1/20/10	1:15	365.17	1/20/10	5:40	364.74
1/19/10	12:05	367.86	1/19/10	16:30	366.28	1/19/10	20:55	365.62	1/20/10	1:20	365.14	1/20/10	5:45	364.71
1/19/10	12:10	367.86	1/19/10	16:35	366.21	1/19/10	21:00	365.58	1/20/10	1:25	365.14	1/20/10	5:50	364.71
1/19/10	12:15	367.83	1/19/10	16:40	366.18	1/19/10	21:05	365.58	1/20/10	1:30	365.11	1/20/10	5:55	364.71
1/19/10	12:20	367.83	1/19/10	16:45	366.11	1/19/10	21:10	365.58	1/20/10	1:35	365.11	1/20/10	6:00	364.68
1/19/10	12:25	367.83	1/19/10	16:50	366.08	1/19/10	21:15	365.58	1/20/10	1:40	365.07	1/20/10	6:05	364.68
1/19/10	12:30	367.83	1/19/10	16:55	366.08	1/19/10	21:20	365.58	1/20/10	1:45	365.07	1/20/10	6:10	364.68
1/19/10	12:35	367.86	1/19/10	17:00	366.04	1/19/10	21:25	365.58	1/20/10	1:50	365.04	1/20/10	6:15	364.68
1/19/10	12:40	367.86	1/19/10	17:05	366.01	1/19/10	21:30	365.58	1/20/10	1:55	365.04	1/20/10	6:20	364.68
1/19/10	12:45	367.89	1/19/10	17:10	366.01	1/19/10	21:35	365.58	1/20/10	2:00	365.04	1/20/10	6:25	364.68
1/19/10	12:50	367.89	1/19/10	17:15	365.98	1/19/10	21:40	365.55	1/20/10	2:05	365.04	1/20/10	6:30	364.68
1/19/10	12:55	367.89	1/19/10	17:20	365.95	1/19/10	21:45	365.55	1/20/10	2:10	365.04	1/20/10	6:35	364.68
1/19/10	13:00	367.88	1/19/10	17:25	365.91	1/19/10	21:50	365.55	1/20/10	2:15	365.04	1/20/10	6:40	364.68
1/19/10	13:05	367.88	1/19/10	17:30	365.91	1/19/10	21:55	365.55	1/20/10	2:20	365.01	1/20/10	6:45	364.68
1/19/10	13:10	367.91	1/19/10	17:35	365.88	1/19/10	22:00	365.55	1/20/10	2:25	365.01	1/20/10	6:50	364.64
1/19/10	13:15	367.91	1/19/10	17:40	365.88	1/19/10	22:05	365.55	1/20/10	2:30	365.01	1/20/10	6:55	364.64
1/19/10	13:20	367.88	1/19/10	17:45	365.85	1/19/10	22:10	365.52	1/20/10	2:35	365.01	1/20/10	7:00	364.64
1/19/10	13:25	367.91	1/19/10	17:50	365.85	1/19/10	22:15	365.55	1/20/10	2:40	364.97	1/20/10	7:05	364.68
1/19/10	13:30	367.91	1/19/10	17:55	365.81	1/19/10	22:20	365.52	1/20/10	2:45	364.97	1/20/10	7:10	364.64
1/19/10	13:35	367.91	1/19/10	18:00	365.83	1/19/10	22:25	365.55	1/20/10	2:50	364.97	1/20/10	7:15	364.64
1/19/10	13:40	367.91	1/19/10	18:05	365.80	1/19/10	22:30	365.52	1/20/10	2:55	364.97	1/20/10	7:20	364.64
1/19/10	13:45	367.91	1/19/10	18:10	365.80	1/19/10	22:35	365.52	1/20/10	3:00	364.96	1/20/10	7:25	364.64
1/19/10	13:50	367.91	1/19/10	18:15	365.80	1/19/10	22:40	365.52	1/20/10	3:05	364.96	1/20/10	7:30	364.64
1/19/10	13:55	367.94	1/19/10	18:20	365.77	1/19/10	22:45	365.52	1/20/10	3:10	364.92	1/20/10	7:35	364.64
1/19/10	14:00	367.92	1/19/10	18:25	365.77	1/19/10	22:50	365.52	1/20/10	3:15	364.96	1/20/10	7:40	364.64
1/19/10	14:05	367.92	1/19/10	18:30	365.77	1/19/10	22:55	365.52	1/20/10	3:20	364.92	1/20/10	7:45	364.64
1/19/10	14:10	367.96	1/19/10	18:35	365.77	1/19/10	23:00	365.50	1/20/10	3:25	364.92	1/20/10	7:50	364.64
1/19/10	14:15	367.99	1/19/10	18:40	365.77	1/19/10	23:05	365.47	1/20/10	3:30	364.92	1/20/10	7:55	364.64
1/19/10	14:20	367.99	1/19/10	18:45	365.77	1/19/10	23:10	365.47	1/20/10	3:35	364.92	1/20/10	8:00	364.69
1/19/10	14:25	368.02	1/19/10	18:50	365.73	1/19/10	23:15	365.44	1/20/10	3:40	364.92	1/20/10	8:05	364.69
1/19/10	14:30	368.02	1/19/10	18:55	365.73	1/19/10	23:20	365.40	1/20/10	3:45	364.92	1/20/10	8:10	364.66
1/19/10	14:35	368.06	1/19/10	19:00	365.73	1/19/10	23:25	365.40	1/20/10	3:50	364.89	1/20/10	8:15	364.66
1/19/10	14:40	368.06	1/19/10	19:05	365.73	1/19/10	23:30	365.37	1/20/10	3:55	364.92	1/20/10	8:20	364.66
1/19/10	14:45	368.06	1/19/10	19:10	365.73	1/19/10	23:35	365.37	1/20/10	4:00	364.89	1/20/10	8:25	364.66
1/19/10	14:50	368.06	1/19/10	19:15	365.70	1/19/10	23:40	365.37	1/20/10	4:05	364.89	1/20/10	8:30	364.66
1/19/10	14:55	368.06	1/19/10	19:20	365.70	1/19/10	23:45	365.34	1/20/10	4:10	364.89	1/20/10	8:35	364.66
1/19/10	15:00	368.07	1/19/10	19:25	365.70	1/19/10	23:50	365.34	1/20/10	4:15	364.86	1/20/10	8:40	364.66
1/19/10	15:05	368.07	1/19/10	19:30	365.70	1/19/10	23:55	365.34	1/20/10	4:20	364.86	1/20/10	8:45	364.66

TABLE D6C.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/20/10	8:50	364.69	1/20/10	13:15	364.69	1/21/10	1:12	364.46	1/21/10	14:27	363.90	1/22/10	3:42	364.05
1/20/10	8:55	364.69	1/20/10	13:20	364.66	1/21/10	1:27	364.46	1/21/10	14:42	363.90	1/22/10	3:57	364.02
1/20/10	9:00	364.74	1/20/10	13:25	364.63	1/21/10	1:42	364.46	1/21/10	14:57	363.90	1/22/10	4:12	364.00
1/20/10	9:05	364.78	1/20/10	13:30	364.63	1/21/10	1:57	364.46	1/21/10	15:12	363.87	1/22/10	4:27	364.00
1/20/10	9:10	364.81	1/20/10	13:35	364.59	1/21/10	2:12	364.46	1/21/10	15:27	363.87	1/22/10	4:42	364.00
1/20/10	9:15	364.84	1/20/10	13:40	364.59	1/21/10	2:27	364.46	1/21/10	15:42	363.87	1/22/10	4:57	364.00
1/20/10	9:20	364.88	1/20/10	13:45	364.59	1/21/10	2:42	364.43	1/21/10	15:57	363.87	1/22/10	5:12	364.00
1/20/10	9:25	364.88	1/20/10	13:50	364.59	1/21/10	2:57	364.43	1/21/10	16:12	363.87	1/22/10	5:27	364.00
1/20/10	9:30	364.91	1/20/10	13:52	364.63	1/21/10	3:12	364.40	1/21/10	16:27	363.87	1/22/10	5:42	364.00
1/20/10	9:35	364.91	1/20/10	14:12	364.89	1/21/10	3:27	364.43	1/21/10	16:42	363.87	1/22/10	5:57	364.03
1/20/10	9:40	364.91	1/20/10	14:27	365.09	1/21/10	3:42	364.40	1/21/10	16:57	363.84	1/22/10	6:12	363.97
1/20/10	9:45	364.91	1/20/10	14:42	365.12	1/21/10	3:57	364.40	1/21/10	17:12	363.85	1/22/10	6:27	363.97
1/20/10	9:50	364.91	1/20/10	14:57	365.06	1/21/10	4:12	364.43	1/21/10	17:27	363.85	1/22/10	6:42	363.97
1/20/10	9:55	364.91	1/20/10	15:12	364.99	1/21/10	4:27	364.46	1/21/10	17:42	363.89	1/22/10	6:57	363.97
1/20/10	10:00	364.92	1/20/10	15:27	364.99	1/21/10	4:42	364.46	1/21/10	17:57	363.89	1/22/10	7:12	363.93
1/20/10	10:05	364.92	1/20/10	15:42	365.02	1/21/10	4:57	364.40	1/21/10	18:12	363.90	1/22/10	7:27	363.90
1/20/10	10:10	364.92	1/20/10	15:57	364.99	1/21/10	5:12	364.31	1/21/10	18:27	363.90	1/22/10	7:42	363.93
1/20/10	10:15	364.92	1/20/10	16:12	364.96	1/21/10	5:27	364.28	1/21/10	18:42	363.90	1/22/10	7:57	363.90
1/20/10	10:20	364.92	1/20/10	16:27	364.96	1/21/10	5:42	364.22	1/21/10	18:57	363.90	1/22/10	8:12	363.89
1/20/10	10:25	364.92	1/20/10	16:42	364.89	1/21/10	5:57	364.18	1/21/10	19:12	363.90	1/22/10	8:27	363.85
1/20/10	10:30	364.92	1/20/10	16:57	364.86	1/21/10	6:12	364.13	1/21/10	19:27	363.90	1/22/10	8:42	363.89
1/20/10	10:35	364.92	1/20/10	17:12	364.84	1/21/10	6:27	364.10	1/21/10	19:42	363.87	1/22/10	8:57	363.85
1/20/10	10:40	364.92	1/20/10	17:27	364.84	1/21/10	6:42	364.07	1/21/10	19:57	363.87	1/22/10	9:12	363.87
1/20/10	10:45	364.92	1/20/10	17:42	364.81	1/21/10	6:57	364.07	1/21/10	20:12	363.89	1/22/10	9:27	364.03
1/20/10	10:50	364.89	1/20/10	17:57	364.81	1/21/10	7:12	364.07	1/21/10	20:27	363.89	1/22/10	9:42	364.33
1/20/10	10:55	364.89	1/20/10	18:12	364.79	1/21/10	7:27	364.03	1/21/10	20:42	363.89	1/22/10	9:57	364.43
1/20/10	11:00	364.88	1/20/10	18:27	364.79	1/21/10	7:42	364.07	1/21/10	20:57	363.89	1/22/10	10:12	364.48
1/20/10	11:05	364.91	1/20/10	18:42	364.76	1/21/10	7:57	364.03	1/21/10	21:12	363.87	1/22/10	10:27	364.51
1/20/10	11:10	364.88	1/20/10	18:57	364.76	1/21/10	8:12	364.02	1/21/10	21:27	363.87	1/22/10	10:42	364.54
1/20/10	11:15	364.88	1/20/10	19:12	364.74	1/21/10	8:27	364.02	1/21/10	21:42	363.84	1/22/10	10:57	364.54
1/20/10	11:20	364.88	1/20/10	19:27	364.74	1/21/10	8:42	364.02	1/21/10	21:57	363.87	1/22/10	11:12	364.48
1/20/10	11:25	364.88	1/20/10	19:42	364.71	1/21/10	8:57	364.02	1/21/10	22:12	363.87	1/22/10	11:27	364.48
1/20/10	11:30	364.88	1/20/10	19:57	364.71	1/21/10	9:12	364.02	1/21/10	22:27	363.84	1/22/10	11:42	364.45
1/20/10	11:35	364.84	1/20/10	20:12	364.71	1/21/10	9:27	364.02	1/21/10	22:42	363.84	1/22/10	11:57	364.41
1/20/10	11:40	364.81	1/20/10	20:27	364.68	1/21/10	9:42	363.98	1/21/10	22:57	363.87	1/22/10	12:12	364.40
1/20/10	11:45	364.81	1/20/10	20:42	364.64	1/21/10	9:57	363.98	1/21/10	23:12	363.85	1/22/10	12:27	364.36
1/20/10	11:50	364.78	1/20/10	20:57	364.61	1/21/10	10:12	363.98	1/21/10	23:27	363.85	1/22/10	12:42	364.36
1/20/10	11:55	364.78	1/20/10	21:12	364.61	1/21/10	10:27	363.98	1/21/10	23:42	363.85	1/22/10	12:57	364.36
1/20/10	12:00	364.74	1/20/10	21:27	364.61	1/21/10	10:42	363.98	1/21/10	23:57	363.85	1/22/10	13:12	364.31
1/20/10	12:05	364.74	1/20/10	21:42	364.61	1/21/10	10:57	363.98	1/22/10	0:12	363.82	1/22/10	13:27	364.35
1/20/10	12:10	364.71	1/20/10	21:57	364.58	1/21/10	11:12	363.98	1/22/10	0:27	363.82	1/22/10	13:42	364.45
1/20/10	12:15	364.71	1/20/10	22:12	364.61	1/21/10	11:27	363.98	1/22/10	0:42	363.89	1/22/10	13:57	364.48
1/20/10	12:20	364.71	1/20/10	22:27	364.58	1/21/10	11:42	363.98	1/22/10	0:57	363.89	1/22/10	14:12	364.46
1/20/10	12:25	364.68	1/20/10	22:42	364.58	1/21/10	11:57	364.02	1/22/10	1:12	364.07	1/22/10	14:27	364.46
1/20/10	12:30	364.68	1/20/10	22:57	364.55	1/21/10	12:12	363.98	1/22/10	1:27	364.17	1/22/10	14:42	364.53
1/20/10	12:35	364.71	1/20/10	23:12	364.56	1/21/10	12:27	363.95	1/22/10	1:42	364.20	1/22/10	14:57	364.49
1/20/10	12:40	364.74	1/20/10	23:27	364.56	1/21/10	12:42	363.98	1/22/10	1:57	364.20	1/22/10	15:12	364.43
1/20/10	12:45	364.78	1/20/10	23:42	364.53	1/21/10	12:57	363.98	1/22/10	2:12	364.15	1/22/10	15:27	364.36
1/20/10	12:50	364.78	1/20/10	23:57	364.53	1/21/10	13:12	363.92	1/22/10	2:27	364.12	1/22/10	15:42	364.33
1/20/10	12:55	364.78	1/21/10	0:12	364.48	1/21/10	13:27	363.92	1/22/10	2:42	364.12	1/22/10	15:57	364.30
1/20/10	13:00	364.76	1/21/10	0:27	364.51	1/21/10	13:42	363.92	1/22/10	2:57	364.08	1/22/10	16:12	364.26
1/20/10	13:05	364.73	1/21/10	0:42	364.48	1/21/10	13:57	363.92	1/22/10	3:12	364.05	1/22/10	16:27	364.20
1/20/10	13:10	364.73	1/21/10	0:57	364.48	1/21/10	14:12	363.90	1/22/10	3:27	364.05	1/22/10	16:42	364.20

TABLE D6C.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/22/10	16:57	364.17	1/23/10	6:12	363.93	1/23/10	19:27	363.65	1/24/10	8:42	363.05	1/24/10	21:57	363.06
1/22/10	17:12	364.15	1/23/10	6:27	363.93	1/23/10	19:42	363.59	1/24/10	8:57	362.98	1/24/10	22:12	361.53
1/22/10	17:27	364.15	1/23/10	6:42	363.90	1/23/10	19:57	363.49	1/24/10	9:12	363.00	1/24/10	22:27	359.42
1/22/10	17:42	364.05	1/23/10	6:57	363.90	1/23/10	20:12	363.42	1/24/10	9:27	363.03	1/24/10	22:42	358.20
1/22/10	17:57	363.98	1/23/10	7:12	363.95	1/23/10	20:27	363.52	1/24/10	9:42	362.96	1/24/10	22:57	357.51
1/22/10	18:12	363.95	1/23/10	7:27	364.18	1/23/10	20:42	363.56	1/24/10	9:57	362.80	1/24/10	23:12	357.08
1/22/10	18:27	363.92	1/23/10	7:42	364.15	1/23/10	20:57	363.56	1/24/10	10:12	362.91	1/24/10	23:27	356.81
1/22/10	18:42	363.89	1/23/10	7:57	364.02	1/23/10	21:12	363.57	1/24/10	10:27	362.95	1/24/10	23:42	356.65
1/22/10	18:57	363.85	1/23/10	8:12	363.97	1/23/10	21:27	363.54	1/24/10	10:42	362.91	1/24/10	23:57	356.48
1/22/10	19:12	363.87	1/23/10	8:27	363.87	1/23/10	21:42	363.51	1/24/10	10:57	362.91	1/25/10	0:12	356.39
1/22/10	19:27	363.84	1/23/10	8:42	363.80	1/23/10	21:57	363.51	1/24/10	11:12	362.88	1/25/10	0:27	356.29
1/22/10	19:42	363.80	1/23/10	8:57	363.84	1/23/10	22:12	363.70	1/24/10	11:27	362.91	1/25/10	0:42	356.22
1/22/10	19:57	363.77	1/23/10	9:12	363.98	1/23/10	22:27	363.77	1/24/10	11:42	363.05	1/25/10	0:57	356.19
1/22/10	20:12	363.75	1/23/10	9:27	364.05	1/23/10	22:42	363.67	1/24/10	11:57	363.11	1/25/10	1:12	356.14
1/22/10	20:27	363.75	1/23/10	9:42	364.08	1/23/10	22:57	363.61	1/24/10	12:12	363.09	1/25/10	1:27	356.11
1/22/10	20:42	363.72	1/23/10	9:57	364.08	1/23/10	23:12	363.56	1/24/10	12:27	363.06	1/25/10	1:42	356.07
1/22/10	20:57	363.69	1/23/10	10:12	364.07	1/23/10	23:27	363.49	1/24/10	12:42	362.96	1/25/10	1:57	356.04
1/22/10	21:12	363.72	1/23/10	10:27	364.00	1/23/10	23:42	363.46	1/24/10	12:57	363.03	1/25/10	2:12	356.02
1/22/10	21:27	363.72	1/23/10	10:42	363.93	1/23/10	23:57	363.39	1/24/10	13:12	363.09	1/25/10	2:27	355.99
1/22/10	21:42	363.72	1/23/10	10:57	363.93	1/24/10	0:12	363.34	1/24/10	13:27	363.13	1/25/10	2:42	355.99
1/22/10	21:57	363.72	1/23/10	11:12	364.10	1/24/10	0:27	363.44	1/24/10	13:42	363.16	1/25/10	2:57	355.99
1/22/10	22:12	363.80	1/23/10	11:27	364.10	1/24/10	0:42	363.47	1/24/10	13:57	363.16	1/25/10	3:12	355.96
1/22/10	22:27	363.87	1/23/10	11:42	364.00	1/24/10	0:57	363.51	1/24/10	14:12	363.11	1/25/10	3:27	355.92
1/22/10	22:42	363.90	1/23/10	11:57	363.93	1/24/10	1:12	363.56	1/24/10	14:27	363.05	1/25/10	3:42	355.92
1/22/10	22:57	363.93	1/23/10	12:12	363.87	1/24/10	1:27	363.56	1/24/10	14:42	363.05	1/25/10	3:57	355.92
1/22/10	23:12	363.93	1/23/10	12:27	363.87	1/24/10	1:42	363.52	1/24/10	14:57	363.01	1/25/10	4:12	355.91
1/22/10	23:27	363.97	1/23/10	12:42	363.80	1/24/10	1:57	363.42	1/24/10	15:12	363.05	1/25/10	4:27	355.87
1/22/10	23:42	363.97	1/23/10	12:57	363.67	1/24/10	2:12	363.47	1/24/10	15:27	363.01	1/25/10	4:42	355.87
1/22/10	23:57	363.97	1/23/10	13:12	363.67	1/24/10	2:27	363.70	1/24/10	15:42	362.95	1/25/10	4:57	355.87
1/23/10	0:12	363.98	1/23/10	13:27	363.67	1/24/10	2:42	363.77	1/24/10	15:57	362.91	1/25/10	5:12	355.89
1/23/10	0:27	364.08	1/23/10	13:42	363.67	1/24/10	2:57	363.80	1/24/10	16:12	362.98	1/25/10	5:27	355.86
1/23/10	0:42	364.22	1/23/10	13:57	363.64	1/24/10	3:12	363.74	1/24/10	16:27	363.05	1/25/10	5:42	355.86
1/23/10	0:57	364.18	1/23/10	14:12	363.64	1/24/10	3:27	363.70	1/24/10	16:42	363.31	1/25/10	5:57	355.86
1/23/10	1:12	364.13	1/23/10	14:27	363.61	1/24/10	3:42	363.47	1/24/10	16:57	363.34	1/25/10	6:12	355.83
1/23/10	1:27	364.07	1/23/10	14:42	363.61	1/24/10	3:57	363.44	1/24/10	17:12	363.31	1/25/10	6:27	355.86
1/23/10	1:42	364.00	1/23/10	14:57	363.61	1/24/10	4:12	363.64	1/24/10	17:27	363.14	1/25/10	6:42	355.83
1/23/10	1:57	363.93	1/23/10	15:12	363.93	1/24/10	4:27	363.70	1/24/10	17:42	363.18	1/25/10	6:57	355.83
1/23/10	2:12	363.92	1/23/10	15:27	364.00	1/24/10	4:42	363.70	1/24/10	17:57	363.24	1/25/10	7:12	355.84
1/23/10	2:27	363.85	1/23/10	15:42	363.93	1/24/10	4:57	363.67	1/24/10	18:12	363.13	1/25/10	7:27	355.81
1/23/10	2:42	363.82	1/23/10	15:57	363.84	1/24/10	5:12	363.54	1/24/10	18:27	363.09	1/25/10	7:42	355.81
1/23/10	2:57	363.75	1/23/10	16:12	363.82	1/24/10	5:27	363.57	1/24/10	18:42	363.06	1/25/10	7:57	355.81
1/23/10	3:12	363.67	1/23/10	16:27	363.75	1/24/10	5:42	363.57	1/24/10	18:57	362.90	1/25/10	8:12	355.81
1/23/10	3:27	363.84	1/23/10	16:42	363.75	1/24/10	5:57	363.67	1/24/10	19:12	362.91	1/25/10	8:27	355.81
1/23/10	3:42	364.00	1/23/10	16:57	363.69	1/24/10	6:12	363.77	1/24/10	19:27	362.95	1/25/10	8:42	355.81
1/23/10	3:57	364.10	1/23/10	17:12	363.69	1/24/10	6:27	363.64	1/24/10	19:42	362.95	1/25/10	8:57	355.81
1/23/10	4:12	364.12	1/23/10	17:27	363.72	1/24/10	6:42	363.54	1/24/10	19:57	362.95	1/25/10	9:12	355.83
1/23/10	4:27	364.08	1/23/10	17:42	363.75	1/24/10	6:57	363.44	1/24/10	20:12	362.90	1/25/10	9:27	355.83
1/23/10	4:42	364.02	1/23/10	17:57	363.72	1/24/10	7:12	363.39	1/24/10	20:27	362.83	1/25/10	9:42	355.79
1/23/10	4:57	363.98	1/23/10	18:12	363.67	1/24/10	7:27	363.36	1/24/10	20:42	363.00	1/25/10	9:57	355.79
1/23/10	5:12	363.97	1/23/10	18:27	363.61	1/24/10	7:42	363.26	1/24/10	20:57	363.26	1/25/10	10:12	355.81
1/23/10	5:27	363.90	1/23/10	18:42	363.67	1/24/10	7:57	363.23	1/24/10	21:12	363.32	1/25/10	10:27	355.81
1/23/10	5:42	363.80	1/23/10	18:57	363.70	1/24/10	8:12	363.18	1/24/10	21:27	363.32	1/25/10	10:42	355.81
1/23/10	5:57	363.87	1/23/10	19:12	363.69	1/24/10	8:27	363.11	1/24/10	21:42	363.29	1/25/10	10:57	355.81

TABLE D6C.6-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-8, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/25/10	11:12	355.81	1/26/10	12:42	355.45	1/27/10	15:12	355.63	1/28/10	17:42	355.45			
1/25/10	11:27	355.81	1/26/10	13:12	355.41	1/27/10	15:42	355.63	1/28/10	18:12	355.51			
1/25/10	11:42	355.81	1/26/10	13:42	355.41	1/27/10	16:12	355.63	1/28/10	18:42	355.51			
1/25/10	11:57	355.81	1/26/10	14:12	355.41	1/27/10	16:42	355.66	1/28/10	19:12	355.51			
1/25/10	12:12	355.79	1/26/10	14:42	355.41	1/27/10	17:12	355.68	1/28/10	19:42	355.51			
1/25/10	12:42	355.79	1/26/10	15:12	355.38	1/27/10	17:42	355.68	1/28/10	20:12	355.51			
1/25/10	13:12	355.76	1/26/10	15:42	355.38	1/27/10	18:12	355.69	1/28/10	20:42	355.51			
1/25/10	13:42	355.76	1/26/10	16:12	355.40	1/27/10	18:42	355.69	1/28/10	21:12	355.53			
1/25/10	14:12	355.74	1/26/10	16:42	355.40	1/27/10	19:12	355.71	1/28/10	21:42	355.53			
1/25/10	14:42	355.71	1/26/10	17:12	355.41	1/27/10	19:42	355.71	1/28/10	22:12	355.53			
1/25/10	15:12	355.71	1/26/10	17:42	355.41	1/27/10	20:12	355.73	1/28/10	22:42	355.53			
1/25/10	15:42	355.71	1/26/10	18:12	355.43	1/27/10	20:42	355.73	1/28/10	23:12	355.53			
1/25/10	16:12	355.71	1/26/10	18:42	355.43	1/27/10	21:12	355.74	1/28/10	23:42	355.53			
1/25/10	16:42	355.71	1/26/10	19:12	355.45	1/27/10	21:42	355.74	1/29/10	0:12	355.49			
1/25/10	17:12	355.71	1/26/10	19:42	355.45	1/27/10	22:12	355.76	1/29/10	0:42	355.49			
1/25/10	17:42	355.71	1/26/10	20:12	355.46	1/27/10	22:42	355.76	1/29/10	1:12	355.48			
1/25/10	18:12	355.71	1/26/10	20:42	355.46	1/27/10	23:12	355.76	1/29/10	1:42	355.48			
1/25/10	18:42	355.71	1/26/10	21:12	355.50	1/27/10	23:42	355.76	1/29/10	2:12	355.48			
1/25/10	19:12	355.69	1/26/10	21:42	355.50	1/28/10	0:12	355.73	1/29/10	2:42	355.48			
1/25/10	19:42	355.69	1/26/10	22:12	355.50	1/28/10	0:42	355.73	1/29/10	3:12	355.46			
1/25/10	20:12	355.68	1/26/10	22:42	355.46	1/28/10	1:12	355.73	1/29/10	3:42	355.46			
1/25/10	20:42	355.68	1/26/10	23:12	355.46	1/28/10	1:42	355.73	1/29/10	4:12	355.45			
1/25/10	21:12	355.66	1/26/10	23:42	355.46	1/28/10	2:12	355.69	1/29/10	4:42	355.45			
1/25/10	21:42	355.66	1/27/10	0:12	355.46	1/28/10	2:42	355.69	1/29/10	5:12	355.45			
1/25/10	22:12	355.63	1/27/10	0:42	355.46	1/28/10	3:12	355.69	1/29/10	5:42	355.45			
1/25/10	22:42	355.63	1/27/10	1:12	355.48	1/28/10	3:42	355.69	1/29/10	6:12	355.45			
1/25/10	23:12	355.61	1/27/10	1:42	355.45	1/28/10	4:12	355.69	1/29/10	6:42	355.45			
1/25/10	23:42	355.61	1/27/10	2:12	355.50	1/28/10	4:42	355.69	1/29/10	7:12	355.45			
1/26/10	0:12	355.61	1/27/10	2:42	355.46	1/28/10	5:12	355.69	1/29/10	7:42	355.45			
1/26/10	0:42	355.58	1/27/10	3:12	355.46	1/28/10	5:42	355.69	1/29/10	8:12	355.45			
1/26/10	1:12	355.56	1/27/10	3:42	355.46	1/28/10	6:12	355.69	1/29/10	8:42	355.45			
1/26/10	1:42	355.56	1/27/10	4:12	355.50	1/28/10	6:42	355.69	1/29/10	9:12	355.45			
1/26/10	2:12	355.56	1/27/10	4:42	355.50	1/28/10	7:12	355.68	1/29/10	9:42	355.45			
1/26/10	2:42	355.56	1/27/10	5:12	355.51	1/28/10	7:42	355.71						
1/26/10	3:12	355.56	1/27/10	5:42	355.51	1/28/10	8:12	355.68						
1/26/10	3:42	355.56	1/27/10	6:12	355.53	1/28/10	8:42	355.68						
1/26/10	4:12	355.54	1/27/10	6:42	355.53	1/28/10	9:12	355.66						
1/26/10	4:42	355.54	1/27/10	7:12	355.56	1/28/10	9:42	355.69						
1/26/10	5:12	355.53	1/27/10	7:42	355.56	1/28/10	10:12	355.64						
1/26/10	5:42	355.53	1/27/10	8:12	355.59	1/28/10	10:42	355.64						
1/26/10	6:12	355.53	1/27/10	8:42	355.59	1/28/10	11:12	355.66						
1/26/10	6:42	355.53	1/27/10	9:12	355.61	1/28/10	11:42	355.66						
1/26/10	7:12	355.53	1/27/10	9:42	355.61	1/28/10	12:12	355.63						
1/26/10	7:42	355.50	1/27/10	10:12	355.63	1/28/10	12:42	355.63						
1/26/10	8:12	355.51	1/27/10	10:42	355.63	1/28/10	13:12	355.56						
1/26/10	8:42	355.51	1/27/10	11:12	355.63	1/28/10	13:42	355.56						
1/26/10	9:12	355.51	1/27/10	11:42	355.63	1/28/10	14:12	355.53						
1/26/10	9:42	355.51	1/27/10	12:12	355.63	1/28/10	14:42	355.49						
1/26/10	10:12	355.48	1/27/10	12:42	355.63	1/28/10	15:12	355.46						
1/26/10	10:42	355.48	1/27/10	13:12	355.61	1/28/10	15:42	355.46						
1/26/10	11:12	355.48	1/27/10	13:42	355.61	1/28/10	16:12	355.48						
1/26/10	11:42	355.48	1/27/10	14:12	355.63	1/28/10	16:42	355.48						
1/26/10	12:12	355.48	1/27/10	14:42	355.63	1/28/10	17:12	355.48						

TABLE D6C.6-5. AQUIFER-TEST DATA FOR OBSERVATION WELL URZHF-11.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/18/10	11:59:00	102	--	--	341.57	0.17	--	--	--	--
	11:59:00 RESET TRANDUCER 15 MIN									
01/19/10	9:00:00	1363	--	--	341.63	0.23	--	--	--	--
	13:45:00	1648	--	--	341.78	0.38	--	--	--	--
01/20/10	9:23:00	2826	--	--	341.72	0.32	--	--	--	--
	15:00:00	3163	--	--	341.71	0.31	--	--	--	--
01/21/10	10:25:00	4328	--	--	341.71	0.31	--	--	--	--
	13:03:00	4486	--	--	341.69	0.29	--	--	--	--
01/22/10	8:53:00	5676	--	--	341.47	0.07	--	--	--	--
	13:45:00	5968	--	--	341.34	-0.06	--	--	--	--
01/23/10	9:48:00	7171	--	--	341.75	0.35	--	--	--	--
01/24/10	9:00:00	8563	--	--	341.80	0.40	--	--	--	--
01/26/10	10:55:00	11558	2228	5.19	341.79	0.39	--	--	--	--
01/29/10	9:24:00	15787	6457	2.44	341.98	0.58	--	--	--	--

TABLE D6C.6-6. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-11.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/11/10	0:13	342.00	1/11/10	13:28	341.91	1/12/10	2:43	341.85	1/12/10	15:58	341.70	1/13/10	5:13	341.62
1/11/10	0:28	342.00	1/11/10	13:43	341.91	1/12/10	2:58	341.85	1/12/10	16:13	341.65	1/13/10	5:28	341.62
1/11/10	0:43	342.00	1/11/10	13:58	341.91	1/12/10	3:13	341.83	1/12/10	16:28	341.65	1/13/10	5:43	341.62
1/11/10	0:58	342.00	1/11/10	14:13	341.88	1/12/10	3:28	341.83	1/12/10	16:43	341.65	1/13/10	5:58	341.62
1/11/10	1:13	342.00	1/11/10	14:28	341.88	1/12/10	3:43	341.83	1/12/10	16:58	341.65	1/13/10	6:13	341.62
1/11/10	1:28	342.00	1/11/10	14:43	341.88	1/12/10	3:58	341.83	1/12/10	17:13	341.65	1/13/10	6:28	341.60
1/11/10	1:43	342.00	1/11/10	14:58	341.88	1/12/10	4:13	341.82	1/12/10	17:28	341.65	1/13/10	6:43	341.62
1/11/10	1:58	341.98	1/11/10	15:13	341.87	1/12/10	4:28	341.82	1/12/10	17:43	341.65	1/13/10	6:58	341.62
1/11/10	2:13	342.01	1/11/10	15:28	341.87	1/12/10	4:43	341.82	1/12/10	17:58	341.65	1/13/10	7:13	341.62
1/11/10	2:28	342.01	1/11/10	15:43	341.87	1/12/10	4:58	341.82	1/12/10	18:13	341.67	1/13/10	7:28	341.62
1/11/10	2:43	342.00	1/11/10	15:58	341.87	1/12/10	5:13	341.80	1/12/10	18:28	341.67	1/13/10	7:43	341.62
1/11/10	2:58	342.00	1/11/10	16:13	341.85	1/12/10	5:28	341.80	1/12/10	18:43	341.67	1/13/10	7:58	341.62
1/11/10	3:13	342.01	1/11/10	16:28	341.85	1/12/10	5:43	341.80	1/12/10	18:58	341.68	1/13/10	8:13	341.63
1/11/10	3:28	342.01	1/11/10	16:43	341.85	1/12/10	5:58	341.80	1/12/10	19:13	341.65	1/13/10	8:28	341.63
1/11/10	3:43	342.01	1/11/10	16:58	341.85	1/12/10	6:13	341.82	1/12/10	19:28	341.67	1/13/10	8:43	341.63
1/11/10	3:58	342.01	1/11/10	17:13	341.87	1/12/10	6:28	341.82	1/12/10	19:43	341.67	1/13/10	8:58	341.65
1/11/10	4:13	342.00	1/11/10	17:28	341.87	1/12/10	6:43	341.82	1/12/10	19:58	341.67	1/13/10	9:13	341.67
1/11/10	4:28	342.00	1/11/10	17:43	341.87	1/12/10	6:58	341.82	1/12/10	20:13	341.67	1/13/10	9:28	341.67
1/11/10	4:43	342.00	1/11/10	17:58	341.87	1/12/10	7:13	341.82	1/12/10	20:28	341.67	1/13/10	9:43	341.67
1/11/10	4:58	342.00	1/11/10	18:13	341.88	1/12/10	7:28	341.82	1/12/10	20:43	341.67	1/13/10	9:58	341.65
1/11/10	5:13	341.98	1/11/10	18:28	341.88	1/12/10	7:43	341.82	1/12/10	20:58	341.67	1/13/10	10:13	341.65
1/11/10	5:28	341.98	1/11/10	18:43	341.88	1/12/10	7:58	341.82	1/12/10	21:13	341.67	1/13/10	10:28	341.67
1/11/10	5:43	341.98	1/11/10	18:58	341.88	1/12/10	8:13	341.80	1/12/10	21:28	341.67	1/13/10	10:43	341.67
1/11/10	5:58	341.98	1/11/10	19:13	341.87	1/12/10	8:28	341.80	1/12/10	21:43	341.67	1/13/10	10:58	341.67
1/11/10	6:13	341.98	1/11/10	19:28	341.88	1/12/10	8:43	341.80	1/12/10	21:58	341.67	1/13/10	11:13	341.67
1/11/10	6:28	341.98	1/11/10	19:43	341.88	1/12/10	8:58	341.80	1/12/10	22:13	341.63	1/13/10	11:28	341.67
1/11/10	6:43	341.98	1/11/10	19:58	341.88	1/12/10	9:13	341.82	1/12/10	22:28	341.62	1/13/10	11:43	341.67
1/11/10	6:58	341.98	1/11/10	20:13	341.87	1/12/10	9:28	341.82	1/12/10	22:43	341.63	1/13/10	11:58	341.67
1/11/10	7:13	342.00	1/11/10	20:28	341.88	1/12/10	9:43	341.82	1/12/10	22:58	341.63	1/13/10	12:13	341.65
1/11/10	7:28	342.00	1/11/10	20:43	341.87	1/12/10	9:58	341.82	1/12/10	23:13	341.63	1/13/10	12:28	341.65
1/11/10	7:43	342.00	1/11/10	20:58	341.88	1/12/10	10:13	341.82	1/12/10	23:28	341.63	1/13/10	12:43	341.65
1/11/10	7:58	342.00	1/11/10	21:13	341.87	1/12/10	10:28	341.82	1/12/10	23:43	341.63	1/13/10	12:58	341.67
1/11/10	8:13	342.00	1/11/10	21:28	341.87	1/12/10	10:43	341.82	1/12/10	23:58	341.62	1/13/10	13:13	341.62
1/11/10	8:28	342.00	1/11/10	21:43	341.87	1/12/10	10:58	341.82	1/13/10	0:13	341.62	1/13/10	13:28	341.60
1/11/10	8:43	342.00	1/11/10	21:58	341.87	1/12/10	11:13	341.78	1/13/10	0:28	341.62	1/13/10	13:43	341.60
1/11/10	8:58	342.00	1/11/10	22:13	341.87	1/12/10	11:28	341.80	1/13/10	0:43	341.62	1/13/10	13:58	341.60
1/11/10	9:13	341.98	1/11/10	22:28	341.87	1/12/10	11:43	341.78	1/13/10	0:58	341.62	1/13/10	14:13	341.60
1/11/10	9:28	341.98	1/11/10	22:43	341.87	1/12/10	11:58	341.80	1/13/10	1:13	341.62	1/13/10	14:28	341.60
1/11/10	9:43	341.98	1/11/10	22:58	341.87	1/12/10	12:13	341.78	1/13/10	1:28	341.62	1/13/10	14:43	341.60
1/11/10	9:58	341.98	1/11/10	23:13	341.87	1/12/10	12:28	341.78	1/13/10	1:43	341.62	1/13/10	14:58	341.60
1/11/10	10:13	341.98	1/11/10	23:28	341.87	1/12/10	12:43	341.78	1/13/10	1:58	341.62	1/13/10	15:13	341.60
1/11/10	10:28	341.98	1/11/10	23:43	341.87	1/12/10	12:58	341.77	1/13/10	2:13	341.63	1/13/10	15:28	341.60
1/11/10	10:43	341.98	1/11/10	23:58	341.88	1/12/10	13:13	341.73	1/13/10	2:28	341.62	1/13/10	15:43	341.60
1/11/10	10:58	341.98	1/12/10	0:13	341.85	1/12/10	13:28	341.73	1/13/10	2:43	341.63	1/13/10	15:58	341.60
1/11/10	11:13	341.95	1/12/10	0:28	341.86	1/12/10	13:43	341.72	1/13/10	2:58	341.63	1/13/10	16:13	341.60
1/11/10	11:28	341.96	1/12/10	0:43	341.85	1/12/10	13:58	341.72	1/13/10	3:13	341.63	1/13/10	16:28	341.60
1/11/10	11:43	341.95	1/12/10	0:58	341.85	1/12/10	14:13	341.68	1/13/10	3:28	341.63	1/13/10	16:43	341.60
1/11/10	11:58	341.95	1/12/10	1:13	341.85	1/12/10	14:28	341.68	1/13/10	3:43	341.63	1/13/10	16:58	341.60
1/11/10	12:13	341.95	1/12/10	1:28	341.85	1/12/10	14:43	341.68	1/13/10	3:58	341.63	1/13/10	17:13	341.62
1/11/10	12:28	341.95	1/12/10	1:43	341.85	1/12/10	14:58	341.67	1/13/10	4:13	341.63	1/13/10	17:28	341.62
1/11/10	12:43	341.95	1/12/10	1:58	341.85	1/12/10	15:13	341.70	1/13/10	4:28	341.63	1/13/10	17:43	341.62
1/11/10	12:58	341.95	1/12/10	2:13	341.85	1/12/10	15:28	341.70	1/13/10	4:43	341.63	1/13/10	17:58	341.62
1/11/10	13:13	341.91	1/12/10	2:28	341.85	1/12/10	15:43	341.70	1/13/10	4:58	341.63	1/13/10	18:13	341.63

TABLE D6C.6-6. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-11, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/13/10	18:28	341.63	1/14/10	7:43	341.78	1/14/10	20:58	341.91	1/15/10	10:13	341.90	1/15/10	23:28	341.68
1/13/10	18:43	341.63	1/14/10	7:58	341.77	1/14/10	21:13	341.90	1/15/10	10:28	341.90	1/15/10	23:43	341.68
1/13/10	18:58	341.63	1/14/10	8:13	341.78	1/14/10	21:28	341.90	1/15/10	10:43	341.90	1/15/10	23:58	341.68
1/13/10	19:13	341.65	1/14/10	8:28	341.78	1/14/10	21:43	341.90	1/15/10	10:58	341.90	1/16/10	0:13	341.67
1/13/10	19:28	341.65	1/14/10	8:43	341.78	1/14/10	21:58	341.90	1/15/10	11:13	341.88	1/16/10	0:28	341.67
1/13/10	19:43	341.65	1/14/10	8:58	341.78	1/14/10	22:13	341.90	1/15/10	11:28	341.88	1/16/10	0:43	341.67
1/13/10	19:58	341.65	1/14/10	9:13	341.80	1/14/10	22:28	341.90	1/15/10	11:43	341.88	1/16/10	0:58	341.65
1/13/10	20:13	341.65	1/14/10	9:28	341.80	1/14/10	22:43	341.90	1/15/10	11:58	341.88	1/16/10	1:13	341.65
1/13/10	20:28	341.65	1/14/10	9:43	341.80	1/14/10	22:58	341.90	1/15/10	12:13	341.83	1/16/10	1:28	341.63
1/13/10	20:43	341.65	1/14/10	9:58	341.80	1/14/10	23:13	341.90	1/15/10	12:28	341.83	1/16/10	1:43	341.63
1/13/10	20:58	341.65	1/14/10	10:13	341.80	1/14/10	23:28	341.90	1/15/10	12:43	341.83	1/16/10	1:58	341.63
1/13/10	21:13	341.67	1/14/10	10:28	341.82	1/14/10	23:43	341.90	1/15/10	12:58	341.83	1/16/10	2:13	341.63
1/13/10	21:28	341.67	1/14/10	10:43	341.80	1/14/10	23:58	341.90	1/15/10	13:13	341.82	1/16/10	2:28	341.63
1/13/10	21:43	341.67	1/14/10	10:58	341.82	1/15/10	0:13	341.88	1/15/10	13:28	341.82	1/16/10	2:43	341.63
1/13/10	21:58	341.67	1/14/10	11:13	341.82	1/15/10	0:28	341.88	1/15/10	13:43	341.80	1/16/10	2:58	341.63
1/13/10	22:13	341.68	1/14/10	11:28	341.82	1/15/10	0:43	341.88	1/15/10	13:58	341.82	1/16/10	3:13	341.60
1/13/10	22:28	341.68	1/14/10	11:43	341.82	1/15/10	0:58	341.90	1/15/10	14:13	341.75	1/16/10	3:28	341.60
1/13/10	22:43	341.68	1/14/10	11:58	341.82	1/15/10	1:13	341.88	1/15/10	14:28	341.75	1/16/10	3:43	341.60
1/13/10	22:58	341.68	1/14/10	12:13	341.82	1/15/10	1:28	341.88	1/15/10	14:43	341.75	1/16/10	3:58	341.60
1/13/10	23:13	341.70	1/14/10	12:28	341.82	1/15/10	1:43	341.88	1/15/10	14:58	341.75	1/16/10	4:13	341.60
1/13/10	23:28	341.70	1/14/10	12:43	341.82	1/15/10	1:58	341.88	1/15/10	15:13	341.75	1/16/10	4:28	341.60
1/13/10	23:43	341.70	1/14/10	12:58	341.82	1/15/10	2:13	341.88	1/15/10	15:28	341.75	1/16/10	4:43	341.60
1/13/10	23:58	341.70	1/14/10	13:13	341.78	1/15/10	2:28	341.88	1/15/10	15:43	341.75	1/16/10	4:58	341.60
1/14/10	0:13	341.70	1/14/10	13:28	341.78	1/15/10	2:43	341.88	1/15/10	15:58	341.75	1/16/10	5:13	341.57
1/14/10	0:28	341.70	1/14/10	13:43	341.78	1/15/10	2:58	341.88	1/15/10	16:13	341.73	1/16/10	5:28	341.57
1/14/10	0:43	341.70	1/14/10	13:58	341.78	1/15/10	3:13	341.87	1/15/10	16:28	341.73	1/16/10	5:43	341.57
1/14/10	0:58	341.70	1/14/10	14:13	341.78	1/15/10	3:28	341.87	1/15/10	16:43	341.73	1/16/10	5:58	341.59
1/14/10	1:13	341.70	1/14/10	14:28	341.78	1/15/10	3:43	341.87	1/15/10	16:58	341.73	1/16/10	6:13	341.60
1/14/10	1:28	341.70	1/14/10	14:43	341.78	1/15/10	3:58	341.87	1/15/10	17:13	341.72	1/16/10	6:28	341.60
1/14/10	1:43	341.70	1/14/10	14:58	341.78	1/15/10	4:13	341.85	1/15/10	17:28	341.72	1/16/10	6:43	341.60
1/14/10	1:58	341.70	1/14/10	15:13	341.80	1/15/10	4:28	341.85	1/15/10	17:43	341.72	1/16/10	6:58	341.58
1/14/10	2:13	341.72	1/14/10	15:28	341.80	1/15/10	4:43	341.85	1/15/10	17:58	341.72	1/16/10	7:13	341.60
1/14/10	2:28	341.70	1/14/10	15:43	341.80	1/15/10	4:58	341.85	1/15/10	18:13	341.72	1/16/10	7:28	341.60
1/14/10	2:43	341.70	1/14/10	15:58	341.80	1/15/10	5:13	341.85	1/15/10	18:28	341.72	1/16/10	7:43	341.60
1/14/10	2:58	341.70	1/14/10	16:13	341.80	1/15/10	5:28	341.85	1/15/10	18:43	341.72	1/16/10	7:58	341.60
1/14/10	3:13	341.72	1/14/10	16:28	341.80	1/15/10	5:43	341.85	1/15/10	18:58	341.72	1/16/10	8:13	341.60
1/14/10	3:28	341.73	1/14/10	16:43	341.80	1/15/10	5:58	341.85	1/15/10	19:13	341.72	1/16/10	8:28	341.60
1/14/10	3:43	341.72	1/14/10	16:58	341.80	1/15/10	6:13	341.87	1/15/10	19:28	341.72	1/16/10	8:43	341.60
1/14/10	3:58	341.72	1/14/10	17:13	341.82	1/15/10	6:28	341.87	1/15/10	19:43	341.73	1/16/10	8:58	341.62
1/14/10	4:13	341.73	1/14/10	17:28	341.80	1/15/10	6:43	341.87	1/15/10	19:58	341.73	1/16/10	9:13	341.60
1/14/10	4:28	341.73	1/14/10	17:43	341.80	1/15/10	6:58	341.87	1/15/10	20:13	341.70	1/16/10	9:28	341.60
1/14/10	4:43	341.75	1/14/10	17:58	341.80	1/15/10	7:13	341.87	1/15/10	20:28	341.70	1/16/10	9:43	341.60
1/14/10	4:58	341.73	1/14/10	18:13	341.83	1/15/10	7:28	341.87	1/15/10	20:43	341.70	1/16/10	9:58	341.60
1/14/10	5:13	341.73	1/14/10	18:28	341.83	1/15/10	7:43	341.87	1/15/10	20:58	341.70	1/16/10	10:13	341.65
1/14/10	5:28	341.75	1/14/10	18:43	341.83	1/15/10	7:58	341.87	1/15/10	21:13	341.70	1/16/10	10:28	341.65
1/14/10	5:43	341.73	1/14/10	18:58	341.83	1/15/10	8:13	341.87	1/15/10	21:28	341.70	1/16/10	10:43	341.65
1/14/10	5:58	341.73	1/14/10	19:13	341.86	1/15/10	8:28	341.87	1/15/10	21:43	341.70	1/16/10	10:58	341.65
1/14/10	6:13	341.75	1/14/10	19:28	341.86	1/15/10	8:43	341.85	1/15/10	21:58	341.70	1/16/10	11:13	341.63
1/14/10	6:28	341.75	1/14/10	19:43	341.88	1/15/10	8:58	341.85	1/15/10	22:13	341.68	1/16/10	11:28	341.63
1/14/10	6:43	341.77	1/14/10	19:58	341.88	1/15/10	9:13	341.90	1/15/10	22:28	341.68	1/16/10	11:43	341.63
1/14/10	6:58	341.75	1/14/10	20:13	341.91	1/15/10	9:28	341.90	1/15/10	22:43	341.68	1/16/10	11:58	341.63
1/14/10	7:13	341.77	1/14/10	20:28	341.91	1/15/10	9:43	341.90	1/15/10	22:58	341.68	1/16/10	12:13	341.60
1/14/10	7:28	341.77	1/14/10	20:43	341.91	1/15/10	9:58	341.90	1/15/10	23:13	341.68	1/16/10	12:28	341.60

TABLE D6C.6-6. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-11, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/16/10	12:43	341.60	1/17/10	1:58	341.55	1/17/10	15:13	341.49	1/18/10	4:28	341.42	1/18/10	17:43	341.82
1/16/10	12:58	341.60	1/17/10	2:13	341.57	1/17/10	15:28	341.49	1/18/10	4:43	341.44	1/18/10	17:58	341.83
1/16/10	13:13	341.59	1/17/10	2:28	341.57	1/17/10	15:43	341.49	1/18/10	4:58	341.44	1/18/10	18:13	341.83
1/16/10	13:28	341.59	1/17/10	2:43	341.57	1/17/10	15:58	341.49	1/18/10	5:13	341.42	1/18/10	18:28	341.83
1/16/10	13:43	341.59	1/17/10	2:58	341.57	1/17/10	16:13	341.49	1/18/10	5:28	341.40	1/18/10	18:43	341.85
1/16/10	13:58	341.59	1/17/10	3:13	341.58	1/17/10	16:28	341.49	1/18/10	5:43	341.42	1/18/10	18:58	341.83
1/16/10	14:13	341.55	1/17/10	3:28	341.58	1/17/10	16:43	341.49	1/18/10	5:58	341.42	1/18/10	19:13	341.85
1/16/10	14:28	341.55	1/17/10	3:43	341.58	1/17/10	16:58	341.49	1/18/10	6:13	341.42	1/18/10	19:28	341.85
1/16/10	14:43	341.55	1/17/10	3:58	341.58	1/17/10	17:13	341.47	1/18/10	6:28	341.42	1/18/10	19:43	341.85
1/16/10	14:58	341.55	1/17/10	4:13	341.58	1/17/10	17:28	341.45	1/18/10	6:43	341.42	1/18/10	19:58	341.85
1/16/10	15:13	341.55	1/17/10	4:28	341.58	1/17/10	17:43	341.45	1/18/10	6:58	341.44	1/18/10	20:13	341.85
1/16/10	15:28	341.55	1/17/10	4:43	341.58	1/17/10	17:58	341.47	1/18/10	7:13	341.42	1/18/10	20:28	341.85
1/16/10	15:43	341.55	1/17/10	4:58	341.58	1/17/10	18:13	341.49	1/18/10	7:28	341.42	1/18/10	20:43	341.85
1/16/10	15:58	341.55	1/17/10	5:13	341.60	1/17/10	18:28	341.49	1/18/10	7:43	341.42	1/18/10	20:58	341.87
1/16/10	16:13	341.55	1/17/10	5:28	341.60	1/17/10	18:43	341.49	1/18/10	7:58	341.44	1/18/10	21:13	341.87
1/16/10	16:28	341.55	1/17/10	5:43	341.60	1/17/10	18:58	341.49	1/18/10	8:13	341.44	1/18/10	21:28	341.87
1/16/10	16:43	341.54	1/17/10	5:58	341.60	1/17/10	19:13	341.49	1/18/10	8:28	341.44	1/18/10	21:43	341.87
1/16/10	16:58	341.55	1/17/10	6:13	341.60	1/17/10	19:28	341.49	1/18/10	8:43	341.45	1/18/10	21:58	341.87
1/16/10	17:13	341.54	1/17/10	6:28	341.60	1/17/10	19:43	341.49	1/18/10	8:58	341.44	1/18/10	22:13	341.85
1/16/10	17:28	341.54	1/17/10	6:43	341.60	1/17/10	19:58	341.49	1/18/10	9:13	341.42	1/18/10	22:28	341.87
1/16/10	17:43	341.55	1/17/10	6:58	341.60	1/17/10	20:13	341.49	1/18/10	9:28	341.42	1/18/10	22:43	341.87
1/16/10	17:58	341.55	1/17/10	7:13	341.60	1/17/10	20:28	341.49	1/18/10	9:43	341.44	1/18/10	22:58	341.87
1/16/10	18:13	341.55	1/17/10	7:28	341.60	1/17/10	20:43	341.49	1/18/10	9:58	341.44	1/18/10	23:13	341.85
1/16/10	18:28	341.57	1/17/10	7:43	341.60	1/17/10	20:58	341.49	1/18/10	10:13	341.42	1/18/10	23:28	341.85
1/16/10	18:43	341.57	1/17/10	7:58	341.60	1/17/10	21:13	341.49	1/18/10	10:28	341.40	1/18/10	23:43	341.85
1/16/10	18:58	341.57	1/17/10	8:13	341.60	1/17/10	21:28	341.49	1/18/10	10:43	341.42	1/18/10	23:58	341.85
1/16/10	19:13	341.55	1/17/10	8:28	341.60	1/17/10	21:43	341.49	1/18/10	10:58	341.45	1/19/10	0:13	341.85
1/16/10	19:28	341.55	1/17/10	8:43	341.60	1/17/10	21:58	341.49	1/18/10	11:13	341.49	1/19/10	0:28	341.85
1/16/10	19:43	341.55	1/17/10	8:58	341.60	1/17/10	22:13	341.49	1/18/10	11:28	341.52	1/19/10	0:43	341.85
1/16/10	19:58	341.55	1/17/10	9:13	341.62	1/17/10	22:28	341.49	1/18/10	11:43	341.57	1/19/10	0:58	341.85
1/16/10	20:13	341.55	1/17/10	9:28	341.62	1/17/10	22:43	341.49	1/18/10	11:58	341.59	1/19/10	1:13	341.83
1/16/10	20:28	341.55	1/17/10	9:43	341.62	1/17/10	22:58	341.49	1/18/10	12:13	341.60	1/19/10	1:28	341.83
1/16/10	20:43	341.55	1/17/10	9:58	341.62	1/17/10	23:13	341.49	1/18/10	12:28	341.65	1/19/10	1:43	341.83
1/16/10	20:58	341.55	1/17/10	10:13	341.60	1/17/10	23:28	341.49	1/18/10	12:43	341.67	1/19/10	1:58	341.82
1/16/10	21:13	341.55	1/17/10	10:28	341.62	1/17/10	23:43	341.49	1/18/10	12:58	341.69	1/19/10	2:13	341.83
1/16/10	21:28	341.55	1/17/10	10:43	341.62	1/17/10	23:58	341.49	1/18/10	13:13	341.70	1/19/10	2:28	341.83
1/16/10	21:43	341.55	1/17/10	10:58	341.62	1/18/10	0:13	341.47	1/18/10	13:28	341.72	1/19/10	2:43	341.83
1/16/10	21:58	341.55	1/17/10	11:13	341.59	1/18/10	0:28	341.47	1/18/10	13:43	341.73	1/19/10	2:58	341.83
1/16/10	22:13	341.55	1/17/10	11:28	341.59	1/18/10	0:43	341.47	1/18/10	13:58	341.73	1/19/10	3:13	341.82
1/16/10	22:28	341.55	1/17/10	11:43	341.59	1/18/10	0:58	341.47	1/18/10	14:13	341.77	1/19/10	3:28	341.82
1/16/10	22:43	341.55	1/17/10	11:58	341.59	1/18/10	1:13	341.47	1/18/10	14:28	341.77	1/19/10	3:43	341.82
1/16/10	22:58	341.55	1/17/10	12:13	341.57	1/18/10	1:28	341.47	1/18/10	14:43	341.78	1/19/10	3:58	341.82
1/16/10	23:13	341.55	1/17/10	12:28	341.55	1/18/10	1:43	341.47	1/18/10	14:58	341.78	1/19/10	4:13	341.80
1/16/10	23:28	341.55	1/17/10	12:43	341.57	1/18/10	1:58	341.47	1/18/10	15:13	341.78	1/19/10	4:28	341.79
1/16/10	23:43	341.55	1/17/10	12:58	341.57	1/18/10	2:13	341.47	1/18/10	15:28	341.80	1/19/10	4:43	341.80
1/16/10	23:58	341.54	1/17/10	13:13	341.54	1/18/10	2:28	341.47	1/18/10	15:43	341.78	1/19/10	4:58	341.80
1/17/10	0:13	341.57	1/17/10	13:28	341.54	1/18/10	2:43	341.47	1/18/10	15:58	341.80	1/19/10	5:13	341.80
1/17/10	0:28	341.57	1/17/10	13:43	341.54	1/18/10	2:58	341.47	1/18/10	16:13	341.82	1/19/10	5:28	341.80
1/17/10	0:43	341.57	1/17/10	13:58	341.54	1/18/10	3:13	341.45	1/18/10	16:28	341.83	1/19/10	5:43	341.80
1/17/10	0:58	341.57	1/17/10	14:13	341.49	1/18/10	3:28	341.45	1/18/10	16:43	341.83	1/19/10	5:58	341.80
1/17/10	1:13	341.57	1/17/10	14:28	341.49	1/18/10	3:43	341.45	1/18/10	16:58	341.83	1/19/10	6:13	341.77
1/17/10	1:28	341.55	1/17/10	14:43	341.49	1/18/10	3:58	341.45	1/18/10	17:13	341.82	1/19/10	6:28	341.77
1/17/10	1:43	341.55	1/17/10	14:58	341.49	1/18/10	4:13	341.44	1/18/10	17:28	341.82	1/19/10	6:43	341.77

TABLE D6C.6-6. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-11, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/19/10	6:58	341.75	1/19/10	20:13	341.72	1/20/10	9:28	341.72	1/20/10	22:43	341.75	1/21/10	11:58	341.72
1/19/10	7:13	341.77	1/19/10	20:28	341.72	1/20/10	9:43	341.72	1/20/10	22:58	341.75	1/21/10	12:13	341.70
1/19/10	7:28	341.78	1/19/10	20:43	341.72	1/20/10	9:58	341.72	1/20/10	23:13	341.77	1/21/10	12:28	341.69
1/19/10	7:43	341.78	1/19/10	20:58	341.74	1/20/10	10:13	341.74	1/20/10	23:28	341.77	1/21/10	12:43	341.70
1/19/10	7:58	341.78	1/19/10	21:13	341.74	1/20/10	10:28	341.74	1/20/10	23:43	341.77	1/21/10	12:58	341.70
1/19/10	8:13	341.77	1/19/10	21:28	341.72	1/20/10	10:43	341.75	1/20/10	23:58	341.77	1/21/10	13:13	341.67
1/19/10	8:28	341.77	1/19/10	21:43	341.72	1/20/10	10:58	341.75	1/21/10	0:13	341.75	1/21/10	13:28	341.65
1/19/10	8:43	341.77	1/19/10	21:58	341.72	1/20/10	11:13	341.74	1/21/10	0:28	341.75	1/21/10	13:43	341.69
1/19/10	8:58	341.77	1/19/10	22:13	341.72	1/20/10	11:28	341.74	1/21/10	0:43	341.75	1/21/10	13:58	341.67
1/19/10	9:13	341.77	1/19/10	22:28	341.72	1/20/10	11:43	341.74	1/21/10	0:58	341.77	1/21/10	14:13	341.65
1/19/10	9:28	341.77	1/19/10	22:43	341.72	1/20/10	11:58	341.74	1/21/10	1:13	341.74	1/21/10	14:28	341.65
1/19/10	9:43	341.77	1/19/10	22:58	341.72	1/20/10	12:13	341.70	1/21/10	1:28	341.75	1/21/10	14:43	341.65
1/19/10	9:58	341.77	1/19/10	23:13	341.74	1/20/10	12:28	341.70	1/21/10	1:43	341.75	1/21/10	14:58	341.65
1/19/10	10:13	341.77	1/19/10	23:28	341.74	1/20/10	12:43	341.70	1/21/10	1:58	341.75	1/21/10	15:13	341.62
1/19/10	10:28	341.77	1/19/10	23:43	341.74	1/20/10	12:58	341.70	1/21/10	2:13	341.74	1/21/10	15:28	341.64
1/19/10	10:43	341.77	1/19/10	23:58	341.74	1/20/10	13:13	341.69	1/21/10	2:28	341.74	1/21/10	15:43	341.64
1/19/10	10:58	341.77	1/20/10	0:13	341.74	1/20/10	13:28	341.69	1/21/10	2:43	341.74	1/21/10	15:58	341.64
1/19/10	11:13	341.75	1/20/10	0:28	341.74	1/20/10	13:43	341.69	1/21/10	2:58	341.74	1/21/10	16:13	341.64
1/19/10	11:28	341.77	1/20/10	0:43	341.74	1/20/10	13:58	341.69	1/21/10	3:13	341.74	1/21/10	16:28	341.64
1/19/10	11:43	341.79	1/20/10	0:58	341.74	1/20/10	14:13	341.69	1/21/10	3:28	341.74	1/21/10	16:43	341.64
1/19/10	11:58	341.79	1/20/10	1:13	341.74	1/20/10	14:28	341.69	1/21/10	3:43	341.74	1/21/10	16:58	341.64
1/19/10	12:13	341.77	1/20/10	1:28	341.74	1/20/10	14:43	341.69	1/21/10	3:58	341.74	1/21/10	17:13	341.64
1/19/10	12:28	341.77	1/20/10	1:43	341.74	1/20/10	14:58	341.69	1/21/10	4:13	341.74	1/21/10	17:28	341.65
1/19/10	12:43	341.79	1/20/10	1:58	341.74	1/20/10	15:13	341.69	1/21/10	4:28	341.74	1/21/10	17:43	341.65
1/19/10	12:58	341.79	1/20/10	2:13	341.74	1/20/10	15:28	341.69	1/21/10	4:43	341.74	1/21/10	17:58	341.64
1/19/10	13:13	341.77	1/20/10	2:28	341.74	1/20/10	15:43	341.69	1/21/10	4:58	341.74	1/21/10	18:13	341.65
1/19/10	13:28	341.77	1/20/10	2:43	341.74	1/20/10	15:58	341.70	1/21/10	5:13	341.74	1/21/10	18:28	341.67
1/19/10	13:43	341.77	1/20/10	2:58	341.74	1/20/10	16:13	341.69	1/21/10	5:28	341.75	1/21/10	18:43	341.67
1/19/10	13:58	341.77	1/20/10	3:13	341.72	1/20/10	16:28	341.70	1/21/10	5:43	341.75	1/21/10	18:58	341.67
1/19/10	14:13	341.75	1/20/10	3:28	341.72	1/20/10	16:43	341.69	1/21/10	5:58	341.75	1/21/10	19:13	341.65
1/19/10	14:28	341.75	1/20/10	3:43	341.72	1/20/10	16:58	341.70	1/21/10	6:13	341.74	1/21/10	19:28	341.67
1/19/10	14:43	341.75	1/20/10	3:58	341.72	1/20/10	17:13	341.72	1/21/10	6:28	341.74	1/21/10	19:43	341.65
1/19/10	14:58	341.75	1/20/10	4:13	341.72	1/20/10	17:28	341.70	1/21/10	6:43	341.74	1/21/10	19:58	341.67
1/19/10	15:13	341.77	1/20/10	4:28	341.70	1/20/10	17:43	341.72	1/21/10	6:58	341.72	1/21/10	20:13	341.69
1/19/10	15:28	341.77	1/20/10	4:43	341.70	1/20/10	17:58	341.70	1/21/10	7:13	341.74	1/21/10	20:28	341.69
1/19/10	15:43	341.77	1/20/10	4:58	341.70	1/20/10	18:13	341.74	1/21/10	7:28	341.74	1/21/10	20:43	341.69
1/19/10	15:58	341.77	1/20/10	5:13	341.74	1/20/10	18:28	341.72	1/21/10	7:43	341.74	1/21/10	20:58	341.70
1/19/10	16:13	341.79	1/20/10	5:28	341.72	1/20/10	18:43	341.72	1/21/10	7:58	341.72	1/21/10	21:13	341.67
1/19/10	16:28	341.77	1/20/10	5:43	341.72	1/20/10	18:58	341.72	1/21/10	8:13	341.70	1/21/10	21:28	341.67
1/19/10	16:43	341.77	1/20/10	5:58	341.72	1/20/10	19:13	341.74	1/21/10	8:28	341.72	1/21/10	21:43	341.67
1/19/10	16:58	341.75	1/20/10	6:13	341.72	1/20/10	19:28	341.74	1/21/10	8:43	341.72	1/21/10	21:58	341.69
1/19/10	17:13	341.75	1/20/10	6:28	341.72	1/20/10	19:43	341.74	1/21/10	8:58	341.70	1/21/10	22:13	341.69
1/19/10	17:28	341.75	1/20/10	6:43	341.72	1/20/10	19:58	341.75	1/21/10	9:13	341.70	1/21/10	22:28	341.67
1/19/10	17:43	341.74	1/20/10	6:58	341.72	1/20/10	20:13	341.74	1/21/10	9:28	341.72	1/21/10	22:43	341.69
1/19/10	17:58	341.74	1/20/10	7:13	341.72	1/20/10	20:28	341.74	1/21/10	9:43	341.70	1/21/10	22:58	341.69
1/19/10	18:13	341.75	1/20/10	7:28	341.72	1/20/10	20:43	341.74	1/21/10	9:58	341.70	1/21/10	23:13	341.67
1/19/10	18:28	341.75	1/20/10	7:43	341.72	1/20/10	20:58	341.74	1/21/10	10:13	341.70	1/21/10	23:28	341.69
1/19/10	18:43	341.74	1/20/10	7:58	341.72	1/20/10	21:13	341.74	1/21/10	10:28	341.70	1/21/10	23:43	341.67
1/19/10	18:58	341.75	1/20/10	8:13	341.74	1/20/10	21:28	341.74	1/21/10	10:43	341.70	1/21/10	23:58	341.67
1/19/10	19:13	341.75	1/20/10	8:28	341.74	1/20/10	21:43	341.74	1/21/10	10:58	341.70	1/22/10	0:13	341.64
1/19/10	19:28	341.74	1/20/10	8:43	341.72	1/20/10	21:58	341.74	1/21/10	11:13	341.72	1/22/10	0:28	341.65
1/19/10	19:43	341.74	1/20/10	8:58	341.74	1/20/10	22:13	341.75	1/21/10	11:28	341.72	1/22/10	0:43	341.65
1/19/10	19:58	341.74	1/20/10	9:13	341.72	1/20/10	22:28	341.74	1/21/10	11:43	341.72	1/22/10	0:58	341.65

TABLE D6C.6-6. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-11, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/22/10	1:13	341.64	1/22/10	14:28	341.47	1/23/10	3:43	341.64	1/23/10	16:58	341.87	1/24/10	6:13	342.08
1/22/10	1:28	341.64	1/22/10	14:43	341.47	1/23/10	3:58	341.64	1/23/10	17:13	341.90	1/24/10	6:28	342.08
1/22/10	1:43	341.64	1/22/10	14:58	341.47	1/23/10	4:13	341.67	1/23/10	17:28	341.90	1/24/10	6:43	342.08
1/22/10	1:58	341.64	1/22/10	15:13	341.47	1/23/10	4:28	341.67	1/23/10	17:43	341.90	1/24/10	6:58	342.08
1/22/10	2:13	341.62	1/22/10	15:28	341.46	1/23/10	4:43	341.67	1/23/10	17:58	341.90	1/24/10	7:13	342.10
1/22/10	2:28	341.62	1/22/10	15:43	341.47	1/23/10	4:58	341.67	1/23/10	18:13	341.92	1/24/10	7:28	342.10
1/22/10	2:43	341.62	1/22/10	15:58	341.46	1/23/10	5:13	341.69	1/23/10	18:28	341.92	1/24/10	7:43	342.10
1/22/10	2:58	341.62	1/22/10	16:13	341.46	1/23/10	5:28	341.69	1/23/10	18:43	341.92	1/24/10	7:58	342.08
1/22/10	3:13	341.60	1/22/10	16:28	341.46	1/23/10	5:43	341.69	1/23/10	18:58	341.92	1/24/10	8:13	342.10
1/22/10	3:28	341.60	1/22/10	16:43	341.46	1/23/10	5:58	341.67	1/23/10	19:13	341.93	1/24/10	8:28	342.10
1/22/10	3:43	341.60	1/22/10	16:58	341.46	1/23/10	6:13	341.72	1/23/10	19:28	341.93	1/24/10	8:43	342.12
1/22/10	3:58	341.59	1/22/10	17:13	341.47	1/23/10	6:28	341.70	1/23/10	19:43	341.93	1/24/10	8:58	342.10
1/22/10	4:13	341.57	1/22/10	17:28	341.47	1/23/10	6:43	341.70	1/23/10	19:58	341.93	1/24/10	9:13	342.12
1/22/10	4:28	341.57	1/22/10	17:43	341.47	1/23/10	6:58	341.70	1/23/10	20:13	341.93	1/24/10	9:28	342.12
1/22/10	4:43	341.59	1/22/10	17:58	341.47	1/23/10	7:13	341.72	1/23/10	20:28	341.93	1/24/10	9:43	342.13
1/22/10	4:58	341.59	1/22/10	18:13	341.51	1/23/10	7:28	341.74	1/23/10	20:43	341.93	1/24/10	9:58	342.12
1/22/10	5:13	341.57	1/22/10	18:28	341.51	1/23/10	7:43	341.74	1/23/10	20:58	341.93	1/24/10	10:13	342.13
1/22/10	5:28	341.57	1/22/10	18:43	341.51	1/23/10	7:58	341.72	1/23/10	21:13	341.95	1/24/10	10:28	342.13
1/22/10	5:43	341.57	1/22/10	18:58	341.51	1/23/10	8:13	341.75	1/23/10	21:28	341.95	1/24/10	10:43	342.13
1/22/10	5:58	341.57	1/22/10	19:13	341.52	1/23/10	8:28	341.75	1/23/10	21:43	341.95	1/24/10	10:58	342.13
1/22/10	6:13	341.55	1/22/10	19:28	341.52	1/23/10	8:43	341.75	1/23/10	21:58	341.93	1/24/10	11:13	342.15
1/22/10	6:28	341.55	1/22/10	19:43	341.51	1/23/10	8:58	341.75	1/23/10	22:13	341.95	1/24/10	11:28	342.13
1/22/10	6:43	341.55	1/22/10	19:58	341.52	1/23/10	9:13	341.77	1/23/10	22:28	341.95	1/24/10	11:43	342.13
1/22/10	6:58	341.55	1/22/10	20:13	341.52	1/23/10	9:28	341.77	1/23/10	22:43	341.95	1/24/10	11:58	342.13
1/22/10	7:13	341.52	1/22/10	20:28	341.54	1/23/10	9:43	341.77	1/23/10	22:58	341.95	1/24/10	12:13	342.13
1/22/10	7:28	341.49	1/22/10	20:43	341.52	1/23/10	9:58	341.77	1/23/10	23:13	341.95	1/24/10	12:28	342.13
1/22/10	7:43	341.52	1/22/10	20:58	341.52	1/23/10	10:13	341.79	1/23/10	23:28	341.97	1/24/10	12:43	342.13
1/22/10	7:58	341.52	1/22/10	21:13	341.56	1/23/10	10:28	341.79	1/23/10	23:43	341.97	1/24/10	12:58	342.13
1/22/10	8:13	341.49	1/22/10	21:28	341.56	1/23/10	10:43	341.79	1/23/10	23:58	341.97	1/24/10	13:13	342.13
1/22/10	8:28	341.47	1/22/10	21:43	341.56	1/23/10	10:58	341.79	1/24/10	0:13	341.98	1/24/10	13:28	342.13
1/22/10	8:43	341.51	1/22/10	21:58	341.56	1/23/10	11:13	341.79	1/24/10	0:28	341.98	1/24/10	13:43	342.13
1/22/10	8:58	341.49	1/22/10	22:13	341.57	1/23/10	11:28	341.79	1/24/10	0:43	341.98	1/24/10	13:58	342.13
1/22/10	9:13	341.51	1/22/10	22:28	341.57	1/23/10	11:43	341.80	1/24/10	0:58	341.98	1/24/10	14:13	342.12
1/22/10	9:28	341.51	1/22/10	22:43	341.57	1/23/10	11:58	341.79	1/24/10	1:13	342.00	1/24/10	14:28	342.12
1/22/10	9:43	341.51	1/22/10	22:58	341.57	1/23/10	12:13	341.79	1/24/10	1:28	342.00	1/24/10	14:43	342.12
1/22/10	9:58	341.51	1/22/10	23:13	341.57	1/23/10	12:28	341.80	1/24/10	1:43	342.00	1/24/10	14:58	342.12
1/22/10	10:13	341.51	1/22/10	23:28	341.57	1/23/10	12:43	341.79	1/24/10	1:58	341.98	1/24/10	15:13	342.15
1/22/10	10:28	341.54	1/22/10	23:43	341.57	1/23/10	12:58	341.80	1/24/10	2:13	342.02	1/24/10	15:28	342.15
1/22/10	10:43	341.52	1/22/10	23:58	341.57	1/23/10	13:13	341.79	1/24/10	2:28	342.02	1/24/10	15:43	342.15
1/22/10	10:58	341.54	1/23/10	0:13	341.60	1/23/10	13:28	341.79	1/24/10	2:43	342.02	1/24/10	15:58	342.15
1/22/10	11:13	341.51	1/23/10	0:28	341.60	1/23/10	13:43	341.79	1/24/10	2:58	342.02	1/24/10	16:13	342.15
1/22/10	11:28	341.52	1/23/10	0:43	341.60	1/23/10	13:58	341.79	1/24/10	3:13	342.02	1/24/10	16:28	342.15
1/22/10	11:43	341.51	1/23/10	0:58	341.60	1/23/10	14:13	341.82	1/24/10	3:28	342.02	1/24/10	16:43	342.15
1/22/10	11:58	341.52	1/23/10	1:13	341.62	1/23/10	14:28	341.82	1/24/10	3:43	342.02	1/24/10	16:58	342.15
1/22/10	12:13	341.51	1/23/10	1:28	341.62	1/23/10	14:43	341.82	1/24/10	3:58	342.02	1/24/10	17:13	342.15
1/22/10	12:28	341.51	1/23/10	1:43	341.62	1/23/10	14:58	341.82	1/24/10	4:13	342.05	1/24/10	17:28	342.15
1/22/10	12:43	341.51	1/23/10	1:58	341.62	1/23/10	15:13	341.85	1/24/10	4:28	342.05	1/24/10	17:43	342.15
1/22/10	12:58	341.51	1/23/10	2:13	341.64	1/23/10	15:28	341.84	1/24/10	4:43	342.05	1/24/10	17:58	342.15
1/22/10	13:13	341.47	1/23/10	2:28	341.64	1/23/10	15:43	341.85	1/24/10	4:58	342.05	1/24/10	18:13	342.16
1/22/10	13:28	341.49	1/23/10	2:43	341.64	1/23/10	15:58	341.85	1/24/10	5:13	342.05	1/24/10	18:28	342.16
1/22/10	13:43	341.49	1/23/10	2:58	341.64	1/23/10	16:13	341.87	1/24/10	5:28	342.05	1/24/10	18:43	342.16
1/22/10	13:58	341.49	1/23/10	3:13	341.65	1/23/10	16:28	341.87	1/24/10	5:43	342.05	1/24/10	18:58	342.16
1/22/10	14:13	341.47	1/23/10	3:28	341.65	1/23/10	16:43	341.87	1/24/10	5:58	342.05	1/24/10	19:13	342.18

TABLE D6C.6-6. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-11, (CONTINUED).

DATE	TIME	DTW (ft; TOC)
1/24/10	19:28	342.18
1/24/10	19:43	342.18
1/24/10	19:58	342.18
1/24/10	20:13	342.16
1/24/10	20:28	342.16
1/24/10	20:43	342.16
1/24/10	20:58	342.16
1/24/10	21:13	342.16
1/24/10	21:28	342.16
1/24/10	21:43	342.16
1/24/10	21:58	342.16
1/24/10	22:13	342.18
1/24/10	22:28	342.18
1/24/10	22:43	342.17
1/24/10	22:58	342.15
1/24/10	23:13	342.12
1/24/10	23:28	342.10
1/24/10	23:43	342.07
1/24/10	23:58	342.05
1/25/10	0:13	342.05
1/25/10	0:28	342.02
1/25/10	0:43	342.00
1/25/10	0:58	341.98
1/25/10	1:13	342.00
1/25/10	1:28	342.00
1/25/10	1:43	342.00
1/25/10	1:58	341.98
1/25/10	2:13	341.98
1/25/10	2:28	341.98
1/25/10	2:43	341.98
1/25/10	2:58	341.98
1/25/10	3:13	341.97
1/25/10	3:28	341.97
1/25/10	3:43	341.97
1/25/10	3:58	341.97
1/25/10	4:13	341.97
1/25/10	4:28	341.97
1/25/10	4:43	341.97
1/25/10	4:58	341.97
1/25/10	5:13	341.98
1/25/10	5:28	341.98
1/25/10	5:43	341.98
1/25/10	5:58	341.98
1/25/10	6:13	341.98
1/25/10	6:28	341.98
1/25/10	6:43	341.98
1/25/10	6:58	341.98
1/25/10	7:13	342.00
1/25/10	7:28	341.98
1/25/10	7:43	341.98
1/25/10	7:58	341.98
1/25/10	8:13	342.01
1/25/10	8:28	342.01

DATE	TIME	DTW (ft; TOC)
1/25/10	8:43	342.00
1/25/10	8:58	342.00
1/25/10	9:13	342.02
1/25/10	9:28	342.02
1/25/10	9:43	342.02
1/25/10	9:58	342.02
1/25/10	10:13	342.03
1/25/10	10:28	342.05
1/25/10	10:43	342.05
1/25/10	10:58	342.03
1/25/10	11:13	342.05
1/25/10	11:28	342.05
1/25/10	11:43	342.05
1/25/10	11:58	342.05
1/25/10	12:28	342.03
1/25/10	12:58	342.02
1/25/10	13:28	342.03
1/25/10	13:58	342.03
1/25/10	14:28	342.00
1/25/10	14:58	342.01
1/25/10	15:28	342.00
1/25/10	15:58	342.00
1/25/10	16:28	342.00
1/25/10	16:58	342.00
1/25/10	17:28	342.00
1/25/10	17:58	342.01
1/25/10	18:28	342.01
1/25/10	18:58	342.00
1/25/10	19:28	342.02
1/25/10	19:58	342.03
1/25/10	20:28	342.00
1/25/10	20:58	342.00
1/25/10	21:28	341.98
1/25/10	21:58	341.98
1/25/10	22:28	341.98
1/25/10	22:58	341.97
1/25/10	23:28	341.97
1/25/10	23:58	341.95
1/26/10	0:28	341.95
1/26/10	0:58	341.95
1/26/10	1:28	341.93
1/26/10	1:58	341.93
1/26/10	2:28	341.93
1/26/10	2:58	341.93
1/26/10	3:28	341.93
1/26/10	3:58	341.93
1/26/10	4:28	341.92
1/26/10	4:58	341.92
1/26/10	5:28	341.90
1/26/10	5:58	341.90
1/26/10	6:28	341.90
1/26/10	6:58	341.90
1/26/10	7:28	341.90

DATE	TIME	DTW (ft; TOC)
1/26/10	7:58	341.88
1/26/10	8:28	341.90
1/26/10	8:58	341.90
1/26/10	9:28	341.90
1/26/10	9:58	341.90
1/26/10	10:28	341.87
1/26/10	10:58	341.87
1/26/10	11:28	341.88
1/26/10	11:58	341.88
1/26/10	12:28	341.85
1/26/10	12:58	341.87
1/26/10	13:28	341.83
1/26/10	13:58	341.82
1/26/10	14:28	341.80
1/26/10	14:58	341.80
1/26/10	15:28	341.80
1/26/10	15:58	341.80
1/26/10	16:28	341.82
1/26/10	16:58	341.82
1/26/10	17:28	341.83
1/26/10	17:58	341.83
1/26/10	18:28	341.85
1/26/10	18:58	341.85
1/26/10	19:28	341.87
1/26/10	19:58	341.87
1/26/10	20:28	341.88
1/26/10	20:58	341.88
1/26/10	21:28	341.92
1/26/10	21:58	341.92
1/26/10	22:28	341.92
1/26/10	22:58	341.92
1/26/10	23:28	341.92
1/26/10	23:58	341.92
1/27/10	0:28	341.92
1/27/10	0:58	341.90
1/27/10	1:28	341.92
1/27/10	1:58	341.92
1/27/10	2:28	341.93
1/27/10	2:58	341.93
1/27/10	3:28	341.93
1/27/10	3:58	341.93
1/27/10	4:28	341.95
1/27/10	4:58	341.97
1/27/10	5:28	341.98
1/27/10	5:58	341.98
1/27/10	6:28	342.00
1/27/10	6:58	342.00
1/27/10	7:28	342.01
1/27/10	7:58	342.01
1/27/10	8:28	342.05
1/27/10	8:58	342.05
1/27/10	9:28	342.08
1/27/10	9:58	342.06

DATE	TIME	DTW (ft; TOC)
1/27/10	10:28	342.08
1/27/10	10:58	342.10
1/27/10	11:28	342.10
1/27/10	11:58	342.10
1/27/10	12:28	342.10
1/27/10	12:58	342.11
1/27/10	13:28	342.08
1/27/10	13:58	342.08
1/27/10	14:28	342.10
1/27/10	14:58	342.10
1/27/10	15:28	342.10
1/27/10	15:58	342.10
1/27/10	16:28	342.11
1/27/10	16:58	342.13
1/27/10	17:28	342.15
1/27/10	17:58	342.15
1/27/10	18:28	342.16
1/27/10	18:58	342.18
1/27/10	19:28	342.18
1/27/10	19:58	342.18
1/27/10	20:28	342.20
1/27/10	20:58	342.20
1/27/10	21:28	342.21
1/27/10	21:58	342.21
1/27/10	22:28	342.23
1/27/10	22:58	342.23
1/27/10	23:28	342.23
1/27/10	23:58	342.25
1/28/10	0:28	342.21
1/28/10	0:58	342.20
1/28/10	1:28	342.21
1/28/10	1:58	342.20
1/28/10	2:28	342.20
1/28/10	2:58	342.20
1/28/10	3:28	342.20
1/28/10	3:58	342.18
1/28/10	4:28	342.20
1/28/10	4:58	342.20
1/28/10	5:28	342.20
1/28/10	5:58	342.20
1/28/10	6:28	342.20
1/28/10	6:58	342.20
1/28/10	7:28	342.18
1/28/10	7:58	342.18
1/28/10	8:28	342.18
1/28/10	8:58	342.18
1/28/10	9:28	342.18
1/28/10	9:58	342.18
1/28/10	10:28	342.16
1/28/10	10:58	342.16
1/28/10	11:28	342.15
1/28/10	11:58	342.15
1/28/10	12:28	342.11

DATE	TIME	DTW (ft; TOC)
1/28/10	12:58	342.11
1/28/10	13:28	342.05
1/28/10	13:58	342.05
1/28/10	14:28	342.01
1/28/10	14:58	342.01
1/28/10	15:28	341.98
1/28/10	15:58	341.98
1/28/10	16:28	341.98
1/28/10	16:58	342.00
1/28/10	17:28	341.98
1/28/10	17:58	341.98
1/28/10	18:28	342.01
1/28/10	18:58	342.01
1/28/10	19:28	342.03
1/28/10	19:58	342.03
1/28/10	20:28	342.03
1/28/10	20:58	342.01
1/28/10	21:28	342.05
1/28/10	21:58	342.05
1/28/10	22:28	342.05
1/28/10	22:58	342.05
1/28/10	23:28	342.03
1/28/10	23:58	342.03
1/29/10	0:28	342.05

TABLE D6C.6-7. AQUIFER-TEST DATA FOR OBSERVATION WELL URZHF-12.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/18/10	11:50:00	93	--	--	381.88	0.30	--	--	--	--
	11:50:00	RESET TRANSDUCER 15 MIN								
01/19/10	9:00:00	1363	--	--	382.04	0.46	--	--	--	--
	9:25:00	1388	--	--	382.04	0.46	--	--	--	--
	13:52:00	1655	--	--	382.00	0.42	--	--	--	--
01/20/10	9:17:00	2820	--	--	382.06	0.48	--	--	--	--
	14:56:00	3159	--	--	382.09	0.51	--	--	--	--
01/21/10	9:38:00	4281	--	--	382.12	0.54	--	--	--	--
	13:27:00	4510	--	--	382.02	0.44	--	--	--	--
01/22/10	9:55:00	5738	--	--	381.85	0.27	--	--	--	--
	14:16:00	5999	--	--	381.83	0.25	--	--	--	--
01/23/10	9:55:00	7178	--	--	382.12	0.54	--	--	--	--
01/24/10	9:00:00	8563	--	--	381.51	-0.07	--	--	--	--
01/26/10	10:49:00	11552	2222	5.20	381.88	0.30	--	--	--	--
01/29/10	9:33:00	15796	6466	2.44	382.08	0.50	--	--	--	--

TABLE D6C.6-8. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-12.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/11/10	0:05	382.17	1/11/10	13:20	382.08	1/12/10	2:35	382.03	1/12/10	15:50	381.86	1/13/10	5:05	381.80
1/11/10	0:20	382.17	1/11/10	13:35	382.08	1/12/10	2:50	382.03	1/12/10	16:05	381.84	1/13/10	5:20	381.80
1/11/10	0:35	382.17	1/11/10	13:50	382.08	1/12/10	3:05	382.01	1/12/10	16:20	381.83	1/13/10	5:35	381.80
1/11/10	0:50	382.17	1/11/10	14:05	382.06	1/12/10	3:20	382.01	1/12/10	16:35	381.83	1/13/10	5:50	381.80
1/11/10	1:05	382.17	1/11/10	14:20	382.06	1/12/10	3:35	382.01	1/12/10	16:50	381.83	1/13/10	6:05	381.80
1/11/10	1:20	382.17	1/11/10	14:35	382.06	1/12/10	3:50	382.01	1/12/10	17:05	381.83	1/13/10	6:20	381.78
1/11/10	1:35	382.17	1/11/10	14:50	382.06	1/12/10	4:05	381.99	1/12/10	17:20	381.83	1/13/10	6:35	381.80
1/11/10	1:50	382.16	1/11/10	15:05	382.04	1/12/10	4:20	381.99	1/12/10	17:35	381.83	1/13/10	6:50	381.80
1/11/10	2:05	382.19	1/11/10	15:20	382.04	1/12/10	4:35	381.99	1/12/10	17:50	381.83	1/13/10	7:05	381.80
1/11/10	2:20	382.19	1/11/10	15:35	382.04	1/12/10	4:50	381.99	1/12/10	18:05	381.84	1/13/10	7:20	381.80
1/11/10	2:35	382.19	1/11/10	15:50	382.04	1/12/10	5:05	381.98	1/12/10	18:20	381.84	1/13/10	7:35	381.80
1/11/10	2:50	382.19	1/11/10	16:05	382.03	1/12/10	5:20	381.98	1/12/10	18:35	381.84	1/13/10	7:50	381.78
1/11/10	3:05	382.19	1/11/10	16:20	382.03	1/12/10	5:35	381.98	1/12/10	18:50	381.86	1/13/10	8:05	381.81
1/11/10	3:20	382.19	1/11/10	16:35	382.03	1/12/10	5:50	381.98	1/12/10	19:05	381.83	1/13/10	8:20	381.81
1/11/10	3:35	382.19	1/11/10	16:50	382.03	1/12/10	6:05	381.99	1/12/10	19:20	381.83	1/13/10	8:35	381.81
1/11/10	3:50	382.19	1/11/10	17:05	382.04	1/12/10	6:20	381.99	1/12/10	19:35	381.83	1/13/10	8:50	381.83
1/11/10	4:05	382.17	1/11/10	17:20	382.04	1/12/10	6:35	381.99	1/12/10	19:50	381.84	1/13/10	9:05	381.83
1/11/10	4:20	382.17	1/11/10	17:35	382.04	1/12/10	6:50	381.99	1/12/10	20:05	381.83	1/13/10	9:20	381.84
1/11/10	4:35	382.17	1/11/10	17:50	382.04	1/12/10	7:05	381.99	1/12/10	20:20	381.84	1/13/10	9:35	381.84
1/11/10	4:50	382.17	1/11/10	18:05	382.06	1/12/10	7:20	381.99	1/12/10	20:35	381.84	1/13/10	9:50	381.83
1/11/10	5:05	382.16	1/11/10	18:20	382.06	1/12/10	7:35	381.99	1/12/10	20:50	381.84	1/13/10	10:05	381.84
1/11/10	5:20	382.16	1/11/10	18:35	382.06	1/12/10	7:50	381.99	1/12/10	21:05	381.84	1/13/10	10:20	381.83
1/11/10	5:35	382.16	1/11/10	18:50	382.07	1/12/10	8:05	381.98	1/12/10	21:20	381.84	1/13/10	10:35	381.84
1/11/10	5:50	382.16	1/11/10	19:05	382.06	1/12/10	8:20	381.98	1/12/10	21:35	381.83	1/13/10	10:50	381.84
1/11/10	6:05	382.16	1/11/10	19:20	382.04	1/12/10	8:35	381.98	1/12/10	21:50	381.84	1/13/10	11:05	381.84
1/11/10	6:20	382.16	1/11/10	19:35	382.06	1/12/10	8:50	381.98	1/12/10	22:05	381.81	1/13/10	11:20	381.84
1/11/10	6:35	382.16	1/11/10	19:50	382.04	1/12/10	9:05	381.99	1/12/10	22:20	381.80	1/13/10	11:35	381.84
1/11/10	6:50	382.14	1/11/10	20:05	382.04	1/12/10	9:20	381.99	1/12/10	22:35	381.81	1/13/10	11:50	381.84
1/11/10	7:05	382.16	1/11/10	20:20	382.06	1/12/10	9:35	381.99	1/12/10	22:50	381.80	1/13/10	12:05	381.83
1/11/10	7:20	382.17	1/11/10	20:35	382.04	1/12/10	9:50	381.99	1/12/10	23:05	381.81	1/13/10	12:20	381.83
1/11/10	7:35	382.17	1/11/10	20:50	382.04	1/12/10	10:05	381.99	1/12/10	23:20	381.81	1/13/10	12:35	381.83
1/11/10	7:50	382.17	1/11/10	21:05	382.04	1/12/10	10:20	381.99	1/12/10	23:35	381.81	1/13/10	12:50	381.83
1/11/10	8:05	382.17	1/11/10	21:20	382.04	1/12/10	10:35	381.99	1/12/10	23:50	381.80	1/13/10	13:05	381.78
1/11/10	8:20	382.17	1/11/10	21:35	382.04	1/12/10	10:50	381.99	1/13/10	0:05	381.81	1/13/10	13:20	381.78
1/11/10	8:35	382.17	1/11/10	21:50	382.04	1/12/10	11:05	381.96	1/13/10	0:20	381.81	1/13/10	13:35	381.78
1/11/10	8:50	382.17	1/11/10	22:05	382.04	1/12/10	11:20	381.98	1/13/10	0:35	381.80	1/13/10	13:50	381.78
1/11/10	9:05	382.16	1/11/10	22:20	382.04	1/12/10	11:35	381.98	1/13/10	0:50	381.80	1/13/10	14:05	381.78
1/11/10	9:20	382.16	1/11/10	22:35	382.04	1/12/10	11:50	381.98	1/13/10	1:05	381.80	1/13/10	14:20	381.78
1/11/10	9:35	382.16	1/11/10	22:50	382.04	1/12/10	12:05	381.94	1/13/10	1:20	381.80	1/13/10	14:35	381.78
1/11/10	9:50	382.16	1/11/10	23:05	382.04	1/12/10	12:20	381.94	1/13/10	1:35	381.80	1/13/10	14:50	381.78
1/11/10	10:05	382.16	1/11/10	23:20	382.04	1/12/10	12:35	381.94	1/13/10	1:50	381.78	1/13/10	15:05	381.78
1/11/10	10:20	382.16	1/11/10	23:35	382.04	1/12/10	12:50	381.96	1/13/10	2:05	381.81	1/13/10	15:20	381.78
1/11/10	10:35	382.16	1/11/10	23:50	382.06	1/12/10	13:05	381.89	1/13/10	2:20	381.81	1/13/10	15:35	381.78
1/11/10	10:50	382.16	1/12/10	0:05	382.03	1/12/10	13:20	381.89	1/13/10	2:35	381.81	1/13/10	15:50	381.78
1/11/10	11:05	382.12	1/12/10	0:20	382.03	1/12/10	13:35	381.89	1/13/10	2:50	381.81	1/13/10	16:05	381.78
1/11/10	11:20	382.12	1/12/10	0:35	382.03	1/12/10	13:50	381.89	1/13/10	3:05	381.81	1/13/10	16:20	381.78
1/11/10	11:35	382.14	1/12/10	0:50	382.03	1/12/10	14:05	381.84	1/13/10	3:20	381.81	1/13/10	16:35	381.78
1/11/10	11:50	382.12	1/12/10	1:05	382.03	1/12/10	14:20	381.86	1/13/10	3:35	381.79	1/13/10	16:50	381.78
1/11/10	12:05	382.11	1/12/10	1:20	382.03	1/12/10	14:35	381.86	1/13/10	3:50	381.81	1/13/10	17:05	381.80
1/11/10	12:20	382.12	1/12/10	1:35	382.03	1/12/10	14:50	381.86	1/13/10	4:05	381.81	1/13/10	17:20	381.80
1/11/10	12:35	382.11	1/12/10	1:50	382.03	1/12/10	15:05	381.86	1/13/10	4:20	381.81	1/13/10	17:35	381.80
1/11/10	12:50	382.11	1/12/10	2:05	382.03	1/12/10	15:20	381.86	1/13/10	4:35	381.81	1/13/10	17:50	381.80
1/11/10	13:05	382.08	1/12/10	2:20	382.03	1/12/10	15:35	381.88	1/13/10	4:50	381.81	1/13/10	18:05	381.81

TABLE D6C.6-8. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-12, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/13/10	18:20	381.81	1/14/10	7:35	381.94	1/14/10	20:50	382.09	1/15/10	10:05	382.08	1/15/10	23:20	381.84
1/13/10	18:35	381.81	1/14/10	7:50	381.96	1/14/10	21:05	382.08	1/15/10	10:20	382.08	1/15/10	23:35	381.84
1/13/10	18:50	381.81	1/14/10	8:05	381.96	1/14/10	21:20	382.08	1/15/10	10:35	382.08	1/15/10	23:50	381.84
1/13/10	19:05	381.83	1/14/10	8:20	381.96	1/14/10	21:35	382.08	1/15/10	10:50	382.08	1/16/10	0:05	381.83
1/13/10	19:20	381.83	1/14/10	8:35	381.96	1/14/10	21:50	382.08	1/15/10	11:05	382.04	1/16/10	0:20	381.83
1/13/10	19:35	381.83	1/14/10	8:50	381.96	1/14/10	22:05	382.08	1/15/10	11:20	382.06	1/16/10	0:35	381.83
1/13/10	19:50	381.83	1/14/10	9:05	381.98	1/14/10	22:20	382.08	1/15/10	11:35	382.06	1/16/10	0:50	381.83
1/13/10	20:05	381.83	1/14/10	9:20	381.98	1/14/10	22:35	382.08	1/15/10	11:50	382.06	1/16/10	1:05	381.81
1/13/10	20:20	381.83	1/14/10	9:35	381.99	1/14/10	22:50	382.08	1/15/10	12:05	381.99	1/16/10	1:20	381.81
1/13/10	20:35	381.83	1/14/10	9:50	381.98	1/14/10	23:05	382.08	1/15/10	12:20	381.99	1/16/10	1:35	381.79
1/13/10	20:50	381.83	1/14/10	10:05	381.98	1/14/10	23:20	382.08	1/15/10	12:35	381.99	1/16/10	1:50	381.79
1/13/10	21:05	381.84	1/14/10	10:20	381.99	1/14/10	23:35	382.08	1/15/10	12:50	381.99	1/16/10	2:05	381.79
1/13/10	21:20	381.84	1/14/10	10:35	381.98	1/14/10	23:50	382.08	1/15/10	13:05	381.98	1/16/10	2:20	381.79
1/13/10	21:35	381.84	1/14/10	10:50	381.99	1/15/10	0:05	382.06	1/15/10	13:20	381.98	1/16/10	2:35	381.79
1/13/10	21:50	381.84	1/14/10	11:05	381.99	1/15/10	0:20	382.06	1/15/10	13:35	381.98	1/16/10	2:50	381.81
1/13/10	22:05	381.86	1/14/10	11:20	381.99	1/15/10	0:35	382.06	1/15/10	13:50	381.98	1/16/10	3:05	381.76
1/13/10	22:20	381.86	1/14/10	11:35	381.99	1/15/10	0:50	382.06	1/15/10	14:05	381.93	1/16/10	3:20	381.76
1/13/10	22:35	381.86	1/14/10	11:50	381.99	1/15/10	1:05	382.06	1/15/10	14:20	381.93	1/16/10	3:35	381.78
1/13/10	22:50	381.86	1/14/10	12:05	381.99	1/15/10	1:20	382.06	1/15/10	14:35	381.91	1/16/10	3:50	381.76
1/13/10	23:05	381.88	1/14/10	12:20	381.99	1/15/10	1:35	382.06	1/15/10	14:50	381.91	1/16/10	4:05	381.78
1/13/10	23:20	381.88	1/14/10	12:35	381.99	1/15/10	1:50	382.06	1/15/10	15:05	381.93	1/16/10	4:20	381.76
1/13/10	23:35	381.88	1/14/10	12:50	381.99	1/15/10	2:05	382.06	1/15/10	15:20	381.91	1/16/10	4:35	381.76
1/13/10	23:50	381.88	1/14/10	13:05	381.96	1/15/10	2:20	382.06	1/15/10	15:35	381.91	1/16/10	4:50	381.76
1/14/10	0:05	381.88	1/14/10	13:20	381.96	1/15/10	2:35	382.06	1/15/10	15:50	381.91	1/16/10	5:05	381.73
1/14/10	0:20	381.88	1/14/10	13:35	381.96	1/15/10	2:50	382.06	1/15/10	16:05	381.89	1/16/10	5:20	381.75
1/14/10	0:35	381.88	1/14/10	13:50	381.96	1/15/10	3:05	382.04	1/15/10	16:20	381.89	1/16/10	5:35	381.73
1/14/10	0:50	381.88	1/14/10	14:05	381.96	1/15/10	3:20	382.04	1/15/10	16:35	381.91	1/16/10	5:50	381.73
1/14/10	1:05	381.88	1/14/10	14:20	381.96	1/15/10	3:35	382.04	1/15/10	16:50	381.89	1/16/10	6:05	381.76
1/14/10	1:20	381.88	1/14/10	14:35	381.96	1/15/10	3:50	382.04	1/15/10	17:05	381.89	1/16/10	6:20	381.76
1/14/10	1:35	381.88	1/14/10	14:50	381.96	1/15/10	4:05	382.03	1/15/10	17:20	381.89	1/16/10	6:35	381.74
1/14/10	1:50	381.86	1/14/10	15:05	381.96	1/15/10	4:20	382.03	1/15/10	17:35	381.88	1/16/10	6:50	381.74
1/14/10	2:05	381.88	1/14/10	15:20	381.98	1/15/10	4:35	382.03	1/15/10	17:50	381.88	1/16/10	7:05	381.76
1/14/10	2:20	381.89	1/14/10	15:35	381.96	1/15/10	4:50	382.03	1/15/10	18:05	381.88	1/16/10	7:20	381.76
1/14/10	2:35	381.88	1/14/10	15:50	381.98	1/15/10	5:05	382.03	1/15/10	18:20	381.88	1/16/10	7:35	381.78
1/14/10	2:50	381.89	1/14/10	16:05	381.98	1/15/10	5:20	382.03	1/15/10	18:35	381.88	1/16/10	7:50	381.78
1/14/10	3:05	381.91	1/14/10	16:20	381.96	1/15/10	5:35	382.01	1/15/10	18:50	381.89	1/16/10	8:05	381.76
1/14/10	3:20	381.89	1/14/10	16:35	381.96	1/15/10	5:50	382.03	1/15/10	19:05	381.89	1/16/10	8:20	381.76
1/14/10	3:35	381.91	1/14/10	16:50	381.96	1/15/10	6:05	382.04	1/15/10	19:20	381.89	1/16/10	8:35	381.76
1/14/10	3:50	381.89	1/14/10	17:05	381.99	1/15/10	6:20	382.03	1/15/10	19:35	381.89	1/16/10	8:50	381.76
1/14/10	4:05	381.91	1/14/10	17:20	381.99	1/15/10	6:35	382.04	1/15/10	19:50	381.89	1/16/10	9:05	381.78
1/14/10	4:20	381.93	1/14/10	17:35	381.98	1/15/10	6:50	382.03	1/15/10	20:05	381.88	1/16/10	9:20	381.76
1/14/10	4:35	381.93	1/14/10	17:50	381.98	1/15/10	7:05	382.04	1/15/10	20:20	381.88	1/16/10	9:35	381.76
1/14/10	4:50	381.91	1/14/10	18:05	382.01	1/15/10	7:20	382.04	1/15/10	20:35	381.88	1/16/10	9:50	381.78
1/14/10	5:05	381.91	1/14/10	18:20	382.01	1/15/10	7:35	382.04	1/15/10	20:50	381.88	1/16/10	10:05	381.81
1/14/10	5:20	381.91	1/14/10	18:35	382.01	1/15/10	7:50	382.04	1/15/10	21:05	381.86	1/16/10	10:20	381.81
1/14/10	5:35	381.93	1/14/10	18:50	382.01	1/15/10	8:05	382.04	1/15/10	21:20	381.86	1/16/10	10:35	381.81
1/14/10	5:50	381.91	1/14/10	19:05	382.04	1/15/10	8:20	382.03	1/15/10	21:35	381.88	1/16/10	10:50	381.81
1/14/10	6:05	381.93	1/14/10	19:20	382.06	1/15/10	8:35	382.03	1/15/10	21:50	381.88	1/16/10	11:05	381.79
1/14/10	6:20	381.94	1/14/10	19:35	382.04	1/15/10	8:50	382.03	1/15/10	22:05	381.86	1/16/10	11:20	381.79
1/14/10	6:35	381.93	1/14/10	19:50	382.06	1/15/10	9:05	382.06	1/15/10	22:20	381.84	1/16/10	11:35	381.79
1/14/10	6:50	381.93	1/14/10	20:05	382.09	1/15/10	9:20	382.08	1/15/10	22:35	381.86	1/16/10	11:50	381.79
1/14/10	7:05	381.94	1/14/10	20:20	382.09	1/15/10	9:35	382.08	1/15/10	22:50	381.84	1/16/10	12:05	381.78
1/14/10	7:20	381.96	1/14/10	20:35	382.09	1/15/10	9:50	382.08	1/15/10	23:05	381.84	1/16/10	12:20	381.78

TABLE D6C.6-8. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-12, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/16/10	12:35	381.76	1/17/10	1:50	381.71	1/17/10	15:05	381.65	1/18/10	4:20	381.60	1/18/10	17:35	382.07
1/16/10	12:50	381.78	1/17/10	2:05	381.75	1/17/10	15:20	381.65	1/18/10	4:35	381.60	1/18/10	17:50	382.07
1/16/10	13:05	381.76	1/17/10	2:20	381.75	1/17/10	15:35	381.65	1/18/10	4:50	381.60	1/18/10	18:05	382.07
1/16/10	13:20	381.76	1/17/10	2:35	381.73	1/17/10	15:50	381.65	1/18/10	5:05	381.60	1/18/10	18:20	382.07
1/16/10	13:35	381.76	1/17/10	2:50	381.73	1/17/10	16:05	381.65	1/18/10	5:20	381.58	1/18/10	18:35	382.07
1/16/10	13:50	381.76	1/17/10	3:05	381.74	1/17/10	16:20	381.66	1/18/10	5:35	381.58	1/18/10	18:50	382.07
1/16/10	14:05	381.73	1/17/10	3:20	381.74	1/17/10	16:35	381.66	1/18/10	5:50	381.58	1/18/10	19:05	382.07
1/16/10	14:20	381.71	1/17/10	3:35	381.74	1/17/10	16:50	381.65	1/18/10	6:05	381.58	1/18/10	19:20	382.07
1/16/10	14:35	381.71	1/17/10	3:50	381.76	1/17/10	17:05	381.63	1/18/10	6:20	381.58	1/18/10	19:35	382.08
1/16/10	14:50	381.71	1/17/10	4:05	381.76	1/17/10	17:20	381.63	1/18/10	6:35	381.60	1/18/10	19:50	382.08
1/16/10	15:05	381.71	1/17/10	4:20	381.74	1/17/10	17:35	381.63	1/18/10	6:50	381.60	1/18/10	20:05	382.08
1/16/10	15:20	381.71	1/17/10	4:35	381.76	1/17/10	17:50	381.63	1/18/10	7:05	381.60	1/18/10	20:20	382.08
1/16/10	15:35	381.71	1/17/10	4:50	381.74	1/17/10	18:05	381.65	1/18/10	7:20	381.60	1/18/10	20:35	382.08
1/16/10	15:50	381.71	1/17/10	5:05	381.76	1/17/10	18:20	381.65	1/18/10	7:35	381.60	1/18/10	20:50	382.08
1/16/10	16:05	381.71	1/17/10	5:20	381.76	1/17/10	18:35	381.65	1/18/10	7:50	381.60	1/18/10	21:05	382.10
1/16/10	16:20	381.70	1/17/10	5:35	381.78	1/17/10	18:50	381.65	1/18/10	8:05	381.60	1/18/10	21:20	382.10
1/16/10	16:35	381.70	1/17/10	5:50	381.78	1/17/10	19:05	381.65	1/18/10	8:20	381.61	1/18/10	21:35	382.10
1/16/10	16:50	381.71	1/17/10	6:05	381.76	1/17/10	19:20	381.65	1/18/10	8:35	381.61	1/18/10	21:50	382.10
1/16/10	17:05	381.71	1/17/10	6:20	381.76	1/17/10	19:35	381.65	1/18/10	8:50	381.61	1/18/10	22:05	382.08
1/16/10	17:20	381.71	1/17/10	6:35	381.76	1/17/10	19:50	381.65	1/18/10	9:05	381.58	1/18/10	22:20	382.08
1/16/10	17:35	381.71	1/17/10	6:50	381.78	1/17/10	20:05	381.65	1/18/10	9:20	381.60	1/18/10	22:35	382.08
1/16/10	17:50	381.71	1/17/10	7:05	381.78	1/17/10	20:20	381.65	1/18/10	9:35	381.60	1/18/10	22:50	382.08
1/16/10	18:05	381.73	1/17/10	7:20	381.78	1/17/10	20:35	381.65	1/18/10	9:50	381.60	1/18/10	23:05	382.07
1/16/10	18:20	381.73	1/17/10	7:35	381.78	1/17/10	20:50	381.65	1/18/10	10:05	381.58	1/18/10	23:20	382.08
1/16/10	18:35	381.73	1/17/10	7:50	381.78	1/17/10	21:05	381.65	1/18/10	10:20	381.58	1/18/10	23:35	382.08
1/16/10	18:50	381.73	1/17/10	8:05	381.78	1/17/10	21:20	381.65	1/18/10	10:35	381.60	1/18/10	23:50	382.08
1/16/10	19:05	381.71	1/17/10	8:20	381.78	1/17/10	21:35	381.65	1/18/10	10:50	381.65	1/19/10	0:05	382.07
1/16/10	19:20	381.71	1/17/10	8:35	381.78	1/17/10	21:50	381.65	1/18/10	11:05	381.73	1/19/10	0:20	382.08
1/16/10	19:35	381.73	1/17/10	8:50	381.78	1/17/10	22:05	381.65	1/18/10	11:20	381.80	1/19/10	0:35	382.08
1/16/10	19:50	381.73	1/17/10	9:05	381.78	1/17/10	22:20	381.65	1/18/10	11:35	381.85	1/19/10	0:50	382.08
1/16/10	20:05	381.71	1/17/10	9:20	381.79	1/17/10	22:35	381.65	1/18/10	11:50	381.90	1/19/10	1:05	382.05
1/16/10	20:20	381.71	1/17/10	9:35	381.79	1/17/10	22:50	381.65	1/18/10	12:05	381.90	1/19/10	1:20	382.07
1/16/10	20:35	381.73	1/17/10	9:50	381.79	1/17/10	23:05	381.66	1/18/10	12:20	381.92	1/19/10	1:35	382.05
1/16/10	20:50	381.71	1/17/10	10:05	381.78	1/17/10	23:20	381.66	1/18/10	12:35	381.93	1/19/10	1:50	382.05
1/16/10	21:05	381.71	1/17/10	10:20	381.78	1/17/10	23:35	381.66	1/18/10	12:50	381.97	1/19/10	2:05	382.05
1/16/10	21:20	381.71	1/17/10	10:35	381.78	1/17/10	23:50	381.66	1/18/10	13:05	381.97	1/19/10	2:20	382.07
1/16/10	21:35	381.71	1/17/10	10:50	381.78	1/18/10	0:05	381.63	1/18/10	13:20	381.97	1/19/10	2:35	382.07
1/16/10	21:50	381.71	1/17/10	11:05	381.75	1/18/10	0:20	381.63	1/18/10	13:35	381.98	1/19/10	2:50	382.07
1/16/10	22:05	381.71	1/17/10	11:20	381.76	1/18/10	0:35	381.65	1/18/10	13:50	381.98	1/19/10	3:05	382.05
1/16/10	22:20	381.71	1/17/10	11:35	381.76	1/18/10	0:50	381.65	1/18/10	14:05	382.02	1/19/10	3:20	382.05
1/16/10	22:35	381.71	1/17/10	11:50	381.76	1/18/10	1:05	381.65	1/18/10	14:20	382.02	1/19/10	3:35	382.05
1/16/10	22:50	381.71	1/17/10	12:05	381.73	1/18/10	1:20	381.63	1/18/10	14:35	382.03	1/19/10	3:50	382.05
1/16/10	23:05	381.70	1/17/10	12:20	381.73	1/18/10	1:35	381.63	1/18/10	14:50	382.03	1/19/10	4:05	382.03
1/16/10	23:20	381.70	1/17/10	12:35	381.73	1/18/10	1:50	381.65	1/18/10	15:05	382.03	1/19/10	4:20	382.03
1/16/10	23:35	381.71	1/17/10	12:50	381.73	1/18/10	2:05	381.63	1/18/10	15:20	382.03	1/19/10	4:35	382.03
1/16/10	23:50	381.71	1/17/10	13:05	381.70	1/18/10	2:20	381.63	1/18/10	15:35	382.05	1/19/10	4:50	382.03
1/17/10	0:05	381.73	1/17/10	13:20	381.70	1/18/10	2:35	381.65	1/18/10	15:50	382.03	1/19/10	5:05	382.03
1/17/10	0:20	381.73	1/17/10	13:35	381.70	1/18/10	2:50	381.63	1/18/10	16:05	382.07	1/19/10	5:20	382.03
1/17/10	0:35	381.73	1/17/10	13:50	381.70	1/18/10	3:05	381.61	1/18/10	16:20	382.07	1/19/10	5:35	382.03
1/17/10	0:50	381.73	1/17/10	14:05	381.66	1/18/10	3:20	381.61	1/18/10	16:35	382.07	1/19/10	5:50	382.03
1/17/10	1:05	381.73	1/17/10	14:20	381.66	1/18/10	3:35	381.61	1/18/10	16:50	382.08	1/19/10	6:05	382.00
1/17/10	1:20	381.71	1/17/10	14:35	381.65	1/18/10	3:50	381.61	1/18/10	17:05	382.05	1/19/10	6:20	382.00
1/17/10	1:35	381.73	1/17/10	14:50	381.65	1/18/10	4:05	381.60	1/18/10	17:20	382.05	1/19/10	6:35	382.00

TABLE D6C.6-8. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-12, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/19/10	6:50	382.00	1/19/10	20:05	382.00	1/20/10	9:20	382.02	1/20/10	22:35	382.07	1/21/10	11:50	382.05
1/19/10	7:05	382.02	1/19/10	20:20	382.00	1/20/10	9:35	382.02	1/20/10	22:50	382.07	1/21/10	12:05	382.02
1/19/10	7:20	382.02	1/19/10	20:35	382.00	1/20/10	9:50	382.02	1/20/10	23:05	382.09	1/21/10	12:20	382.02
1/19/10	7:35	382.03	1/19/10	20:50	382.00	1/20/10	10:05	382.04	1/20/10	23:20	382.09	1/21/10	12:35	382.02
1/19/10	7:50	382.02	1/19/10	21:05	382.00	1/20/10	10:20	382.04	1/20/10	23:35	382.09	1/21/10	12:50	382.02
1/19/10	8:05	382.00	1/19/10	21:20	382.00	1/20/10	10:35	382.05	1/20/10	23:50	382.09	1/21/10	13:05	382.00
1/19/10	8:20	382.00	1/19/10	21:35	382.00	1/20/10	10:50	382.05	1/21/10	0:05	382.07	1/21/10	13:20	381.99
1/19/10	8:35	382.00	1/19/10	21:50	382.00	1/20/10	11:05	382.04	1/21/10	0:20	382.09	1/21/10	13:35	382.00
1/19/10	8:50	382.04	1/19/10	22:05	382.00	1/20/10	11:20	382.04	1/21/10	0:35	382.09	1/21/10	13:50	381.99
1/19/10	9:05	382.02	1/19/10	22:20	382.00	1/20/10	11:35	382.05	1/21/10	0:50	382.09	1/21/10	14:05	381.97
1/19/10	9:20	382.02	1/19/10	22:35	382.00	1/20/10	11:50	382.04	1/21/10	1:05	382.07	1/21/10	14:20	381.97
1/19/10	9:35	382.04	1/19/10	22:50	382.00	1/20/10	12:05	382.02	1/21/10	1:20	382.07	1/21/10	14:35	381.97
1/19/10	9:50	382.04	1/19/10	23:05	382.02	1/20/10	12:20	382.02	1/21/10	1:35	382.07	1/21/10	14:50	381.97
1/19/10	10:05	382.02	1/19/10	23:20	382.02	1/20/10	12:35	382.02	1/21/10	1:50	382.07	1/21/10	15:05	381.97
1/19/10	10:20	382.04	1/19/10	23:35	382.02	1/20/10	12:50	382.02	1/21/10	2:05	382.05	1/21/10	15:20	381.97
1/19/10	10:35	382.04	1/19/10	23:50	382.02	1/20/10	13:05	382.00	1/21/10	2:20	382.07	1/21/10	15:35	381.97
1/19/10	10:50	382.05	1/20/10	0:05	382.02	1/20/10	13:20	381.99	1/21/10	2:35	382.07	1/21/10	15:50	381.97
1/19/10	11:05	382.04	1/20/10	0:20	382.04	1/20/10	13:35	381.99	1/21/10	2:50	382.05	1/21/10	16:05	381.97
1/19/10	11:20	382.04	1/20/10	0:35	382.02	1/20/10	13:50	381.99	1/21/10	3:05	382.07	1/21/10	16:20	381.97
1/19/10	11:35	382.05	1/20/10	0:50	382.02	1/20/10	14:05	381.99	1/21/10	3:20	382.05	1/21/10	16:35	381.97
1/19/10	11:50	382.05	1/20/10	1:05	382.02	1/20/10	14:20	382.00	1/21/10	3:35	382.07	1/21/10	16:50	381.97
1/19/10	12:05	382.04	1/20/10	1:20	382.02	1/20/10	14:35	382.00	1/21/10	3:50	382.05	1/21/10	17:05	381.99
1/19/10	12:20	382.05	1/20/10	1:35	382.02	1/20/10	14:50	382.00	1/21/10	4:05	382.07	1/21/10	17:20	381.99
1/19/10	12:35	382.05	1/20/10	1:50	382.02	1/20/10	15:05	382.00	1/21/10	4:20	382.07	1/21/10	17:35	381.99
1/19/10	12:50	382.05	1/20/10	2:05	382.02	1/20/10	15:20	382.00	1/21/10	4:35	382.07	1/21/10	17:50	381.99
1/19/10	13:05	382.05	1/20/10	2:20	382.02	1/20/10	15:35	382.02	1/21/10	4:50	382.05	1/21/10	18:05	382.00
1/19/10	13:20	382.05	1/20/10	2:35	382.02	1/20/10	15:50	382.02	1/21/10	5:05	382.07	1/21/10	18:20	382.00
1/19/10	13:35	382.04	1/20/10	2:50	382.02	1/20/10	16:05	382.00	1/21/10	5:20	382.09	1/21/10	18:35	382.00
1/19/10	13:50	382.05	1/20/10	3:05	382.00	1/20/10	16:20	382.02	1/21/10	5:35	382.07	1/21/10	18:50	382.00
1/19/10	14:05	382.02	1/20/10	3:20	382.00	1/20/10	16:35	382.02	1/21/10	5:50	382.09	1/21/10	19:05	382.00
1/19/10	14:20	382.04	1/20/10	3:35	382.00	1/20/10	16:50	382.02	1/21/10	6:05	382.07	1/21/10	19:20	382.00
1/19/10	14:35	382.04	1/20/10	3:50	382.00	1/20/10	17:05	382.04	1/21/10	6:20	382.05	1/21/10	19:35	382.00
1/19/10	14:50	382.04	1/20/10	4:05	382.00	1/20/10	17:20	382.04	1/21/10	6:35	382.05	1/21/10	19:50	382.00
1/19/10	15:05	382.05	1/20/10	4:20	382.00	1/20/10	17:35	382.04	1/21/10	6:50	382.05	1/21/10	20:05	382.02
1/19/10	15:20	382.05	1/20/10	4:35	382.00	1/20/10	17:50	382.02	1/21/10	7:05	382.05	1/21/10	20:20	382.02
1/19/10	15:35	382.05	1/20/10	4:50	382.00	1/20/10	18:05	382.04	1/21/10	7:20	382.07	1/21/10	20:35	382.04
1/19/10	15:50	382.04	1/20/10	5:05	382.02	1/20/10	18:20	382.04	1/21/10	7:35	382.07	1/21/10	20:50	382.04
1/19/10	16:05	382.05	1/20/10	5:20	382.02	1/20/10	18:35	382.04	1/21/10	7:50	382.05	1/21/10	21:05	382.00
1/19/10	16:20	382.05	1/20/10	5:35	382.02	1/20/10	18:50	382.04	1/21/10	8:05	382.04	1/21/10	21:20	382.02
1/19/10	16:35	382.04	1/20/10	5:50	382.02	1/20/10	19:05	382.05	1/21/10	8:20	382.04	1/21/10	21:35	382.02
1/19/10	16:50	382.04	1/20/10	6:05	382.02	1/20/10	19:20	382.07	1/21/10	8:35	382.04	1/21/10	21:50	382.00
1/19/10	17:05	382.02	1/20/10	6:20	382.02	1/20/10	19:35	382.07	1/21/10	8:50	382.05	1/21/10	22:05	382.02
1/19/10	17:20	382.02	1/20/10	6:35	382.02	1/20/10	19:50	382.07	1/21/10	9:05	382.04	1/21/10	22:20	382.02
1/19/10	17:35	382.00	1/20/10	6:50	382.00	1/20/10	20:05	382.07	1/21/10	9:20	382.04	1/21/10	22:35	382.02
1/19/10	17:50	382.00	1/20/10	7:05	382.02	1/20/10	20:20	382.07	1/21/10	9:35	382.04	1/21/10	22:50	382.02
1/19/10	18:05	382.02	1/20/10	7:20	382.02	1/20/10	20:35	382.07	1/21/10	9:50	382.04	1/21/10	23:05	382.02
1/19/10	18:20	382.02	1/20/10	7:35	382.02	1/20/10	20:50	382.07	1/21/10	10:05	382.04	1/21/10	23:20	382.02
1/19/10	18:35	382.02	1/20/10	7:50	382.02	1/20/10	21:05	382.07	1/21/10	10:20	382.04	1/21/10	23:35	382.02
1/19/10	18:50	382.02	1/20/10	8:05	382.04	1/20/10	21:20	382.07	1/21/10	10:35	382.05	1/21/10	23:50	382.02
1/19/10	19:05	382.02	1/20/10	8:20	382.04	1/20/10	21:35	382.07	1/21/10	10:50	382.04	1/22/10	0:05	381.99
1/19/10	19:20	382.02	1/20/10	8:35	382.04	1/20/10	21:50	382.07	1/21/10	11:05	382.05	1/22/10	0:20	381.99
1/19/10	19:35	382.02	1/20/10	8:50	382.04	1/20/10	22:05	382.07	1/21/10	11:20	382.05	1/22/10	0:35	381.99
1/19/10	19:50	382.02	1/20/10	9:05	382.02	1/20/10	22:20	382.07	1/21/10	11:35	382.05	1/22/10	0:50	381.99

TABLE D6C.6-8. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-12, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/22/10	1:05	381.97	1/22/10	14:20	381.84	1/23/10	3:35	382.02	1/23/10	16:50	382.25	1/24/10	6:05	382.47
1/22/10	1:20	381.97	1/22/10	14:35	381.84	1/23/10	3:50	382.02	1/23/10	17:05	382.29	1/24/10	6:20	382.48
1/22/10	1:35	381.97	1/22/10	14:50	381.84	1/23/10	4:05	382.06	1/23/10	17:20	382.29	1/24/10	6:35	382.48
1/22/10	1:50	381.99	1/22/10	15:05	381.84	1/23/10	4:20	382.06	1/23/10	17:35	382.30	1/24/10	6:50	382.48
1/22/10	2:05	381.96	1/22/10	15:20	381.84	1/23/10	4:35	382.06	1/23/10	17:50	382.29	1/24/10	7:05	382.50
1/22/10	2:20	381.97	1/22/10	15:35	381.84	1/23/10	4:50	382.06	1/23/10	18:05	382.30	1/24/10	7:20	382.50
1/22/10	2:35	381.99	1/22/10	15:50	381.84	1/23/10	5:05	382.07	1/23/10	18:20	382.30	1/24/10	7:35	382.48
1/22/10	2:50	381.97	1/22/10	16:05	381.84	1/23/10	5:20	382.07	1/23/10	18:35	382.30	1/24/10	7:50	382.48
1/22/10	3:05	381.94	1/22/10	16:20	381.82	1/23/10	5:35	382.07	1/23/10	18:50	382.30	1/24/10	8:05	382.50
1/22/10	3:20	381.94	1/22/10	16:35	381.84	1/23/10	5:50	382.07	1/23/10	19:05	382.32	1/24/10	8:20	382.50
1/22/10	3:35	381.96	1/22/10	16:50	381.82	1/23/10	6:05	382.10	1/23/10	19:20	382.34	1/24/10	8:35	382.50
1/22/10	3:50	381.94	1/22/10	17:05	381.84	1/23/10	6:20	382.10	1/23/10	19:35	382.34	1/24/10	8:50	382.50
1/22/10	4:05	381.91	1/22/10	17:20	381.84	1/23/10	6:35	382.10	1/23/10	19:50	382.34	1/24/10	9:05	382.52
1/22/10	4:20	381.92	1/22/10	17:35	381.86	1/23/10	6:50	382.10	1/23/10	20:05	382.32	1/24/10	9:20	382.52
1/22/10	4:35	381.92	1/22/10	17:50	381.86	1/23/10	7:05	382.10	1/23/10	20:20	382.32	1/24/10	9:35	382.52
1/22/10	4:50	381.92	1/22/10	18:05	381.89	1/23/10	7:20	382.12	1/23/10	20:35	382.32	1/24/10	9:50	382.50
1/22/10	5:05	381.92	1/22/10	18:20	381.87	1/23/10	7:35	382.12	1/23/10	20:50	382.32	1/24/10	10:05	382.52
1/22/10	5:20	381.92	1/22/10	18:35	381.87	1/23/10	7:50	382.12	1/23/10	21:05	382.34	1/24/10	10:20	382.53
1/22/10	5:35	381.92	1/22/10	18:50	381.87	1/23/10	8:05	382.14	1/23/10	21:20	382.34	1/24/10	10:35	382.53
1/22/10	5:50	381.94	1/22/10	19:05	381.87	1/23/10	8:20	382.14	1/23/10	21:35	382.34	1/24/10	10:50	382.52
1/22/10	6:05	381.91	1/22/10	19:20	381.89	1/23/10	8:35	382.14	1/23/10	21:50	382.34	1/24/10	11:05	382.53
1/22/10	6:20	381.91	1/22/10	19:35	381.87	1/23/10	8:50	382.14	1/23/10	22:05	382.34	1/24/10	11:20	382.53
1/22/10	6:35	381.91	1/22/10	19:50	381.87	1/23/10	9:05	382.15	1/23/10	22:20	382.34	1/24/10	11:35	382.53
1/22/10	6:50	381.91	1/22/10	20:05	381.91	1/23/10	9:20	382.15	1/23/10	22:35	382.34	1/24/10	11:50	382.53
1/22/10	7:05	381.86	1/22/10	20:20	381.91	1/23/10	9:35	382.15	1/23/10	22:50	382.34	1/24/10	12:05	382.53
1/22/10	7:20	381.86	1/22/10	20:35	381.89	1/23/10	9:50	382.15	1/23/10	23:05	382.35	1/24/10	12:20	382.52
1/22/10	7:35	381.86	1/22/10	20:50	381.89	1/23/10	10:05	382.17	1/23/10	23:20	382.35	1/24/10	12:35	382.53
1/22/10	7:50	381.89	1/22/10	21:05	381.92	1/23/10	10:20	382.17	1/23/10	23:35	382.35	1/24/10	12:50	382.52
1/22/10	8:05	381.84	1/22/10	21:20	381.92	1/23/10	10:35	382.17	1/23/10	23:50	382.35	1/24/10	13:05	382.52
1/22/10	8:20	381.84	1/22/10	21:35	381.92	1/23/10	10:50	382.17	1/24/10	0:05	382.37	1/24/10	13:20	382.52
1/22/10	8:35	381.86	1/22/10	21:50	381.94	1/23/10	11:05	382.17	1/24/10	0:20	382.37	1/24/10	13:35	382.53
1/22/10	8:50	381.84	1/22/10	22:05	381.96	1/23/10	11:20	382.19	1/24/10	0:35	382.37	1/24/10	13:50	382.52
1/22/10	9:05	381.86	1/22/10	22:20	381.96	1/23/10	11:35	382.19	1/24/10	0:50	382.37	1/24/10	14:05	382.50
1/22/10	9:20	381.86	1/22/10	22:35	381.96	1/23/10	11:50	382.19	1/24/10	1:05	382.38	1/24/10	14:20	382.52
1/22/10	9:35	381.86	1/22/10	22:50	381.96	1/23/10	12:05	382.17	1/24/10	1:20	382.38	1/24/10	14:35	382.50
1/22/10	9:50	381.86	1/22/10	23:05	381.96	1/23/10	12:20	382.19	1/24/10	1:35	382.38	1/24/10	14:50	382.50
1/22/10	10:05	381.89	1/22/10	23:20	381.96	1/23/10	12:35	382.19	1/24/10	1:50	382.38	1/24/10	15:05	382.53
1/22/10	10:20	381.89	1/22/10	23:35	381.96	1/23/10	12:50	382.19	1/24/10	2:05	382.40	1/24/10	15:20	382.55
1/22/10	10:35	381.91	1/22/10	23:50	381.96	1/23/10	13:05	382.17	1/24/10	2:20	382.42	1/24/10	15:35	382.53
1/22/10	10:50	381.92	1/23/10	0:05	381.97	1/23/10	13:20	382.17	1/24/10	2:35	382.40	1/24/10	15:50	382.53
1/22/10	11:05	381.89	1/23/10	0:20	381.99	1/23/10	13:35	382.17	1/24/10	2:50	382.40	1/24/10	16:05	382.53
1/22/10	11:20	381.89	1/23/10	0:35	381.99	1/23/10	13:50	382.17	1/24/10	3:05	382.42	1/24/10	16:20	382.53
1/22/10	11:35	381.89	1/23/10	0:50	381.99	1/23/10	14:05	382.20	1/24/10	3:20	382.42	1/24/10	16:35	382.55
1/22/10	11:50	381.89	1/23/10	1:05	382.01	1/23/10	14:20	382.20	1/24/10	3:35	382.40	1/24/10	16:50	382.55
1/22/10	12:05	381.87	1/23/10	1:20	382.01	1/23/10	14:35	382.20	1/24/10	3:50	382.40	1/24/10	17:05	382.53
1/22/10	12:20	381.87	1/23/10	1:35	382.01	1/23/10	14:50	382.20	1/24/10	4:05	382.43	1/24/10	17:20	382.55
1/22/10	12:35	381.87	1/23/10	1:50	382.01	1/23/10	15:05	382.24	1/24/10	4:20	382.43	1/24/10	17:35	382.55
1/22/10	12:50	381.87	1/23/10	2:05	382.02	1/23/10	15:20	382.24	1/24/10	4:35	382.45	1/24/10	17:50	382.57
1/22/10	13:05	381.86	1/23/10	2:20	382.02	1/23/10	15:35	382.24	1/24/10	4:50	382.45	1/24/10	18:05	382.57
1/22/10	13:20	381.86	1/23/10	2:35	382.01	1/23/10	15:50	382.24	1/24/10	5:05	382.45	1/24/10	18:20	382.57
1/22/10	13:35	381.84	1/23/10	2:50	382.02	1/23/10	16:05	382.25	1/24/10	5:20	382.43	1/24/10	18:35	382.57
1/22/10	13:50	381.86	1/23/10	3:05	382.02	1/23/10	16:20	382.25	1/24/10	5:35	382.45	1/24/10	18:50	382.57
1/22/10	14:05	381.84	1/23/10	3:20	382.02	1/23/10	16:35	382.25	1/24/10	5:50	382.45	1/24/10	19:05	382.58

TABLE D6C.6-8. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-12, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/24/10	19:20	382.57	1/25/10	8:35	382.35	1/26/10	7:50	382.21	1/27/10	10:20	381.98	1/28/10	12:50	381.98
1/24/10	19:35	382.57	1/25/10	8:50	382.35	1/26/10	8:20	382.23	1/27/10	10:50	381.98	1/28/10	13:20	381.97
1/24/10	19:50	382.58	1/25/10	9:05	382.35	1/26/10	8:50	382.23	1/27/10	11:20	382.00	1/28/10	13:50	381.97
1/24/10	20:05	382.57	1/25/10	9:20	382.36	1/26/10	9:20	382.23	1/27/10	11:50	381.98	1/28/10	14:20	381.98
1/24/10	20:20	382.55	1/25/10	9:35	382.36	1/26/10	9:50	382.23	1/27/10	12:20	381.98	1/28/10	14:50	381.97
1/24/10	20:35	382.55	1/25/10	9:50	382.35	1/26/10	10:20	382.03	1/27/10	12:50	381.98	1/28/10	15:20	381.97
1/24/10	20:50	382.55	1/25/10	10:05	382.38	1/26/10	10:50	382.03	1/27/10	13:20	381.98	1/28/10	15:50	381.97
1/24/10	21:05	382.57	1/25/10	10:20	382.36	1/26/10	11:20	382.03	1/27/10	13:50	381.98	1/28/10	16:20	381.97
1/24/10	21:20	382.57	1/25/10	10:35	382.38	1/26/10	11:50	382.03	1/27/10	14:20	381.98	1/28/10	16:50	381.97
1/24/10	21:35	382.58	1/25/10	10:50	382.38	1/26/10	12:20	382.03	1/27/10	14:50	381.98	1/28/10	17:20	381.97
1/24/10	21:50	382.57	1/25/10	11:05	382.38	1/26/10	12:50	382.03	1/27/10	15:20	381.98	1/28/10	17:50	381.97
1/24/10	22:05	382.58	1/25/10	11:20	382.38	1/26/10	13:20	382.03	1/27/10	15:50	381.98	1/28/10	18:20	381.97
1/24/10	22:20	382.57	1/25/10	11:35	382.38	1/26/10	13:50	382.02	1/27/10	16:20	381.97	1/28/10	18:50	381.97
1/24/10	22:35	382.52	1/25/10	11:50	382.38	1/26/10	14:20	382.02	1/27/10	16:50	381.98	1/28/10	19:20	381.97
1/24/10	22:50	382.47	1/25/10	12:20	382.36	1/26/10	14:50	382.02	1/27/10	17:20	381.98	1/28/10	19:50	381.97
1/24/10	23:05	382.43	1/25/10	12:50	382.36	1/26/10	15:20	382.02	1/27/10	17:50	381.98	1/28/10	20:20	381.97
1/24/10	23:20	382.38	1/25/10	13:20	382.36	1/26/10	15:50	382.02	1/27/10	18:20	381.98	1/28/10	20:50	381.97
1/24/10	23:35	382.37	1/25/10	13:50	382.35	1/26/10	16:20	382.02	1/27/10	18:50	381.98	1/28/10	21:20	381.97
1/24/10	23:50	382.35	1/25/10	14:20	382.33	1/26/10	16:50	382.02	1/27/10	19:20	381.98	1/28/10	21:50	381.97
1/25/10	0:05	382.33	1/25/10	14:50	382.33	1/26/10	17:20	382.02	1/27/10	19:50	381.98	1/28/10	22:20	381.97
1/25/10	0:20	382.32	1/25/10	15:20	382.33	1/26/10	17:50	382.02	1/27/10	20:20	381.98	1/28/10	22:50	381.97
1/25/10	0:35	382.30	1/25/10	15:50	382.33	1/26/10	18:20	382.02	1/27/10	20:50	381.98	1/28/10	23:20	381.97
1/25/10	0:50	382.30	1/25/10	16:20	382.33	1/26/10	18:50	382.02	1/27/10	21:20	381.98	1/28/10	23:50	381.97
1/25/10	1:05	382.30	1/25/10	16:50	382.33	1/26/10	19:20	382.00	1/27/10	21:50	381.98	1/29/10	0:20	381.97
1/25/10	1:20	382.30	1/25/10	17:20	382.33	1/26/10	19:50	382.02	1/27/10	22:20	381.97			
1/25/10	1:35	382.30	1/25/10	17:50	382.33	1/26/10	20:20	382.02	1/27/10	22:50	381.98			
1/25/10	1:50	382.28	1/25/10	18:20	382.33	1/26/10	20:50	382.00	1/27/10	23:20	381.98			
1/25/10	2:05	382.30	1/25/10	18:50	382.33	1/26/10	21:20	382.00	1/27/10	23:50	381.98			
1/25/10	2:20	382.30	1/25/10	19:20	382.35	1/26/10	21:50	382.00	1/28/10	0:20	381.98			
1/25/10	2:35	382.30	1/25/10	19:50	382.36	1/26/10	22:20	382.00	1/28/10	0:50	381.98			
1/25/10	2:50	382.30	1/25/10	20:20	382.33	1/26/10	22:50	382.00	1/28/10	1:20	381.98			
1/25/10	3:05	382.30	1/25/10	20:50	382.31	1/26/10	23:20	382.00	1/28/10	1:50	381.97			
1/25/10	3:20	382.30	1/25/10	21:20	382.31	1/26/10	23:50	382.00	1/28/10	2:20	381.97			
1/25/10	3:35	382.28	1/25/10	21:50	382.31	1/27/10	0:20	382.00	1/28/10	2:50	381.97			
1/25/10	3:50	382.28	1/25/10	22:20	382.30	1/27/10	0:50	382.00	1/28/10	3:20	381.97			
1/25/10	4:05	382.31	1/25/10	22:50	382.30	1/27/10	1:20	382.00	1/28/10	3:50	381.97			
1/25/10	4:20	382.30	1/25/10	23:20	382.28	1/27/10	1:50	382.00	1/28/10	4:20	381.97			
1/25/10	4:35	382.30	1/25/10	23:50	382.28	1/27/10	2:20	382.00	1/28/10	4:50	381.97			
1/25/10	4:50	382.30	1/26/10	0:20	382.28	1/27/10	2:50	382.00	1/28/10	5:20	381.97			
1/25/10	5:05	382.31	1/26/10	0:50	382.28	1/27/10	3:20	382.00	1/28/10	5:50	381.97			
1/25/10	5:20	382.31	1/26/10	1:20	382.26	1/27/10	3:50	381.98	1/28/10	6:20	381.97			
1/25/10	5:35	382.30	1/26/10	1:50	382.26	1/27/10	4:20	381.98	1/28/10	6:50	381.97			
1/25/10	5:50	382.30	1/26/10	2:20	382.26	1/27/10	4:50	381.98	1/28/10	7:20	381.97			
1/25/10	6:05	382.31	1/26/10	2:50	382.26	1/27/10	5:20	382.00	1/28/10	7:50	381.97			
1/25/10	6:20	382.31	1/26/10	3:20	382.26	1/27/10	5:50	382.00	1/28/10	8:20	381.97			
1/25/10	6:35	382.31	1/26/10	3:50	382.26	1/27/10	6:20	382.00	1/28/10	8:50	381.97			
1/25/10	6:50	382.31	1/26/10	4:20	382.25	1/27/10	6:50	381.98	1/28/10	9:20	381.98			
1/25/10	7:05	382.31	1/26/10	4:50	382.25	1/27/10	7:20	381.98	1/28/10	9:50	381.98			
1/25/10	7:20	382.31	1/26/10	5:20	382.23	1/27/10	7:50	381.98	1/28/10	10:20	381.98			
1/25/10	7:35	382.31	1/26/10	5:50	382.23	1/27/10	8:20	381.98	1/28/10	10:50	381.98			
1/25/10	7:50	382.31	1/26/10	6:20	382.23	1/27/10	8:50	381.98	1/28/10	11:20	381.98			
1/25/10	8:05	382.35	1/26/10	6:50	382.23	1/27/10	9:20	381.98	1/28/10	11:50	381.98			
1/25/10	8:20	382.35	1/26/10	7:20	382.21	1/27/10	9:50	381.98	1/28/10	12:20	381.98			

TABLE D6C.6-9. AQUIFER-TEST DATA FOR OBSERVATION WELL URZHG-15.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/18/10	11:50:00	93	--	--	278.55	0.43	--	--	--	--
	14:21:00	244	--	--	278.58	0.46	--	--	--	--
01/19/10	9:53:00	1416	--	--	278.10	-0.02	--	--	--	--
	9:58:00	1421	--	--	278.12	0.00	--	--	--	--
	14:20:00	1683	--	--	278.05	-0.07	--	--	--	--
01/20/10	8:56:00	2799	--	--	277.97	-0.15	--	--	--	--
	14:20:00	3123	--	--	277.99	-0.13	--	--	--	--
01/22/10	9:40:00	5723	--	--	277.57	-0.55	--	--	--	--
	14:35:00	6018	--	--	277.75	-0.37	--	--	--	--
01/24/10	9:31:00	8594	--	--	277.46	-0.66	--	--	--	--
01/26/10	10:31:00	11534	2204	5.23	278.09	-0.03	--	--	--	--
	10:31:00	DOWNLOADED TRANSDUCER								

TABLE D6C.6-10. TRANSDUCER DATA FOR OBSERVATION WELL URZHG-15.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/11/10	0:00	278.38	1/12/10	2:30	278.38	1/13/10	5:00	278.28	1/14/10	7:30	278.28	1/15/10	10:00	278.28
1/11/10	0:30	278.38	1/12/10	3:00	278.38	1/13/10	5:30	278.33	1/14/10	8:00	278.28	1/15/10	10:30	278.28
1/11/10	1:00	278.38	1/12/10	3:30	278.38	1/13/10	6:00	278.33	1/14/10	8:30	278.28	1/15/10	11:00	278.28
1/11/10	1:30	278.38	1/12/10	4:00	278.38	1/13/10	6:30	278.33	1/14/10	9:00	278.28	1/15/10	11:30	278.33
1/11/10	2:00	278.38	1/12/10	4:30	278.38	1/13/10	7:00	278.33	1/14/10	9:30	278.28	1/15/10	12:00	278.33
1/11/10	2:30	278.38	1/12/10	5:00	278.38	1/13/10	7:30	278.33	1/14/10	10:00	278.28	1/15/10	12:30	278.33
1/11/10	3:00	278.38	1/12/10	5:30	278.38	1/13/10	8:00	278.33	1/14/10	10:30	278.28	1/15/10	13:00	278.33
1/11/10	3:30	278.38	1/12/10	6:00	278.38	1/13/10	8:30	278.33	1/14/10	11:00	278.28	1/15/10	13:30	278.28
1/11/10	4:00	278.38	1/12/10	6:30	278.38	1/13/10	9:00	278.33	1/14/10	11:30	278.28	1/15/10	14:00	278.28
1/11/10	4:30	278.38	1/12/10	7:00	278.38	1/13/10	9:30	278.33	1/14/10	12:00	278.28	1/15/10	14:30	278.28
1/11/10	5:00	278.38	1/12/10	7:30	278.38	1/13/10	10:00	278.33	1/14/10	12:30	278.28	1/15/10	15:00	278.33
1/11/10	5:30	278.38	1/12/10	8:00	278.38	1/13/10	10:30	278.33	1/14/10	13:00	278.33	1/15/10	15:30	278.28
1/11/10	6:00	278.38	1/12/10	8:30	278.38	1/13/10	11:00	278.33	1/14/10	13:30	278.33	1/15/10	16:00	278.28
1/11/10	6:30	278.38	1/12/10	9:00	278.38	1/13/10	11:30	278.33	1/14/10	14:00	278.28	1/15/10	16:30	278.28
1/11/10	7:00	278.38	1/12/10	9:30	278.38	1/13/10	12:00	278.33	1/14/10	14:30	278.33	1/15/10	17:00	278.28
1/11/10	7:30	278.38	1/12/10	10:00	278.38	1/13/10	12:30	278.33	1/14/10	15:00	278.33	1/15/10	17:30	278.28
1/11/10	8:00	278.38	1/12/10	10:30	278.38	1/13/10	13:00	278.33	1/14/10	15:30	278.33	1/15/10	18:00	278.28
1/11/10	8:30	278.38	1/12/10	11:00	278.38	1/13/10	13:30	278.33	1/14/10	16:00	278.33	1/15/10	18:30	278.28
1/11/10	9:00	278.38	1/12/10	11:30	278.38	1/13/10	14:00	278.33	1/14/10	16:30	278.33	1/15/10	19:00	278.28
1/11/10	9:30	278.38	1/12/10	12:00	278.38	1/13/10	14:30	278.33	1/14/10	17:00	278.33	1/15/10	19:30	278.28
1/11/10	10:00	278.38	1/12/10	12:30	278.38	1/13/10	15:00	278.33	1/14/10	17:30	278.33	1/15/10	20:00	278.28
1/11/10	10:30	278.38	1/12/10	13:00	278.38	1/13/10	15:30	278.33	1/14/10	18:00	278.33	1/15/10	20:30	278.28
1/11/10	11:00	278.38	1/12/10	13:30	278.38	1/13/10	16:00	278.33	1/14/10	18:30	278.33	1/15/10	21:00	278.28
1/11/10	11:30	278.38	1/12/10	14:00	278.38	1/13/10	16:30	278.33	1/14/10	19:00	278.33	1/15/10	21:30	278.28
1/11/10	12:00	278.38	1/12/10	14:30	278.38	1/13/10	17:00	278.33	1/14/10	19:30	278.33	1/15/10	22:00	278.28
1/11/10	12:30	278.38	1/12/10	15:00	278.38	1/13/10	17:30	278.33	1/14/10	20:00	278.33	1/15/10	22:30	278.28
1/11/10	13:00	278.38	1/12/10	15:30	278.38	1/13/10	18:00	278.33	1/14/10	20:30	278.33	1/15/10	23:00	278.28
1/11/10	13:30	278.38	1/12/10	16:00	278.38	1/13/10	18:30	278.33	1/14/10	21:00	278.33	1/15/10	23:30	278.28
1/11/10	14:00	278.38	1/12/10	16:30	278.38	1/13/10	19:00	278.33	1/14/10	21:30	278.33	1/16/10	0:00	278.28
1/11/10	14:30	278.38	1/12/10	17:00	278.38	1/13/10	19:30	278.33	1/14/10	22:00	278.33	1/16/10	0:30	278.28
1/11/10	15:00	278.38	1/12/10	17:30	278.38	1/13/10	20:00	278.33	1/14/10	22:30	278.33	1/16/10	1:00	278.28
1/11/10	15:30	278.38	1/12/10	18:00	278.38	1/13/10	20:30	278.33	1/14/10	23:00	278.33	1/16/10	1:30	278.28
1/11/10	16:00	278.38	1/12/10	18:30	278.38	1/13/10	21:00	278.33	1/14/10	23:30	278.33	1/16/10	2:00	278.28
1/11/10	16:30	278.38	1/12/10	19:00	278.38	1/13/10	21:30	278.33	1/15/10	0:00	278.28	1/16/10	2:30	278.28
1/11/10	17:00	278.38	1/12/10	19:30	278.33	1/13/10	22:00	278.28	1/15/10	0:30	278.28	1/16/10	3:00	278.23
1/11/10	17:30	278.38	1/12/10	20:00	278.38	1/13/10	22:30	278.28	1/15/10	1:00	278.28	1/16/10	3:30	278.28
1/11/10	18:00	278.38	1/12/10	20:30	278.33	1/13/10	23:00	278.28	1/15/10	1:30	278.28	1/16/10	4:00	278.28
1/11/10	18:30	278.38	1/12/10	21:00	278.33	1/13/10	23:30	278.28	1/15/10	2:00	278.28	1/16/10	4:30	278.23
1/11/10	19:00	278.38	1/12/10	21:30	278.33	1/14/10	0:00	278.28	1/15/10	2:30	278.28	1/16/10	5:00	278.28
1/11/10	19:30	278.38	1/12/10	22:00	278.33	1/14/10	0:30	278.28	1/15/10	3:00	278.28	1/16/10	5:30	278.28
1/11/10	20:00	278.38	1/12/10	22:30	278.33	1/14/10	1:00	278.28	1/15/10	3:30	278.28	1/16/10	6:00	278.28
1/11/10	20:30	278.38	1/12/10	23:00	278.33	1/14/10	1:30	278.28	1/15/10	4:00	278.28	1/16/10	6:30	278.23
1/11/10	21:00	278.38	1/12/10	23:30	278.33	1/14/10	2:00	278.28	1/15/10	4:30	278.28	1/16/10	7:00	278.23
1/11/10	21:30	278.38	1/13/10	0:00	278.33	1/14/10	2:30	278.28	1/15/10	5:00	278.28	1/16/10	7:30	278.28
1/11/10	22:00	278.38	1/13/10	0:30	278.33	1/14/10	3:00	278.28	1/15/10	5:30	278.28	1/16/10	8:00	278.23
1/11/10	22:30	278.38	1/13/10	1:00	278.33	1/14/10	3:30	278.28	1/15/10	6:00	278.28	1/16/10	8:30	278.23
1/11/10	23:00	278.38	1/13/10	1:30	278.33	1/14/10	4:00	278.28	1/15/10	6:30	278.28	1/16/10	9:00	278.23
1/11/10	23:30	278.38	1/13/10	2:00	278.28	1/14/10	4:30	278.28	1/15/10	7:00	278.28	1/16/10	9:30	278.23
1/12/10	0:00	278.38	1/13/10	2:30	278.28	1/14/10	5:00	278.28	1/15/10	7:30	278.28	1/16/10	10:00	278.23
1/12/10	0:30	278.38	1/13/10	3:00	278.28	1/14/10	5:30	278.28	1/15/10	8:00	278.33	1/16/10	10:30	278.23
1/12/10	1:00	278.38	1/13/10	3:30	278.28	1/14/10	6:00	278.28	1/15/10	8:30	278.33	1/16/10	11:00	278.23
1/12/10	1:30	278.38	1/13/10	4:00	278.28	1/14/10	6:30	278.28	1/15/10	9:00	278.28	1/16/10	11:30	278.23
1/12/10	2:00	278.38	1/13/10	4:30	278.28	1/14/10	7:00	278.28	1/15/10	9:30	278.33	1/16/10	12:00	278.23

TABLE D6C.6-10. TRANSDUCER DATA FOR OBSERVATION WELL URZHG-15, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/16/10	12:30	278.23	1/17/10	15:00	278.17	1/18/10	17:30	278.12	1/19/10	20:00	277.94	1/20/10	22:30	277.83
1/16/10	13:00	278.23	1/17/10	15:30	278.17	1/18/10	18:00	278.12	1/19/10	20:30	277.94	1/20/10	23:00	277.83
1/16/10	13:30	278.23	1/17/10	16:00	278.17	1/18/10	18:30	278.07	1/19/10	21:00	277.94	1/20/10	23:30	277.83
1/16/10	14:00	278.23	1/17/10	16:30	278.17	1/18/10	19:00	278.07	1/19/10	21:30	277.94	1/21/10	0:00	277.83
1/16/10	14:30	278.23	1/17/10	17:00	278.17	1/18/10	19:30	278.07	1/19/10	22:00	277.94	1/21/10	0:30	277.83
1/16/10	15:00	278.23	1/17/10	17:30	278.17	1/18/10	20:00	278.07	1/19/10	22:30	277.94	1/21/10	1:00	277.83
1/16/10	15:30	278.23	1/17/10	18:00	278.17	1/18/10	20:30	278.07	1/19/10	23:00	277.94	1/21/10	1:30	277.83
1/16/10	16:00	278.23	1/17/10	18:30	278.17	1/18/10	21:00	278.07	1/19/10	23:30	277.94	1/21/10	2:00	277.83
1/16/10	16:30	278.23	1/17/10	19:00	278.17	1/18/10	21:30	278.07	1/20/10	0:00	277.94	1/21/10	2:30	277.83
1/16/10	17:00	278.23	1/17/10	19:30	278.17	1/18/10	22:00	278.07	1/20/10	0:30	277.88	1/21/10	3:00	277.83
1/16/10	17:30	278.23	1/17/10	20:00	278.17	1/18/10	22:30	278.07	1/20/10	1:00	277.94	1/21/10	3:30	277.83
1/16/10	18:00	278.23	1/17/10	20:30	278.17	1/18/10	23:00	278.07	1/20/10	1:30	277.88	1/21/10	4:00	277.83
1/16/10	18:30	278.23	1/17/10	21:00	278.17	1/18/10	23:30	278.07	1/20/10	2:00	277.88	1/21/10	4:30	277.83
1/16/10	19:00	278.23	1/17/10	21:30	278.17	1/19/10	0:00	278.07	1/20/10	2:30	277.88	1/21/10	5:00	277.78
1/16/10	19:30	278.23	1/17/10	22:00	278.17	1/19/10	0:30	278.07	1/20/10	3:00	277.88	1/21/10	5:30	277.83
1/16/10	20:00	278.23	1/17/10	22:30	278.17	1/19/10	1:00	278.07	1/20/10	3:30	277.88	1/21/10	6:00	277.78
1/16/10	20:30	278.23	1/17/10	23:00	278.17	1/19/10	1:30	278.07	1/20/10	4:00	277.88	1/21/10	6:30	277.78
1/16/10	21:00	278.23	1/17/10	23:30	278.17	1/19/10	2:00	278.07	1/20/10	4:30	277.88	1/21/10	7:00	277.83
1/16/10	21:30	278.23	1/18/10	0:00	278.17	1/19/10	2:30	278.07	1/20/10	5:00	277.88	1/21/10	7:30	277.78
1/16/10	22:00	278.23	1/18/10	0:30	278.12	1/19/10	3:00	278.07	1/20/10	5:30	277.88	1/21/10	8:00	277.78
1/16/10	22:30	278.23	1/18/10	1:00	278.17	1/19/10	3:30	278.07	1/20/10	6:00	277.88	1/21/10	8:30	277.83
1/16/10	23:00	278.23	1/18/10	1:30	278.12	1/19/10	4:00	278.01	1/20/10	6:30	277.88	1/21/10	9:00	277.78
1/16/10	23:30	278.23	1/18/10	2:00	278.12	1/19/10	4:30	278.01	1/20/10	7:00	277.88	1/21/10	9:30	277.78
1/17/10	0:00	278.23	1/18/10	2:30	278.12	1/19/10	5:00	278.01	1/20/10	7:30	277.88	1/21/10	10:00	277.78
1/17/10	0:30	278.17	1/18/10	3:00	278.12	1/19/10	5:30	278.01	1/20/10	8:00	277.88	1/21/10	10:30	277.78
1/17/10	1:00	278.17	1/18/10	3:30	278.12	1/19/10	6:00	278.01	1/20/10	8:30	277.88	1/21/10	11:00	277.78
1/17/10	1:30	278.17	1/18/10	4:00	278.12	1/19/10	6:30	278.01	1/20/10	9:00	277.88	1/21/10	11:30	277.78
1/17/10	2:00	278.17	1/18/10	4:30	278.12	1/19/10	7:00	278.01	1/20/10	9:30	277.88	1/21/10	12:00	277.78
1/17/10	2:30	278.17	1/18/10	5:00	278.12	1/19/10	7:30	278.01	1/20/10	10:00	277.88	1/21/10	12:30	277.78
1/17/10	3:00	278.17	1/18/10	5:30	278.12	1/19/10	8:00	278.01	1/20/10	10:30	277.88	1/21/10	13:00	277.78
1/17/10	3:30	278.17	1/18/10	6:00	278.12	1/19/10	8:30	278.01	1/20/10	11:00	277.88	1/21/10	13:30	277.78
1/17/10	4:00	278.17	1/18/10	6:30	278.12	1/19/10	9:00	278.01	1/20/10	11:30	277.88	1/21/10	14:00	277.78
1/17/10	4:30	278.17	1/18/10	7:00	278.12	1/19/10	9:30	278.01	1/20/10	12:00	277.88	1/21/10	14:30	277.78
1/17/10	5:00	278.17	1/18/10	7:30	278.12	1/19/10	10:00	278.01	1/20/10	12:30	277.88	1/21/10	15:00	277.78
1/17/10	5:30	278.17	1/18/10	8:00	278.12	1/19/10	10:30	278.01	1/20/10	13:00	277.88	1/21/10	15:30	277.78
1/17/10	6:00	278.17	1/18/10	8:30	278.12	1/19/10	11:00	278.01	1/20/10	13:30	277.88	1/21/10	16:00	277.78
1/17/10	6:30	278.17	1/18/10	9:00	278.12	1/19/10	11:30	278.01	1/20/10	14:00	277.88	1/21/10	16:30	277.78
1/17/10	7:00	278.17	1/18/10	9:30	278.12	1/19/10	12:00	278.01	1/20/10	14:30	277.88	1/21/10	17:00	277.78
1/17/10	7:30	278.17	1/18/10	10:00	278.12	1/19/10	12:30	278.01	1/20/10	15:00	277.88	1/21/10	17:30	277.78
1/17/10	8:00	278.17	1/18/10	10:30	278.12	1/19/10	13:00	278.01	1/20/10	15:30	277.88	1/21/10	18:00	277.78
1/17/10	8:30	278.17	1/18/10	11:00	278.12	1/19/10	13:30	278.01	1/20/10	16:00	277.88	1/21/10	18:30	277.72
1/17/10	9:00	278.17	1/18/10	11:30	278.12	1/19/10	14:00	278.01	1/20/10	16:30	277.88	1/21/10	19:00	277.72
1/17/10	9:30	278.17	1/18/10	12:00	278.12	1/19/10	14:30	278.01	1/20/10	17:00	277.88	1/21/10	19:30	277.72
1/17/10	10:00	278.17	1/18/10	12:30	278.12	1/19/10	15:00	277.94	1/20/10	17:30	277.88	1/21/10	20:00	277.72
1/17/10	10:30	278.17	1/18/10	13:00	278.12	1/19/10	15:30	277.94	1/20/10	18:00	277.88	1/21/10	20:30	277.72
1/17/10	11:00	278.17	1/18/10	13:30	278.12	1/19/10	16:00	277.94	1/20/10	18:30	277.88	1/21/10	21:00	277.72
1/17/10	11:30	278.17	1/18/10	14:00	278.12	1/19/10	16:30	277.94	1/20/10	19:00	277.83	1/21/10	21:30	277.72
1/17/10	12:00	278.17	1/18/10	14:30	278.12	1/19/10	17:00	277.94	1/20/10	19:30	277.83	1/21/10	22:00	277.72
1/17/10	12:30	278.17	1/18/10	15:00	278.12	1/19/10	17:30	277.94	1/20/10	20:00	277.83	1/21/10	22:30	277.72
1/17/10	13:00	278.17	1/18/10	15:30	278.12	1/19/10	18:00	277.94	1/20/10	20:30	277.83	1/21/10	23:00	277.72
1/17/10	13:30	278.17	1/18/10	16:00	278.12	1/19/10	18:30	277.94	1/20/10	21:00	277.83	1/21/10	23:30	277.72
1/17/10	14:00	278.17	1/18/10	16:30	278.12	1/19/10	19:00	277.94	1/20/10	21:30	277.83	1/22/10	0:00	277.72
1/17/10	14:30	278.17	1/18/10	17:00	278.12	1/19/10	19:30	277.94	1/20/10	22:00	277.83	1/22/10	0:30	277.72

TABLE D6C.6-10. TRANSDUCER DATA FOR OBSERVATION WELL URZHG-15, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/22/10	1:00	277.72	1/23/10	3:30	277.62	1/24/10	6:00	277.72	1/25/10	8:30	277.83			
1/22/10	1:30	277.72	1/23/10	4:00	277.62	1/24/10	6:30	277.72	1/25/10	9:00	277.83			
1/22/10	2:00	277.72	1/23/10	4:30	277.62	1/24/10	7:00	277.72	1/25/10	9:30	277.83			
1/22/10	2:30	277.72	1/23/10	5:00	277.62	1/24/10	7:30	277.72	1/25/10	10:00	277.83			
1/22/10	3:00	277.67	1/23/10	5:30	277.62	1/24/10	8:00	277.72	1/25/10	10:30	277.83			
1/22/10	3:30	277.67	1/23/10	6:00	277.62	1/24/10	8:30	277.72	1/25/10	11:00	277.83			
1/22/10	4:00	277.67	1/23/10	6:30	277.62	1/24/10	9:00	277.72	1/25/10	11:30	277.83			
1/22/10	4:30	277.67	1/23/10	7:00	277.62	1/24/10	9:30	277.72	1/25/10	12:00	277.83			
1/22/10	5:00	277.67	1/23/10	7:30	277.62	1/24/10	10:00	277.72	1/25/10	12:30	277.83			
1/22/10	5:30	277.67	1/23/10	8:00	277.62	1/24/10	10:30	277.72	1/25/10	13:00	277.83			
1/22/10	6:00	277.67	1/23/10	8:30	277.62	1/24/10	11:00	277.72	1/25/10	13:30	277.83			
1/22/10	6:30	277.67	1/23/10	9:00	277.62	1/24/10	11:30	277.72	1/25/10	14:00	277.83			
1/22/10	7:00	277.67	1/23/10	9:30	277.62	1/24/10	12:00	277.72	1/25/10	14:30	277.83			
1/22/10	7:30	277.67	1/23/10	10:00	277.62	1/24/10	12:30	277.72	1/25/10	15:00	277.83			
1/22/10	8:00	277.67	1/23/10	10:30	277.62	1/24/10	13:00	277.72	1/25/10	15:30	277.83			
1/22/10	8:30	277.67	1/23/10	11:00	277.62	1/24/10	13:30	277.72	1/25/10	16:00	277.83			
1/22/10	9:00	277.67	1/23/10	11:30	277.62	1/24/10	14:00	277.72	1/25/10	16:30	277.83			
1/22/10	9:30	277.67	1/23/10	12:00	277.62	1/24/10	14:30	277.72	1/25/10	17:00	277.83			
1/22/10	10:00	277.67	1/23/10	12:30	277.62	1/24/10	15:00	277.72	1/25/10	17:30	277.88			
1/22/10	10:30	277.67	1/23/10	13:00	277.62	1/24/10	15:30	277.72	1/25/10	18:00	277.88			
1/22/10	11:00	277.62	1/23/10	13:30	277.62	1/24/10	16:00	277.72	1/25/10	18:30	277.88			
1/22/10	11:30	277.67	1/23/10	14:00	277.62	1/24/10	16:30	277.72	1/25/10	19:00	277.88			
1/22/10	12:00	277.62	1/23/10	14:30	277.62	1/24/10	17:00	277.72	1/25/10	19:30	277.88			
1/22/10	12:30	277.62	1/23/10	15:00	277.62	1/24/10	17:30	277.72	1/25/10	20:00	277.88			
1/22/10	13:00	277.62	1/23/10	15:30	277.62	1/24/10	18:00	277.78	1/25/10	20:30	277.88			
1/22/10	13:30	277.62	1/23/10	16:00	277.62	1/24/10	18:30	277.78	1/25/10	21:00	277.88			
1/22/10	14:00	277.62	1/23/10	16:30	277.62	1/24/10	19:00	277.78	1/25/10	21:30	277.88			
1/22/10	14:30	277.62	1/23/10	17:00	277.62	1/24/10	19:30	277.78	1/25/10	22:00	277.88			
1/22/10	15:00	277.62	1/23/10	17:30	277.67	1/24/10	20:00	277.78						
1/22/10	15:30	277.62	1/23/10	18:00	277.62	1/24/10	20:30	277.78						
1/22/10	16:00	277.62	1/23/10	18:30	277.62	1/24/10	21:00	277.78						
1/22/10	16:30	277.62	1/23/10	19:00	277.67	1/24/10	21:30	277.78						
1/22/10	17:00	277.62	1/23/10	19:30	277.67	1/24/10	22:00	277.78						
1/22/10	17:30	277.62	1/23/10	20:00	277.67	1/24/10	22:30	277.78						
1/22/10	18:00	277.62	1/23/10	20:30	277.67	1/24/10	23:00	277.78						
1/22/10	18:30	277.62	1/23/10	21:00	277.67	1/24/10	23:30	277.78						
1/22/10	19:00	277.62	1/23/10	21:30	277.67	1/25/10	0:00	277.78						
1/22/10	19:30	277.62	1/23/10	22:00	277.67	1/25/10	0:30	277.78						
1/22/10	20:00	277.62	1/23/10	22:30	277.67	1/25/10	1:00	277.78						
1/22/10	20:30	277.62	1/23/10	23:00	277.67	1/25/10	1:30	277.78						
1/22/10	21:00	277.62	1/23/10	23:30	277.67	1/25/10	2:00	277.78						
1/22/10	21:30	277.62	1/24/10	0:00	277.67	1/25/10	2:30	277.78						
1/22/10	22:00	277.62	1/24/10	0:30	277.67	1/25/10	3:00	277.78						
1/22/10	22:30	277.62	1/24/10	1:00	277.67	1/25/10	3:30	277.78						
1/22/10	23:00	277.62	1/24/10	1:30	277.67	1/25/10	4:00	277.78						
1/22/10	23:30	277.62	1/24/10	2:00	277.67	1/25/10	4:30	277.78						
1/23/10	0:00	277.62	1/24/10	2:30	277.67	1/25/10	5:00	277.78						
1/23/10	0:30	277.62	1/24/10	3:00	277.67	1/25/10	5:30	277.78						
1/23/10	1:00	277.62	1/24/10	3:30	277.67	1/25/10	6:00	277.78						
1/23/10	1:30	277.62	1/24/10	4:00	277.67	1/25/10	6:30	277.78						
1/23/10	2:00	277.62	1/24/10	4:30	277.67	1/25/10	7:00	277.78						
1/23/10	2:30	277.62	1/24/10	5:00	277.67	1/25/10	7:30	277.83						
1/23/10	3:00	277.62	1/24/10	5:30	277.67	1/25/10	8:00	277.83						

TABLE D6C.6-11. AQUIFER-TEST DATA FOR OBSERVATION WELL URZHC-16.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/18/10	11:45:00	88	--	--	364.00	0.60	--	--	--	--
	14:23:00	246	--	--	363.99	0.59	--	--	--	--
01/19/10	9:50:00	1413	--	--	363.63	0.23	--	--	--	--
	14:00:00	1663	--	--	363.48	0.08	--	--	--	--
01/20/10	8:50:00	2793	--	--	363.28	-0.12	--	--	--	--
	14:24:00	3127	--	--	363.28	-0.12	--	--	--	--
01/21/10	10:10:00	4313	--	--	363.37	-0.03	--	--	--	--
	13:12:00	4495	--	--	363.36	-0.04	--	--	--	--
01/22/10	9:34:00	5717	--	--	363.17	-0.23	--	--	--	--
	14:40:00	6023	--	--	363.20	-0.20	--	--	--	--
01/23/10	9:28:00	7151	--	--	363.34	-0.06	--	--	--	--
01/24/10	9:16:00	8579	--	--	363.15	-0.25	--	--	--	--
01/26/10	9:40:00	11483	2153	5.33	363.42	0.02	--	--	--	--
	9:40:00	DOWLOADED TRANSDUCER								

TABLE D6C.6-12. TRANSDUCER DATA FOR OBSERVATION WELL URZHC-16.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/11/10	0:01	363.66	1/12/10	2:31	363.60	1/13/10	5:01	363.49	1/14/10	7:31	363.55	1/15/10	10:01	363.60
1/11/10	0:31	363.66	1/12/10	3:01	363.58	1/13/10	5:31	363.50	1/14/10	8:01	363.56	1/15/10	10:31	363.61
1/11/10	1:01	363.66	1/12/10	3:31	363.58	1/13/10	6:01	363.49	1/14/10	8:31	363.56	1/15/10	11:01	363.60
1/11/10	1:31	363.66	1/12/10	4:01	363.56	1/13/10	6:31	363.49	1/14/10	9:01	363.56	1/15/10	11:31	363.61
1/11/10	2:01	363.66	1/12/10	4:31	363.58	1/13/10	7:01	363.49	1/14/10	9:31	363.56	1/15/10	12:01	363.58
1/11/10	2:31	363.64	1/12/10	5:01	363.55	1/13/10	7:31	363.49	1/14/10	10:01	363.56	1/15/10	12:31	363.58
1/11/10	3:01	363.64	1/12/10	5:31	363.55	1/13/10	8:01	363.50	1/14/10	10:31	363.56	1/15/10	13:01	363.56
1/11/10	3:31	363.64	1/12/10	6:01	363.56	1/13/10	8:31	363.48	1/14/10	11:01	363.56	1/15/10	13:31	363.56
1/11/10	4:01	363.63	1/12/10	6:31	363.55	1/13/10	9:01	363.50	1/14/10	11:31	363.56	1/15/10	14:01	363.51
1/11/10	4:31	363.63	1/12/10	7:01	363.56	1/13/10	9:31	363.50	1/14/10	12:01	363.56	1/15/10	14:31	363.51
1/11/10	5:01	363.63	1/12/10	7:31	363.55	1/13/10	10:01	363.50	1/14/10	12:31	363.58	1/15/10	15:01	363.51
1/11/10	5:31	363.63	1/12/10	8:01	363.55	1/13/10	10:31	363.50	1/14/10	13:01	363.55	1/15/10	15:31	363.51
1/11/10	6:01	363.63	1/12/10	8:31	363.55	1/13/10	11:01	363.50	1/14/10	13:31	363.55	1/15/10	16:01	363.50
1/11/10	6:31	363.63	1/12/10	9:01	363.56	1/13/10	11:31	363.50	1/14/10	14:01	363.55	1/15/10	16:31	363.50
1/11/10	7:01	363.63	1/12/10	9:31	363.56	1/13/10	12:01	363.50	1/14/10	14:31	363.55	1/15/10	17:01	363.48
1/11/10	7:31	363.63	1/12/10	10:01	363.56	1/13/10	12:31	363.50	1/14/10	15:01	363.55	1/15/10	17:31	363.50
1/11/10	8:01	363.63	1/12/10	10:31	363.56	1/13/10	13:01	363.47	1/14/10	15:31	363.55	1/15/10	18:01	363.50
1/11/10	8:31	363.64	1/12/10	11:01	363.53	1/13/10	13:31	363.47	1/14/10	16:01	363.55	1/15/10	18:31	363.50
1/11/10	9:01	363.63	1/12/10	11:31	363.55	1/13/10	14:01	363.47	1/14/10	16:31	363.53	1/15/10	19:01	363.50
1/11/10	9:31	363.63	1/12/10	12:01	363.53	1/13/10	14:31	363.47	1/14/10	17:01	363.55	1/15/10	19:31	363.52
1/11/10	10:01	363.63	1/12/10	12:31	363.55	1/13/10	15:01	363.45	1/14/10	17:31	363.53	1/15/10	20:01	363.52
1/11/10	10:31	363.64	1/12/10	13:01	363.52	1/13/10	15:31	363.45	1/14/10	18:01	363.55	1/15/10	20:31	363.52
1/11/10	11:01	363.61	1/12/10	13:31	363.52	1/13/10	16:01	363.45	1/14/10	18:31	363.55	1/15/10	21:01	363.52
1/11/10	11:31	363.61	1/12/10	14:01	363.50	1/13/10	16:31	363.45	1/14/10	19:01	363.58	1/15/10	21:31	363.52
1/11/10	12:01	363.61	1/12/10	14:31	363.50	1/13/10	17:01	363.47	1/14/10	19:31	363.58	1/15/10	22:01	363.52
1/11/10	12:31	363.61	1/12/10	15:01	363.50	1/13/10	17:31	363.45	1/14/10	20:01	363.61	1/15/10	22:31	363.52
1/11/10	13:01	363.60	1/12/10	15:31	363.52	1/13/10	18:01	363.48	1/14/10	20:31	363.61	1/15/10	23:01	363.52
1/11/10	13:31	363.60	1/12/10	16:01	363.48	1/13/10	18:31	363.48	1/14/10	21:01	363.60	1/15/10	23:31	363.53
1/11/10	14:01	363.58	1/12/10	16:31	363.48	1/13/10	19:01	363.50	1/14/10	21:31	363.60	1/16/10	0:01	363.52
1/11/10	14:31	363.58	1/12/10	17:01	363.48	1/13/10	19:31	363.52	1/14/10	22:01	363.61	1/16/10	0:31	363.54
1/11/10	15:01	363.56	1/12/10	17:31	363.48	1/13/10	20:01	363.50	1/14/10	22:31	363.63	1/16/10	1:01	363.52
1/11/10	15:31	363.56	1/12/10	18:01	363.50	1/13/10	20:31	363.50	1/14/10	23:01	363.63	1/16/10	1:31	363.52
1/11/10	16:01	363.55	1/12/10	18:31	363.50	1/13/10	21:01	363.52	1/14/10	23:31	363.65	1/16/10	2:01	363.52
1/11/10	16:31	363.55	1/12/10	19:01	363.50	1/13/10	21:31	363.52	1/15/10	0:01	363.63	1/16/10	2:31	363.52
1/11/10	17:01	363.56	1/12/10	19:31	363.50	1/13/10	22:01	363.55	1/15/10	0:31	363.63	1/16/10	3:01	363.49
1/11/10	17:31	363.56	1/12/10	20:01	363.52	1/13/10	22:31	363.55	1/15/10	1:01	363.65	1/16/10	3:31	363.49
1/11/10	18:01	363.58	1/12/10	20:31	363.52	1/13/10	23:01	363.55	1/15/10	1:31	363.63	1/16/10	4:01	363.49
1/11/10	18:31	363.58	1/12/10	21:01	363.52	1/13/10	23:31	363.57	1/15/10	2:01	363.63	1/16/10	4:31	363.49
1/11/10	19:01	363.58	1/12/10	21:31	363.54	1/14/10	0:01	363.55	1/15/10	2:31	363.63	1/16/10	5:01	363.47
1/11/10	19:31	363.60	1/12/10	22:01	363.52	1/14/10	0:31	363.57	1/15/10	3:01	363.61	1/16/10	5:31	363.45
1/11/10	20:01	363.60	1/12/10	22:31	363.52	1/14/10	1:01	363.55	1/15/10	3:31	363.61	1/16/10	6:01	363.47
1/11/10	20:31	363.61	1/12/10	23:01	363.52	1/14/10	1:31	363.55	1/15/10	4:01	363.61	1/16/10	6:31	363.47
1/11/10	21:01	363.61	1/12/10	23:31	363.54	1/14/10	2:01	363.55	1/15/10	4:31	363.60	1/16/10	7:01	363.47
1/11/10	21:31	363.61	1/13/10	0:01	363.52	1/14/10	2:31	363.55	1/15/10	5:01	363.58	1/16/10	7:31	363.45
1/11/10	22:01	363.60	1/13/10	0:31	363.52	1/14/10	3:01	363.57	1/15/10	5:31	363.58	1/16/10	8:01	363.45
1/11/10	22:31	363.60	1/13/10	1:01	363.52	1/14/10	3:31	363.57	1/15/10	6:01	363.60	1/16/10	8:31	363.45
1/11/10	23:01	363.61	1/13/10	1:31	363.52	1/14/10	4:01	363.57	1/15/10	6:31	363.60	1/16/10	9:01	363.45
1/11/10	23:31	363.61	1/13/10	2:01	363.52	1/14/10	4:31	363.57	1/15/10	7:01	363.58	1/16/10	9:31	363.45
1/12/10	0:01	363.61	1/13/10	2:31	363.52	1/14/10	5:01	363.55	1/15/10	7:31	363.58	1/16/10	10:01	363.48
1/12/10	0:31	363.61	1/13/10	3:01	363.52	1/14/10	5:31	363.55	1/15/10	8:01	363.58	1/16/10	10:31	363.48
1/12/10	1:01	363.61	1/13/10	3:31	363.50	1/14/10	6:01	363.57	1/15/10	8:31	363.56	1/16/10	11:01	363.47
1/12/10	1:31	363.61	1/13/10	4:01	363.50	1/14/10	6:31	363.55	1/15/10	9:01	363.60	1/16/10	11:31	363.50
1/12/10	2:01	363.60	1/13/10	4:31	363.52	1/14/10	7:01	363.56	1/15/10	9:31	363.60	1/16/10	12:01	363.47

TABLE D6C.6-12. TRANSDUCER DATA FOR OBSERVATION WELL URZHC-16, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/16/10	12:31	363.47	1/17/10	15:01	363.42	1/18/10	17:31	363.36	1/19/10	20:01	363.29	1/20/10	22:31	363.31
1/16/10	13:01	363.47	1/17/10	15:31	363.42	1/18/10	18:01	363.36	1/19/10	20:31	363.29	1/20/10	23:01	363.33
1/16/10	13:31	363.49	1/17/10	16:01	363.42	1/18/10	18:31	363.36	1/19/10	21:01	363.31	1/20/10	23:31	363.34
1/16/10	14:01	363.45	1/17/10	16:31	363.42	1/18/10	19:01	363.37	1/19/10	21:31	363.29	1/21/10	0:01	363.33
1/16/10	14:31	363.45	1/17/10	17:01	363.39	1/18/10	19:31	363.37	1/19/10	22:01	363.31	1/21/10	0:31	363.34
1/16/10	15:01	363.44	1/17/10	17:31	363.39	1/18/10	20:01	363.37	1/19/10	22:31	363.31	1/21/10	1:01	363.33
1/16/10	15:31	363.44	1/17/10	18:01	363.42	1/18/10	20:31	363.39	1/19/10	23:01	363.33	1/21/10	1:31	363.34
1/16/10	16:01	363.44	1/17/10	18:31	363.42	1/18/10	21:01	363.39	1/19/10	23:31	363.31	1/21/10	2:01	363.34
1/16/10	16:31	363.44	1/17/10	19:01	363.42	1/18/10	21:31	363.39	1/20/10	0:01	363.33	1/21/10	2:31	363.33
1/16/10	17:01	363.44	1/17/10	19:31	363.42	1/18/10	22:01	363.37	1/20/10	0:31	363.34	1/21/10	3:01	363.33
1/16/10	17:31	363.42	1/17/10	20:01	363.42	1/18/10	22:31	363.37	1/20/10	1:01	363.34	1/21/10	3:31	363.34
1/16/10	18:01	363.44	1/17/10	20:31	363.42	1/18/10	23:01	363.37	1/20/10	1:31	363.34	1/21/10	4:01	363.34
1/16/10	18:31	363.45	1/17/10	21:01	363.42	1/18/10	23:31	363.39	1/20/10	2:01	363.34	1/21/10	4:31	363.33
1/16/10	19:01	363.44	1/17/10	21:31	363.42	1/19/10	0:01	363.37	1/20/10	2:31	363.34	1/21/10	5:01	363.34
1/16/10	19:31	363.44	1/17/10	22:01	363.44	1/19/10	0:31	363.39	1/20/10	3:01	363.33	1/21/10	5:31	363.34
1/16/10	20:01	363.45	1/17/10	22:31	363.44	1/19/10	1:01	363.39	1/20/10	3:31	363.33	1/21/10	6:01	363.34
1/16/10	20:31	363.45	1/17/10	23:01	363.44	1/19/10	1:31	363.39	1/20/10	4:01	363.33	1/21/10	6:31	363.33
1/16/10	21:01	363.45	1/17/10	23:31	363.45	1/19/10	2:01	363.39	1/20/10	4:31	363.33	1/21/10	7:01	363.33
1/16/10	21:31	363.45	1/18/10	0:01	363.44	1/19/10	2:31	363.39	1/20/10	5:01	363.34	1/21/10	7:31	363.34
1/16/10	22:01	363.45	1/18/10	0:31	363.44	1/19/10	3:01	363.37	1/20/10	5:31	363.33	1/21/10	8:01	363.31
1/16/10	22:31	363.45	1/18/10	1:01	363.44	1/19/10	3:31	363.37	1/20/10	6:01	363.33	1/21/10	8:31	363.31
1/16/10	23:01	363.45	1/18/10	1:31	363.44	1/19/10	4:01	363.38	1/20/10	6:31	363.31	1/21/10	9:01	363.31
1/16/10	23:31	363.47	1/18/10	2:01	363.44	1/19/10	4:31	363.36	1/20/10	7:01	363.31	1/21/10	9:31	363.31
1/17/10	0:01	363.49	1/18/10	2:31	363.45	1/19/10	5:01	363.38	1/20/10	7:31	363.31	1/21/10	10:01	363.31
1/17/10	0:31	363.49	1/18/10	3:01	363.46	1/19/10	5:31	363.38	1/20/10	8:01	363.33	1/21/10	10:31	363.31
1/17/10	1:01	363.49	1/18/10	3:31	363.44	1/19/10	6:01	363.34	1/20/10	8:31	363.33	1/21/10	11:01	363.31
1/17/10	1:31	363.47	1/18/10	4:01	363.42	1/19/10	6:31	363.34	1/20/10	9:01	363.31	1/21/10	11:31	363.33
1/17/10	2:01	363.49	1/18/10	4:31	363.42	1/19/10	7:01	363.34	1/20/10	9:31	363.31	1/21/10	12:01	363.31
1/17/10	2:31	363.49	1/18/10	5:01	363.41	1/19/10	7:31	363.36	1/20/10	10:01	363.33	1/21/10	12:31	363.31
1/17/10	3:01	363.50	1/18/10	5:31	363.41	1/19/10	8:01	363.33	1/20/10	10:31	363.33	1/21/10	13:01	363.28
1/17/10	3:31	363.49	1/18/10	6:01	363.40	1/19/10	8:31	363.33	1/20/10	11:01	363.31	1/21/10	13:31	363.30
1/17/10	4:01	363.49	1/18/10	6:31	363.40	1/19/10	9:01	363.33	1/20/10	11:31	363.33	1/21/10	14:01	363.30
1/17/10	4:31	363.49	1/18/10	7:01	363.40	1/19/10	9:31	363.34	1/20/10	12:01	363.31	1/21/10	14:31	363.30
1/17/10	5:01	363.49	1/18/10	7:31	363.40	1/19/10	10:01	363.33	1/20/10	12:31	363.31	1/21/10	15:01	363.30
1/17/10	5:31	363.49	1/18/10	8:01	363.42	1/19/10	10:31	363.34	1/20/10	13:01	363.29	1/21/10	15:31	363.28
1/17/10	6:01	363.49	1/18/10	8:31	363.42	1/19/10	11:01	363.31	1/20/10	13:31	363.29	1/21/10	16:01	363.28
1/17/10	6:31	363.49	1/18/10	9:01	363.40	1/19/10	11:31	363.31	1/20/10	14:01	363.31	1/21/10	16:31	363.28
1/17/10	7:01	363.49	1/18/10	9:31	363.40	1/19/10	12:01	363.29	1/20/10	14:31	363.31	1/21/10	17:01	363.30
1/17/10	7:31	363.49	1/18/10	10:01	363.39	1/19/10	12:31	363.31	1/20/10	15:01	363.29	1/21/10	17:31	363.28
1/17/10	8:01	363.47	1/18/10	10:31	363.39	1/19/10	13:01	363.31	1/20/10	15:31	363.29	1/21/10	18:01	363.30
1/17/10	8:31	363.47	1/18/10	11:01	363.39	1/19/10	13:31	363.31	1/20/10	16:01	363.29	1/21/10	18:31	363.30
1/17/10	9:01	363.48	1/18/10	11:31	363.41	1/19/10	14:01	363.29	1/20/10	16:31	363.29	1/21/10	19:01	363.30
1/17/10	9:31	363.48	1/18/10	12:01	363.37	1/19/10	14:31	363.29	1/20/10	17:01	363.31	1/21/10	19:31	363.30
1/17/10	10:01	363.47	1/18/10	12:31	363.39	1/19/10	15:01	363.29	1/20/10	17:31	363.31	1/21/10	20:01	363.31
1/17/10	10:31	363.49	1/18/10	13:01	363.37	1/19/10	15:31	363.29	1/20/10	18:01	363.33	1/21/10	20:31	363.31
1/17/10	11:01	363.45	1/18/10	13:31	363.36	1/19/10	16:01	363.29	1/20/10	18:31	363.31	1/21/10	21:01	363.30
1/17/10	11:31	363.47	1/18/10	14:01	363.39	1/19/10	16:31	363.29	1/20/10	19:01	363.31	1/21/10	21:31	363.30
1/17/10	12:01	363.45	1/18/10	14:31	363.39	1/19/10	17:01	363.29	1/20/10	19:31	363.33	1/21/10	22:01	363.31
1/17/10	12:31	363.47	1/18/10	15:01	363.37	1/19/10	17:31	363.29	1/20/10	20:01	363.33	1/21/10	22:31	363.30
1/17/10	13:01	363.44	1/18/10	15:31	363.37	1/19/10	18:01	363.31	1/20/10	20:31	363.31	1/21/10	23:01	363.30
1/17/10	13:31	363.45	1/18/10	16:01	363.39	1/19/10	18:31	363.31	1/20/10	21:01	363.31	1/21/10	23:31	363.31
1/17/10	14:01	363.42	1/18/10	16:31	363.37	1/19/10	19:01	363.31	1/20/10	21:31	363.31	1/22/10	0:01	363.30
1/17/10	14:31	363.42	1/18/10	17:01	363.37	1/19/10	19:31	363.31	1/20/10	22:01	363.31	1/22/10	0:31	363.30

TABLE D6C.6-12. TRANSDUCER DATA FOR OBSERVATION WELL URZHC-16, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/22/10	1:01	363.30	1/23/10	3:31	363.28	1/24/10	6:01	363.45	1/25/10	8:31	363.53			
1/22/10	1:31	363.28	1/23/10	4:01	363.28	1/24/10	6:31	363.45	1/25/10	9:01	363.53			
1/22/10	2:01	363.26	1/23/10	4:31	363.28	1/24/10	7:01	363.45	1/25/10	9:31	363.53			
1/22/10	2:31	363.28	1/23/10	5:01	363.30	1/24/10	7:31	363.44	1/25/10	10:01	363.55			
1/22/10	3:01	363.25	1/23/10	5:31	363.30	1/24/10	8:01	363.45	1/25/10	10:31	363.55			
1/22/10	3:31	363.28	1/23/10	6:01	363.31	1/24/10	8:31	363.45	1/25/10	11:01	363.55			
1/22/10	4:01	363.23	1/23/10	6:31	363.30	1/24/10	9:01	363.47	1/25/10	11:31	363.55			
1/22/10	4:31	363.25	1/23/10	7:01	363.31	1/24/10	9:31	363.47	1/25/10	12:01	363.53			
1/22/10	5:01	363.26	1/23/10	7:31	363.31	1/24/10	10:01	363.47	1/25/10	12:31	363.55			
1/22/10	5:31	363.25	1/23/10	8:01	363.31	1/24/10	10:31	363.47	1/25/10	13:01	363.55			
1/22/10	6:01	363.23	1/23/10	8:31	363.31	1/24/10	11:01	363.47	1/25/10	13:31	363.55			
1/22/10	6:31	363.27	1/23/10	9:01	363.33	1/24/10	11:31	363.49	1/25/10	14:01	363.53			
1/22/10	7:01	363.23	1/23/10	9:31	363.31	1/24/10	12:01	363.45	1/25/10	14:31	363.53			
1/22/10	7:31	363.20	1/23/10	10:01	363.33	1/24/10	12:31	363.45	1/25/10	15:01	363.52			
1/22/10	8:01	363.22	1/23/10	10:31	363.31	1/24/10	13:01	363.47	1/25/10	15:31	363.53			
1/22/10	8:31	363.20	1/23/10	11:01	363.33	1/24/10	13:31	363.47	1/25/10	16:01	363.53			
1/22/10	9:01	363.22	1/23/10	11:31	363.33	1/24/10	14:01	363.45	1/25/10	16:31	363.53			
1/22/10	9:31	363.22	1/23/10	12:01	363.33	1/24/10	14:31	363.44	1/25/10	17:01	363.52			
1/22/10	10:01	363.23	1/23/10	12:31	363.33	1/24/10	15:01	363.47	1/25/10	17:31	363.53			
1/22/10	10:31	363.23	1/23/10	13:01	363.33	1/24/10	15:31	363.49	1/25/10	18:01	363.55			
1/22/10	11:01	363.22	1/23/10	13:31	363.33	1/24/10	16:01	363.49	1/25/10	18:31	363.55			
1/22/10	11:31	363.22	1/23/10	14:01	363.36	1/24/10	16:31	363.49	1/25/10	19:01	363.57			
1/22/10	12:01	363.20	1/23/10	14:31	363.33	1/24/10	17:01	363.47	1/25/10	19:31	363.57			
1/22/10	12:31	363.22	1/23/10	15:01	363.36	1/24/10	17:31	363.49	1/25/10	20:01	363.57			
1/22/10	13:01	363.20	1/23/10	15:31	363.36	1/24/10	18:01	363.50	1/25/10	20:31	363.57			
1/22/10	13:31	363.22	1/23/10	16:01	363.38	1/24/10	18:31	363.50	1/25/10	21:01	363.55			
1/22/10	14:01	363.20	1/23/10	16:31	363.38	1/24/10	19:01	363.52	1/25/10	21:31	363.55			
1/22/10	14:31	363.20	1/23/10	17:01	363.39	1/24/10	19:31	363.52	1/25/10	22:01	363.55			
1/22/10	15:01	363.20	1/23/10	17:31	363.39	1/24/10	20:01	363.50	1/25/10	22:31	363.57			
1/22/10	15:31	363.18	1/23/10	18:01	363.39	1/24/10	20:31	363.50	1/25/10	23:01	363.53			
1/22/10	16:01	363.18	1/23/10	18:31	363.39	1/24/10	21:01	363.50	1/25/10	23:31	363.53			
1/22/10	16:31	363.18	1/23/10	19:01	363.41	1/24/10	21:31	363.50	1/26/10	0:01	363.53			
1/22/10	17:01	363.20	1/23/10	19:31	363.42	1/24/10	22:01	363.50	1/26/10	0:31	363.53			
1/22/10	17:31	363.20	1/23/10	20:01	363.42	1/24/10	22:31	363.50	1/26/10	1:01	363.52			
1/22/10	18:01	363.22	1/23/10	20:31	363.41	1/24/10	23:01	363.50	1/26/10	1:31	363.52			
1/22/10	18:31	363.22	1/23/10	21:01	363.42	1/24/10	23:31	363.50	1/26/10	2:01	363.52			
1/22/10	19:01	363.23	1/23/10	21:31	363.42	1/25/10	0:01	363.50	1/26/10	2:31	363.52			
1/22/10	19:31	363.23	1/23/10	22:01	363.42	1/25/10	0:31	363.50	1/26/10	3:01	363.52			
1/22/10	20:01	363.25	1/23/10	22:31	363.41	1/25/10	1:01	363.50	1/26/10	3:31	363.52			
1/22/10	20:31	363.23	1/23/10	23:01	363.41	1/25/10	1:31	363.50	1/26/10	4:01	363.50			
1/22/10	21:01	363.25	1/23/10	23:31	363.41	1/25/10	2:01	363.52	1/26/10	4:31	363.50			
1/22/10	21:31	363.25	1/24/10	0:01	363.42	1/25/10	2:31	363.52	1/26/10	5:01	363.49			
1/22/10	22:01	363.26	1/24/10	0:31	363.42	1/25/10	3:01	363.52	1/26/10	5:31	363.49			
1/22/10	22:31	363.26	1/24/10	1:01	363.42	1/25/10	3:31	363.50	1/26/10	6:01	363.49			
1/22/10	23:01	363.25	1/24/10	1:31	363.42	1/25/10	4:01	363.52	1/26/10	6:31	363.49			
1/22/10	23:31	363.23	1/24/10	2:01	363.42	1/25/10	4:31	363.50	1/26/10	7:01	363.49			
1/23/10	0:01	363.25	1/24/10	2:31	363.44	1/25/10	5:01	363.52	1/26/10	7:31	363.49			
1/23/10	0:31	363.25	1/24/10	3:01	363.42	1/25/10	5:31	363.52	1/26/10	8:01	363.50			
1/23/10	1:01	363.26	1/24/10	3:31	363.41	1/25/10	6:01	363.52	1/26/10	8:31	363.50			
1/23/10	1:31	363.26	1/24/10	4:01	363.44	1/25/10	6:31	363.52	1/26/10	9:01	363.48			
1/23/10	2:01	363.28	1/24/10	4:31	363.42	1/25/10	7:01	363.52	1/26/10	9:31	363.48			
1/23/10	2:31	363.26	1/24/10	5:01	363.42	1/25/10	7:31	363.50						
1/23/10	3:01	363.28	1/24/10	5:31	363.42	1/25/10	8:01	363.53						

D6C.7 URZHF-14 MULTI WELL TEST

A multi-well pump test was performed on the F Sand by pumping well URZHF-14 for approximately 3 days while observing F Sand wells URZHF-13 and URZHF-5. The results of this multi-well pump test were used to calculate the aquifer properties of the F Sand in the area around URZHF-14 and the observation wells.

D6C.7.1 PUMPING WELL URZHF-14

URZHF-14 was pumped for 75 hrs at an average rate of 8.7 gpm. This well is completed in the F sand with a open hole interval of 367-375 feet. At this location the F Sand is 105 ft thick with an interval from 289-394 feet below the land surface. The well has a depth to water of 290.4 ft below the land surface and therefore has an aquifer thickness of 104 ft. The well casing was undereamed to a diameter of 10 inches. Figure D6C.7-1 presents the barometric pressure data collected during this test versus the water-level change in the pumping well. Figure D6C.7-2 presents the straight-line fit to the corrected drawdown data, giving a transmissivity of 690 gal/day/ft. Table D6C.7-1 presents the manual recorded data. Table D6C.7-2 presents transducer data collected during this test.

The drawdown data presented on Figure D6C.7-2 does not yield the second steeper slope affiliated with late-time drawdown. Due to this, only the early-time data was used to calculate transmissivity. A WTAQ type curve was developed to adjust coefficient for calculating transmissivity. This curve had a KV/KH of 0.001 and a SIGMA of 0.004. The slope of the early-time data of this WTAQ type curve was used to adjust the straight-line transmissivity coefficient of 264. The ratio between the slopes of this calculated WTAQ type curve and a WTAQ type curve with fully penetrating isotropic properties indicated that the coefficient should be 3,250.

D6C.7.2 OBSERVATION WELL URZHF-13

Well URZHF-13 is located 81 ft east from the pumping well. This well is completed in the F Sand with a open hole interval of 317-325 feet from land surface. The F Sand at this location is 104 ft thick with an interval of 284-388 feet from land surface. This observation well has a depth to water of 284.1 ft and has an open hole completion. A plot of barometric pressure versus water-level change is presented on Figure D6C.7-3. A barometric correction of 0.5 ft of water/in of Hg was used to correct the barometric effects during the pump test. Figure D6C.7-4 presents the straight-line fit to the corrected drawdown. This fit yields a transmissivity of 770 gal/day/ft, a storage coefficient of 4.8E-4 and a specific yield of 0.12. Tables D6C.7-3 and D6C.7-4 present the manual and transducer recorded water-level data.

A WTAQ type curve with these properties was used to adjust the coefficients in calculating the transmissivity and storage coefficient, based on its comparison to the fully penetrating and isotropic WTAQ type curve. The vertical distance between the screen intervals in this observation well and the pumping well is 36 ft. This vertical distance and the aquifer properties resulted in only the early-time drawdown data from the observation well being developed in this observation well. The drawdown in this well started earlier than expected but the later data produced a reasonable early-time drawdown slope. Comparing the slope and intercept of the calculated WTAQ type curve to the WTAQ type curve with fully penetrating and isotropic properties produced the adjustments in the coefficients used to calculate the transmissivity and storage coefficient. The transmissivity equation coefficient of 264 was changed to 169, and the coefficient in the storage coefficient equation was adjusted from 1,200 to 55,810.

D6C.7.3 OBSERVATION WELL URZHF-5

URZHF-5 is an F Sand well that is located 1,127ft of the pumping well. Figure D6C.7-5 presented the barometric pressure versus water-level change in this observation well. A barometric correction of 1.0 ft of water/in of Hg was used to correct water levels for well URZHF-5. This figure shows no drawdown resulting form the pumping of URZHF-14. Tables D6C.7-5 and D6C.7-6 present the manual and transducer recorded water-level data.

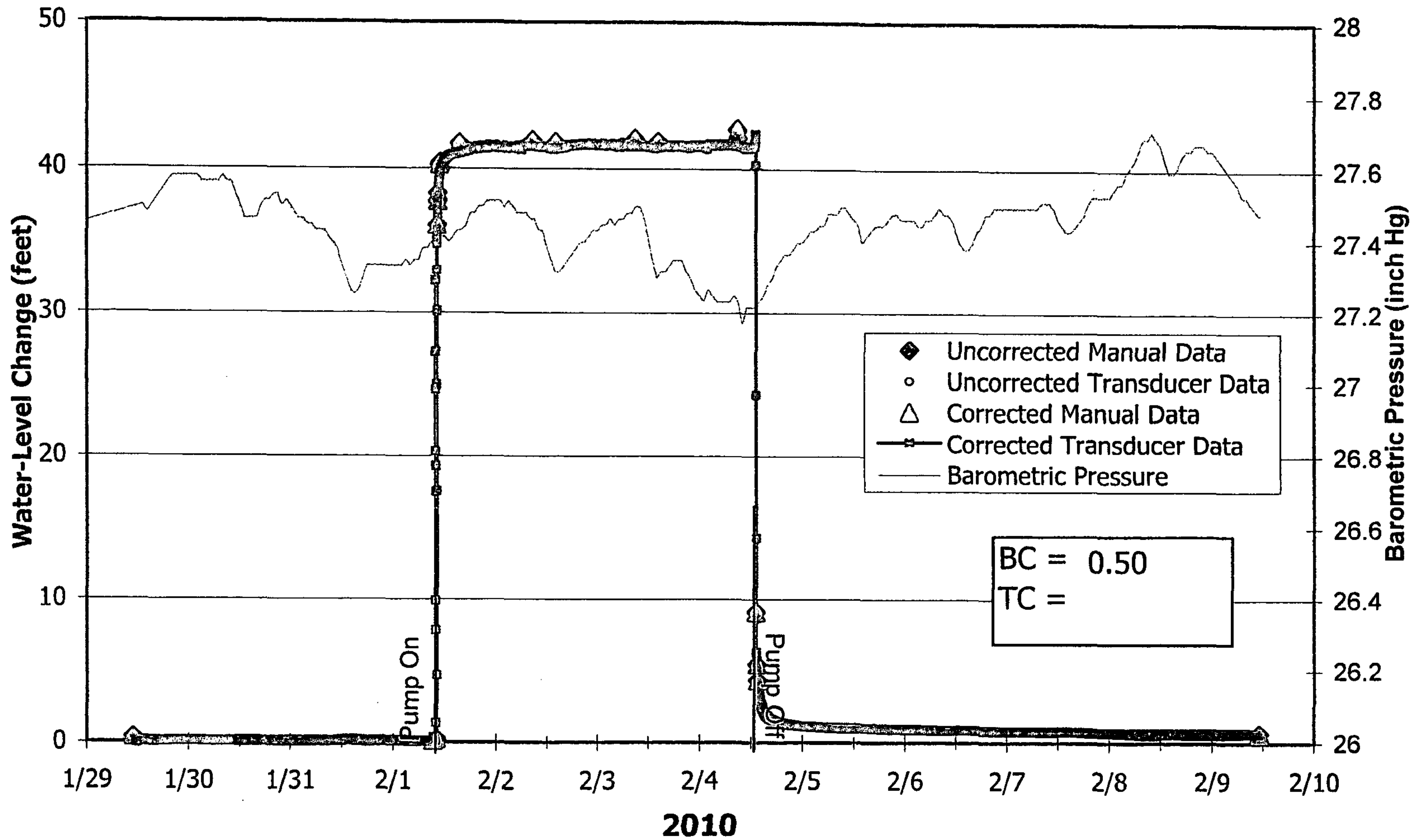

FIGURE D6C.7-1 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN F SAND PUMPING WELL, URZHF14

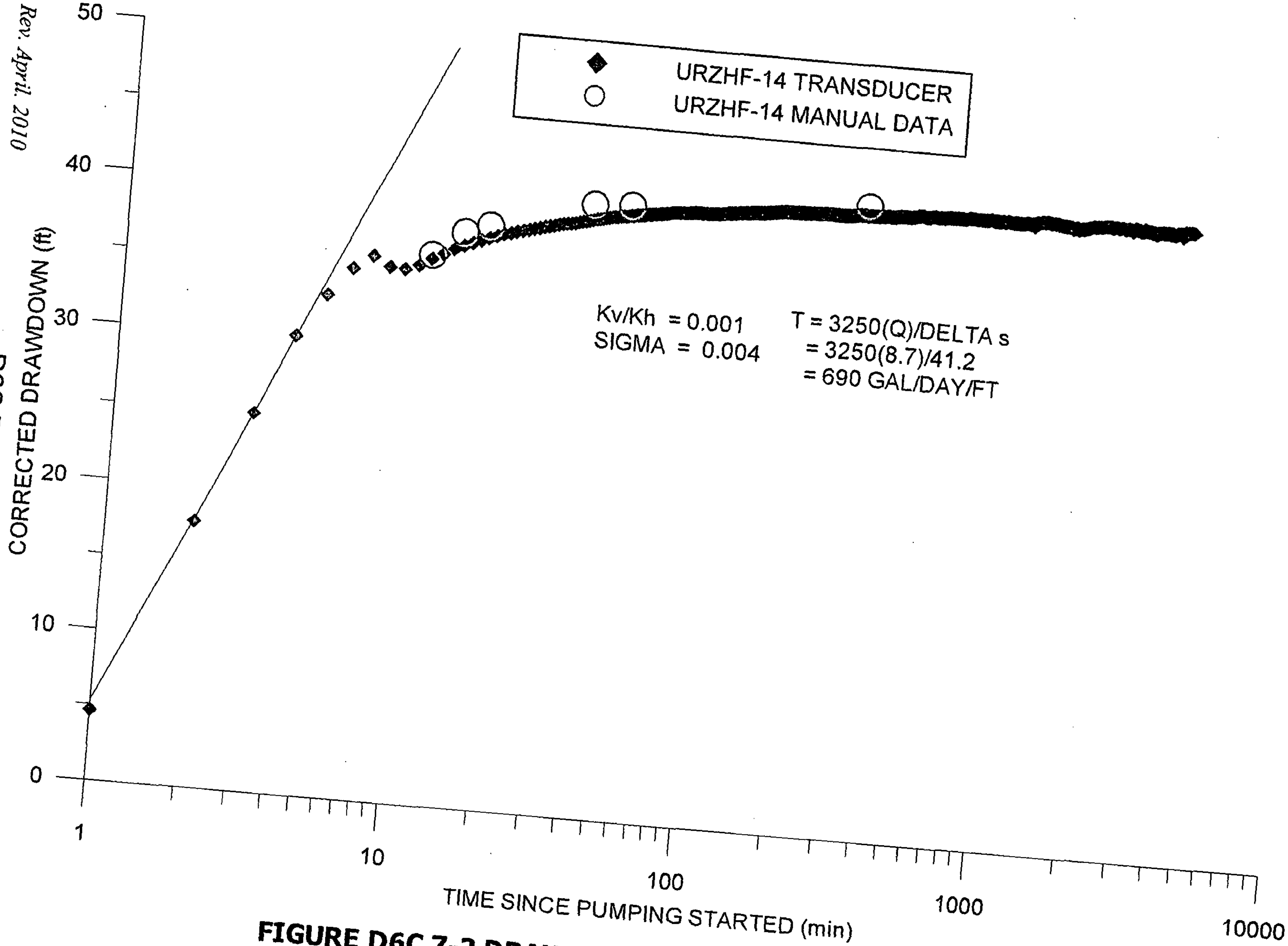

FIGURE D6C.7-2 DRAWDOWN IN PUMPING WELL URZHF-14

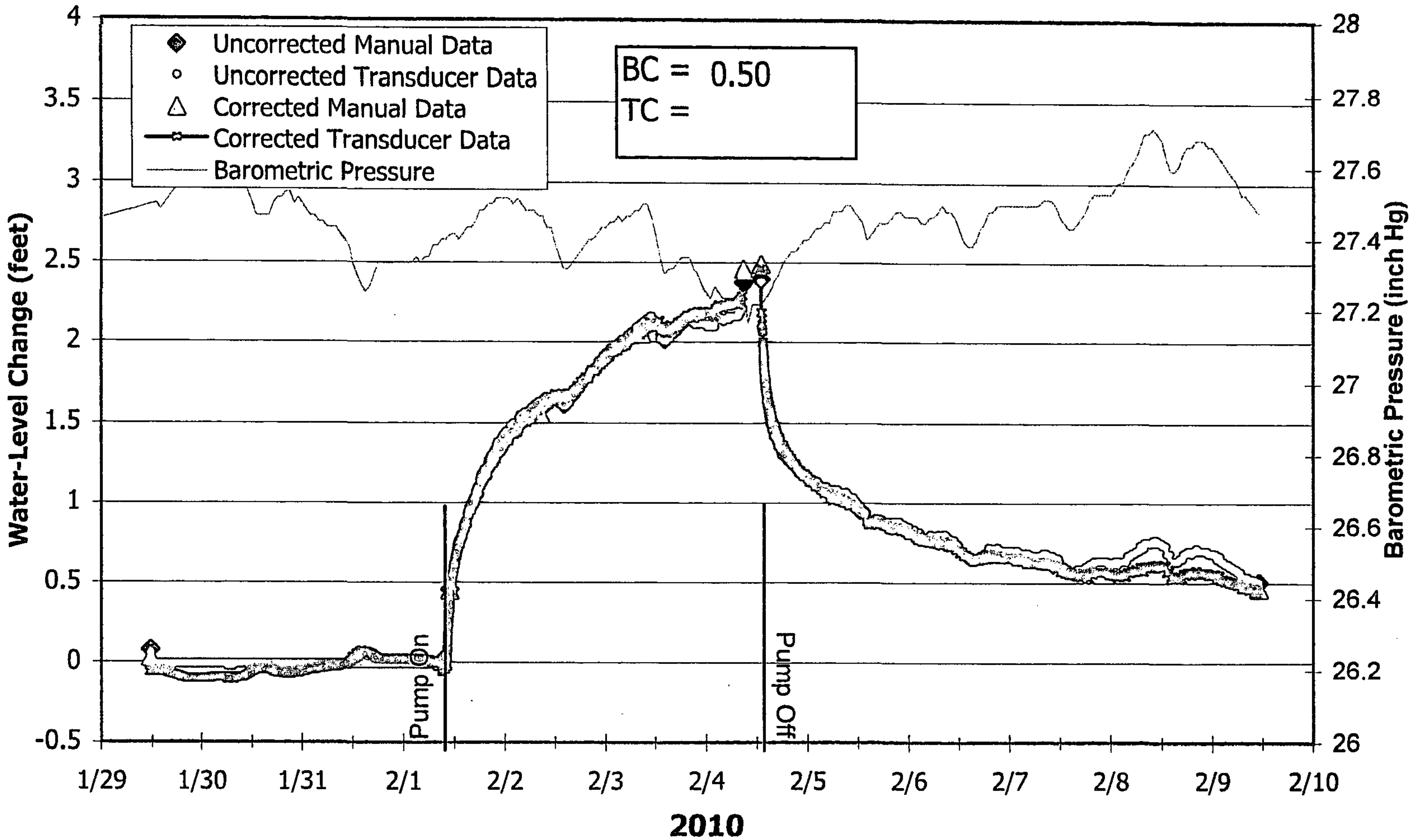

FIGURE D6C.7-3 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN F SAND OBSERVATION WELL, URZHF-13

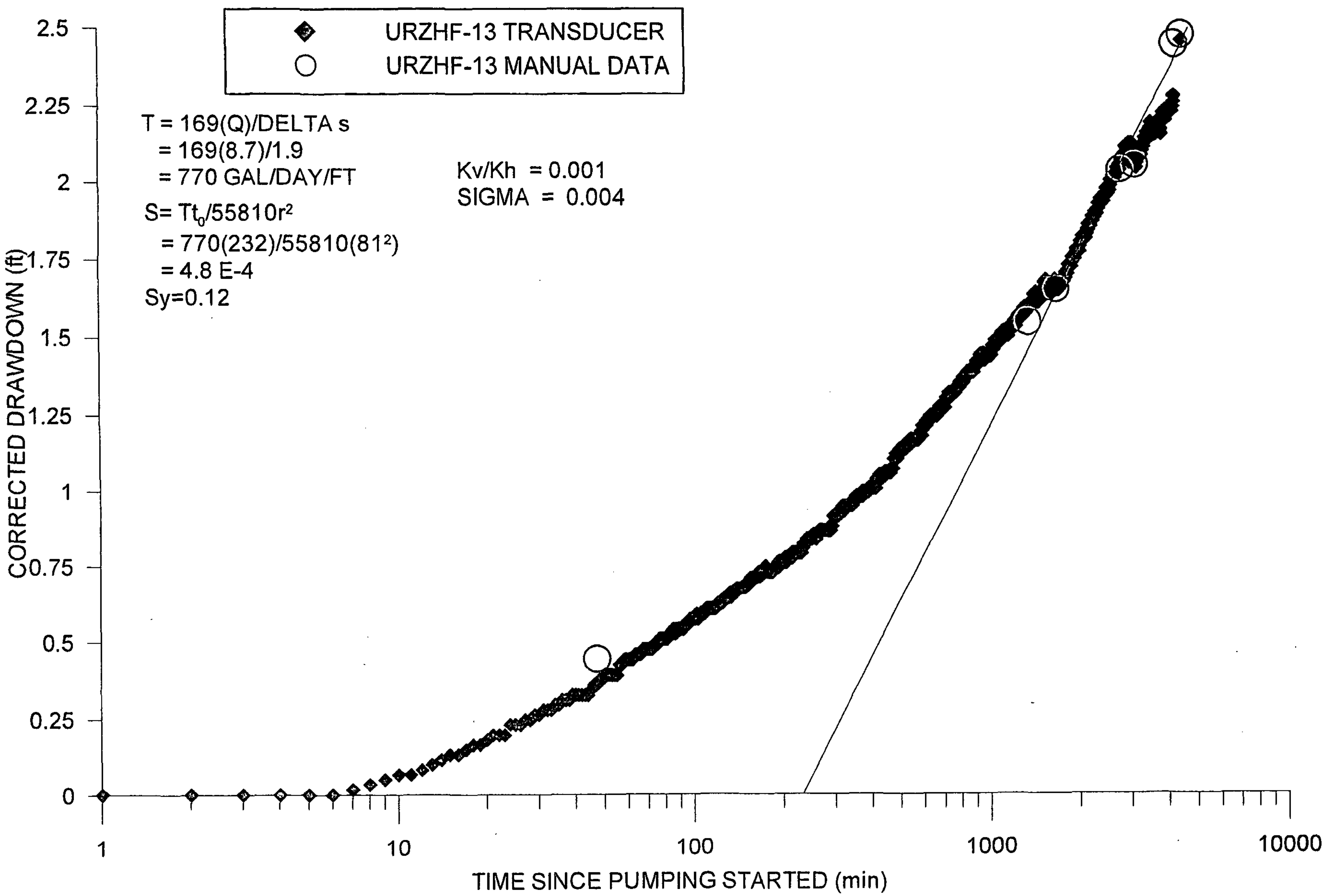

FIGURE D6C.7-4 DRAWDOWN IN OBSERVATION WELL URZHF-13

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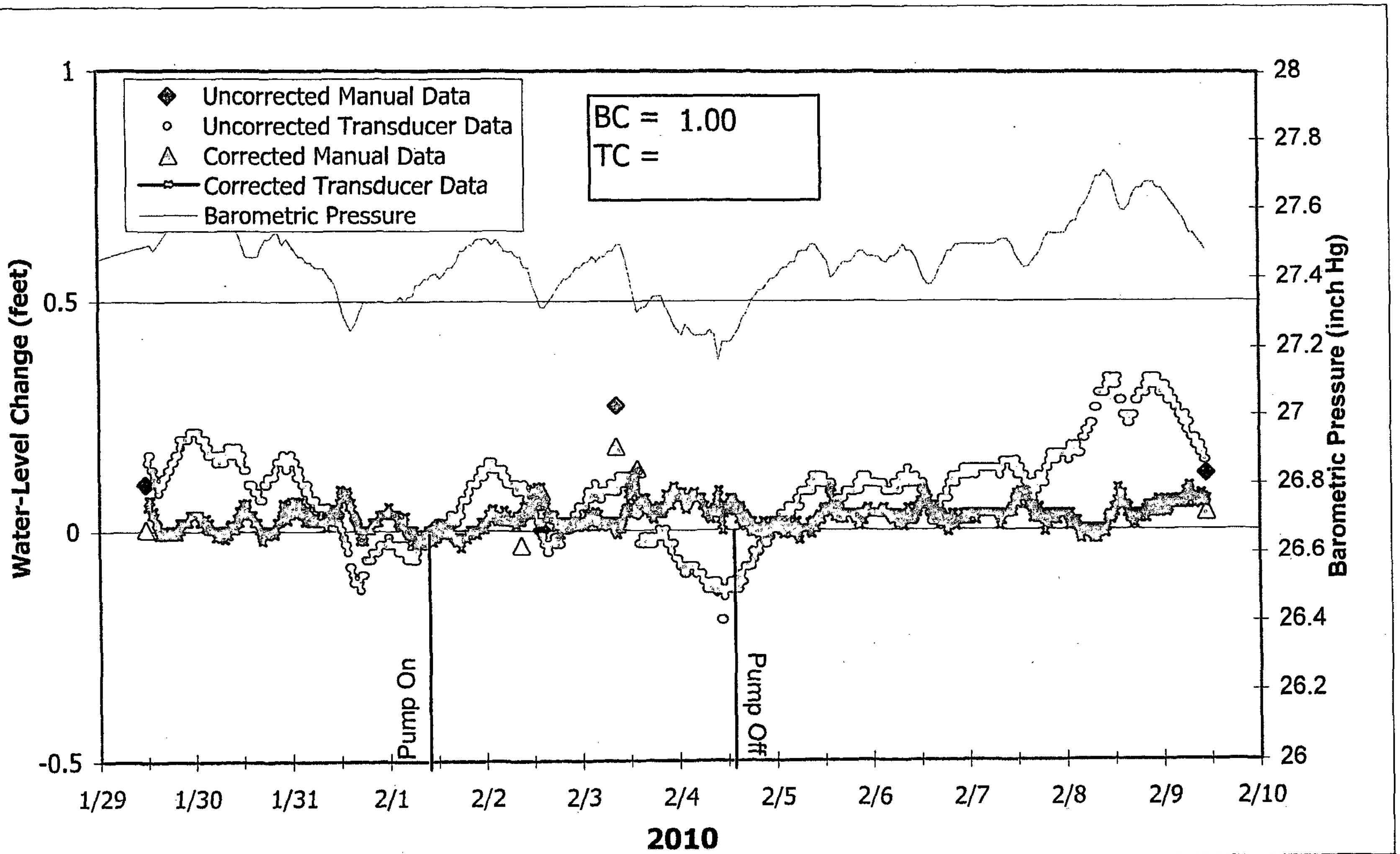

FIGURE D6C.7-5 BAROMETRIC PRESSURE AND WATER-LEVEL CHANGE IN F SAND OBSERVATION WELL, URZHF-5

TABLE D6C.7-1. AQUIFER-TEST DATA FOR PUMPING WELL URZHF-14.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/29/10	10:48:00	-4276	--	--	291.93	0.32	--	--	--	--
02/01/10	9:15:00	-49	--	--	291.61	0.00	--	--	--	--
	9:44:00	PUMP ON TO REMOVE ICE								
	9:50:00	PUMP OFF								
	10:03:00	-1	--	--	291.70	0.09	--	--	--	--
	10:04:00	PUMP ON								
	10:05:00	1	--	--	--	--	11.00	--	--	--
	10:09:00	5	--	--	--	--	9.80	--	--	--
	10:11:00	7	--	--	--	--	8.10	--	--	--
	10:13:00	9	--	--	--	--	8.30	--	--	--
	10:15:00	11	--	--	327.67	36.06	--	--	--	--
	10:16:00	12	--	--	--	--	8.80	--	--	--
	10:16:00	TOT = 120								
	10:18:00	14	--	--	329.30	37.69	--	--	--	--
	10:21:00	17	--	--	329.85	38.24	--	--	--	--
	10:26:00	22	--	--	--	--	8.80	--	--	--
	10:42:00	38	--	--	331.82	40.21	--	--	--	--
	10:49:00	45	--	--	--	--	8.80	--	--	--
	10:55:00	51	--	--	331.97	40.36	--	--	--	--
	10:59:00	TOT = 490								
	15:28:00	324	--	--	333.34	41.73	--	--	--	--
02/02/10	8:36:00	1352	--	--	333.54	41.93	8.70	--	--	--
	8:36:00	TOT = 1163								
	14:05:00	1681	--	--	333.43	41.82	8.70	--	--	--
	14:05:00	TOT = 1465								
02/03/10	8:52:00	2808	--	--	333.68	42.07	8.70	--	--	--
	14:18:00	3134	--	--	333.50	41.89	--	--	--	--
	14:25:00	3141	--	--	--	--	8.70	--	--	--
02/04/10	8:55:00	4251	--	--	334.30	42.69	--	--	--	--
	8:57:00	4253	--	--	--	--	8.70	--	--	--
	8:57:00	TOT = 37186								
	13:11:00	4507	3	1502.33	300.65	9.04	--	--	--	--
	13:11:00	PUMP OFF, TOT = 39360								
	13:21:00	4517	13	347.46	296.95	5.34	--	--	--	--
	13:30:00	4526	22	205.73	295.85	4.24	--	--	--	--
02/09/10	11:18:00	11594	7090	1.64	292.27	0.66	--	--	--	--

TABLE D6C.7-2. TRANSDUCER DATA FOR PUMPING WELL URZHF-14.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/29/10	11:12	291.67	1/30/10	0:27	291.67	1/30/10	13:42	291.67	1/31/10	2:57	291.67	1/31/10	16:12	291.67
1/29/10	11:27	291.67	1/30/10	0:42	291.67	1/30/10	13:57	291.67	1/31/10	3:12	291.67	1/31/10	16:27	291.67
1/29/10	11:42	291.67	1/30/10	0:57	291.67	1/30/10	14:12	291.67	1/31/10	3:27	291.67	1/31/10	16:42	291.67
1/29/10	11:57	291.67	1/30/10	1:12	291.67	1/30/10	14:27	291.67	1/31/10	3:42	291.67	1/31/10	16:57	291.63
1/29/10	12:12	291.67	1/30/10	1:27	291.67	1/30/10	14:42	291.67	1/31/10	3:57	291.67	1/31/10	17:12	291.63
1/29/10	12:27	291.67	1/30/10	1:42	291.67	1/30/10	14:57	291.67	1/31/10	4:12	291.67	1/31/10	17:27	291.63
1/29/10	12:42	291.67	1/30/10	1:57	291.67	1/30/10	15:12	291.67	1/31/10	4:27	291.67	1/31/10	17:42	291.63
1/29/10	12:57	291.67	1/30/10	2:12	291.67	1/30/10	15:27	291.67	1/31/10	4:42	291.63	1/31/10	17:57	291.63
1/29/10	13:12	291.67	1/30/10	2:27	291.67	1/30/10	15:42	291.67	1/31/10	4:57	291.63	1/31/10	18:12	291.63
1/29/10	13:27	291.67	1/30/10	2:42	291.63	1/30/10	15:57	291.67	1/31/10	5:12	291.67	1/31/10	18:27	291.63
1/29/10	13:42	291.67	1/30/10	2:57	291.67	1/30/10	16:12	291.67	1/31/10	5:27	291.67	1/31/10	18:42	291.63
1/29/10	13:57	291.67	1/30/10	3:12	291.67	1/30/10	16:27	291.67	1/31/10	5:42	291.67	1/31/10	18:57	291.63
1/29/10	14:12	291.67	1/30/10	3:27	291.67	1/30/10	16:42	291.63	1/31/10	5:57	291.67	1/31/10	19:12	291.63
1/29/10	14:27	291.67	1/30/10	3:42	291.67	1/30/10	16:57	291.63	1/31/10	6:12	291.67	1/31/10	19:27	291.67
1/29/10	14:42	291.63	1/30/10	3:57	291.63	1/30/10	17:12	291.63	1/31/10	6:27	291.67	1/31/10	19:42	291.67
1/29/10	14:57	291.67	1/30/10	4:12	291.67	1/30/10	17:27	291.63	1/31/10	6:42	291.67	1/31/10	19:57	291.67
1/29/10	15:12	291.67	1/30/10	4:27	291.63	1/30/10	17:42	291.63	1/31/10	6:57	291.67	1/31/10	20:12	291.67
1/29/10	15:27	291.63	1/30/10	4:42	291.63	1/30/10	17:57	291.63	1/31/10	7:12	291.67	1/31/10	20:27	291.63
1/29/10	15:42	291.67	1/30/10	4:57	291.63	1/30/10	18:12	291.63	1/31/10	7:27	291.67	1/31/10	20:42	291.67
1/29/10	15:57	291.67	1/30/10	5:12	291.63	1/30/10	18:27	291.63	1/31/10	7:42	291.67	1/31/10	20:57	291.67
1/29/10	16:12	291.63	1/30/10	5:27	291.63	1/30/10	18:42	291.63	1/31/10	7:57	291.63	1/31/10	21:12	291.67
1/29/10	16:27	291.63	1/30/10	5:42	291.63	1/30/10	18:57	291.63	1/31/10	8:12	291.67	1/31/10	21:27	291.67
1/29/10	16:42	291.63	1/30/10	5:57	291.63	1/30/10	19:12	291.67	1/31/10	8:27	291.67	1/31/10	21:42	291.67
1/29/10	16:57	291.67	1/30/10	6:12	291.63	1/30/10	19:27	291.67	1/31/10	8:42	291.63	1/31/10	21:57	291.67
1/29/10	17:12	291.63	1/30/10	6:27	291.63	1/30/10	19:42	291.67	1/31/10	8:57	291.67	1/31/10	22:12	291.67
1/29/10	17:27	291.63	1/30/10	6:42	291.63	1/30/10	19:57	291.67	1/31/10	9:12	291.67	1/31/10	22:27	291.67
1/29/10	17:42	291.63	1/30/10	6:57	291.63	1/30/10	20:12	291.63	1/31/10	9:27	291.67	1/31/10	22:42	291.67
1/29/10	17:57	291.63	1/30/10	7:12	291.63	1/30/10	20:27	291.63	1/31/10	9:42	291.67	1/31/10	22:57	291.67
1/29/10	18:12	291.63	1/30/10	7:27	291.63	1/30/10	20:42	291.67	1/31/10	9:57	291.67	1/31/10	23:12	291.67
1/29/10	18:27	291.67	1/30/10	7:42	291.63	1/30/10	20:57	291.67	1/31/10	10:12	291.67	1/31/10	23:27	291.67
1/29/10	18:42	291.63	1/30/10	7:57	291.63	1/30/10	21:12	291.67	1/31/10	10:27	291.67	1/31/10	23:42	291.67
1/29/10	18:57	291.67	1/30/10	8:12	291.63	1/30/10	21:27	291.67	1/31/10	10:42	291.67	1/31/10	23:57	291.67
1/29/10	19:12	291.67	1/30/10	8:27	291.63	1/30/10	21:42	291.67	1/31/10	10:57	291.67	2/1/10	0:12	291.67
1/29/10	19:27	291.63	1/30/10	8:42	291.63	1/30/10	21:57	291.67	1/31/10	11:12	291.67	2/1/10	0:27	291.67
1/29/10	19:42	291.67	1/30/10	8:57	291.63	1/30/10	22:12	291.67	1/31/10	11:27	291.70	2/1/10	0:42	291.67
1/29/10	19:57	291.67	1/30/10	9:12	291.67	1/30/10	22:27	291.67	1/31/10	11:42	291.70	2/1/10	0:57	291.67
1/29/10	20:12	291.67	1/30/10	9:27	291.67	1/30/10	22:42	291.67	1/31/10	11:57	291.70	2/1/10	1:12	291.67
1/29/10	20:27	291.67	1/30/10	9:42	291.63	1/30/10	22:57	291.67	1/31/10	12:12	291.70	2/1/10	1:27	291.67
1/29/10	20:42	291.67	1/30/10	9:57	291.63	1/30/10	23:12	291.67	1/31/10	12:27	291.70	2/1/10	1:42	291.67
1/29/10	20:57	291.67	1/30/10	10:12	291.63	1/30/10	23:27	291.67	1/31/10	12:42	291.67	2/1/10	1:57	291.67
1/29/10	21:12	291.67	1/30/10	10:27	291.63	1/30/10	23:42	291.67	1/31/10	12:57	291.70	2/1/10	2:12	291.67
1/29/10	21:27	291.67	1/30/10	10:42	291.63	1/30/10	23:57	291.67	1/31/10	13:12	291.70	2/1/10	2:27	291.67
1/29/10	21:42	291.67	1/30/10	10:57	291.67	1/31/10	0:12	291.67	1/31/10	13:27	291.70	2/1/10	2:42	291.63
1/29/10	21:57	291.67	1/30/10	11:12	291.67	1/31/10	0:27	291.70	1/31/10	13:42	291.70	2/1/10	2:57	291.63
1/29/10	22:12	291.67	1/30/10	11:27	291.67	1/31/10	0:42	291.70	1/31/10	13:57	291.70	2/1/10	3:12	291.63
1/29/10	22:27	291.67	1/30/10	11:42	291.67	1/31/10	0:57	291.67	1/31/10	14:12	291.70	2/1/10	3:27	291.63
1/29/10	22:42	291.67	1/30/10	11:57	291.67	1/31/10	1:12	291.67	1/31/10	14:27	291.70	2/1/10	3:42	291.63
1/29/10	22:57	291.67	1/30/10	12:12	291.67	1/31/10	1:27	291.67	1/31/10	14:42	291.67	2/1/10	3:57	291.63
1/29/10	23:12	291.67	1/30/10	12:27	291.67	1/31/10	1:42	291.67	1/31/10	14:57	291.67	2/1/10	4:12	291.67
1/29/10	23:27	291.67	1/30/10	12:42	291.67	1/31/10	1:57	291.67	1/31/10	15:12	291.67	2/1/10	4:27	291.63
1/29/10	23:42	291.67	1/30/10	12:57	291.67	1/31/10	2:12	291.70	1/31/10	15:27	291.67	2/1/10	4:42	291.63
1/29/10	23:57	291.67	1/30/10	13:12	291.67	1/31/10	2:27	291.67	1/31/10	15:42	291.67	2/1/10	4:57	291.63
1/30/10	0:12	291.67	1/30/10	13:27	291.67	1/31/10	2:42	291.67	1/31/10	15:57	291.67	2/1/10	5:12	291.63

TABLE D6C.7-2. TRANSDUCER DATA FOR PUMPING WELL URZHF-14, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/1/10	5:27	291.63	2/1/10	9:55	289.56	2/1/10	10:48	331.11	2/1/10	11:41	331.95	2/1/10	12:34	332.31
2/1/10	5:42	291.63	2/1/10	9:56	290.21	2/1/10	10:49	331.14	2/1/10	11:42	331.95	2/1/10	12:35	332.31
2/1/10	5:57	291.63	2/1/10	9:57	290.78	2/1/10	10:50	331.14	2/1/10	11:43	331.95	2/1/10	12:36	332.31
2/1/10	6:12	291.63	2/1/10	9:58	291.17	2/1/10	10:51	331.21	2/1/10	11:44	331.95	2/1/10	12:37	332.31
2/1/10	6:27	291.63	2/1/10	9:59	291.47	2/1/10	10:52	331.24	2/1/10	11:45	331.95	2/1/10	12:38	332.31
2/1/10	6:42	291.63	2/1/10	10:00	291.58	2/1/10	10:53	331.21	2/1/10	11:46	331.95	2/1/10	12:39	332.35
2/1/10	6:57	291.63	2/1/10	10:01	291.72	2/1/10	10:54	331.28	2/1/10	11:47	331.98	2/1/10	12:40	332.35
2/1/10	7:12	291.63	2/1/10	10:02	291.81	2/1/10	10:55	331.31	2/1/10	11:48	331.98	2/1/10	12:41	332.35
2/1/10	7:27	291.63	2/1/10	10:03	291.91	2/1/10	10:56	331.31	2/1/10	11:49	331.98	2/1/10	12:42	332.38
2/1/10	7:42	291.63	2/1/10	10:04	291.98	2/1/10	10:57	331.37	2/1/10	11:50	332.02	2/1/10	12:43	332.38
2/1/10	7:57	291.63	2/1/10	10:05	296.20	2/1/10	10:58	331.37	2/1/10	11:51	332.02	2/1/10	12:44	332.38
2/1/10	8:12	291.50	2/1/10	10:06	309.15	2/1/10	10:59	331.41	2/1/10	11:52	332.05	2/1/10	12:45	332.38
2/1/10	8:27	291.50	2/1/10	10:07	316.54	2/1/10	11:00	331.42	2/1/10	11:53	332.02	2/1/10	12:46	332.41
2/1/10	8:42	291.50	2/1/10	10:08	321.68	2/1/10	11:01	331.46	2/1/10	11:54	332.05	2/1/10	12:47	332.41
2/1/10	8:57	291.50	2/1/10	10:09	324.52	2/1/10	11:02	331.49	2/1/10	11:55	332.05	2/1/10	12:48	332.41
2/1/10	9:17	291.93	2/1/10	10:10	326.36	2/1/10	11:03	331.52	2/1/10	11:56	332.05	2/1/10	12:49	332.41
2/1/10	9:18	291.90	2/1/10	10:11	327.29	2/1/10	11:04	331.52	2/1/10	11:57	332.05	2/1/10	12:50	332.45
2/1/10	9:19	291.93	2/1/10	10:12	326.66	2/1/10	11:05	331.56	2/1/10	11:58	332.08	2/1/10	12:51	332.45
2/1/10	9:20	291.93	2/1/10	10:13	326.59	2/1/10	11:06	331.56	2/1/10	11:59	332.05	2/1/10	12:52	332.48
2/1/10	9:21	291.93	2/1/10	10:14	326.92	2/1/10	11:07	331.59	2/1/10	12:00	332.08	2/1/10	12:53	332.48
2/1/10	9:22	291.93	2/1/10	10:15	327.42	2/1/10	11:08	331.62	2/1/10	12:01	332.12	2/1/10	12:54	332.45
2/1/10	9:23	291.93	2/1/10	10:16	327.81	2/1/10	11:09	331.62	2/1/10	12:02	332.12	2/1/10	12:55	332.48
2/1/10	9:24	291.93	2/1/10	10:17	328.18	2/1/10	11:10	331.65	2/1/10	12:03	332.12	2/1/10	12:56	332.45
2/1/10	9:25	291.93	2/1/10	10:18	328.44	2/1/10	11:11	331.65	2/1/10	12:04	332.12	2/1/10	12:57	332.48
2/1/10	9:26	291.93	2/1/10	10:19	328.67	2/1/10	11:12	331.69	2/1/10	12:05	332.12	2/1/10	12:58	332.48
2/1/10	9:27	291.93	2/1/10	10:20	328.87	2/1/10	11:13	331.72	2/1/10	12:06	332.15	2/1/10	12:59	332.48
2/1/10	9:28	291.93	2/1/10	10:21	329.07	2/1/10	11:14	331.75	2/1/10	12:07	332.15	2/1/10	13:00	332.43
2/1/10	9:29	291.93	2/1/10	10:22	329.23	2/1/10	11:15	331.79	2/1/10	12:08	332.15	2/1/10	13:05	332.46
2/1/10	9:30	291.93	2/1/10	10:23	329.40	2/1/10	11:16	331.79	2/1/10	12:09	332.15	2/1/10	13:10	332.50
2/1/10	9:31	291.93	2/1/10	10:24	329.50	2/1/10	11:17	331.79	2/1/10	12:10	332.15	2/1/10	13:15	332.50
2/1/10	9:32	291.93	2/1/10	10:25	329.63	2/1/10	11:18	331.82	2/1/10	12:11	332.15	2/1/10	13:20	332.50
2/1/10	9:33	291.93	2/1/10	10:26	329.73	2/1/10	11:19	331.79	2/1/10	12:12	332.18	2/1/10	13:25	332.50
2/1/10	9:34	291.93	2/1/10	10:27	329.83	2/1/10	11:20	331.82	2/1/10	12:13	332.18	2/1/10	13:30	332.50
2/1/10	9:35	291.93	2/1/10	10:28	329.92	2/1/10	11:21	331.82	2/1/10	12:14	332.18	2/1/10	13:35	332.53
2/1/10	9:36	291.93	2/1/10	10:29	329.99	2/1/10	11:22	331.82	2/1/10	12:15	332.18	2/1/10	13:40	332.53
2/1/10	9:37	291.93	2/1/10	10:30	330.09	2/1/10	11:23	331.82	2/1/10	12:16	332.21	2/1/10	13:45	332.56
2/1/10	9:38	291.93	2/1/10	10:31	330.15	2/1/10	11:24	331.85	2/1/10	12:17	332.21	2/1/10	13:50	332.56
2/1/10	9:39	291.93	2/1/10	10:32	330.22	2/1/10	11:25	331.85	2/1/10	12:18	332.21	2/1/10	13:55	332.59
2/1/10	9:40	291.93	2/1/10	10:33	330.32	2/1/10	11:26	331.85	2/1/10	12:19	332.21	2/1/10	14:00	332.58
2/1/10	9:41	291.93	2/1/10	10:34	330.39	2/1/10	11:27	331.89	2/1/10	12:20	332.21	2/1/10	14:05	332.58
2/1/10	9:42	291.93	2/1/10	10:35	330.42	2/1/10	11:28	331.89	2/1/10	12:21	332.21	2/1/10	14:10	332.61
2/1/10	9:43	291.93	2/1/10	10:36	330.45	2/1/10	11:29	331.92	2/1/10	12:22	332.25	2/1/10	14:15	332.58
2/1/10	9:44	291.93	2/1/10	10:37	330.52	2/1/10	11:30	331.89	2/1/10	12:23	332.25	2/1/10	14:20	332.61
2/1/10	9:45	301.46	2/1/10	10:38	330.58	2/1/10	11:31	331.92	2/1/10	12:24	332.25	2/1/10	14:25	332.58
2/1/10	9:46	311.91	2/1/10	10:39	330.65	2/1/10	11:32	331.92	2/1/10	12:25	332.21	2/1/10	14:30	332.58
2/1/10	9:47	318.80	2/1/10	10:40	330.68	2/1/10	11:33	331.89	2/1/10	12:26	332.25	2/1/10	14:35	332.61
2/1/10	9:48	323.81	2/1/10	10:41	330.75	2/1/10	11:34	331.89	2/1/10	12:27	332.25	2/1/10	14:40	332.58
2/1/10	9:49	316.19	2/1/10	10:42	330.81	2/1/10	11:35	331.92	2/1/10	12:28	332.25	2/1/10	14:45	332.61
2/1/10	9:50	309.10	2/1/10	10:43	330.88	2/1/10	11:36	331.92	2/1/10	12:29	332.28	2/1/10	14:50	332.61
2/1/10	9:51	310.89	2/1/10	10:44	330.91	2/1/10	11:37	331.89	2/1/10	12:30	332.28	2/1/10	14:55	332.61
2/1/10	9:52	299.38	2/1/10	10:45	330.95	2/1/10	11:38	331.92	2/1/10	12:31	332.28	2/1/10	15:00	332.66
2/1/10	9:53	292.95	2/1/10	10:46	331.01	2/1/10	11:39	331.92	2/1/10	12:32	332.31	2/1/10	15:05	332.69
2/1/10	9:54	290.08	2/1/10	10:47	331.04	2/1/10	11:40	331.92	2/1/10	12:33	332.28	2/1/10	15:10	332.66

TABLE D6C.7-2. TRANSDUCER DATA FOR PUMPING WELL URZHF-14, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/1/10	15:15	332.73	2/1/10	19:40	333.01	2/2/10	0:10	333.14	2/2/10	9:00	333.25	2/2/10	17:50	333.20
2/1/10	15:20	332.69	2/1/10	19:45	333.04	2/2/10	0:20	333.14	2/2/10	9:10	333.22	2/2/10	18:00	333.22
2/1/10	15:25	332.66	2/1/10	19:50	333.04	2/2/10	0:30	333.10	2/2/10	9:20	333.22	2/2/10	18:10	333.22
2/1/10	15:30	332.66	2/1/10	19:55	332.97	2/2/10	0:40	333.07	2/2/10	9:30	333.25	2/2/10	18:20	333.25
2/1/10	15:35	332.69	2/1/10	20:00	333.06	2/2/10	0:50	333.07	2/2/10	9:40	333.25	2/2/10	18:30	333.25
2/1/10	15:40	332.69	2/1/10	20:05	333.06	2/2/10	1:00	333.07	2/2/10	9:50	333.22	2/2/10	18:40	333.25
2/1/10	15:45	332.69	2/1/10	20:10	333.09	2/2/10	1:10	333.07	2/2/10	10:00	333.12	2/2/10	18:50	333.25
2/1/10	15:50	332.69	2/1/10	20:15	333.09	2/2/10	1:20	333.07	2/2/10	10:10	333.19	2/2/10	19:00	333.27
2/1/10	15:55	332.69	2/1/10	20:20	333.09	2/2/10	1:30	333.10	2/2/10	10:20	333.19	2/2/10	19:10	333.27
2/1/10	16:00	332.73	2/1/10	20:25	333.06	2/2/10	1:40	333.10	2/2/10	10:30	333.15	2/2/10	19:20	333.27
2/1/10	16:05	332.73	2/1/10	20:30	333.06	2/2/10	1:50	333.07	2/2/10	10:40	333.12	2/2/10	19:30	333.27
2/1/10	16:10	332.73	2/1/10	20:35	333.09	2/2/10	2:00	333.09	2/2/10	10:50	333.15	2/2/10	19:40	333.27
2/1/10	16:15	332.76	2/1/10	20:40	333.09	2/2/10	2:10	333.15	2/2/10	11:00	333.12	2/2/10	19:50	333.27
2/1/10	16:20	332.76	2/1/10	20:45	333.06	2/2/10	2:20	333.12	2/2/10	11:10	333.12	2/2/10	20:00	333.32
2/1/10	16:25	332.76	2/1/10	20:50	333.09	2/2/10	2:30	333.09	2/2/10	11:20	333.12	2/2/10	20:10	333.32
2/1/10	16:30	332.73	2/1/10	20:55	333.09	2/2/10	2:40	333.09	2/2/10	11:30	333.12	2/2/10	20:20	333.32
2/1/10	16:35	332.73	2/1/10	21:00	333.09	2/2/10	2:50	333.09	2/2/10	11:40	333.12	2/2/10	20:30	333.32
2/1/10	16:40	332.73	2/1/10	21:05	333.09	2/2/10	3:00	333.10	2/2/10	11:50	333.12	2/2/10	20:40	333.32
2/1/10	16:45	332.79	2/1/10	21:10	333.06	2/2/10	3:10	333.10	2/2/10	12:00	333.07	2/2/10	20:50	333.35
2/1/10	16:50	332.83	2/1/10	21:15	333.12	2/2/10	3:20	333.10	2/2/10	12:10	333.07	2/2/10	21:00	333.32
2/1/10	16:55	332.83	2/1/10	21:20	333.06	2/2/10	3:30	333.07	2/2/10	12:20	333.07	2/2/10	21:10	333.32
2/1/10	17:00	332.84	2/1/10	21:25	333.06	2/2/10	3:40	333.07	2/2/10	12:30	333.07	2/2/10	21:20	333.35
2/1/10	17:05	332.84	2/1/10	21:30	333.06	2/2/10	3:50	333.10	2/2/10	12:40	333.04	2/2/10	21:30	333.35
2/1/10	17:10	332.84	2/1/10	21:35	333.09	2/2/10	4:00	333.09	2/2/10	12:50	332.97	2/2/10	21:40	333.32
2/1/10	17:15	332.84	2/1/10	21:40	333.06	2/2/10	4:10	333.09	2/2/10	13:00	332.97	2/2/10	21:50	333.35
2/1/10	17:20	332.87	2/1/10	21:45	333.06	2/2/10	4:20	333.09	2/2/10	13:10	333.01	2/2/10	22:00	333.34
2/1/10	17:25	332.84	2/1/10	21:50	333.09	2/2/10	4:30	333.12	2/2/10	13:20	333.01	2/2/10	22:10	333.37
2/1/10	17:30	332.84	2/1/10	21:55	333.15	2/2/10	4:40	333.12	2/2/10	13:30	332.97	2/2/10	22:20	333.27
2/1/10	17:35	332.84	2/1/10	22:00	333.17	2/2/10	4:50	333.15	2/2/10	13:40	333.04	2/2/10	22:30	333.34
2/1/10	17:40	332.87	2/1/10	22:05	333.17	2/2/10	5:00	333.10	2/2/10	13:50	333.01	2/2/10	22:40	333.30
2/1/10	17:45	332.91	2/1/10	22:10	333.17	2/2/10	5:10	333.10	2/2/10	14:00	332.97	2/2/10	22:50	333.30
2/1/10	17:50	332.91	2/1/10	22:15	333.14	2/2/10	5:20	333.07	2/2/10	14:10	332.91	2/2/10	23:00	333.32
2/1/10	17:55	332.94	2/1/10	22:20	333.14	2/2/10	5:30	333.07	2/2/10	14:20	332.94	2/2/10	23:10	333.32
2/1/10	18:00	332.97	2/1/10	22:25	333.14	2/2/10	5:40	333.14	2/2/10	14:30	332.97	2/2/10	23:20	333.32
2/1/10	18:05	333.01	2/1/10	22:30	333.17	2/2/10	5:50	333.10	2/2/10	14:40	332.97	2/2/10	23:30	333.32
2/1/10	18:10	332.97	2/1/10	22:35	333.14	2/2/10	6:00	332.94	2/2/10	14:50	333.01	2/2/10	23:40	333.32
2/1/10	18:15	333.01	2/1/10	22:40	333.14	2/2/10	6:10	333.20	2/2/10	15:00	333.01	2/2/10	23:50	333.32
2/1/10	18:20	333.04	2/1/10	22:45	333.14	2/2/10	6:20	333.24	2/2/10	15:10	333.01	2/3/10	0:00	333.32
2/1/10	18:25	332.97	2/1/10	22:50	333.10	2/2/10	6:30	333.20	2/2/10	15:20	333.01	2/3/10	0:10	333.29
2/1/10	18:30	332.97	2/1/10	22:55	333.14	2/2/10	6:40	333.20	2/2/10	15:30	333.04	2/3/10	0:20	333.25
2/1/10	18:35	332.94	2/1/10	23:00	333.14	2/2/10	6:50	333.24	2/2/10	15:40	333.01	2/3/10	0:30	333.25
2/1/10	18:40	332.94	2/1/10	23:05	333.14	2/2/10	7:00	333.27	2/2/10	15:50	333.07	2/3/10	0:40	333.29
2/1/10	18:45	332.97	2/1/10	23:10	333.10	2/2/10	7:10	333.27	2/2/10	16:00	333.09	2/3/10	0:50	333.29
2/1/10	18:50	332.94	2/1/10	23:15	333.14	2/2/10	7:20	333.27	2/2/10	16:10	333.09	2/3/10	1:00	333.30
2/1/10	18:55	333.01	2/1/10	23:20	333.10	2/2/10	7:30	333.30	2/2/10	16:20	333.09	2/3/10	1:10	333.30
2/1/10	19:00	333.01	2/1/10	23:25	333.14	2/2/10	7:40	333.27	2/2/10	16:30	333.12	2/3/10	1:20	333.30
2/1/10	19:05	333.04	2/1/10	23:30	333.10	2/2/10	7:50	333.30	2/2/10	16:40	333.15	2/3/10	1:30	333.34
2/1/10	19:10	333.07	2/1/10	23:35	333.10	2/2/10	8:00	333.29	2/2/10	16:50	333.15	2/3/10	1:40	333.30
2/1/10	19:15	333.04	2/1/10	23:40	333.10	2/2/10	8:10	333.25	2/2/10	17:00	333.20	2/3/10	1:50	333.30
2/1/10	19:20	333.01	2/1/10	23:45	333.07	2/2/10	8:20	333.29	2/2/10	17:10	333.24	2/3/10	2:00	333.30
2/1/10	19:25	332.97	2/1/10	23:50	333.14	2/2/10	8:30	333.25	2/2/10	17:20	333.24	2/3/10	2:10	333.27
2/1/10	19:30	332.97	2/1/10	23:55	333.10	2/2/10	8:40	333.29	2/2/10	17:30	333.24	2/3/10	2:20	333.27
2/1/10	19:35	333.01	2/2/10	0:00	333.10	2/2/10	8:50	333.22	2/2/10	17:40	333.20	2/3/10	2:30	333.27

TABLE D6C.7-2. TRANSDUCER DATA FOR PUMPING WELL URZHF-14, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/3/10	2:40	333.27	2/3/10	11:30	333.22	2/3/10	20:20	333.20	2/4/10	5:10	333.29	2/4/10	12:24	333.07
2/3/10	2:50	333.27	2/3/10	11:40	333.22	2/3/10	20:30	333.17	2/4/10	5:20	333.29	2/4/10	12:26	333.10
2/3/10	3:00	333.29	2/3/10	11:50	333.22	2/3/10	20:40	333.17	2/4/10	5:30	333.25	2/4/10	12:28	333.10
2/3/10	3:10	333.29	2/3/10	12:00	333.17	2/3/10	20:50	333.14	2/4/10	5:40	333.29	2/4/10	12:30	333.10
2/3/10	3:20	333.32	2/3/10	12:10	333.14	2/3/10	21:00	333.10	2/4/10	5:50	333.25	2/4/10	12:32	333.10
2/3/10	3:30	333.29	2/3/10	12:20	333.17	2/3/10	21:10	333.07	2/4/10	6:00	333.29	2/4/10	12:34	333.07
2/3/10	3:40	333.32	2/3/10	12:30	333.17	2/3/10	21:20	333.10	2/4/10	6:10	333.29	2/4/10	12:36	333.07
2/3/10	3:50	333.29	2/3/10	12:40	333.14	2/3/10	21:30	333.07	2/4/10	6:20	333.25	2/4/10	12:38	333.07
2/3/10	4:00	333.27	2/3/10	12:50	333.17	2/3/10	21:40	333.10	2/4/10	6:30	333.25	2/4/10	12:40	333.07
2/3/10	4:10	333.30	2/3/10	13:00	333.10	2/3/10	21:50	333.07	2/4/10	6:40	333.25	2/4/10	12:41	333.07
2/3/10	4:20	333.27	2/3/10	13:10	333.10	2/3/10	22:00	333.09	2/4/10	6:50	333.25	2/4/10	12:42	333.07
2/3/10	4:30	333.24	2/3/10	13:20	333.07	2/3/10	22:10	333.06	2/4/10	7:00	333.25	2/4/10	12:43	333.07
2/3/10	4:40	333.24	2/3/10	13:30	333.04	2/3/10	22:20	333.12	2/4/10	7:10	333.25	2/4/10	12:44	333.10
2/3/10	4:50	333.20	2/3/10	13:40	333.01	2/3/10	22:30	333.15	2/4/10	7:20	333.25	2/4/10	12:45	333.07
2/3/10	5:00	333.19	2/3/10	13:50	333.04	2/3/10	22:40	333.19	2/4/10	7:30	333.25	2/4/10	12:46	333.10
2/3/10	5:10	333.12	2/3/10	14:00	333.02	2/3/10	22:50	333.19	2/4/10	7:40	333.29	2/4/10	12:47	333.07
2/3/10	5:20	333.32	2/3/10	14:10	333.09	2/3/10	23:00	333.19	2/4/10	7:50	333.25	2/4/10	12:48	333.10
2/3/10	5:30	333.35	2/3/10	14:20	333.09	2/3/10	23:10	333.15	2/4/10	8:00	333.27	2/4/10	12:49	333.07
2/3/10	5:40	333.39	2/3/10	14:30	333.09	2/3/10	23:20	333.12	2/4/10	8:10	333.27	2/4/10	12:50	333.10
2/3/10	5:50	333.39	2/3/10	14:40	333.12	2/3/10	23:30	333.15	2/4/10	8:20	333.47	2/4/10	12:51	333.10
2/3/10	6:00	333.35	2/3/10	14:50	333.15	2/3/10	23:40	333.19	2/4/10	8:30	333.37	2/4/10	12:52	333.10
2/3/10	6:10	333.39	2/3/10	15:00	333.17	2/3/10	23:50	333.19	2/4/10	8:40	333.30	2/4/10	12:53	333.10
2/3/10	6:20	333.32	2/3/10	15:10	333.17	2/4/10	0:00	333.17	2/4/10	8:50	333.24	2/4/10	12:54	333.10
2/3/10	6:30	333.29	2/3/10	15:20	333.17	2/4/10	0:10	333.17	2/4/10	9:00	333.19	2/4/10	12:55	333.30
2/3/10	6:40	333.29	2/3/10	15:30	333.14	2/4/10	0:20	333.17	2/4/10	9:10	333.19	2/4/10	12:56	333.24
2/3/10	6:50	333.29	2/3/10	15:40	333.17	2/4/10	0:30	333.20	2/4/10	9:20	333.22	2/4/10	13:03	333.37
2/3/10	7:00	333.30	2/3/10	15:50	333.17	2/4/10	0:40	333.20	2/4/10	9:30	333.19	2/4/10	13:04	333.47
2/3/10	7:10	333.34	2/3/10	16:00	333.20	2/4/10	0:50	333.20	2/4/10	9:40	333.19	2/4/10	13:05	333.76
2/3/10	7:20	333.30	2/3/10	16:10	333.20	2/4/10	1:00	333.15	2/4/10	9:50	333.15	2/4/10	13:06	333.93
2/3/10	7:30	333.27	2/3/10	16:20	333.17	2/4/10	1:10	333.12	2/4/10	10:00	333.09	2/4/10	13:07	333.93
2/3/10	7:40	333.27	2/3/10	16:30	333.20	2/4/10	1:20	333.12	2/4/10	10:10	333.06	2/4/10	13:08	333.96
2/3/10	7:50	333.24	2/3/10	16:40	333.17	2/4/10	1:30	333.15	2/4/10	10:20	333.06	2/4/10	13:09	331.75
2/3/10	8:00	333.24	2/3/10	16:50	333.17	2/4/10	1:40	333.06	2/4/10	10:30	333.02	2/4/10	13:10	315.76
2/3/10	8:10	333.24	2/3/10	17:00	333.19	2/4/10	1:50	333.02	2/4/10	10:40	332.99	2/4/10	13:11	305.81
2/3/10	8:20	333.24	2/3/10	17:10	333.22	2/4/10	2:00	333.22	2/4/10	10:50	333.02	2/4/10	13:12	300.14
2/3/10	8:30	333.24	2/3/10	17:20	333.22	2/4/10	2:10	333.25	2/4/10	11:00	333.07	2/4/10	13:13	297.73
2/3/10	8:40	333.24	2/3/10	17:30	333.19	2/4/10	2:20	333.25	2/4/10	11:10	333.04	2/4/10	13:14	297.43
2/3/10	8:50	333.30	2/3/10	17:40	333.15	2/4/10	2:30	333.29	2/4/10	11:20	333.07	2/4/10	13:15	297.60
2/3/10	9:00	333.32	2/3/10	17:50	333.15	2/4/10	2:40	333.32	2/4/10	11:30	333.07	2/4/10	13:16	297.63
2/3/10	9:10	333.29	2/3/10	18:00	333.20	2/4/10	2:50	333.29	2/4/10	11:40	333.07	2/4/10	13:17	297.60
2/3/10	9:20	333.29	2/3/10	18:10	333.20	2/4/10	3:00	333.24	2/4/10	11:50	333.07	2/4/10	13:18	297.50
2/3/10	9:30	333.29	2/3/10	18:20	333.20	2/4/10	3:10	333.24	2/4/10	12:00	333.07	2/4/10	13:19	297.40
2/3/10	9:40	333.32	2/3/10	18:30	333.20	2/4/10	3:20	333.27	2/4/10	12:02	333.04	2/4/10	13:20	297.27
2/3/10	9:50	333.29	2/3/10	18:40	333.20	2/4/10	3:30	333.24	2/4/10	12:04	333.07	2/4/10	13:21	297.14
2/3/10	10:00	333.32	2/3/10	18:50	333.17	2/4/10	3:40	333.27	2/4/10	12:06	333.04	2/4/10	13:22	297.04
2/3/10	10:10	333.29	2/3/10	19:00	333.20	2/4/10	3:50	333.27	2/4/10	12:08	333.07	2/4/10	13:23	296.87
2/3/10	10:20	333.29	2/3/10	19:10	333.24	2/4/10	4:00	333.25	2/4/10	12:10	333.07	2/4/10	13:24	296.74
2/3/10	10:30	333.25	2/3/10	19:20	333.24	2/4/10	4:10	333.29	2/4/10	12:12	333.07	2/4/10	13:25	296.61
2/3/10	10:40	333.25	2/3/10	19:30	333.24	2/4/10	4:20	333.25	2/4/10	12:14	333.04	2/4/10	13:26	296.51
2/3/10	10:50	333.25	2/3/10	19:40	333.20	2/4/10	4:30	333.25	2/4/10	12:16	333.04	2/4/10	13:27	296.41
2/3/10	11:00	333.25	2/3/10	19:50	333.17	2/4/10	4:40	333.25	2/4/10	12:18	333.04	2/4/10	13:28	296.31
2/3/10	11:10	333.25	2/3/10	20:00	333.14	2/4/10	4:50	333.25	2/4/10	12:20	333.07	2/4/10	13:29	296.18
2/3/10	11:20	333.25	2/3/10	20:10	333.17	2/4/10	5:00	333.25	2/4/10	12:22	333.07	2/4/10	13:30	296.12

TABLE D6C.7-2. TRANSDUCER DATA FOR PUMPING WELL URZHF-14, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/4/10	13:31	296.02	2/4/10	14:24	294.07	2/4/10	15:17	293.51	2/4/10	16:50	293.15	2/4/10	21:15	292.85
2/4/10	13:32	295.92	2/4/10	14:25	294.07	2/4/10	15:18	293.51	2/4/10	16:55	293.12	2/4/10	21:20	292.82
2/4/10	13:33	295.85	2/4/10	14:26	294.04	2/4/10	15:19	293.51	2/4/10	17:00	293.12	2/4/10	21:25	292.85
2/4/10	13:34	295.79	2/4/10	14:27	294.04	2/4/10	15:20	293.51	2/4/10	17:05	293.12	2/4/10	21:30	292.85
2/4/10	13:35	295.69	2/4/10	14:28	294.01	2/4/10	15:21	293.48	2/4/10	17:10	293.08	2/4/10	21:35	292.82
2/4/10	13:36	295.62	2/4/10	14:29	294.01	2/4/10	15:22	293.48	2/4/10	17:15	293.08	2/4/10	21:40	292.82
2/4/10	13:37	295.56	2/4/10	14:30	293.97	2/4/10	15:23	293.48	2/4/10	17:20	293.08	2/4/10	21:45	292.82
2/4/10	13:38	295.49	2/4/10	14:31	293.97	2/4/10	15:24	293.48	2/4/10	17:25	293.08	2/4/10	21:50	292.82
2/4/10	13:39	295.46	2/4/10	14:32	293.97	2/4/10	15:25	293.48	2/4/10	17:30	293.05	2/4/10	21:55	292.82
2/4/10	13:40	295.39	2/4/10	14:33	293.94	2/4/10	15:26	293.48	2/4/10	17:35	293.05	2/4/10	22:00	292.82
2/4/10	13:41	295.32	2/4/10	14:34	293.94	2/4/10	15:27	293.48	2/4/10	17:40	293.02	2/4/10	22:05	292.82
2/4/10	13:42	295.26	2/4/10	14:35	293.94	2/4/10	15:28	293.48	2/4/10	17:45	293.05	2/4/10	22:10	292.82
2/4/10	13:43	295.23	2/4/10	14:36	293.87	2/4/10	15:29	293.45	2/4/10	17:50	293.02	2/4/10	22:15	292.82
2/4/10	13:44	295.19	2/4/10	14:37	293.87	2/4/10	15:30	293.45	2/4/10	17:55	293.02	2/4/10	22:20	292.82
2/4/10	13:45	295.13	2/4/10	14:38	293.87	2/4/10	15:31	293.45	2/4/10	18:00	293.02	2/4/10	22:25	292.82
2/4/10	13:46	295.09	2/4/10	14:39	293.87	2/4/10	15:32	293.45	2/4/10	18:05	293.02	2/4/10	22:30	292.82
2/4/10	13:47	295.03	2/4/10	14:40	293.87	2/4/10	15:33	293.45	2/4/10	18:10	292.98	2/4/10	22:35	292.82
2/4/10	13:48	294.99	2/4/10	14:41	293.84	2/4/10	15:34	293.41	2/4/10	18:15	292.98	2/4/10	22:40	292.82
2/4/10	13:49	294.96	2/4/10	14:42	293.84	2/4/10	15:35	293.41	2/4/10	18:20	292.98	2/4/10	22:45	292.82
2/4/10	13:50	294.93	2/4/10	14:43	293.81	2/4/10	15:36	293.41	2/4/10	18:25	292.98	2/4/10	22:50	292.82
2/4/10	13:51	294.90	2/4/10	14:44	293.81	2/4/10	15:37	293.41	2/4/10	18:30	292.98	2/4/10	22:55	292.82
2/4/10	13:52	294.86	2/4/10	14:45	293.81	2/4/10	15:38	293.41	2/4/10	18:35	292.95	2/4/10	23:00	292.79
2/4/10	13:53	294.80	2/4/10	14:46	293.81	2/4/10	15:39	293.41	2/4/10	18:40	292.95	2/4/10	23:05	292.79
2/4/10	13:54	294.76	2/4/10	14:47	293.78	2/4/10	15:40	293.38	2/4/10	18:45	292.95	2/4/10	23:10	292.79
2/4/10	13:55	294.73	2/4/10	14:48	293.78	2/4/10	15:41	293.38	2/4/10	18:50	292.95	2/4/10	23:15	292.79
2/4/10	13:56	294.70	2/4/10	14:49	293.78	2/4/10	15:42	293.38	2/4/10	18:55	292.95	2/4/10	23:20	292.79
2/4/10	13:57	294.67	2/4/10	14:50	293.74	2/4/10	15:43	293.38	2/4/10	19:00	292.95	2/4/10	23:25	292.79
2/4/10	13:58	294.67	2/4/10	14:51	293.74	2/4/10	15:44	293.35	2/4/10	19:05	292.92	2/4/10	23:30	292.79
2/4/10	13:59	294.63	2/4/10	14:52	293.74	2/4/10	15:45	293.35	2/4/10	19:10	292.95	2/4/10	23:35	292.79
2/4/10	14:00	294.60	2/4/10	14:53	293.71	2/4/10	15:46	293.35	2/4/10	19:15	292.92	2/4/10	23:40	292.79
2/4/10	14:01	294.57	2/4/10	14:54	293.71	2/4/10	15:47	293.35	2/4/10	19:20	292.92	2/4/10	23:45	292.79
2/4/10	14:02	294.53	2/4/10	14:55	293.71	2/4/10	15:48	293.35	2/4/10	19:25	292.92	2/4/10	23:50	292.79
2/4/10	14:03	294.50	2/4/10	14:56	293.68	2/4/10	15:49	293.35	2/4/10	19:30	292.92	2/4/10	23:55	292.79
2/4/10	14:04	294.47	2/4/10	14:57	293.68	2/4/10	15:50	293.35	2/4/10	19:35	292.92	2/5/10	0:00	292.79
2/4/10	14:05	294.47	2/4/10	14:58	293.68	2/4/10	15:51	293.35	2/4/10	19:40	292.92	2/5/10	0:30	292.75
2/4/10	14:06	294.43	2/4/10	14:59	293.68	2/4/10	15:52	293.35	2/4/10	19:45	292.89	2/5/10	1:00	292.75
2/4/10	14:07	294.40	2/4/10	15:00	293.64	2/4/10	15:53	293.35	2/4/10	19:50	292.92	2/5/10	1:30	292.75
2/4/10	14:08	294.37	2/4/10	15:01	293.64	2/4/10	15:54	293.31	2/4/10	19:55	292.89	2/5/10	2:00	292.72
2/4/10	14:09	294.37	2/4/10	15:02	293.64	2/4/10	15:55	293.35	2/4/10	20:00	292.89	2/5/10	2:30	292.72
2/4/10	14:10	294.34	2/4/10	15:03	293.61	2/4/10	15:56	293.31	2/4/10	20:05	292.89	2/5/10	3:00	292.72
2/4/10	14:11	294.30	2/4/10	15:04	293.61	2/4/10	15:57	293.31	2/4/10	20:10	292.89	2/5/10	3:30	292.69
2/4/10	14:12	294.30	2/4/10	15:05	293.61	2/4/10	15:58	293.31	2/4/10	20:15	292.89	2/5/10	4:00	292.69
2/4/10	14:13	294.27	2/4/10	15:06	293.61	2/4/10	15:59	293.31	2/4/10	20:20	292.89	2/5/10	4:30	292.69
2/4/10	14:14	294.27	2/4/10	15:07	293.61	2/4/10	16:00	293.31	2/4/10	20:25	292.89	2/5/10	5:00	292.69
2/4/10	14:15	294.24	2/4/10	15:08	293.58	2/4/10	16:05	293.28	2/4/10	20:30	292.89	2/5/10	5:30	292.69
2/4/10	14:16	294.20	2/4/10	15:09	293.58	2/4/10	16:10	293.25	2/4/10	20:35	292.89	2/5/10	6:00	292.69
2/4/10	14:17	294.20	2/4/10	15:10	293.58	2/4/10	16:15	293.25	2/4/10	20:40	292.89	2/5/10	6:30	292.65
2/4/10	14:18	294.17	2/4/10	15:11	293.58	2/4/10	16:20	293.21	2/4/10	20:45	292.85	2/5/10	7:00	292.65
2/4/10	14:19	294.14	2/4/10	15:12	293.54	2/4/10	16:25	293.21	2/4/10	20:50	292.85	2/5/10	7:30	292.65
2/4/10	14:20	294.14	2/4/10	15:13	293.54	2/4/10	16:30	293.18	2/4/10	20:55	292.85	2/5/10	8:00	292.65
2/4/10	14:21	294.14	2/4/10	15:14	293.54	2/4/10	16:35	293.18	2/4/10	21:00	292.85	2/5/10	8:30	292.65
2/4/10	14:22	294.10	2/4/10	15:15	293.54	2/4/10	16:40	293.18	2/4/10	21:05	292.85	2/5/10	9:00	292.65
2/4/10	14:23	294.10	2/4/10	15:16	293.54	2/4/10	16:45	293.15	2/4/10	21:10	292.85	2/5/10	9:30	292.65

TABLE D6C.7-2. TRANSDUCER DATA FOR PUMPING WELL URZHF-14, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/5/10	10:00	292.62	2/6/10	12:30	292.49	2/7/10	15:00	292.39	2/8/10	17:30	292.29			
2/5/10	10:30	292.65	2/6/10	13:00	292.49	2/7/10	15:30	292.39	2/8/10	18:00	292.32			
2/5/10	11:00	292.62	2/6/10	13:30	292.49	2/7/10	16:00	292.39	2/8/10	18:30	292.29			
2/5/10	11:30	292.62	2/6/10	14:00	292.49	2/7/10	16:30	292.39	2/8/10	19:00	292.32			
2/5/10	12:00	292.62	2/6/10	14:30	292.49	2/7/10	17:00	292.39	2/8/10	19:30	292.29			
2/5/10	12:30	292.65	2/6/10	15:00	292.49	2/7/10	17:30	292.39	2/8/10	20:00	292.32			
2/5/10	13:00	292.62	2/6/10	15:30	292.49	2/7/10	18:00	292.36	2/8/10	20:30	292.32			
2/5/10	13:30	292.62	2/6/10	16:00	292.49	2/7/10	18:30	292.36	2/8/10	21:00	292.29			
2/5/10	14:00	292.62	2/6/10	16:30	292.46	2/7/10	19:00	292.36	2/8/10	21:30	292.32			
2/5/10	14:30	292.62	2/6/10	17:00	292.46	2/7/10	19:30	292.36	2/8/10	22:00	292.29			
2/5/10	15:00	292.62	2/6/10	17:30	292.46	2/7/10	20:00	292.36	2/8/10	22:30	292.29			
2/5/10	15:30	292.62	2/6/10	18:00	292.46	2/7/10	20:30	292.36	2/8/10	23:00	292.29			
2/5/10	16:00	292.62	2/6/10	18:30	292.42	2/7/10	21:00	292.36	2/8/10	23:30	292.29			
2/5/10	16:30	292.62	2/6/10	19:00	292.46	2/7/10	21:30	292.36	2/9/10	0:00	292.29			
2/5/10	17:00	292.59	2/6/10	19:30	292.46	2/7/10	22:00	292.36	2/9/10	0:30	292.29			
2/5/10	17:30	292.59	2/6/10	20:00	292.42	2/7/10	22:30	292.36	2/9/10	1:00	292.29			
2/5/10	18:00	292.59	2/6/10	20:30	292.42	2/7/10	23:00	292.36	2/9/10	1:30	292.29			
2/5/10	18:30	292.59	2/6/10	21:00	292.42	2/7/10	23:30	292.36	2/9/10	2:00	292.29			
2/5/10	19:00	292.56	2/6/10	21:30	292.42	2/8/10	0:00	292.36	2/9/10	2:30	292.29			
2/5/10	19:30	292.59	2/6/10	22:00	292.42	2/8/10	0:30	292.36	2/9/10	3:00	292.29			
2/5/10	20:00	292.56	2/6/10	22:30	292.42	2/8/10	1:00	292.36	2/9/10	3:30	292.29			
2/5/10	20:30	292.56	2/6/10	23:00	292.42	2/8/10	1:30	292.36	2/9/10	4:00	292.29			
2/5/10	21:00	292.56	2/6/10	23:30	292.42	2/8/10	2:00	292.32	2/9/10	4:30	292.29			
2/5/10	21:30	292.56	2/7/10	0:00	292.42	2/8/10	2:30	292.32	2/9/10	5:00	292.29			
2/5/10	22:00	292.56	2/7/10	0:30	292.42	2/8/10	3:00	292.32	2/9/10	5:30	292.29			
2/5/10	22:30	292.56	2/7/10	1:00	292.42	2/8/10	3:30	292.32	2/9/10	6:00	292.32			
2/5/10	23:00	292.56	2/7/10	1:30	292.42	2/8/10	4:00	292.32	2/9/10	6:30	292.29			
2/5/10	23:30	292.56	2/7/10	2:00	292.42	2/8/10	4:30	292.32	2/9/10	7:00	292.29			
2/6/10	0:00	292.56	2/7/10	2:30	292.42	2/8/10	5:00	292.32	2/9/10	7:30	292.29			
2/6/10	0:30	292.52	2/7/10	3:00	292.42	2/8/10	5:30	292.29	2/9/10	8:00	292.29			
2/6/10	1:00	292.56	2/7/10	3:30	292.42	2/8/10	6:00	292.32	2/9/10	8:30	292.32			
2/6/10	1:30	292.52	2/7/10	4:00	292.42	2/8/10	6:30	292.32	2/9/10	9:00	292.29			
2/6/10	2:00	292.52	2/7/10	4:30	292.42	2/8/10	7:00	292.32	2/9/10	9:30	292.29			
2/6/10	2:30	292.52	2/7/10	5:00	292.42	2/8/10	7:30	292.29	2/9/10	10:00	292.28			
2/6/10	3:00	292.52	2/7/10	5:30	292.42	2/8/10	8:00	292.29	2/9/10	10:30	292.28			
2/6/10	3:30	292.52	2/7/10	6:00	292.42	2/8/10	8:30	292.29	2/9/10	11:00	292.26			
2/6/10	4:00	292.52	2/7/10	6:30	292.42	2/8/10	9:00	292.29						
2/6/10	4:30	292.52	2/7/10	7:00	292.39	2/8/10	9:30	292.29						
2/6/10	5:00	292.52	2/7/10	7:30	292.39	2/8/10	10:00	292.29						
2/6/10	5:30	292.49	2/7/10	8:00	292.39	2/8/10	10:30	292.32						
2/6/10	6:00	292.49	2/7/10	8:30	292.39	2/8/10	11:00	292.29						
2/6/10	6:30	292.49	2/7/10	9:00	292.39	2/8/10	11:30	292.32						
2/6/10	7:00	292.49	2/7/10	9:30	292.39	2/8/10	12:00	292.32						
2/6/10	7:30	292.49	2/7/10	10:00	292.39	2/8/10	12:30	292.32						
2/6/10	8:00	292.49	2/7/10	10:30	292.39	2/8/10	13:00	292.32						
2/6/10	8:30	292.49	2/7/10	11:00	292.42	2/8/10	13:30	292.32						
2/6/10	9:00	292.49	2/7/10	11:30	292.39	2/8/10	14:00	292.32						
2/6/10	9:30	292.49	2/7/10	12:00	292.42	2/8/10	14:30	292.32						
2/6/10	10:00	292.49	2/7/10	12:30	292.42	2/8/10	15:00	292.32						
2/6/10	10:30	292.49	2/7/10	13:00	292.42	2/8/10	15:30	292.32						
2/6/10	11:00	292.49	2/7/10	13:30	292.42	2/8/10	16:00	292.32						
2/6/10	11:30	292.49	2/7/10	14:00	292.42	2/8/10	16:30	292.32						
2/6/10	12:00	292.49	2/7/10	14:30	292.39	2/8/10	17:00	292.32						

TABLE D6C.7-3. AQUIFER-TEST DATA FOR OBSERVATION WELL URZHF-13.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/29/10	11:30:00	-4234	--	--	285.16	0.07	--	--	--	--
02/01/10	9:00:00	-64	--	--	285.09	0.00	--	--	--	--
	9:00:00	SET TRANSDUCER								
	10:51:00	47	--	--	285.54	0.45	--	--	--	--
02/02/10	8:30:00	1346	--	--	286.67	1.58	--	--	--	--
	14:10:00	1686	--	--	286.70	1.61	--	--	--	--
02/03/10	8:43:00	2799	--	--	287.18	2.09	--	--	--	--
	14:10:00	3126	--	--	287.10	2.01	--	--	--	--
02/04/10	8:45:00	4241	--	--	287.46	2.37	--	--	--	--
	12:51:00	4487	--	--	287.48	2.39	--	--	--	--
02/09/10	11:08:00	11584	7080	1.64	285.59	0.50	--	--	--	--

TABLE D6C.7-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-13.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/29/10	11:13	285.07	1/30/10	0:28	285.07	1/30/10	13:43	285.07	1/31/10	2:58	285.07	1/31/10	16:13	285.07
1/29/10	11:28	285.07	1/30/10	0:43	285.07	1/30/10	13:58	285.07	1/31/10	3:13	285.07	1/31/10	16:28	285.07
1/29/10	11:43	285.07	1/30/10	0:58	285.07	1/30/10	14:13	285.07	1/31/10	3:28	285.07	1/31/10	16:43	285.07
1/29/10	11:58	285.07	1/30/10	1:13	285.07	1/30/10	14:28	285.07	1/31/10	3:43	285.07	1/31/10	16:58	285.07
1/29/10	12:13	285.07	1/30/10	1:28	285.07	1/30/10	14:43	285.07	1/31/10	3:58	285.07	1/31/10	17:13	285.07
1/29/10	12:28	285.07	1/30/10	1:43	285.07	1/30/10	14:58	285.07	1/31/10	4:13	285.07	1/31/10	17:28	285.07
1/29/10	12:43	285.07	1/30/10	1:58	285.07	1/30/10	15:13	285.07	1/31/10	4:28	285.07	1/31/10	17:43	285.07
1/29/10	12:58	285.07	1/30/10	2:13	285.07	1/30/10	15:28	285.07	1/31/10	4:43	285.07	1/31/10	17:58	285.07
1/29/10	13:13	285.07	1/30/10	2:28	285.07	1/30/10	15:43	285.07	1/31/10	4:58	285.07	1/31/10	18:13	285.07
1/29/10	13:28	285.07	1/30/10	2:43	285.07	1/30/10	15:58	285.07	1/31/10	5:13	285.07	1/31/10	18:28	285.07
1/29/10	13:43	285.07	1/30/10	2:58	285.07	1/30/10	16:13	285.07	1/31/10	5:28	285.07	1/31/10	18:43	285.07
1/29/10	13:58	285.07	1/30/10	3:13	285.07	1/30/10	16:28	285.07	1/31/10	5:43	285.07	1/31/10	18:58	285.07
1/29/10	14:13	285.07	1/30/10	3:28	285.07	1/30/10	16:43	285.07	1/31/10	5:58	285.07	1/31/10	19:13	285.07
1/29/10	14:28	285.07	1/30/10	3:43	285.07	1/30/10	16:58	285.07	1/31/10	6:13	285.07	1/31/10	19:28	285.07
1/29/10	14:43	285.07	1/30/10	3:58	285.07	1/30/10	17:13	285.07	1/31/10	6:28	285.07	1/31/10	19:43	285.07
1/29/10	14:58	285.07	1/30/10	4:13	285.07	1/30/10	17:28	285.07	1/31/10	6:43	285.07	1/31/10	19:58	285.07
1/29/10	15:13	285.07	1/30/10	4:28	285.07	1/30/10	17:43	285.07	1/31/10	6:58	285.07	1/31/10	20:13	285.07
1/29/10	15:28	285.07	1/30/10	4:43	285.07	1/30/10	17:58	285.07	1/31/10	7:13	285.07	1/31/10	20:28	285.07
1/29/10	15:43	285.07	1/30/10	4:58	285.07	1/30/10	18:13	285.07	1/31/10	7:28	285.07	1/31/10	20:43	285.07
1/29/10	15:58	285.07	1/30/10	5:13	285.07	1/30/10	18:28	285.07	1/31/10	7:43	285.07	1/31/10	20:58	285.07
1/29/10	16:13	285.07	1/30/10	5:28	285.07	1/30/10	18:43	285.07	1/31/10	7:58	285.07	1/31/10	21:13	285.07
1/29/10	16:28	285.07	1/30/10	5:43	285.07	1/30/10	18:58	285.07	1/31/10	8:13	285.07	1/31/10	21:28	285.07
1/29/10	16:43	285.07	1/30/10	5:58	285.06	1/30/10	19:13	285.07	1/31/10	8:28	285.07	1/31/10	21:43	285.07
1/29/10	16:58	285.07	1/30/10	6:13	285.07	1/30/10	19:28	285.07	1/31/10	8:43	285.07	1/31/10	21:58	285.07
1/29/10	17:13	285.07	1/30/10	6:28	285.06	1/30/10	19:43	285.07	1/31/10	8:58	285.07	1/31/10	22:13	285.07
1/29/10	17:28	285.07	1/30/10	6:43	285.07	1/30/10	19:58	285.07	1/31/10	9:13	285.07	1/31/10	22:28	285.07
1/29/10	17:43	285.07	1/30/10	6:58	285.07	1/30/10	20:13	285.07	1/31/10	9:28	285.07	1/31/10	22:43	285.07
1/29/10	17:58	285.07	1/30/10	7:13	285.07	1/30/10	20:28	285.07	1/31/10	9:43	285.07	1/31/10	22:58	285.07
1/29/10	18:13	285.07	1/30/10	7:28	285.06	1/30/10	20:43	285.07	1/31/10	9:58	285.07	1/31/10	23:13	285.07
1/29/10	18:28	285.07	1/30/10	7:43	285.07	1/30/10	20:58	285.07	1/31/10	10:13	285.07	1/31/10	23:28	285.07
1/29/10	18:43	285.07	1/30/10	7:58	285.07	1/30/10	21:13	285.07	1/31/10	10:28	285.07	1/31/10	23:43	285.07
1/29/10	18:58	285.07	1/30/10	8:13	285.07	1/30/10	21:28	285.07	1/31/10	10:43	285.07	1/31/10	23:58	285.07
1/29/10	19:13	285.07	1/30/10	8:28	285.07	1/30/10	21:43	285.07	1/31/10	10:58	285.07	2/1/10	0:13	285.07
1/29/10	19:28	285.07	1/30/10	8:43	285.07	1/30/10	21:58	285.07	1/31/10	11:13	285.07	2/1/10	0:28	285.07
1/29/10	19:43	285.07	1/30/10	8:58	285.07	1/30/10	22:13	285.07	1/31/10	11:28	285.07	2/1/10	0:43	285.07
1/29/10	19:58	285.07	1/30/10	9:13	285.07	1/30/10	22:28	285.07	1/31/10	11:43	285.09	2/1/10	0:58	285.07
1/29/10	20:13	285.07	1/30/10	9:28	285.07	1/30/10	22:43	285.07	1/31/10	11:58	285.07	2/1/10	1:13	285.07
1/29/10	20:28	285.07	1/30/10	9:43	285.07	1/30/10	22:58	285.07	1/31/10	12:13	285.07	2/1/10	1:28	285.07
1/29/10	20:43	285.07	1/30/10	9:58	285.07	1/30/10	23:13	285.07	1/31/10	12:28	285.07	2/1/10	1:43	285.07
1/29/10	20:58	285.07	1/30/10	10:13	285.07	1/30/10	23:28	285.07	1/31/10	12:43	285.09	2/1/10	1:58	285.07
1/29/10	21:13	285.07	1/30/10	10:28	285.07	1/30/10	23:43	285.07	1/31/10	12:58	285.07	2/1/10	2:13	285.07
1/29/10	21:28	285.07	1/30/10	10:43	285.07	1/30/10	23:58	285.07	1/31/10	13:13	285.07	2/1/10	2:28	285.07
1/29/10	21:43	285.07	1/30/10	10:58	285.07	1/31/10	0:13	285.07	1/31/10	13:28	285.09	2/1/10	2:43	285.07
1/29/10	21:58	285.07	1/30/10	11:13	285.07	1/31/10	0:28	285.07	1/31/10	13:43	285.07	2/1/10	2:58	285.07
1/29/10	22:13	285.07	1/30/10	11:28	285.07	1/31/10	0:43	285.07	1/31/10	13:58	285.09	2/1/10	3:13	285.07
1/29/10	22:28	285.07	1/30/10	11:43	285.07	1/31/10	0:58	285.07	1/31/10	14:13	285.07	2/1/10	3:28	285.07
1/29/10	22:43	285.07	1/30/10	11:58	285.07	1/31/10	1:13	285.07	1/31/10	14:28	285.07	2/1/10	3:43	285.07
1/29/10	22:58	285.07	1/30/10	12:13	285.07	1/31/10	1:28	285.07	1/31/10	14:43	285.07	2/1/10	3:58	285.07
1/29/10	23:13	285.07	1/30/10	12:28	285.07	1/31/10	1:43	285.07	1/31/10	14:58	285.07	2/1/10	4:13	285.07
1/29/10	23:28	285.07	1/30/10	12:43	285.07	1/31/10	1:58	285.07	1/31/10	15:13	285.07	2/1/10	4:28	285.07
1/29/10	23:43	285.07	1/30/10	12:58	285.07	1/31/10	2:13	285.07	1/31/10	15:28	285.07	2/1/10	4:43	285.07
1/29/10	23:58	285.07	1/30/10	13:13	285.07	1/31/10	2:28	285.07	1/31/10	15:43	285.07	2/1/10	4:58	285.07
1/30/10	0:13	285.07	1/30/10	13:28	285.07	1/31/10	2:43	285.07	1/31/10	15:58	285.07	2/1/10	5:13	285.07

TABLE D6C.7-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-13, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/1/10	5:28	285.07	2/1/10	10:26	285.29	2/1/10	11:19	285.59	2/1/10	12:12	285.74	2/1/10	13:25	285.85
2/1/10	5:43	285.07	2/1/10	10:27	285.29	2/1/10	11:20	285.60	2/1/10	12:13	285.74	2/1/10	13:30	285.85
2/1/10	5:58	285.07	2/1/10	10:28	285.32	2/1/10	11:21	285.60	2/1/10	12:14	285.74	2/1/10	13:35	285.87
2/1/10	6:13	285.07	2/1/10	10:29	285.32	2/1/10	11:22	285.60	2/1/10	12:15	285.74	2/1/10	13:40	285.87
2/1/10	6:28	285.07	2/1/10	10:30	285.32	2/1/10	11:23	285.60	2/1/10	12:16	285.75	2/1/10	13:45	285.89
2/1/10	6:43	285.07	2/1/10	10:31	285.34	2/1/10	11:24	285.60	2/1/10	12:17	285.74	2/1/10	13:50	285.89
2/1/10	6:58	285.07	2/1/10	10:32	285.34	2/1/10	11:25	285.60	2/1/10	12:18	285.75	2/1/10	13:55	285.90
2/1/10	7:13	285.07	2/1/10	10:33	285.36	2/1/10	11:26	285.62	2/1/10	12:19	285.75	2/1/10	14:00	285.92
2/1/10	7:28	285.07	2/1/10	10:34	285.36	2/1/10	11:27	285.62	2/1/10	12:20	285.75	2/1/10	14:05	285.94
2/1/10	7:43	285.07	2/1/10	10:35	285.37	2/1/10	11:28	285.62	2/1/10	12:21	285.75	2/1/10	14:10	285.94
2/1/10	7:58	285.07	2/1/10	10:36	285.37	2/1/10	11:29	285.64	2/1/10	12:22	285.75	2/1/10	14:15	285.94
2/1/10	9:15	285.04	2/1/10	10:37	285.37	2/1/10	11:30	285.62	2/1/10	12:23	285.77	2/1/10	14:20	285.95
2/1/10	9:45	285.04	2/1/10	10:38	285.39	2/1/10	11:31	285.64	2/1/10	12:24	285.77	2/1/10	14:25	285.95
2/1/10	9:46	285.04	2/1/10	10:39	285.39	2/1/10	11:32	285.64	2/1/10	12:25	285.77	2/1/10	14:30	285.97
2/1/10	9:47	285.04	2/1/10	10:40	285.41	2/1/10	11:33	285.64	2/1/10	12:26	285.77	2/1/10	14:35	285.97
2/1/10	9:48	285.06	2/1/10	10:41	285.41	2/1/10	11:34	285.64	2/1/10	12:27	285.77	2/1/10	14:40	285.97
2/1/10	9:49	285.06	2/1/10	10:42	285.41	2/1/10	11:35	285.64	2/1/10	12:28	285.77	2/1/10	14:45	285.97
2/1/10	9:50	285.07	2/1/10	10:43	285.42	2/1/10	11:36	285.64	2/1/10	12:29	285.77	2/1/10	14:50	285.97
2/1/10	9:51	285.07	2/1/10	10:44	285.42	2/1/10	11:37	285.65	2/1/10	12:30	285.77	2/1/10	14:55	285.97
2/1/10	9:52	285.09	2/1/10	10:45	285.42	2/1/10	11:38	285.65	2/1/10	12:31	285.77	2/1/10	15:00	286.02
2/1/10	9:53	285.09	2/1/10	10:46	285.42	2/1/10	11:39	285.65	2/1/10	12:32	285.77	2/1/10	15:05	286.02
2/1/10	9:54	285.11	2/1/10	10:47	285.42	2/1/10	11:40	285.65	2/1/10	12:33	285.79	2/1/10	15:10	286.02
2/1/10	9:55	285.11	2/1/10	10:48	285.42	2/1/10	11:41	285.67	2/1/10	12:34	285.77	2/1/10	15:15	286.04
2/1/10	9:56	285.11	2/1/10	10:49	285.44	2/1/10	11:42	285.67	2/1/10	12:35	285.79	2/1/10	15:20	286.04
2/1/10	9:57	285.11	2/1/10	10:50	285.46	2/1/10	11:43	285.67	2/1/10	12:36	285.79	2/1/10	15:25	286.04
2/1/10	9:58	285.11	2/1/10	10:51	285.46	2/1/10	11:44	285.67	2/1/10	12:37	285.79	2/1/10	15:30	286.05
2/1/10	9:59	285.11	2/1/10	10:52	285.47	2/1/10	11:45	285.67	2/1/10	12:38	285.79	2/1/10	15:35	286.05
2/1/10	10:00	285.11	2/1/10	10:53	285.47	2/1/10	11:46	285.69	2/1/10	12:39	285.80	2/1/10	15:40	286.05
2/1/10	10:01	285.11	2/1/10	10:54	285.49	2/1/10	11:47	285.67	2/1/10	12:40	285.79	2/1/10	15:45	286.05
2/1/10	10:02	285.09	2/1/10	10:55	285.49	2/1/10	11:48	285.67	2/1/10	12:41	285.80	2/1/10	15:50	286.07
2/1/10	10:03	285.09	2/1/10	10:56	285.49	2/1/10	11:49	285.69	2/1/10	12:42	285.80	2/1/10	15:55	286.07
2/1/10	10:04	285.09	2/1/10	10:57	285.49	2/1/10	11:50	285.69	2/1/10	12:43	285.80	2/1/10	16:00	286.09
2/1/10	10:05	285.09	2/1/10	10:58	285.49	2/1/10	11:51	285.69	2/1/10	12:44	285.80	2/1/10	16:05	286.09
2/1/10	10:06	285.09	2/1/10	10:59	285.49	2/1/10	11:52	285.69	2/1/10	12:45	285.80	2/1/10	16:10	286.09
2/1/10	10:07	285.09	2/1/10	11:00	285.52	2/1/10	11:53	285.69	2/1/10	12:46	285.80	2/1/10	16:15	286.10
2/1/10	10:08	285.09	2/1/10	11:01	285.52	2/1/10	11:54	285.70	2/1/10	12:47	285.80	2/1/10	16:20	286.10
2/1/10	10:09	285.09	2/1/10	11:02	285.54	2/1/10	11:55	285.70	2/1/10	12:48	285.80	2/1/10	16:25	286.10
2/1/10	10:10	285.09	2/1/10	11:03	285.54	2/1/10	11:56	285.70	2/1/10	12:49	285.82	2/1/10	16:30	286.10
2/1/10	10:11	285.11	2/1/10	11:04	285.54	2/1/10	11:57	285.70	2/1/10	12:50	285.82	2/1/10	16:35	286.12
2/1/10	10:12	285.12	2/1/10	11:05	285.54	2/1/10	11:58	285.70	2/1/10	12:51	285.80	2/1/10	16:40	286.12
2/1/10	10:13	285.14	2/1/10	11:06	285.54	2/1/10	11:59	285.70	2/1/10	12:52	285.82	2/1/10	16:45	286.12
2/1/10	10:14	285.16	2/1/10	11:07	285.55	2/1/10	12:00	285.70	2/1/10	12:53	285.82	2/1/10	16:50	286.12
2/1/10	10:15	285.16	2/1/10	11:08	285.55	2/1/10	12:01	285.70	2/1/10	12:54	285.82	2/1/10	16:55	286.12
2/1/10	10:16	285.17	2/1/10	11:09	285.55	2/1/10	12:02	285.70	2/1/10	12:55	285.82	2/1/10	17:00	286.15
2/1/10	10:17	285.19	2/1/10	11:10	285.55	2/1/10	12:03	285.70	2/1/10	12:56	285.82	2/1/10	17:05	286.15
2/1/10	10:18	285.21	2/1/10	11:11	285.57	2/1/10	12:04	285.72	2/1/10	12:57	285.82	2/1/10	17:10	286.17
2/1/10	10:19	285.22	2/1/10	11:12	285.57	2/1/10	12:05	285.72	2/1/10	12:58	285.84	2/1/10	17:15	286.17
2/1/10	10:20	285.22	2/1/10	11:13	285.57	2/1/10	12:06	285.72	2/1/10	12:59	285.84	2/1/10	17:20	286.17
2/1/10	10:21	285.24	2/1/10	11:14	285.57	2/1/10	12:07	285.72	2/1/10	13:00	285.82	2/1/10	17:25	286.17
2/1/10	10:22	285.26	2/1/10	11:15	285.57	2/1/10	12:08	285.72	2/1/10	13:05	285.82	2/1/10	17:30	286.18
2/1/10	10:23	285.26	2/1/10	11:16	285.57	2/1/10	12:09	285.72	2/1/10	13:10	285.82	2/1/10	17:35	286.18
2/1/10	10:24	285.27	2/1/10	11:17	285.59	2/1/10	12:10	285.74	2/1/10	13:15	285.84	2/1/10	17:40	286.18
2/1/10	10:25	285.29	2/1/10	11:18	285.59	2/1/10	12:11	285.74	2/1/10	13:20	285.85	2/1/10	17:45	286.18

TABLE D6C.7-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-13, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/1/10	17:50	286.18	2/1/10	22:15	286.45	2/2/10	5:20	286.65	2/2/10	14:10	286.70	2/2/10	23:00	286.98
2/1/10	17:55	286.20	2/1/10	22:20	286.45	2/2/10	5:30	286.65	2/2/10	14:20	286.70	2/2/10	23:10	286.98
2/1/10	18:00	286.23	2/1/10	22:25	286.47	2/2/10	5:40	286.66	2/2/10	14:30	286.70	2/2/10	23:20	286.98
2/1/10	18:05	286.23	2/1/10	22:30	286.47	2/2/10	5:50	286.65	2/2/10	14:40	286.70	2/2/10	23:30	286.98
2/1/10	18:10	286.25	2/1/10	22:35	286.47	2/2/10	6:00	286.66	2/2/10	14:50	286.70	2/2/10	23:40	287.00
2/1/10	18:15	286.23	2/1/10	22:40	286.47	2/2/10	6:10	286.66	2/2/10	15:00	286.72	2/2/10	23:50	287.00
2/1/10	18:20	286.25	2/1/10	22:45	286.47	2/2/10	6:20	286.68	2/2/10	15:10	286.72	2/3/10	0:00	287.00
2/1/10	18:25	286.27	2/1/10	22:50	286.47	2/2/10	6:30	286.68	2/2/10	15:20	286.72	2/3/10	0:10	287.01
2/1/10	18:30	286.27	2/1/10	22:55	286.47	2/2/10	6:40	286.68	2/2/10	15:30	286.73	2/3/10	0:20	287.01
2/1/10	18:35	286.27	2/1/10	23:00	286.48	2/2/10	6:50	286.68	2/2/10	15:40	286.73	2/3/10	0:30	287.01
2/1/10	18:40	286.27	2/1/10	23:05	286.48	2/2/10	7:00	286.68	2/2/10	15:50	286.73	2/3/10	0:40	287.01
2/1/10	18:45	286.27	2/1/10	23:10	286.48	2/2/10	7:10	286.70	2/2/10	16:00	286.75	2/3/10	0:50	287.01
2/1/10	18:50	286.28	2/1/10	23:15	286.48	2/2/10	7:20	286.70	2/2/10	16:10	286.75	2/3/10	1:00	287.03
2/1/10	18:55	286.28	2/1/10	23:20	286.48	2/2/10	7:30	286.70	2/2/10	16:20	286.75	2/3/10	1:10	287.05
2/1/10	19:00	286.28	2/1/10	23:25	286.50	2/2/10	7:40	286.70	2/2/10	16:30	286.77	2/3/10	1:20	287.05
2/1/10	19:05	286.28	2/1/10	23:30	286.50	2/2/10	7:50	286.70	2/2/10	16:40	286.77	2/3/10	1:30	287.05
2/1/10	19:10	286.28	2/1/10	23:35	286.50	2/2/10	8:00	286.70	2/2/10	16:50	286.77	2/3/10	1:40	287.05
2/1/10	19:15	286.30	2/1/10	23:40	286.50	2/2/10	8:10	286.70	2/2/10	17:00	286.78	2/3/10	1:50	287.05
2/1/10	19:20	286.30	2/1/10	23:45	286.50	2/2/10	8:20	286.71	2/2/10	17:10	286.78	2/3/10	2:00	287.05
2/1/10	19:25	286.30	2/1/10	23:50	286.52	2/2/10	8:30	286.71	2/2/10	17:20	286.80	2/3/10	2:10	287.06
2/1/10	19:30	286.30	2/1/10	23:55	286.52	2/2/10	8:40	286.71	2/2/10	17:30	286.80	2/3/10	2:20	287.06
2/1/10	19:35	286.30	2/2/10	0:00	286.52	2/2/10	8:50	286.71	2/2/10	17:40	286.80	2/3/10	2:30	287.06
2/1/10	19:40	286.30	2/2/10	0:10	286.52	2/2/10	9:00	286.73	2/2/10	17:50	286.80	2/3/10	2:40	287.06
2/1/10	19:45	286.32	2/2/10	0:20	286.53	2/2/10	9:10	286.73	2/2/10	18:00	286.81	2/3/10	2:50	287.06
2/1/10	19:50	286.32	2/2/10	0:30	286.53	2/2/10	9:20	286.73	2/2/10	18:10	286.83	2/3/10	3:00	287.08
2/1/10	19:55	286.32	2/2/10	0:40	286.53	2/2/10	9:30	286.75	2/2/10	18:20	286.83	2/3/10	3:10	287.08
2/1/10	20:00	286.35	2/2/10	0:50	286.55	2/2/10	9:40	286.75	2/2/10	18:30	286.83	2/3/10	3:20	287.08
2/1/10	20:05	286.35	2/2/10	1:00	286.55	2/2/10	9:50	286.75	2/2/10	18:40	286.83	2/3/10	3:30	287.08
2/1/10	20:10	286.35	2/2/10	1:10	286.55	2/2/10	10:00	286.72	2/2/10	18:50	286.85	2/3/10	3:40	287.10
2/1/10	20:15	286.35	2/2/10	1:20	286.57	2/2/10	10:10	286.72	2/2/10	19:00	286.86	2/3/10	3:50	287.08
2/1/10	20:20	286.37	2/2/10	1:30	286.57	2/2/10	10:20	286.72	2/2/10	19:10	286.86	2/3/10	4:00	287.08
2/1/10	20:25	286.37	2/2/10	1:40	286.58	2/2/10	10:30	286.72	2/2/10	19:20	286.86	2/3/10	4:10	287.08
2/1/10	20:30	286.37	2/2/10	1:50	286.57	2/2/10	10:40	286.73	2/2/10	19:30	286.86	2/3/10	4:20	287.10
2/1/10	20:35	286.37	2/2/10	2:00	286.57	2/2/10	10:50	286.73	2/2/10	19:40	286.86	2/3/10	4:30	287.10
2/1/10	20:40	286.38	2/2/10	2:10	286.57	2/2/10	11:00	286.75	2/2/10	19:50	286.86	2/3/10	4:40	287.10
2/1/10	20:45	286.38	2/2/10	2:20	286.58	2/2/10	11:10	286.75	2/2/10	20:00	286.90	2/3/10	4:50	287.10
2/1/10	20:50	286.38	2/2/10	2:30	286.58	2/2/10	11:20	286.75	2/2/10	20:10	286.90	2/3/10	5:00	287.11
2/1/10	20:55	286.38	2/2/10	2:40	286.58	2/2/10	11:30	286.75	2/2/10	20:20	286.90	2/3/10	5:10	287.11
2/1/10	21:00	286.38	2/2/10	2:50	286.58	2/2/10	11:40	286.76	2/2/10	20:30	286.90	2/3/10	5:20	287.11
2/1/10	21:05	286.38	2/2/10	3:00	286.60	2/2/10	11:50	286.76	2/2/10	20:40	286.91	2/3/10	5:30	287.13
2/1/10	21:10	286.38	2/2/10	3:10	286.60	2/2/10	12:00	286.71	2/2/10	20:50	286.91	2/3/10	5:40	287.13
2/1/10	21:15	286.40	2/2/10	3:20	286.60	2/2/10	12:10	286.71	2/2/10	21:00	286.91	2/3/10	5:50	287.13
2/1/10	21:20	286.40	2/2/10	3:30	286.61	2/2/10	12:20	286.71	2/2/10	21:10	286.91	2/3/10	6:00	287.13
2/1/10	21:25	286.42	2/2/10	3:40	286.63	2/2/10	12:30	286.73	2/2/10	21:20	286.91	2/3/10	6:10	287.13
2/1/10	21:30	286.42	2/2/10	3:50	286.63	2/2/10	12:40	286.73	2/2/10	21:30	286.93	2/3/10	6:20	287.15
2/1/10	21:35	286.42	2/2/10	4:00	286.62	2/2/10	12:50	286.73	2/2/10	21:40	286.93	2/3/10	6:30	287.15
2/1/10	21:40	286.42	2/2/10	4:10	286.63	2/2/10	13:00	286.70	2/2/10	21:50	286.93	2/3/10	6:40	287.15
2/1/10	21:45	286.42	2/2/10	4:20	286.63	2/2/10	13:10	286.70	2/2/10	22:00	286.95	2/3/10	6:50	287.15
2/1/10	21:50	286.42	2/2/10	4:30	286.63	2/2/10	13:20	286.70	2/2/10	22:10	286.95	2/3/10	7:00	287.16
2/1/10	21:55	286.42	2/2/10	4:40	286.65	2/2/10	13:30	286.70	2/2/10	22:20	286.95	2/3/10	7:10	287.16
2/1/10	22:00	286.45	2/2/10	4:50	286.65	2/2/10	13:40	286.70	2/2/10	22:30	286.96	2/3/10	7:20	287.16
2/1/10	22:05	286.45	2/2/10	5:00	286.63	2/2/10	13:50	286.72	2/2/10	22:40	286.96	2/3/10	7:30	287.16
2/1/10	22:10	286.45	2/2/10	5:10	286.63	2/2/10	14:00	286.70	2/2/10	22:50	286.96	2/3/10	7:40	287.18

TABLE D6C.7-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-13, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/3/10	7:50	287.16	2/3/10	16:40	287.15	2/4/10	1:30	287.18	2/4/10	10:20	287.21	2/4/10	13:46	286.83
2/3/10	8:00	287.18	2/3/10	16:50	287.15	2/4/10	1:40	287.18	2/4/10	10:30	287.23	2/4/10	13:47	286.83
2/3/10	8:10	287.18	2/3/10	17:00	287.18	2/4/10	1:50	287.18	2/4/10	10:40	287.23	2/4/10	13:48	286.83
2/3/10	8:20	287.18	2/3/10	17:10	287.18	2/4/10	2:00	287.21	2/4/10	10:50	287.23	2/4/10	13:49	286.82
2/3/10	8:30	287.18	2/3/10	17:20	287.16	2/4/10	2:10	287.23	2/4/10	11:00	287.28	2/4/10	13:50	286.82
2/3/10	8:40	287.18	2/3/10	17:30	287.18	2/4/10	2:20	287.23	2/4/10	11:10	287.28	2/4/10	13:51	286.80
2/3/10	8:50	287.20	2/3/10	17:40	287.18	2/4/10	2:30	287.23	2/4/10	11:20	287.30	2/4/10	13:52	286.80
2/3/10	9:00	287.21	2/3/10	17:50	287.18	2/4/10	2:40	287.23	2/4/10	11:30	287.30	2/4/10	13:53	286.80
2/3/10	9:10	287.21	2/3/10	18:00	287.20	2/4/10	2:50	287.25	2/4/10	11:40	287.30	2/4/10	13:54	286.78
2/3/10	9:20	287.21	2/3/10	18:10	287.20	2/4/10	3:00	287.23	2/4/10	11:50	287.30	2/4/10	13:55	286.78
2/3/10	9:30	287.21	2/3/10	18:20	287.20	2/4/10	3:10	287.23	2/4/10	12:00	287.30	2/4/10	13:56	286.78
2/3/10	9:40	287.21	2/3/10	18:30	287.20	2/4/10	3:20	287.23	2/4/10	12:10	287.30	2/4/10	13:57	286.78
2/3/10	9:50	287.23	2/3/10	18:40	287.21	2/4/10	3:30	287.23	2/4/10	12:20	287.30	2/4/10	13:58	286.77
2/3/10	10:00	287.23	2/3/10	18:50	287.21	2/4/10	3:40	287.23	2/4/10	12:30	287.30	2/4/10	13:59	286.77
2/3/10	10:10	287.23	2/3/10	19:00	287.21	2/4/10	3:50	287.23	2/4/10	12:40	287.30	2/4/10	14:00	286.78
2/3/10	10:20	287.23	2/3/10	19:10	287.21	2/4/10	4:00	287.23	2/4/10	12:50	287.46	2/4/10	14:01	286.78
2/3/10	10:30	287.23	2/3/10	19:20	287.21	2/4/10	4:10	287.23	2/4/10	13:00	287.18	2/4/10	14:02	286.77
2/3/10	10:40	287.23	2/3/10	19:30	287.21	2/4/10	4:20	287.21	2/4/10	13:10	287.18	2/4/10	14:03	286.77
2/3/10	10:50	287.25	2/3/10	19:40	287.23	2/4/10	4:30	287.23	2/4/10	13:11	287.18	2/4/10	14:04	286.77
2/3/10	11:00	287.21	2/3/10	19:50	287.23	2/4/10	4:40	287.23	2/4/10	13:12	287.16	2/4/10	14:05	286.77
2/3/10	11:10	287.21	2/3/10	20:00	287.23	2/4/10	4:50	287.23	2/4/10	13:13	287.16	2/4/10	14:06	286.75
2/3/10	11:20	287.21	2/3/10	20:10	287.23	2/4/10	5:00	287.23	2/4/10	13:14	287.16	2/4/10	14:07	286.75
2/3/10	11:30	287.21	2/3/10	20:20	287.23	2/4/10	5:10	287.23	2/4/10	13:15	287.15	2/4/10	14:08	286.75
2/3/10	11:40	287.21	2/3/10	20:30	287.23	2/4/10	5:20	287.23	2/4/10	13:16	287.13	2/4/10	14:09	286.73
2/3/10	11:50	287.21	2/3/10	20:40	287.23	2/4/10	5:30	287.25	2/4/10	13:17	287.11	2/4/10	14:10	286.72
2/3/10	12:00	287.16	2/3/10	20:50	287.23	2/4/10	5:40	287.25	2/4/10	13:18	287.10	2/4/10	14:11	286.72
2/3/10	12:10	287.18	2/3/10	21:00	287.20	2/4/10	5:50	287.25	2/4/10	13:19	287.10	2/4/10	14:12	286.72
2/3/10	12:20	287.18	2/3/10	21:10	287.20	2/4/10	6:00	287.25	2/4/10	13:20	287.06	2/4/10	14:13	286.72
2/3/10	12:30	287.20	2/3/10	21:20	287.20	2/4/10	6:10	287.25	2/4/10	13:21	287.06	2/4/10	14:14	286.72
2/3/10	12:40	287.20	2/3/10	21:30	287.21	2/4/10	6:20	287.25	2/4/10	13:22	287.03	2/4/10	14:15	286.72
2/3/10	12:50	287.20	2/3/10	21:40	287.21	2/4/10	6:30	287.25	2/4/10	13:23	287.03	2/4/10	14:16	286.72
2/3/10	13:00	287.13	2/3/10	21:50	287.21	2/4/10	6:40	287.25	2/4/10	13:24	287.01	2/4/10	14:17	286.72
2/3/10	13:10	287.13	2/3/10	22:00	287.20	2/4/10	6:50	287.25	2/4/10	13:25	287.00	2/4/10	14:18	286.72
2/3/10	13:20	287.13	2/3/10	22:10	287.21	2/4/10	7:00	287.25	2/4/10	13:26	286.98	2/4/10	14:19	286.70
2/3/10	13:30	287.15	2/3/10	22:20	287.21	2/4/10	7:10	287.25	2/4/10	13:27	286.96	2/4/10	14:20	286.70
2/3/10	13:40	287.15	2/3/10	22:30	287.21	2/4/10	7:20	287.26	2/4/10	13:28	286.96	2/4/10	14:21	286.70
2/3/10	13:50	287.15	2/3/10	22:40	287.21	2/4/10	7:30	287.25	2/4/10	13:29	286.96	2/4/10	14:22	286.68
2/3/10	14:00	287.10	2/3/10	22:50	287.21	2/4/10	7:40	287.26	2/4/10	13:30	286.95	2/4/10	14:23	286.68
2/3/10	14:10	287.10	2/3/10	23:00	287.18	2/4/10	7:50	287.26	2/4/10	13:31	286.93	2/4/10	14:24	286.68
2/3/10	14:20	287.10	2/3/10	23:10	287.20	2/4/10	8:00	287.28	2/4/10	13:32	286.93	2/4/10	14:25	286.68
2/3/10	14:30	287.10	2/3/10	23:20	287.20	2/4/10	8:10	287.28	2/4/10	13:33	286.93	2/4/10	14:26	286.68
2/3/10	14:40	287.10	2/3/10	23:30	287.20	2/4/10	8:20	287.30	2/4/10	13:34	286.92	2/4/10	14:27	286.68
2/3/10	14:50	287.10	2/3/10	23:40	287.20	2/4/10	8:30	287.30	2/4/10	13:35	286.90	2/4/10	14:28	286.68
2/3/10	15:00	287.13	2/3/10	23:50	287.20	2/4/10	8:40	287.30	2/4/10	13:36	286.90	2/4/10	14:29	286.67
2/3/10	15:10	287.13	2/4/10	0:00	287.18	2/4/10	8:50	287.30	2/4/10	13:37	286.90	2/4/10	14:30	286.67
2/3/10	15:20	287.13	2/4/10	0:10	287.18	2/4/10	9:00	287.28	2/4/10	13:38	286.88	2/4/10	14:31	286.67
2/3/10	15:30	287.13	2/4/10	0:20	287.20	2/4/10	9:10	287.28	2/4/10	13:39	286.87	2/4/10	14:32	286.67
2/3/10	15:40	287.13	2/4/10	0:30	287.20	2/4/10	9:20	287.28	2/4/10	13:40	286.88	2/4/10	14:33	286.65
2/3/10	15:50	287.13	2/4/10	0:40	287.20	2/4/10	9:30	287.28	2/4/10	13:41	286.87	2/4/10	14:34	286.65
2/3/10	16:00	287.13	2/4/10	0:50	287.20	2/4/10	9:40	287.28	2/4/10	13:42	286.87	2/4/10	14:35	286.65
2/3/10	16:10	287.13	2/4/10	1:00	287.18	2/4/10	9:50	287.28	2/4/10	13:43	286.85	2/4/10	14:36	286.65
2/3/10	16:20	287.15	2/4/10	1:10	287.18	2/4/10	10:00	287.21	2/4/10	13:44	286.83	2/4/10	14:37	286.65
2/3/10	16:30	287.15	2/4/10	1:20	287.18	2/4/10	10:10	287.23	2/4/10	13:45	286.83	2/4/10	14:38	286.65

TABLE D6C.7-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-13, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/4/10	14:39	286.65	2/4/10	15:32	286.53	2/4/10	18:05	286.42	2/4/10	22:30	286.27	2/5/10	17:30	285.99
2/4/10	14:40	286.65	2/4/10	15:33	286.53	2/4/10	18:10	286.42	2/4/10	22:35	286.27	2/5/10	18:00	285.97
2/4/10	14:41	286.63	2/4/10	15:34	286.53	2/4/10	18:15	286.40	2/4/10	22:40	286.27	2/5/10	18:30	285.97
2/4/10	14:42	286.63	2/4/10	15:35	286.53	2/4/10	18:20	286.40	2/4/10	22:45	286.27	2/5/10	19:00	285.97
2/4/10	14:43	286.63	2/4/10	15:36	286.53	2/4/10	18:25	286.38	2/4/10	22:50	286.25	2/5/10	19:30	285.95
2/4/10	14:44	286.63	2/4/10	15:37	286.53	2/4/10	18:30	286.38	2/4/10	22:55	286.25	2/5/10	20:00	285.97
2/4/10	14:45	286.62	2/4/10	15:38	286.53	2/4/10	18:35	286.38	2/4/10	23:00	286.27	2/5/10	20:30	285.95
2/4/10	14:46	286.63	2/4/10	15:39	286.53	2/4/10	18:40	286.38	2/4/10	23:05	286.27	2/5/10	21:00	285.97
2/4/10	14:47	286.62	2/4/10	15:40	286.53	2/4/10	18:45	286.38	2/4/10	23:10	286.25	2/5/10	21:30	285.97
2/4/10	14:48	286.62	2/4/10	15:41	286.53	2/4/10	18:50	286.37	2/4/10	23:15	286.27	2/5/10	22:00	285.95
2/4/10	14:49	286.62	2/4/10	15:42	286.52	2/4/10	18:55	286.35	2/4/10	23:20	286.25	2/5/10	22:30	285.95
2/4/10	14:50	286.62	2/4/10	15:43	286.52	2/4/10	19:00	286.37	2/4/10	23:25	286.25	2/5/10	23:00	285.94
2/4/10	14:51	286.62	2/4/10	15:44	286.52	2/4/10	19:05	286.37	2/4/10	23:30	286.25	2/5/10	23:30	285.94
2/4/10	14:52	286.62	2/4/10	15:45	286.52	2/4/10	19:10	286.37	2/4/10	23:35	286.25	2/6/10	0:00	285.94
2/4/10	14:53	286.60	2/4/10	15:46	286.52	2/4/10	19:15	286.37	2/4/10	23:40	286.25	2/6/10	0:30	285.92
2/4/10	14:54	286.60	2/4/10	15:47	286.50	2/4/10	19:20	286.37	2/4/10	23:45	286.25	2/6/10	1:00	285.92
2/4/10	14:55	286.60	2/4/10	15:48	286.50	2/4/10	19:25	286.35	2/4/10	23:50	286.25	2/6/10	1:30	285.90
2/4/10	14:56	286.60	2/4/10	15:49	286.50	2/4/10	19:30	286.35	2/4/10	23:55	286.24	2/6/10	2:00	285.89
2/4/10	14:57	286.58	2/4/10	15:50	286.52	2/4/10	19:35	286.35	2/5/10	0:00	286.24	2/6/10	2:30	285.90
2/4/10	14:58	286.58	2/4/10	15:51	286.50	2/4/10	19:40	286.35	2/5/10	0:30	286.22	2/6/10	3:00	285.87
2/4/10	14:59	286.58	2/4/10	15:52	286.50	2/4/10	19:45	286.33	2/5/10	1:00	286.23	2/6/10	3:30	285.87
2/4/10	15:00	286.60	2/4/10	15:53	286.50	2/4/10	19:50	286.33	2/5/10	1:30	286.22	2/6/10	4:00	285.87
2/4/10	15:01	286.60	2/4/10	15:54	286.50	2/4/10	19:55	286.33	2/5/10	2:00	286.22	2/6/10	4:30	285.87
2/4/10	15:02	286.60	2/4/10	15:55	286.50	2/4/10	20:00	286.35	2/5/10	2:30	286.20	2/6/10	5:00	285.89
2/4/10	15:03	286.60	2/4/10	15:56	286.50	2/4/10	20:05	286.33	2/5/10	3:00	286.19	2/6/10	5:30	285.87
2/4/10	15:04	286.60	2/4/10	15:57	286.50	2/4/10	20:10	286.33	2/5/10	3:30	286.19	2/6/10	6:00	285.87
2/4/10	15:05	286.60	2/4/10	15:58	286.50	2/4/10	20:15	286.32	2/5/10	4:00	286.18	2/6/10	6:30	285.87
2/4/10	15:06	286.60	2/4/10	15:59	286.50	2/4/10	20:20	286.32	2/5/10	4:30	286.18	2/6/10	7:00	285.89
2/4/10	15:07	286.58	2/4/10	16:00	286.52	2/4/10	20:25	286.32	2/5/10	5:00	286.17	2/6/10	7:30	285.87
2/4/10	15:08	286.58	2/4/10	16:05	286.50	2/4/10	20:30	286.32	2/5/10	5:30	286.15	2/6/10	8:00	285.89
2/4/10	15:09	286.58	2/4/10	16:10	286.50	2/4/10	20:35	286.32	2/5/10	6:00	286.17	2/6/10	8:30	285.89
2/4/10	15:10	286.58	2/4/10	16:15	286.50	2/4/10	20:40	286.32	2/5/10	6:30	286.17	2/6/10	9:00	285.87
2/4/10	15:11	286.58	2/4/10	16:20	286.48	2/4/10	20:45	286.32	2/5/10	7:00	286.17	2/6/10	9:30	285.87
2/4/10	15:12	286.58	2/4/10	16:25	286.48	2/4/10	20:50	286.32	2/5/10	7:30	286.15	2/6/10	10:00	285.85
2/4/10	15:13	286.57	2/4/10	16:30	286.47	2/4/10	20:55	286.32	2/5/10	8:00	286.13	2/6/10	10:30	285.85
2/4/10	15:14	286.57	2/4/10	16:35	286.47	2/4/10	21:00	286.32	2/5/10	8:30	286.13	2/6/10	11:00	285.84
2/4/10	15:15	286.57	2/4/10	16:40	286.47	2/4/10	21:05	286.30	2/5/10	9:00	286.15	2/6/10	11:30	285.82
2/4/10	15:16	286.57	2/4/10	16:45	286.45	2/4/10	21:10	286.30	2/5/10	9:30	286.14	2/6/10	12:00	285.79
2/4/10	15:17	286.57	2/4/10	16:50	286.45	2/4/10	21:15	286.30	2/5/10	10:00	286.12	2/6/10	12:30	285.79
2/4/10	15:18	286.57	2/4/10	16:55	286.43	2/4/10	21:20	286.29	2/5/10	10:30	286.12	2/6/10	13:00	285.75
2/4/10	15:19	286.57	2/4/10	17:00	286.45	2/4/10	21:25	286.29	2/5/10	11:00	286.10	2/6/10	13:30	285.75
2/4/10	15:20	286.57	2/4/10	17:05	286.45	2/4/10	21:30	286.29	2/5/10	11:30	286.09	2/6/10	14:00	285.74
2/4/10	15:21	286.57	2/4/10	17:10	286.43	2/4/10	21:35	286.29	2/5/10	12:00	286.07	2/6/10	14:30	285.74
2/4/10	15:22	286.57	2/4/10	17:15	286.43	2/4/10	21:40	286.29	2/5/10	12:30	286.05	2/6/10	15:00	285.72
2/4/10	15:23	286.55	2/4/10	17:20	286.43	2/4/10	21:45	286.29	2/5/10	13:00	286.04	2/6/10	15:30	285.72
2/4/10	15:24	286.55	2/4/10	17:25	286.42	2/4/10	21:50	286.29	2/5/10	13:30	286.04	2/6/10	16:00	285.74
2/4/10	15:25	286.55	2/4/10	17:30	286.42	2/4/10	21:55	286.29	2/5/10	14:00	285.97	2/6/10	16:30	285.74
2/4/10	15:26	286.55	2/4/10	17:35	286.40	2/4/10	22:00	286.28	2/5/10	14:30	285.95	2/6/10	17:00	285.75
2/4/10	15:27	286.55	2/4/10	17:40	286.40	2/4/10	22:05	286.28	2/5/10	15:00	285.97	2/6/10	17:30	285.75
2/4/10	15:28	286.55	2/4/10	17:45	286.40	2/4/10	22:10	286.28	2/5/10	15:30	285.97	2/6/10	18:00	285.77
2/4/10	15:29	286.55	2/4/10	17:50	286.38	2/4/10	22:15	286.28	2/5/10	16:00	285.99	2/6/10	18:30	285.77
2/4/10	15:30	286.55	2/4/10	17:55	286.38	2/4/10	22:20	286.27	2/5/10	16:30	285.97	2/6/10	19:00	285.80
2/4/10	15:31	286.53	2/4/10	18:00	286.42	2/4/10	22:25	286.27	2/5/10	17:00	285.99	2/6/10	19:30	285.79

TABLE D6C.7-4. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-13, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/6/10	20:00	285.79	2/7/10	22:30	285.72	2/9/10	1:00	285.74						
2/6/10	20:30	285.79	2/7/10	23:00	285.72	2/9/10	1:30	285.74						
2/6/10	21:00	285.80	2/7/10	23:30	285.70	2/9/10	2:00	285.72						
2/6/10	21:30	285.79	2/8/10	0:00	285.70	2/9/10	2:30	285.72						
2/6/10	22:00	285.79	2/8/10	0:30	285.70	2/9/10	3:00	285.70						
2/6/10	22:30	285.79	2/8/10	1:00	285.72	2/9/10	3:30	285.70						
2/6/10	23:00	285.79	2/8/10	1:30	285.70	2/9/10	4:00	285.69						
2/6/10	23:30	285.79	2/8/10	2:00	285.72	2/9/10	4:30	285.69						
2/7/10	0:00	285.79	2/8/10	2:30	285.72	2/9/10	5:00	285.67						
2/7/10	0:30	285.79	2/8/10	3:00	285.72	2/9/10	5:30	285.67						
2/7/10	1:00	285.79	2/8/10	3:30	285.72	2/9/10	6:00	285.65						
2/7/10	1:30	285.77	2/8/10	4:00	285.75	2/9/10	6:30	285.65						
2/7/10	2:00	285.79	2/8/10	4:30	285.75	2/9/10	7:00	285.62						
2/7/10	2:30	285.77	2/8/10	5:00	285.77	2/9/10	7:30	285.62						
2/7/10	3:00	285.77	2/8/10	5:30	285.77	2/9/10	8:00	285.62						
2/7/10	3:30	285.77	2/8/10	6:00	285.79	2/9/10	8:30	285.62						
2/7/10	4:00	285.75	2/8/10	6:30	285.79	2/9/10	9:00	285.60						
2/7/10	4:30	285.77	2/8/10	7:00	285.82	2/9/10	9:30	285.60						
2/7/10	5:00	285.75	2/8/10	7:30	285.80	2/9/10	10:00	285.59						
2/7/10	5:30	285.75	2/8/10	8:00	285.84	2/9/10	10:30	285.57						
2/7/10	6:00	285.75	2/8/10	8:30	285.84									
2/7/10	6:30	285.75	2/8/10	9:00	285.84									
2/7/10	7:00	285.75	2/8/10	9:30	285.84									
2/7/10	7:30	285.75	2/8/10	10:00	285.85									
2/7/10	8:00	285.77	2/8/10	10:30	285.85									
2/7/10	8:30	285.75	2/8/10	11:00	285.84									
2/7/10	9:00	285.75	2/8/10	11:30	285.84									
2/7/10	9:30	285.75	2/8/10	12:00	285.82									
2/7/10	10:00	285.75	2/8/10	12:30	285.82									
2/7/10	10:30	285.74	2/8/10	13:00	285.77									
2/7/10	11:00	285.72	2/8/10	13:30	285.77									
2/7/10	11:30	285.74	2/8/10	14:00	285.72									
2/7/10	12:00	285.69	2/8/10	14:30	285.72									
2/7/10	12:30	285.69	2/8/10	15:00	285.72									
2/7/10	13:00	285.67	2/8/10	15:30	285.72									
2/7/10	13:30	285.67	2/8/10	16:00	285.74									
2/7/10	14:00	285.65	2/8/10	16:30	285.74									
2/7/10	14:30	285.65	2/8/10	17:00	285.77									
2/7/10	15:00	285.65	2/8/10	17:30	285.77									
2/7/10	15:30	285.65	2/8/10	18:00	285.79									
2/7/10	16:00	285.67	2/8/10	18:30	285.79									
2/7/10	16:30	285.67	2/8/10	19:00	285.77									
2/7/10	17:00	285.67	2/8/10	19:30	285.79									
2/7/10	17:30	285.67	2/8/10	20:00	285.80									
2/7/10	18:00	285.69	2/8/10	20:30	285.79									
2/7/10	18:30	285.67	2/8/10	21:00	285.79									
2/7/10	19:00	285.70	2/8/10	21:30	285.79									
2/7/10	19:30	285.70	2/8/10	22:00	285.79									
2/7/10	20:00	285.72	2/8/10	22:30	285.79									
2/7/10	20:30	285.72	2/8/10	23:00	285.77									
2/7/10	21:00	285.72	2/8/10	23:30	285.77									
2/7/10	21:30	285.72	2/9/10	0:00	285.77									
2/7/10	22:00	285.72	2/9/10	0:30	285.77									

TABLE D6C.7-5. AQUIFER-TEST DATA FOR OBSERVATION WELL URZHF-5.

DATE	TIME	TIME SINCE PUMPING STARTED (t, min)	TIME SINCE PUMPING STOPPED (t', min)	t/t'	WATER LEVEL (ft below MP)	DRAWDOWN (ft)	DISCHARGE (gpm)	WATER TEMP. (deg C)	CONDUCTIVITY (umhos/cm @ 25 deg C)	pH (units)
01/29/10	11:30:00	-4234	--	--	317.53	0.10	--	--	--	--
	11:30:00	SET TRANSDUCER								
02/01/10	10:35:00	31	--	--	317.43	0.00	--	--	--	--
02/02/10	8:51:00	1367	--	--	317.46	0.03	--	--	--	--
	13:55:00	1671	--	--	317.43	0.00	--	--	--	--
02/03/10	8:31:00	2787	--	--	317.70	0.27	--	--	--	--
	13:49:00	3105	--	--	317.47	0.04	--	--	--	--
02/04/10	9:10:00	4266	--	--	317.30	-0.13	--	--	--	--
	13:39:00	4535	31	146.29	317.31	-0.12	--	--	--	--
02/09/10	10:51:00	11567	7063	1.64	317.55	0.12	--	--	--	--

TABLE D6C.7-6. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-5.

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
1/29/10	12:01	317.58	1/30/10	14:31	317.51	1/31/10	17:01	317.33	2/1/10	19:31	317.51	2/2/10	22:01	317.46
1/29/10	12:31	317.59	1/30/10	15:01	317.51	1/31/10	17:31	317.33	2/1/10	20:01	317.53	2/2/10	22:31	317.46
1/29/10	13:01	317.56	1/30/10	15:31	317.51	1/31/10	18:01	317.36	2/1/10	20:31	317.53	2/2/10	23:01	317.48
1/29/10	13:31	317.56	1/30/10	16:01	317.50	1/31/10	18:31	317.36	2/1/10	21:01	317.53	2/2/10	23:31	317.48
1/29/10	14:01	317.53	1/30/10	16:31	317.50	1/31/10	19:01	317.36	2/1/10	21:31	317.53	2/3/10	0:01	317.48
1/29/10	14:31	317.53	1/30/10	17:01	317.53	1/31/10	19:31	317.36	2/1/10	22:01	317.55	2/3/10	0:31	317.48
1/29/10	15:01	317.53	1/30/10	17:31	317.53	1/31/10	20:01	317.38	2/1/10	22:31	317.55	2/3/10	1:01	317.50
1/29/10	15:31	317.53	1/30/10	18:01	317.55	1/31/10	20:31	317.38	2/1/10	23:01	317.56	2/3/10	1:31	317.51
1/29/10	16:01	317.55	1/30/10	18:31	317.55	1/31/10	21:01	317.38	2/1/10	23:31	317.56	2/3/10	2:01	317.50
1/29/10	16:31	317.55	1/30/10	19:01	317.55	1/31/10	21:31	317.40	2/2/10	0:01	317.56	2/3/10	2:31	317.51
1/29/10	17:01	317.56	1/30/10	19:31	317.55	1/31/10	22:01	317.40	2/2/10	0:31	317.58	2/3/10	3:01	317.51
1/29/10	17:31	317.56	1/30/10	20:01	317.56	1/31/10	22:31	317.40	2/2/10	1:01	317.58	2/3/10	3:31	317.51
1/29/10	18:01	317.58	1/30/10	20:31	317.58	1/31/10	23:01	317.40	2/2/10	1:31	317.58	2/3/10	4:01	317.51
1/29/10	18:31	317.58	1/30/10	21:01	317.58	1/31/10	23:31	317.40	2/2/10	2:01	317.56	2/3/10	4:31	317.50
1/29/10	19:01	317.59	1/30/10	21:31	317.58	2/1/10	0:01	317.40	2/2/10	2:31	317.56	2/3/10	5:01	317.51
1/29/10	19:31	317.59	1/30/10	22:01	317.58	2/1/10	0:31	317.40	2/2/10	3:01	317.56	2/3/10	5:31	317.51
1/29/10	20:01	317.63	1/30/10	22:31	317.56	2/1/10	1:01	317.40	2/2/10	3:31	317.56	2/3/10	6:01	317.51
1/29/10	20:31	317.63	1/30/10	23:01	317.58	2/1/10	1:31	317.40	2/2/10	4:01	317.55	2/3/10	6:31	317.51
1/29/10	21:01	317.63	1/30/10	23:31	317.58	2/1/10	2:01	317.38	2/2/10	4:31	317.56	2/3/10	7:01	317.53
1/29/10	21:31	317.63	1/31/10	0:01	317.58	2/1/10	2:31	317.38	2/2/10	5:01	317.53	2/3/10	7:31	317.53
1/29/10	22:01	317.63	1/31/10	0:31	317.58	2/1/10	3:01	317.40	2/2/10	5:31	317.53	2/3/10	8:01	317.51
1/29/10	22:31	317.64	1/31/10	1:01	317.55	2/1/10	3:31	317.38	2/2/10	6:01	317.53	2/3/10	8:31	317.51
1/29/10	23:01	317.64	1/31/10	1:31	317.56	2/1/10	4:01	317.36	2/2/10	6:31	317.53	2/3/10	9:01	317.55
1/29/10	23:31	317.64	1/31/10	2:01	317.55	2/1/10	4:31	317.36	2/2/10	7:01	317.53	2/3/10	9:31	317.55
1/30/10	0:01	317.64	1/31/10	2:31	317.53	2/1/10	5:01	317.38	2/2/10	7:31	317.51	2/3/10	10:01	317.55
1/30/10	0:31	317.64	1/31/10	3:01	317.51	2/1/10	5:31	317.36	2/2/10	8:01	317.51	2/3/10	10:31	317.55
1/30/10	1:01	317.63	1/31/10	3:31	317.53	2/1/10	6:01	317.38	2/2/10	8:31	317.51	2/3/10	11:01	317.53
1/30/10	1:31	317.63	1/31/10	4:01	317.51	2/1/10	6:31	317.36	2/2/10	9:01	317.51	2/3/10	11:31	317.55
1/30/10	2:01	317.63	1/31/10	4:31	317.50	2/1/10	7:01	317.40	2/2/10	9:31	317.53	2/3/10	12:01	317.51
1/30/10	2:31	317.63	1/31/10	5:01	317.50	2/1/10	7:31	317.40	2/2/10	10:01	317.50	2/3/10	12:31	317.51
1/30/10	3:01	317.59	1/31/10	5:31	317.50	2/1/10	8:01	317.40	2/2/10	10:31	317.50	2/3/10	13:01	317.46
1/30/10	3:31	317.59	1/31/10	6:01	317.48	2/1/10	8:31	317.41	2/2/10	11:01	317.50	2/3/10	13:31	317.48
1/30/10	4:01	317.59	1/31/10	6:31	317.48	2/1/10	9:01	317.41	2/2/10	11:31	317.51	2/3/10	14:01	317.40
1/30/10	4:31	317.59	1/31/10	7:01	317.48	2/1/10	9:31	317.43	2/2/10	12:01	317.46	2/3/10	14:31	317.40
1/30/10	5:01	317.58	1/31/10	7:31	317.48	2/1/10	10:01	317.43	2/2/10	12:31	317.48	2/3/10	15:01	317.41
1/30/10	5:31	317.59	1/31/10	8:01	317.48	2/1/10	10:31	317.43	2/2/10	13:01	317.45	2/3/10	15:31	317.40
1/30/10	6:01	317.59	1/31/10	8:31	317.48	2/1/10	11:01	317.43	2/2/10	13:31	317.45	2/3/10	16:01	317.40
1/30/10	6:31	317.58	1/31/10	9:01	317.46	2/1/10	11:31	317.43	2/2/10	14:01	317.41	2/3/10	16:31	317.40
1/30/10	7:01	317.59	1/31/10	9:31	317.46	2/1/10	12:01	317.45	2/2/10	14:31	317.40	2/3/10	17:01	317.40
1/30/10	7:31	317.59	1/31/10	10:01	317.46	2/1/10	12:31	317.45	2/2/10	15:01	317.40	2/3/10	17:31	317.40
1/30/10	8:01	317.61	1/31/10	10:31	317.46	2/1/10	13:01	317.43	2/2/10	15:31	317.38	2/3/10	18:01	317.41
1/30/10	8:31	317.61	1/31/10	11:01	317.45	2/1/10	13:31	317.43	2/2/10	16:01	317.40	2/3/10	18:31	317.41
1/30/10	9:01	317.59	1/31/10	11:31	317.45	2/1/10	14:01	317.45	2/2/10	16:31	317.40	2/3/10	19:01	317.43
1/30/10	9:31	317.59	1/31/10	12:01	317.43	2/1/10	14:31	317.45	2/2/10	17:01	317.41	2/3/10	19:31	317.41
1/30/10	10:01	317.59	1/31/10	12:31	317.41	2/1/10	15:01	317.46	2/2/10	17:31	317.40	2/3/10	20:01	317.41
1/30/10	10:31	317.59	1/31/10	13:01	317.40	2/1/10	15:31	317.46	2/2/10	18:01	317.41	2/3/10	20:31	317.41
1/30/10	11:01	317.58	1/31/10	13:31	317.40	2/1/10	16:01	317.45	2/2/10	18:31	317.41	2/3/10	21:01	317.40
1/30/10	11:31	317.58	1/31/10	14:01	317.35	2/1/10	16:31	317.45	2/2/10	19:01	317.43	2/3/10	21:31	317.40
1/30/10	12:01	317.56	1/31/10	14:31	317.35	2/1/10	17:01	317.46	2/2/10	19:31	317.43	2/3/10	22:01	317.38
1/30/10	12:31	317.56	1/31/10	15:01	317.31	2/1/10	17:31	317.48	2/2/10	20:01	317.45	2/3/10	22:31	317.40
1/30/10	13:01	317.53	1/31/10	15:31	317.31	2/1/10	18:01	317.50	2/2/10	20:31	317.45	2/3/10	23:01	317.37
1/30/10	13:31	317.53	1/31/10	16:01	317.32	2/1/10	18:31	317.50	2/2/10	21:01	317.45	2/3/10	23:31	317.37
1/30/10	14:01	317.53	1/31/10	16:31	317.32	2/1/10	19:01	317.50	2/2/10	21:31	317.45	2/4/10	0:01	317.35

TABLE D6C.7-6. TRANSDUCER DATA FOR OBSERVATION WELL URZHF-5, (CONTINUED).

DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)	DATE	TIME	DTW (ft; TOC)
2/4/10	0:31	317.35	2/5/10	3:01	317.48	2/6/10	5:31	317.53	2/7/10	8:01	317.56	2/8/10	10:31	317.76
2/4/10	1:01	317.33	2/5/10	3:31	317.48	2/6/10	6:01	317.53	2/7/10	8:31	317.58	2/8/10	11:01	317.74
2/4/10	1:31	317.33	2/5/10	4:01	317.48	2/6/10	6:31	317.51	2/7/10	9:01	317.58	2/8/10	11:31	317.74
2/4/10	2:01	317.35	2/5/10	4:31	317.48	2/6/10	7:01	317.55	2/7/10	9:31	317.58	2/8/10	12:01	317.74
2/4/10	2:31	317.35	2/5/10	5:01	317.50	2/6/10	7:31	317.53	2/7/10	10:01	317.58	2/8/10	12:31	317.74
2/4/10	3:01	317.35	2/5/10	5:31	317.48	2/6/10	8:01	317.55	2/7/10	10:31	317.58	2/8/10	13:01	317.71
2/4/10	3:31	317.35	2/5/10	6:01	317.51	2/6/10	8:31	317.55	2/7/10	11:01	317.56	2/8/10	13:31	317.71
2/4/10	4:01	317.33	2/5/10	6:31	317.51	2/6/10	9:01	317.55	2/7/10	11:31	317.58	2/8/10	14:01	317.68
2/4/10	4:31	317.33	2/5/10	7:01	317.51	2/6/10	9:31	317.53	2/7/10	12:01	317.55	2/8/10	14:31	317.68
2/4/10	5:01	317.33	2/5/10	7:31	317.51	2/6/10	10:01	317.53	2/7/10	12:31	317.56	2/8/10	15:01	317.66
2/4/10	5:31	317.33	2/5/10	8:01	317.51	2/6/10	10:31	317.53	2/7/10	13:01	317.55	2/8/10	15:31	317.66
2/4/10	6:01	317.32	2/5/10	8:31	317.51	2/6/10	11:01	317.53	2/7/10	13:31	317.55	2/8/10	16:01	317.68
2/4/10	6:31	317.30	2/5/10	9:01	317.55	2/6/10	11:31	317.53	2/7/10	14:01	317.53	2/8/10	16:31	317.68
2/4/10	7:01	317.30	2/5/10	9:31	317.53	2/6/10	12:01	317.51	2/7/10	14:31	317.51	2/8/10	17:01	317.71
2/4/10	7:31	317.30	2/5/10	10:01	317.55	2/6/10	12:31	317.53	2/7/10	15:01	317.51	2/8/10	17:31	317.71
2/4/10	8:01	317.31	2/5/10	10:31	317.55	2/6/10	13:01	317.50	2/7/10	15:31	317.51	2/8/10	18:01	317.73
2/4/10	8:31	317.31	2/5/10	11:01	317.53	2/6/10	13:31	317.48	2/7/10	16:01	317.53	2/8/10	18:31	317.73
2/4/10	9:01	317.30	2/5/10	11:31	317.55	2/6/10	14:01	317.46	2/7/10	16:31	317.51	2/8/10	19:01	317.73
2/4/10	9:31	317.30	2/5/10	12:01	317.53	2/6/10	14:31	317.45	2/7/10	17:01	317.53	2/8/10	19:31	317.74
2/4/10	10:01	317.23	2/5/10	12:31	317.53	2/6/10	15:01	317.46	2/7/10	17:31	317.53	2/8/10	20:01	317.76
2/4/10	10:31	317.23	2/5/10	13:01	317.51	2/6/10	15:31	317.45	2/7/10	18:01	317.55	2/8/10	20:31	317.76
2/4/10	11:01	317.28	2/5/10	13:31	317.53	2/6/10	16:01	317.46	2/7/10	18:31	317.55	2/8/10	21:01	317.76
2/4/10	11:31	317.30	2/5/10	14:01	317.48	2/6/10	16:31	317.48	2/7/10	19:01	317.56	2/8/10	21:31	317.74
2/4/10	12:01	317.30	2/5/10	14:31	317.46	2/6/10	17:01	317.50	2/7/10	19:31	317.56	2/8/10	22:01	317.76
2/4/10	12:31	317.32	2/5/10	15:01	317.48	2/6/10	17:31	317.50	2/7/10	20:01	317.59	2/8/10	22:31	317.74
2/4/10	13:01	317.32	2/5/10	15:31	317.48	2/6/10	18:01	317.50	2/7/10	20:31	317.58	2/8/10	23:01	317.73
2/4/10	13:31	317.30	2/5/10	16:01	317.50	2/6/10	18:31	317.50	2/7/10	21:01	317.59	2/8/10	23:31	317.73
2/4/10	14:01	317.32	2/5/10	16:31	317.50	2/6/10	19:01	317.53	2/7/10	21:31	317.59	2/9/10	0:01	317.74
2/4/10	14:31	317.32	2/5/10	17:01	317.51	2/6/10	19:31	317.53	2/7/10	22:01	317.59	2/9/10	0:31	317.74
2/4/10	15:01	317.33	2/5/10	17:31	317.51	2/6/10	20:01	317.55	2/7/10	22:31	317.59	2/9/10	1:01	317.71
2/4/10	15:31	317.31	2/5/10	18:01	317.51	2/6/10	20:31	317.53	2/7/10	23:01	317.59	2/9/10	1:31	317.71
2/4/10	16:01	317.35	2/5/10	18:31	317.51	2/6/10	21:01	317.55	2/7/10	23:31	317.59	2/9/10	2:01	317.71
2/4/10	16:31	317.35	2/5/10	19:01	317.51	2/6/10	21:31	317.55	2/8/10	0:01	317.59	2/9/10	2:31	317.71
2/4/10	17:01	317.35	2/5/10	19:31	317.51	2/6/10	22:01	317.55	2/8/10	0:31	317.59	2/9/10	3:01	317.69
2/4/10	17:31	317.35	2/5/10	20:01	317.53	2/6/10	22:31	317.56	2/8/10	1:01	317.61	2/9/10	3:31	317.69
2/4/10	18:01	317.38	2/5/10	20:31	317.51	2/6/10	23:01	317.56	2/8/10	1:31	317.60	2/9/10	4:01	317.68
2/4/10	18:31	317.36	2/5/10	21:01	317.55	2/6/10	23:31	317.55	2/8/10	2:01	317.61	2/9/10	4:31	317.68
2/4/10	19:01	317.38	2/5/10	21:31	317.55	2/7/10	0:01	317.55	2/8/10	2:31	317.61	2/9/10	5:01	317.66
2/4/10	19:31	317.38	2/5/10	22:01	317.55	2/7/10	0:31	317.56	2/8/10	3:01	317.59	2/9/10	5:31	317.66
2/4/10	20:01	317.40	2/5/10	22:31	317.55	2/7/10	1:01	317.56	2/8/10	3:31	317.59	2/9/10	6:01	317.64
2/4/10	20:31	317.40	2/5/10	23:01	317.53	2/7/10	1:31	317.56	2/8/10	4:01	317.63	2/9/10	6:31	317.66
2/4/10	21:01	317.40	2/5/10	23:31	317.53	2/7/10	2:01	317.56	2/8/10	4:31	317.63	2/9/10	7:01	317.63
2/4/10	21:31	317.40	2/6/10	0:01	317.53	2/7/10	2:31	317.56	2/8/10	5:01	317.64	2/9/10	7:31	317.63
2/4/10	22:01	317.41	2/6/10	0:31	317.53	2/7/10	3:01	317.56	2/8/10	5:31	317.64	2/9/10	8:01	317.61
2/4/10	22:31	317.41	2/6/10	1:01	317.53	2/7/10	3:31	317.56	2/8/10	6:01	317.66	2/9/10	8:31	317.61
2/4/10	23:01	317.43	2/6/10	1:31	317.53	2/7/10	4:01	317.56	2/8/10	6:31	317.66	2/9/10	9:01	317.61
2/4/10	23:31	317.45	2/6/10	2:01	317.53	2/7/10	4:31	317.56	2/8/10	7:01	317.69	2/9/10	9:31	317.61
2/5/10	0:01	317.45	2/6/10	2:31	317.53	2/7/10	5:01	317.56	2/8/10	7:31	317.69	2/9/10	10:01	317.60
2/5/10	0:31	317.45	2/6/10	3:01	317.51	2/7/10	5:31	317.56	2/8/10	8:01	317.73	2/9/10	10:31	317.58
2/5/10	1:01	317.46	2/6/10	3:31	317.51	2/7/10	6:01	317.56	2/8/10	8:31	317.73			
2/5/10	1:31	317.46	2/6/10	4:01	317.51	2/7/10	6:31	317.56	2/8/10	9:01	317.73			
2/5/10	2:01	317.46	2/6/10	4:31	317.51	2/7/10	7:01	317.56	2/8/10	9:31	317.73			
2/5/10	2:31	317.46	2/6/10	5:01	317.51	2/7/10	7:31	317.56	2/8/10	10:01	317.74			

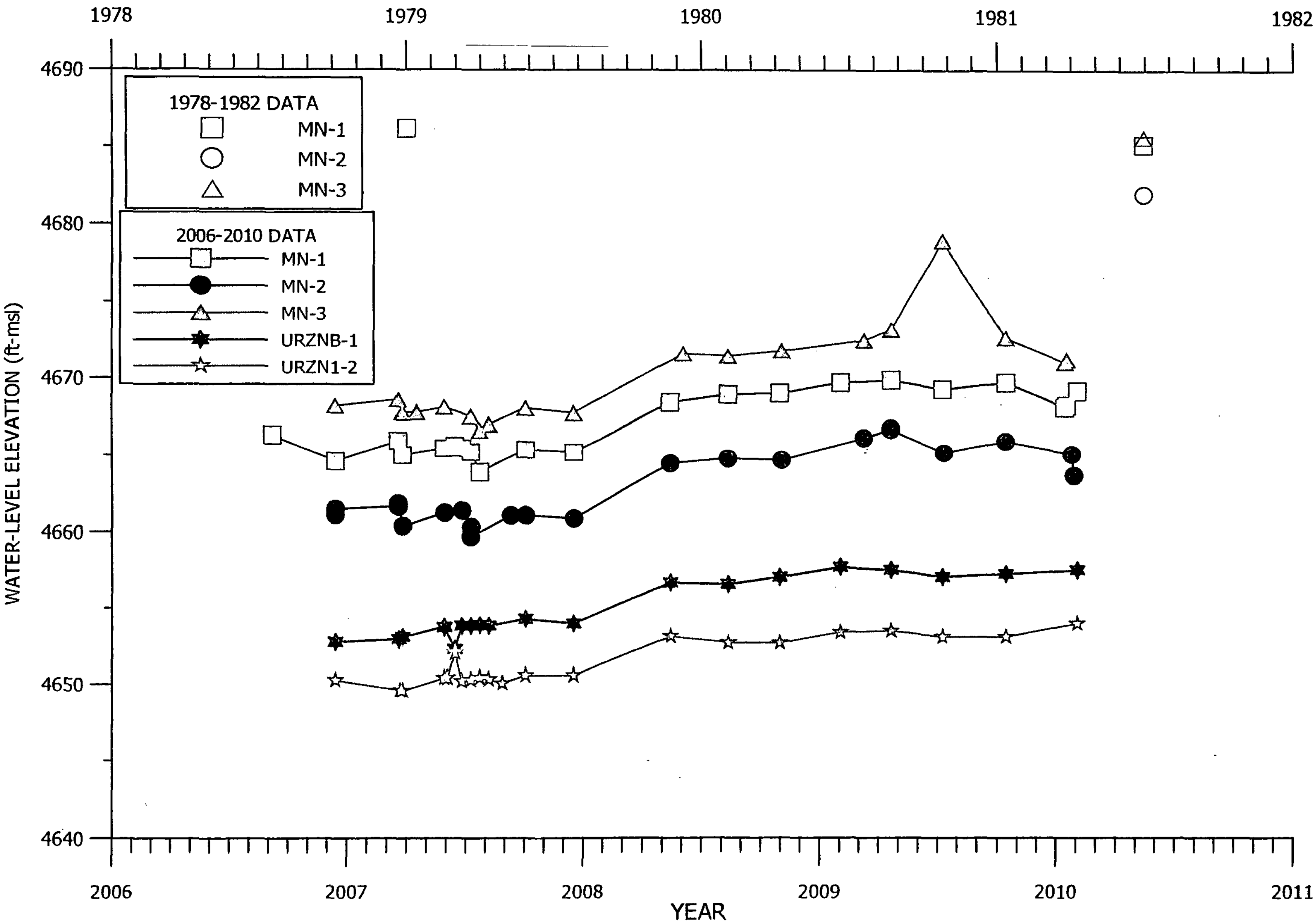

FIGURE D6D.1-1. WATER-LEVEL ELEVATION VERSUS TIME FOR WELLS MN-1, MN-2, MN-3, URZNB-1 AND URZN1-2

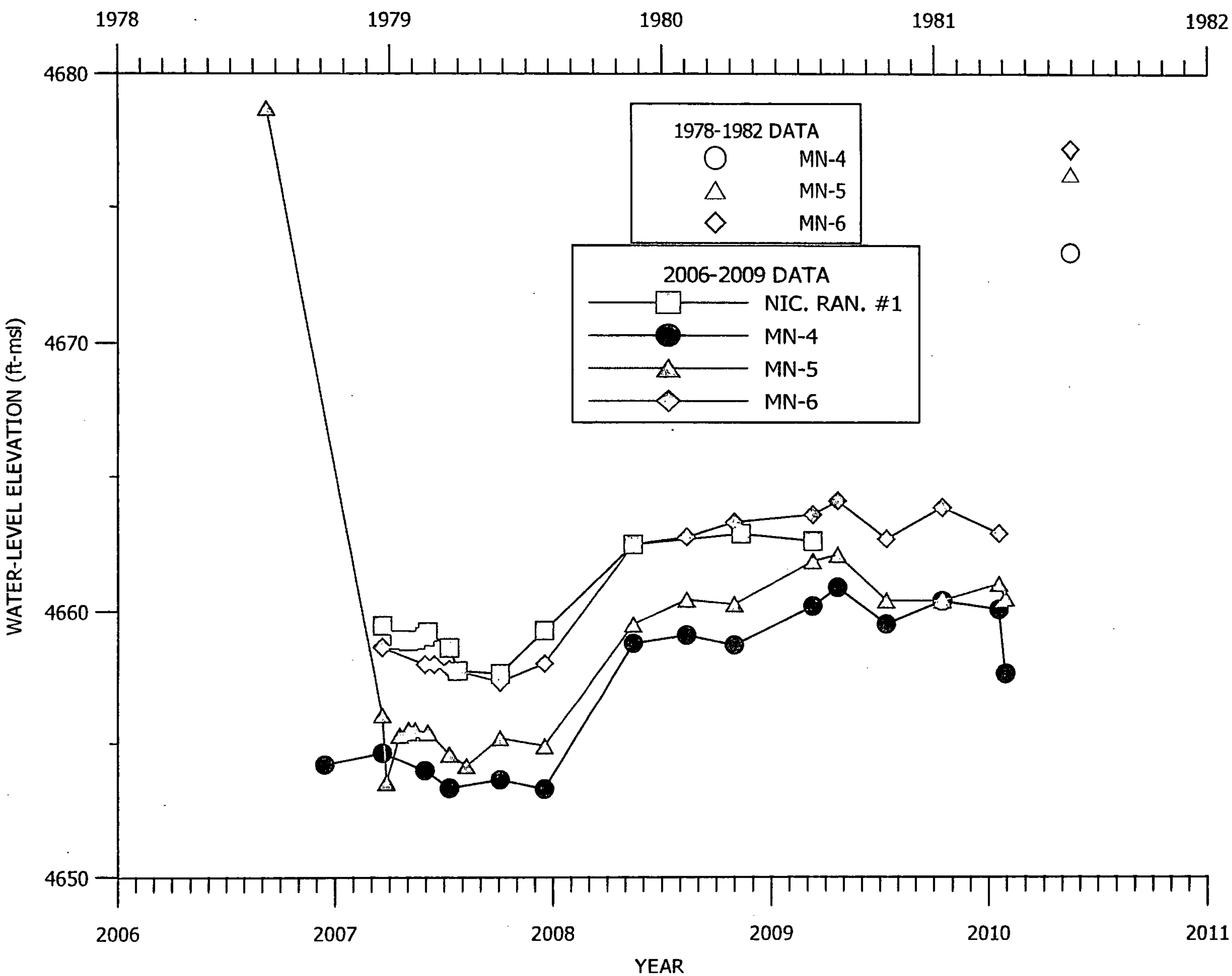

FIGURE D6D.1-2. WATER-LEVEL ELEVATION VERSUS TIME FOR WELLS NIC. RAN. #1, MN-4, MN-5 and MN-6

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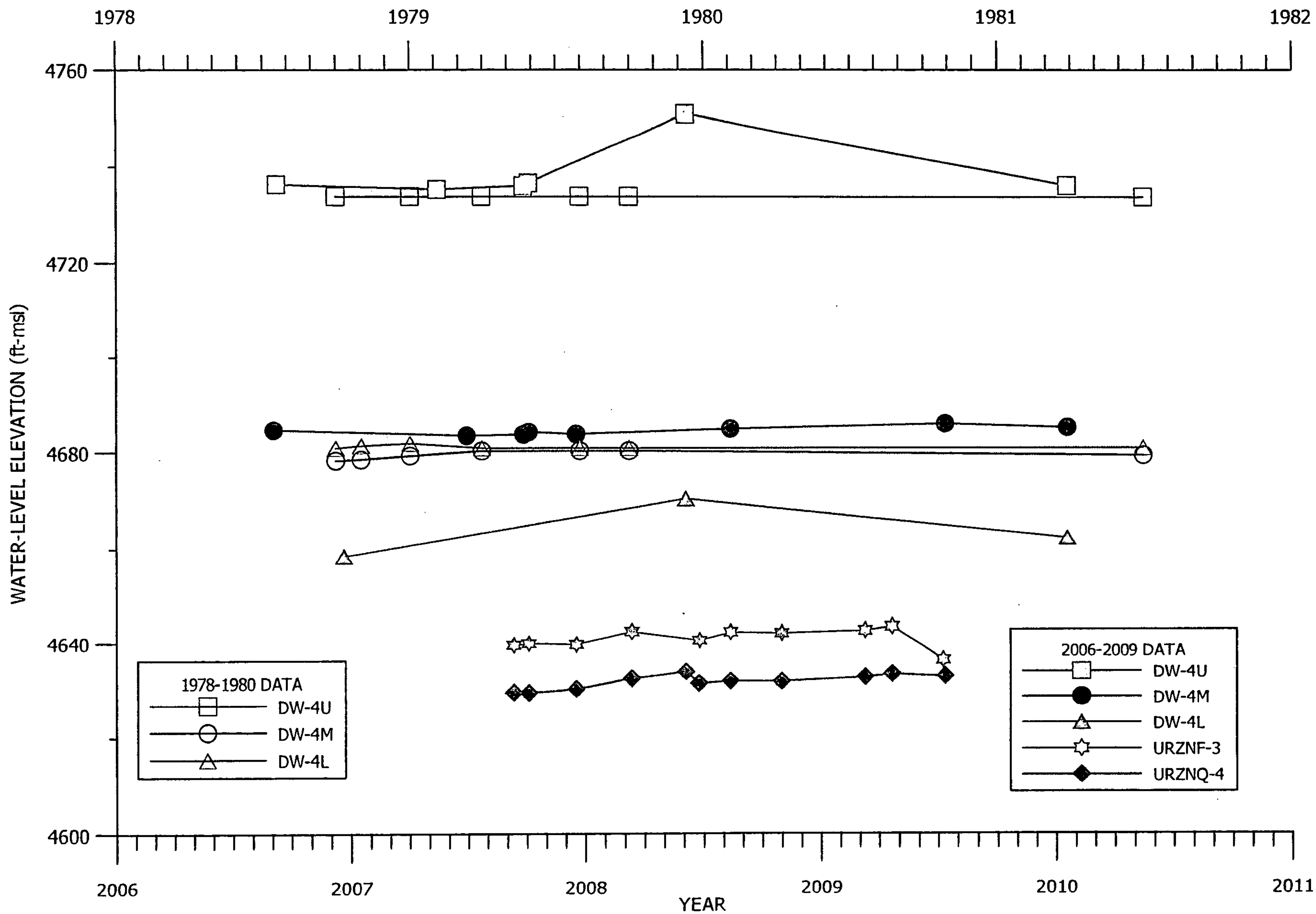

FIGURE D6D.1-3. WATER-LEVEL ELEVATION VERSUS TIME FOR WELLS DW-4U, DW-4M, DW-4, URZNF-3 and URZNQ-4.

TABLE D6D.1-1 WATER-LEVEL DATA FOR NICHOLS RANCH UNIT WELLS

WATER-LEVEL ELEVATION (FT-MSL)

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
DW-4L		
10/1/1978	289.00	4680.73
11/1/1978	288.50	4681.23
1/1/1979	288.00	4681.73
4/1/1979	289.00	4680.73
8/1/1979	289.00	4680.73
10/1/1979	289.00	4680.73
7/1/1981	@ 289.00	4680.73
12/20/2006	311.48	4658.25
6/4/2008	299.44	4670.29
1/18/2010	307.67	4662.06
DW-4M		
10/1/1978	292.00	4678.17
11/1/1978	291.80	4678.37
1/1/1979	291.00	4679.17
4/1/1979	290.00	4680.17
8/1/1979	290.00	4680.17
10/1/1979	290.00	4680.17
7/1/1981	@ 291.00	4679.17
9/2/2006	285.69	4684.48
6/29/2007	286.86	4683.31
9/26/2007	286.60	4683.57
10/4/2007	286.14	4684.03
12/17/2007	286.53	4683.64
8/12/2008	285.47	4684.70
7/13/2009	284.42	4685.75
1/18/2010	285.20	4684.97
DW-4U		
10/1/1978	233.00	4733.75
1/1/1979	233.00	4733.75
4/1/1979	233.00	4733.75
8/1/1979	233.00	4733.75
10/1/1979	233.00	4733.75
7/1/1981	@ 233.00	4733.75
9/7/2006	230.55	4736.20
5/14/2007	231.53	4735.22
9/26/2007	230.80	4735.95
10/4/2007	230.24	4736.51
6/4/2008	215.87	4750.88
1/18/2010	230.60	4736.15
MN-1		
1/1/1979	29.00	4686.14
7/1/1981	@ 30.00	4685.14
9/7/2006	48.87	4666.27
12/14/2006	50.62	4664.52
3/20/2007	49.24	4665.90
3/27/2007	50.20	4664.94
5/30/2007	49.73	4665.41
6/15/2007	49.55	4665.59
6/26/2007	49.71	4665.43
7/10/2007	49.99	4665.15
7/24/2007	51.33	4663.81
10/4/2007	49.83	4665.31
12/17/2007	50.00	4665.14
5/15/2008	46.78	4668.36
5/15/2008	46.78	4668.36
8/12/2008	46.25	4668.89
10/31/2008	46.17	4668.97
2/2/2009	45.47	4669.67
4/22/2009	45.30	4669.84
7/10/2009	45.90	4669.24
10/15/2009	45.46	4669.68
1/15/2010	47.06	4668.08
1/18/2010	46.95	4668.19
2/3/2010	46.03	4669.11
MN-2		
7/1/1981	@ 158.00	4682.00
12/14/2006	178.97	4661.03
12/14/2006	178.58	4661.42
3/20/2007	178.42	4661.58
3/20/2007	178.23	4661.77
3/27/2007	179.71	4660.29
5/30/2007	178.84	4661.16
6/26/2007	178.68	4661.32
7/10/2007	179.78	4660.22
7/10/2007	180.41	4659.59
9/10/2007	179.02	4660.98
10/4/2007	179.00	4661.00
12/17/2007	179.21	4660.79
5/15/2008	175.62	4664.38
8/12/2008	175.28	4664.72
11/3/2008	175.38	4664.62
3/11/2009	173.87	4666.13
4/22/2009	173.30	4666.70
7/13/2009	174.89	4665.11
10/15/2009	174.09	4665.91
1/26/2010	174.98	4665.02
1/29/2010	176.40	4663.60
MN-3		
7/1/1981	@ 79.00	4685.64
12/14/2006	96.51	4668.13
3/20/2007	96.10	4668.54
3/27/2007	96.94	4667.70
4/18/2007	96.91	4667.73
5/30/2007	96.59	4668.05
7/10/2007	97.18	4667.46
7/24/2007	98.06	4666.58
8/7/2007	97.67	4666.97
10/4/2007	96.65	4667.99
12/17/2007	96.96	4667.68
6/4/2008	93.10	4671.54
8/12/2008	93.24	4671.40
11/3/2008	92.90	4671.74
3/11/2009	92.20	4672.44
4/22/2009	91.50	4673.14
7/10/2009	85.70	4678.94
10/15/2009	92.04	4672.60
1/15/2010	93.65	4670.99
1/18/2010	93.46	4671.18
MN-4		
7/1/1981	@ 127.00	4673.36
12/14/2006	146.18	4654.18
3/20/2007	145.74	4654.62
5/30/2007	146.40	4653.96
7/10/2007	147.06	4653.30
10/4/2007	146.75	4653.61
12/17/2007	147.10	4653.26
5/15/2008	141.60	4658.76
8/12/2008	141.29	4659.07
10/31/2008	141.66	4658.70
3/11/2009	140.20	4660.16
4/22/2009	139.50	4660.86
7/13/2009	140.87	4659.49
10/15/2009	140.00	4660.36
1/18/2010	140.32	4660.04
1/29/2010	142.73	4657.63
MN-5		
7/1/1981	@ 207.00	4676.28
9/7/2006	204.61	4678.67
3/20/2007	227.22	4656.06
3/27/2007	229.77	4653.51
4/18/2007	227.99	4655.29
5/2/2007	227.90	4655.38
5/3/2007	227.77	4655.51
5/14/2007	227.79	4655.49
6/4/2007	227.90	4655.38
6/4/2007	227.86	4655.42
7/10/2007	228.71	4654.57
8/7/2007	229.15	4654.13
10/4/2007	228.10	4655.18
12/17/2007	228.40	4654.88
5/15/2008	223.80	4659.48
8/12/2008	222.87	4660.41
10/31/2008	223.04	4660.24
3/11/2009	221.44	4661.84
4/22/2009	221.20	4662.08
7/13/2009	222.90	4660.38
10/15/2009	222.90	4660.38
1/18/2010	222.28	4661.00
1/29/2010	222.83	4660.45
MN-6		
7/1/1981	@ 84.00	4677.18
3/20/2007	102.53	4658.65
3/20/2007	102.56	4658.62
5/30/2007	103.20	4657.98
6/15/2007	103.20	4657.98
7/10/2007	103.37	4657.81
10/4/2007	103.85	4657.33
12/17/2007	103.17	4658.01
5/15/2008	98.70	4662.48
8/12/2008	98.43	4662.75
10/31/2008	97.88	4663.30
3/11/2009	97.61	4663.57
4/22/2009	97.10	4664.08
7/13/2009	98.50	4662.68
10/15/2009	97.34	4663.84
1/18/2010	98.30	4662.88

\# Abandoned well

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- MN-6

TABLE D6D.1-1 WATER-LEVEL DATA FOR NICHOLS RANCH UNIT WELLS (cont'd)

WATER-LEVEL ELEVATION (FT-MSL)

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
NR#1		
6/1/1988	@ 85.00	4673.88
3/20/2007	99.44	4659.44
4/18/2007	99.96	4658.92
5/2/2007	100.02	4658.86
5/14/2007	99.98	4658.90
5/30/2007	99.85	4659.03
6/4/2007	99.67	4659.21
7/10/2007	100.26	4658.62
7/24/2007	101.14	4657.74
10/4/2007	101.25	4657.63
12/17/2007	99.63	4659.25
5/15/2008	96.41	4662.47
11/11/2008	96.01	4662.87
3/11/2009	96.28	4662.60
4/22/2009	94.70	4664.18
7/13/2009	95.25	4663.63
8/17/2009	97.15	4661.73
10/15/2009	94.80	4664.08
1/18/2010	94.75	4664.13
URZN1-2		
12/14/2006	64.10	4650.21
3/23/2007	64.79	4649.52
3/27/2007	64.80	4649.51
5/30/2007	63.96	4650.35
6/4/2007	63.95	4650.36
6/15/2007	62.35	4651.96
6/26/2007	64.17	4650.14
7/10/2007	64.08	4650.23
7/24/2007	63.94	4650.37
8/7/2007	64.04	4650.27
8/28/2007	64.31	4650.00
10/4/2007	63.78	4650.53
12/17/2007	63.79	4650.52
5/15/2008	61.28	4653.03
8/12/2008	61.68	4652.63
10/31/2008	61.70	4652.61
2/2/2009	61.00	4653.31
4/22/2009	60.90	4653.41
7/10/2009	61.30	4653.01
10/15/2009	61.29	4653.02
2/3/2010	60.40	4653.91
URZN1-11		
12/22/2009	205.90	4647.94
1/26/2010	198.30	4655.54
1/29/2010	198.02	4655.82
4/13/2010	188.62	4665.22
URZNA-7		
1/15/2010	42.68	4668.32
1/18/2010	42.67	4668.33
URZNA-8		
12/22/2009	192.85	4769.27
1/26/2010	194.05	4768.07
2/1/2010	194.11	4768.01
4/13/2010	195.16	4766.96
URZNA-9		
12/22/2009	185.10	4667.44
1/18/2010	185.10	4667.44
2/1/2010	188.31	4664.23
4/13/2010	186.57	4665.97
URZNB-1		
12/14/2006	63.67	4652.69
3/21/2007	63.50	4652.86
3/27/2007	63.35	4653.01
5/30/2007	62.67	4653.69
5/30/2007	62.72	4653.64
6/15/2007	64.13	4652.23
6/26/2007	62.60	4653.76
7/10/2007	62.61	4653.75
7/24/2007	62.55	4653.81
8/7/2007	62.60	4653.76
10/4/2007	62.14	4654.22
12/17/2007	62.45	4653.91
5/15/2008	59.74	4656.62
8/12/2008	59.83	4656.53
10/31/2008	59.37	4656.99
2/2/2009	58.70	4657.66
4/22/2009	58.90	4657.46
7/10/2009	59.35	4657.01
10/15/2009	59.14	4657.22
2/3/2010	58.90	4657.46
URZNB-10		
12/22/2009	193.00	4662.98
1/26/2010	194.50	4661.48
1/29/2010	194.35	4661.63
4/13/2010	193.63	4662.35
URZNF-3		
9/10/2007	89.57	4639.30
10/4/2007	89.20	4639.67
12/17/2007	89.42	4639.45
3/12/2008	86.60	4642.27
6/25/2008	88.55	4640.32
8/12/2008	86.68	4642.19
10/31/2008	86.91	4641.96
3/11/2009	86.35	4642.52
4/22/2009	85.50	4643.37
7/10/2009	92.74	4636.13
10/15/2009	86.07	4642.80
1/26/2010	85.50	4643.37
URZNG-5		
10/15/2000	53.34	4737.28
7/23/2009	47.97	4742.65
7/23/2009	47.97	4742.65
8/17/2009	49.78	4740.84
URZNG-6		
7/23/2009	73.13	4712.02
8/17/2009	75.41	4709.74
1/18/2010	73.30	4711.85
URZNQ-4		
9/10/2007	9.20	4629.24
10/4/2007	9.33	4629.11
12/17/2007	8.52	4629.92
3/12/2008	6.28	4632.16
6/4/2008	4.86	4633.58
6/24/2008	7.31	4631.13
8/12/2008	6.85	4631.59
10/31/2008	6.90	4631.54
3/11/2009	5.98	4632.46
4/22/2009	5.30	4633.14
7/13/2009	5.79	4632.65
10/15/2009	6.09	4632.35
2/3/2010	5.40	4633.04
W. OF WW1		
2/1/1975	@ 310.00	4770.00
9/26/2007	372.30	4707.70
6/4/2008	358.18	4721.82
8/12/2008	356.26	4723.74
11/3/2008	357.21	4722.79
3/11/2009	356.01	4723.99
4/22/2009	358.16	4721.84

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- W. OF WW1

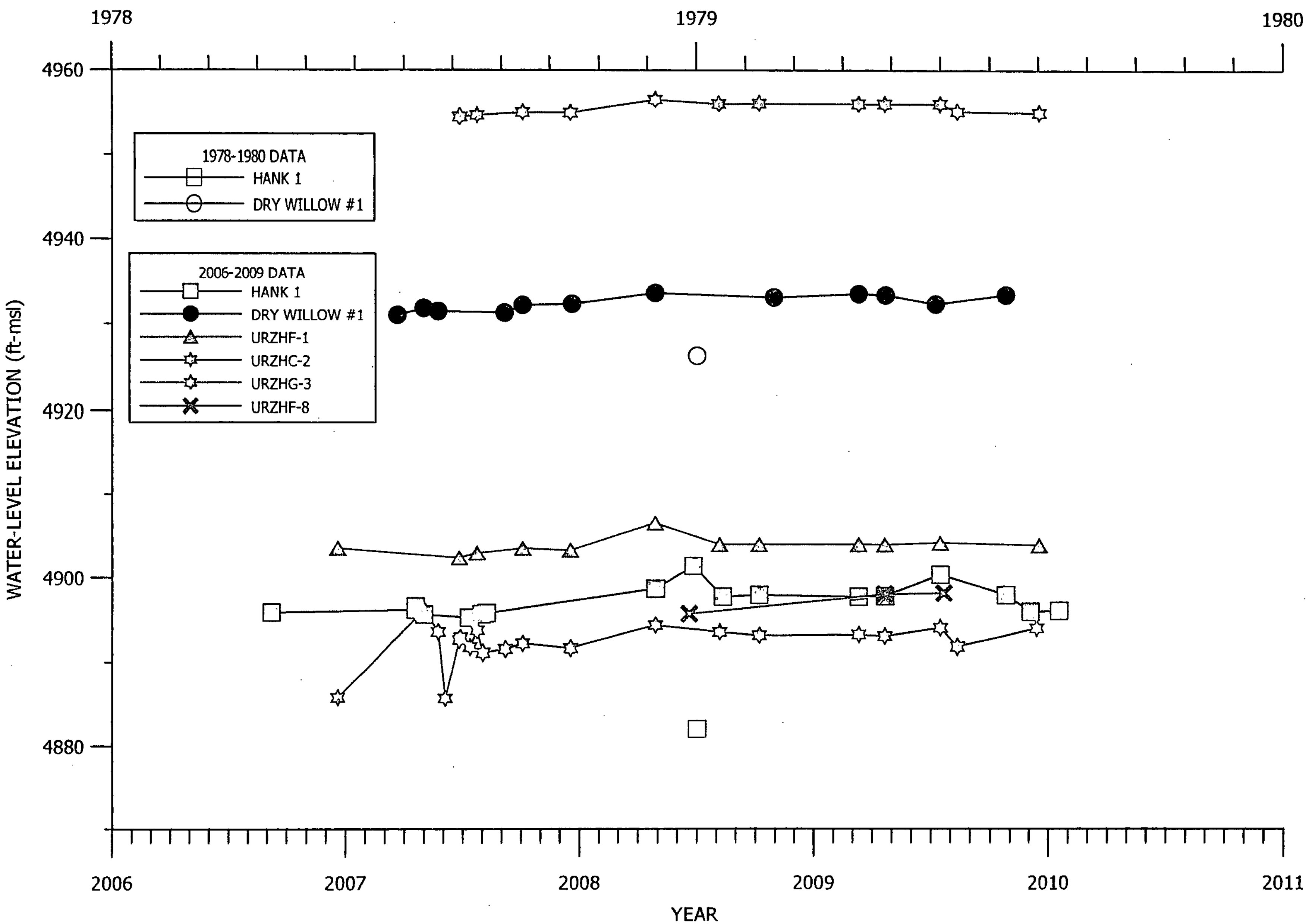

FIGURE D6D.2-1. WATER-LEVEL ELEVATION VERSUS TIME FOR WELLS HANK 1, DRY WILLOW #1, URZHF-1, URZHC-2, URZHG-3 and URZHF-8

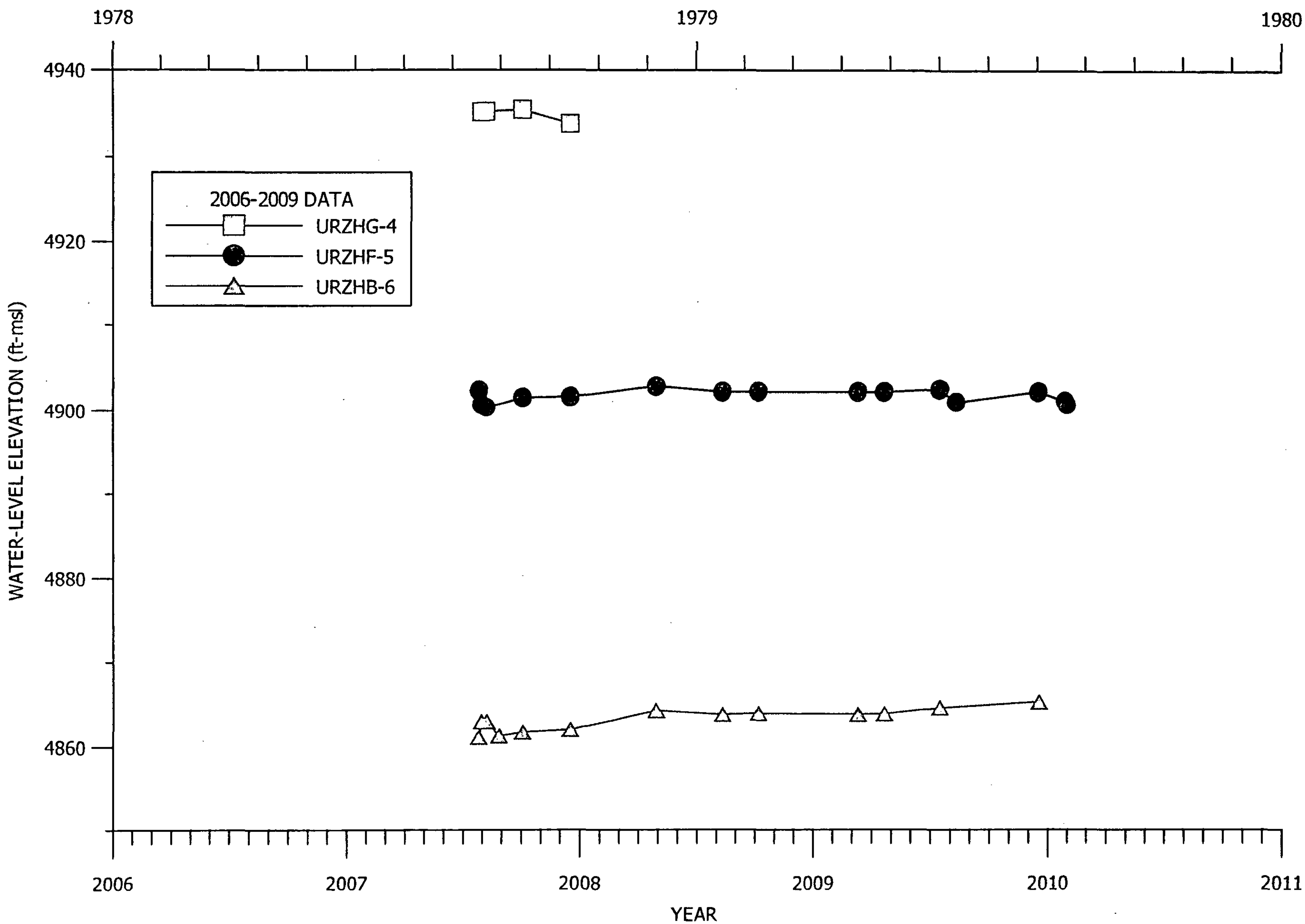

FIGURE D6D.2-2. WATER-LEVEL ELEVATION VERSUS TIME FOR WELLS URZHG-4, URZHF-5, URZHB-6

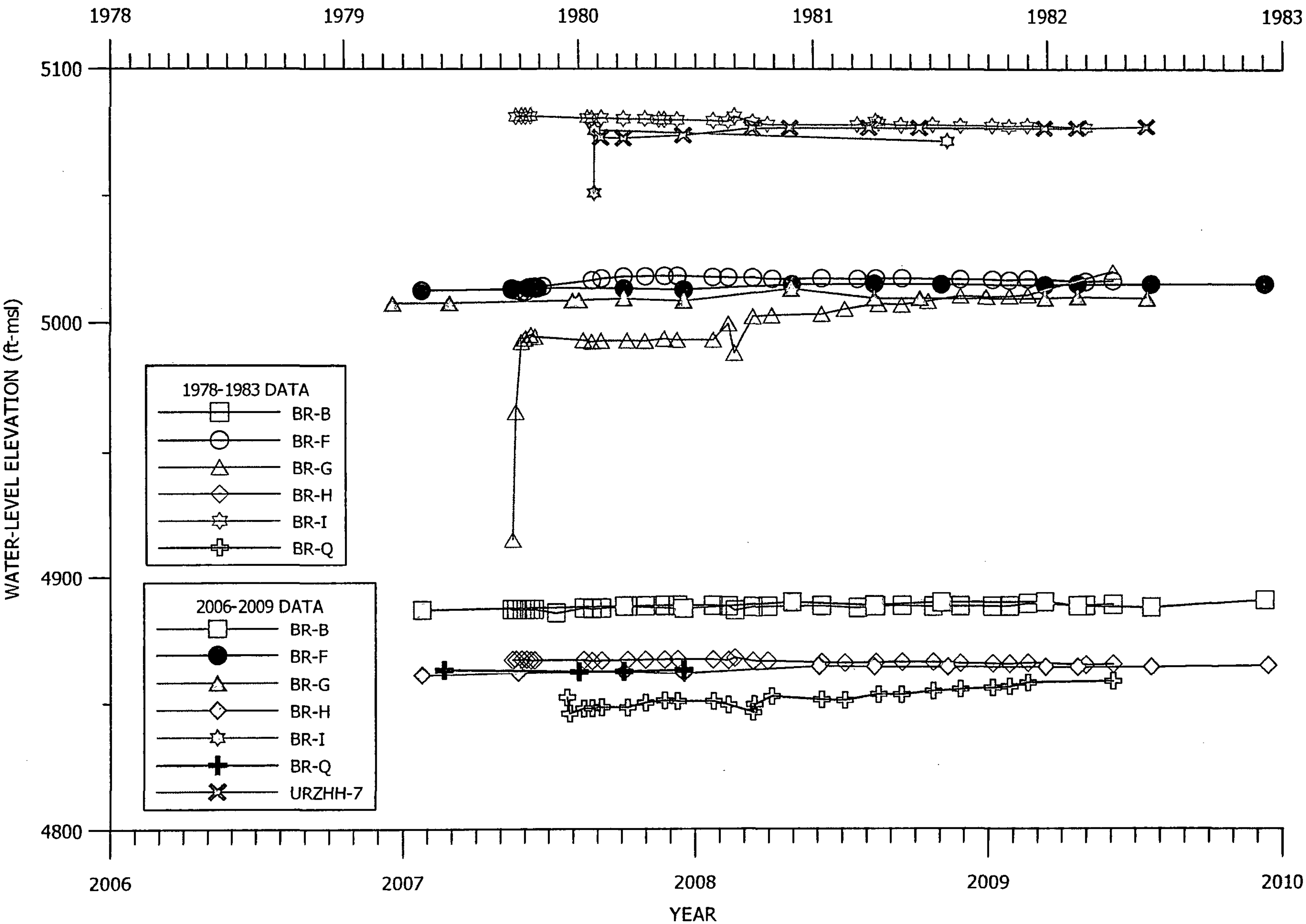

FIGURE D6D.2-3. WATER-LEVEL ELEVATION VERSUS TIME FOR WELLS BR-B, BR-F, BR-G, BR-H, BR-I, BR-Q and URZHH-7

TABLE D6D.2-1 WATER-LEVEL DATA FOR HANK UNIT WELLS

WATER-LEVEL ELEVATION (FT-MSL)

BR-B

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
9/18/1979	142.74	4886.96
9/25/1979	142.80	4886.90
10/4/1979	142.74	4886.96
10/10/1979	142.76	4886.94
10/18/1979	142.78	4886.92
10/24/1979	142.74	4886.96
11/27/1979	144.10	4885.60
1/9/1980	142.20	4887.50
1/22/1980	142.55	4887.15
2/6/1980	142.29	4887.41
3/18/1980	141.58	4888.12
4/15/1980	141.45	4888.25
5/15/1980	141.30	4888.40
6/4/1980	141.15	4888.55
7/29/1980	141.22	4888.48
8/22/1980	141.45	4888.25
9/1/1980	@ 143.00	4886.70
9/29/1980	141.70	4888.00
10/22/1980	141.53	4888.17
1/14/1981	141.20	4888.50
3/11/1981	142.04	4887.66
4/9/1981	141.33	4888.37
5/20/1981	141.15	4888.55
7/7/1981	141.56	4888.14
8/19/1981	141.33	4888.37
10/8/1981	141.47	4888.23
11/3/1981	141.31	4888.39
12/1/1981	140.40	4889.30
3/2/1982	141.27	4888.43
4/13/1982	140.85	4888.85
1/24/2007	142.95	4886.75
10/4/2007	141.61	4888.09
12/17/2007	142.42	4887.28
4/30/2008	139.79	4889.91
8/11/2008	141.10	4888.60
11/3/2008	139.84	4889.86
3/12/2009	139.82	4889.88
4/22/2009	141.41	4888.29
7/22/2009	142.01	4887.69
12/10/2009	139.04	4890.66

BR-F

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
9/18/1979	69.29	5012.96
9/25/1979	69.82	5012.43
10/4/1979	70.52	5011.73
10/10/1979	70.32	5011.93
10/18/1979	68.69	5013.56
10/24/1979	68.67	5013.58
11/6/1979	68.35	5013.90
1/22/1980	65.97	5016.28
2/6/1980	65.26	5016.99
3/12/1980	64.54	5017.71
4/15/1980	64.41	5017.84
5/15/1980	64.25	5018.00
6/4/1980	64.25	5018.00
7/29/1980	64.69	5017.56
8/22/1980	64.70	5017.55
9/29/1980	64.76	5017.49
10/29/1980	65.27	5016.98
1/14/1981	65.00	5017.25
3/11/1981	65.27	5016.98
4/9/1981	65.04	5017.21
5/20/1981	65.00	5017.25
8/19/1981	65.31	5016.94
10/8/1981	65.42	5016.83
11/3/1981	65.77	5016.48
12/1/1981	65.24	5017.01
3/2/1982	66.25	5016.00
4/13/1982	65.90	5016.35
1/24/2007	70.00	5012.25
5/16/2007	69.56	5012.69
6/5/2007	69.02	5013.23
6/15/2007	69.13	5013.12
6/18/2007	69.05	5013.20
10/4/2007	69.25	5013.00
12/17/2007	69.67	5012.58
4/30/2008	67.40	5014.85
8/11/2008	67.17	5015.08
11/3/2008	67.36	5014.89
3/12/2009	67.66	5014.59
4/22/2009	67.26	5014.99
7/22/2009	67.31	5014.94
12/10/2009	67.10	5015.15

BR-G

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
9/20/1979	242.55	4914.72
9/25/1979	191.84	4965.43
10/4/1979	164.95	4992.32
10/10/1979	163.59	4993.68
10/18/1979	162.23	4995.04
10/25/1979	162.91	4994.36
1/9/1980	164.21	4993.06
1/22/1980	164.84	4992.43
2/6/1980	164.49	4992.78
3/18/1980	164.40	4992.87
4/15/1980	164.53	4992.74
5/15/1980	163.66	4993.61
6/4/1980	164.07	4993.20
7/30/1980	164.04	4993.23
8/22/1980	157.72	4999.55
9/1/1980	@ 169.00	4988.27
9/29/1980	154.92	5002.35
10/28/1980	154.49	5002.78
1/14/1981	153.90	5003.37
2/19/1981	151.95	5005.32
4/13/1981	150.00	5007.27
5/19/1981	150.33	5006.94
6/29/1981	148.83	5008.44
8/19/1981	146.85	5010.42
9/28/1981	147.20	5010.07
11/3/1981	146.97	5010.30
12/1/1981	146.50	5010.77
4/13/1982	137.25	5020.02
12/19/2006	150.01	5007.26
2/27/2007	149.90	5007.37
7/31/2007	148.96	5008.31
8/8/2007	148.82	5008.45
10/4/2007	148.19	5009.08
12/17/2007	149.04	5008.23
4/29/2008	144.17	5013.10
8/11/2008	147.86	5009.41
10/7/2008	147.81	5009.46
3/12/2009	147.87	5009.40
4/22/2009	147.36	5009.91
7/17/2009	147.89	5009.38

BR-H

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
9/19/1979	90.83	4866.73
9/25/1979	90.75	4866.81
10/4/1979	90.70	4866.86
10/11/1979	90.62	4866.94
10/18/1979	90.97	4866.59
10/24/1979	90.94	4866.62
1/9/1980	90.89	4866.67
1/22/1980	91.29	4866.27
2/6/1980	91.14	4866.42
3/18/1980	90.88	4866.68
4/15/1980	90.79	4866.77
5/15/1980	90.73	4866.83
6/4/1980	90.62	4866.94
7/29/1980	90.75	4866.81
8/22/1980	90.96	4866.60
9/1/1980	@ 90.00	4867.56
9/29/1980	91.31	4866.25
10/22/1980	91.13	4866.43
1/14/1981	91.70	4865.86
2/19/1981	91.94	4865.62
4/9/1981	91.75	4865.81
5/20/1981	91.64	4865.92
7/7/1981	91.60	4865.96
8/19/1981	92.07	4865.49
10/8/1981	92.10	4865.46
11/3/1981	92.26	4865.30
12/1/1981	91.88	4865.68
3/2/1982	92.71	4864.85
4/13/1982	92.37	4865.19
1/24/2007	96.70	4860.86
5/24/2007	95.80	4861.76
10/4/2007	95.56	4862.00
12/17/2007	96.06	4861.50
6/3/2008	93.21	4864.35
8/11/2008	93.44	4864.12
11/11/2008	93.47	4864.09
3/13/2009	93.55	4864.01
4/22/2009	93.57	4863.99
7/22/2009	93.51	4864.05
12/14/2009	92.85	4864.71

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- BR-H

TABLE D6D.2-1 WATER-LEVEL DATA FOR HANK UNIT WELLS (cont'd)

WATER-LEVEL ELEVATION (FT-MSL)

BR-I

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
9/25/1979	49.30	5081.58
10/4/1979	49.10	5081.78
10/10/1979	49.18	5081.70
10/18/1979	49.04	5081.84
1/15/1980	49.88	5081.00
1/22/1980	50.01	5080.87
2/6/1980	49.79	5081.09
3/12/1980	50.15	5080.73
4/15/1980	50.16	5080.72
5/7/1980	50.47	5080.41
5/15/1980	50.47	5080.41
6/4/1980	50.49	5080.39
7/30/1980	50.81	5080.07
8/22/1980	50.99	5079.89
9/1/1980	@ 49.00	5081.88
9/29/1980	51.26	5079.62
10/22/1980	52.13	5078.75
3/11/1981	52.13	5078.75
4/9/1981	50.77	5080.11
4/14/1981	51.55	5079.33
5/19/1981	52.50	5078.38
7/7/1981	52.23	5078.65
8/20/1981	52.51	5078.37
10/8/1981	52.48	5078.40
11/3/1981	52.83	5078.05
12/1/1981	52.48	5078.40
3/2/1982	53.30	5077.58
4/13/1982	56.45	5074.43
4/13/1982	56.45	5074.43
8/28/2007	> 80.00	< 5050.88
8/28/2007	54.88	5076.00
11/11/2008	59.16	5071.72

BR-K

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
9/25/1979	116.75	5076.25
10/4/1979	120.04	5072.96
10/5/1979	122.62	5070.38
10/10/1979	122.41	5070.59
10/18/1979	122.24	5070.76
9/1/1980	@ 120.00	5073.00
9/28/2007	> 129.95	< 5063.05
6/3/2008	124.00	5069.00
8/11/2008	124.00	5069.00
11/3/2008	124.00	5069.00

BROWN #5

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
1/1/1975	@ 90.00	4971.76
9/26/2007	215.60	4846.16

BROWN-WS

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
6/1/1979	@ 280.00	4866.00
2/21/2007	266.62	4879.38
12/6/2007	284.77	4861.23
12/6/2007	266.77	4879.23
4/29/2008	264.21	4881.79
8/11/2008	264.64	4881.36
10/30/2008	264.55	4881.45
3/12/2009	264.35	4881.65
4/22/2009	264.71	4881.29
7/17/2009	264.18	4881.82
12/14/2009	264.00	4882.00

BR-Q

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
12/14/1979	302.25	4851.97
12/18/1979	308.57	4845.65
1/9/1980	306.62	4847.60
1/22/1980	306.51	4847.71
2/6/1980	306.13	4848.09
3/18/1980	306.20	4848.02
4/15/1980	304.35	4849.87
5/15/1980	303.51	4850.71
6/4/1980	303.77	4850.45
7/30/1980	303.77	4850.45
8/22/1980	305.21	4849.01
9/29/1980	308.06	4846.16
10/1/1980	@ 305.00	4849.22
10/28/1980	301.73	4852.49
1/14/1981	303.10	4851.12
2/19/1981	303.39	4850.83
4/13/1981	301.03	4853.19
5/19/1981	301.17	4853.05
7/7/1981	299.71	4854.51
8/19/1981	298.99	4855.23
10/8/1981	298.34	4855.88
11/3/1981	297.95	4856.27
12/1/1981	296.42	4857.80
4/13/1982	295.80	4858.42
2/21/2007	291.50	4862.72
8/8/2007	292.19	4862.03
10/4/2007	292.08	4862.14
12/17/2007	291.61	4862.61

BR-T

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
12/12/1979	199.70	4833.30
1/15/1980	205.69	4827.31
3/18/1980	204.68	4828.32
5/15/1980	200.55	4832.45
6/4/1980	201.29	4831.71
8/22/1980	196.04	4836.96
9/29/1980	208.78	4824.22
10/29/1980	190.88	4842.12
3/11/1981	196.50	4836.50

BR-U

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
11/14/1979	6.74	4976.44
11/30/1979	6.84	4976.34
1/9/1980	6.89	4976.29
2/6/1980	6.83	4976.35
3/12/1980	6.67	4976.51
4/15/1980	6.78	4976.40
5/15/1980	6.83	4976.35
6/4/1980	7.40	4975.78
7/30/1980	8.25	4974.93
8/22/1980	8.06	4975.12
9/29/1980	8.57	4974.61
10/22/1980	8.50	4974.68
1/14/1981	9.10	4974.08
2/19/1981	8.85	4974.33
4/9/1981	9.03	4974.15
5/12/1981	9.15	4974.03
7/7/1981	9.63	4973.55
8/19/1981	10.15	4973.03
10/8/1981	10.94	4972.24
11/3/1981	11.23	4971.95
4/13/1982	11.86	4971.32

C #1

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
1/1/1979	194.00	4943.00
7/1/1984	@ 160.00	4977.00
8/2/2007	192.22	4944.78
10/4/2007	191.95	4945.05
6/4/2008	191.71	4945.29
8/5/2008	184.86	4952.14
10/30/2008	191.32	4945.68
3/12/2009	192.11	4944.89
4/23/2009	191.00	4946.00
7/10/2009	191.25	4945.75
12/14/2009	191.20	4945.80

DRYMW1

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
10/4/2007	> 19.20	< 4910.80

DRYMW3

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
10/4/2007	> 18.60	< 4901.40

DW#1

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
8/1/1975	@ 228.00	4926.19
1/1/1979	228.00	4926.19
3/22/2007	223.27	4930.92
5/2/2007	222.46	4931.73
5/24/2007	222.83	4931.36
9/5/2007	223.00	4931.19
10/4/2007	222.10	4932.09
12/20/2007	221.97	4932.22
4/28/2008	220.68	4933.51
10/30/2008	221.18	4933.01
3/12/2009	220.76	4933.43
4/23/2009	220.92	4933.27
7/10/2009	221.97	4932.22
10/26/2009	220.88	4933.31

F. BROWN #1

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
4/1/1983	@ 95.00	4795.00
10/4/2007	198.04	4691.96
6/4/2008	193.77	4696.23
8/5/2008	193.48	4696.52
10/31/2008	192.63	4697.37
3/11/2009	192.22	4697.78
4/22/2009	192.10	4697.90
7/13/2009	191.80	4698.20
10/29/2009	191.43	4698.57

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TABLE D6D.2-1 WATER-LEVEL DATA FOR HANK UNIT WELLS (cont'd)

WATER-LEVEL ELEVATION (FT-MSL)

Hank 1

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
1/1/1979	369.00	4882.01
9/7/2006	355.26	4895.75
4/19/2007	354.96	4896.05
4/19/2007	354.54	4896.47
5/2/2007	355.52	4895.49
7/11/2007	355.87	4895.14
7/31/2007	355.48	4895.53
8/8/2007	355.35	4895.66
4/28/2008	352.47	4898.54
4/29/2008	352.47	4898.54
6/26/2008	349.76	4901.25
8/11/2008	353.40	4897.61
10/7/2008	353.21	4897.80
3/12/2009	353.41	4897.60
4/22/2009	353.35	4897.66
7/17/2009	350.77	4900.24
10/26/2009	353.21	4897.80
12/4/2009	355.18	4895.83
1/18/2010	355.08	4895.93

MEANS #1

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
3/1/1977	@ 310.00	4949.86
11/16/2006	354.00	4905.86
9/26/2007	338.60	4921.26
4/28/2008	344.98	4914.88
4/29/2008	344.98	4914.88
8/5/2008	340.28	4919.58
10/30/2008	343.28	4916.58
3/12/2009	342.54	4917.32
4/23/2009	345.38	4914.48
7/13/2009	363.70	4896.16
10/26/2009	341.60	4918.26

NBHW-13

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
12/1/1996	@ 125.40	4844.46
11/28/2006	132.77	4837.09
2/21/2007	132.00	4837.86
5/16/2007	130.96	4838.90
7/25/2007	130.96	4838.90
10/4/2007	130.63	4839.23
12/17/2007	130.87	4838.99
6/3/2008	127.57	4842.29
8/11/2008	127.73	4842.13
11/3/2008	127.14	4842.72
3/13/2009	127.29	4842.57
4/22/2009	127.31	4842.55
7/23/2009	127.22	4842.64
12/14/2009	126.33	4843.53

NBHW-14

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
12/19/2006	133.63	4801.37

Old Maid #1

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
6/6/2007	197.40	4882.60
6/3/2008	196.76	4883.24
8/11/2008	197.55	4882.45
11/3/2008	197.33	4882.67
3/11/2009	197.43	4882.57
4/22/2009	197.41	4882.59
7/17/2009	197.69	4882.31

OW43756

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
9/26/2007	146.40	4905.60
10/4/2007	146.80	4905.20
4/28/2008	136.80	4915.20
4/29/2008	136.80	4915.20
8/6/2008	143.28	4908.72
10/7/2008	144.66	4907.34
3/12/2009	144.00	4908.00
4/22/2009	144.81	4907.19
7/22/2009	144.91	4907.09
12/18/2009	142.30	4909.70

PADEN #1

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
6/1/1997	@ 290.00	4905.85
2/21/2007	310.00	4885.85
2/21/2007	277.85	4918.00
4/28/2008	299.12	4896.73
8/6/2008	307.80	4888.05
10/7/2008	308.04	4887.81
3/12/2009	308.01	4887.84
4/22/2009	308.14	4887.71
7/22/2009	303.21	4892.64
12/18/2009	306.38	4889.47

SS1-F

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
6/15/2007	116.00	4859.00
6/18/2007	115.74	4859.26
6/26/2007	116.02	4858.98
11/11/2008	113.51	4861.49
3/13/2009	113.47	4861.53
4/22/2009	113.60	4861.40
7/22/2009	113.71	4861.29

SS1-FPU

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
6/15/2007	117.31	4858.69
6/18/2007	116.98	4859.02
6/26/2007	117.26	4858.74
6/4/2008	202.31	4773.69
8/11/2008	202.30	4773.70
11/3/2008	200.08	4775.92
3/13/2009	200.49	4775.51
4/22/2009	200.21	4775.79
7/22/2009	200.00	4776.00
12/14/2009	199.30	4776.70

SS1-L

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
10/12/1978	148.92	4825.08
11/1/1978	149.00	4825.00
1/1/1979	146.00	4828.00
8/1/1979	203.00	4771.00
10/26/1979	140.50	4833.50
6/1/1981	@ 139.00	4835.00
6/5/2007	140.72	4833.28
6/18/2007	140.67	4833.33
7/25/2007	140.93	4833.07
6/3/2008	138.36	4835.64
8/11/2008	138.41	4835.59
11/3/2008	137.61	4836.39
3/13/2009	138.00	4836.00
4/22/2009	138.10	4835.90
7/22/2009	137.24	4836.76
12/14/2009	136.95	4837.05

SS1-M

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
11/1/1978	151.00	4823.00
1/1/1979	146.00	4828.00
8/1/1979	139.00	4835.00
10/1/1979	140.50	4833.50
6/1/1981	@ 139.00	4835.00
6/15/2007	140.71	4833.29
6/18/2007	140.00	4834.00
6/26/2007	140.41	4833.59
6/3/2008	137.28	4836.72
8/11/2008	137.35	4836.65
11/3/2008	136.67	4837.33
3/13/2009	131.90	4842.10
4/22/2009	131.96	4842.04
7/13/2009	136.36	4837.64
12/14/2009	136.00	4838.00

SS1-U

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
10/1/1978	149.00	4826.00
11/1/1978	160.00	4815.00
1/1/1979	144.00	4831.00
8/1/1979	140.00	4835.00
10/1/1979	139.00	4836.00
6/1/1981	@ 136.00	4839.00
6/15/2007	138.04	4836.96
6/18/2007	138.01	4836.99
6/3/2008	135.48	4839.52
8/11/2008	135.55	4839.45
11/3/2008	134.82	4840.18
3/13/2009	135.13	4839.87
4/22/2009	135.25	4839.75
7/13/2009	134.62	4840.38
12/14/2009	134.45	4840.55

URZHB-6

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
7/27/2007	352.69	4861.09
7/31/2007	350.82	4862.96
8/8/2007	350.82	4862.96
8/28/2007	352.54	4861.24
10/4/2007	352.08	4861.70
12/17/2007	351.78	4862.00
4/29/2008	349.52	4864.26
8/11/2008	350.00	4863.78
10/7/2008	349.85	4863.93
3/12/2009	349.96	4863.82
4/22/2009	349.91	4863.87
7/17/2009	349.18	4864.60
12/18/2009	348.48	4865.30

\# Abandoned well

@ SE permit, use with caution

- URZHB-6

TABLE D6D.2-1 WATER-LEVEL DATA FOR HANK UNIT WELLS (cont'd)

WATER-LEVEL ELEVATION (FT-MSL)

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
URZHC-2		
12/19/2006	349.01	4885.75
5/2/2007	338.70	4896.06
5/24/2007	341.32	4893.44
6/4/2007	349.09	4885.67
6/26/2007	342.30	4892.46
6/28/2007	341.98	4892.78
7/13/2007	343.09	4891.67
7/24/2007	341.12	4893.64
8/2/2007	343.73	4891.03
9/6/2007	343.32	4891.44
10/4/2007	342.68	4892.08
12/17/2007	343.25	4891.51
4/28/2008	340.54	4894.22
8/6/2008	341.35	4893.41
10/7/2008	341.76	4893.00
3/12/2009	341.66	4893.10
4/22/2009	341.85	4892.91
7/17/2009	340.84	4893.92
8/13/2009	343.06	4891.70
12/14/2009	340.90	4893.86
URZHC-16		
12/4/2009	363.36	4880.64
1/18/2010	364.00	4880.00
URZHF-1		
12/19/2006	328.30	4903.43
6/26/2007	329.50	4902.23
7/24/2007	328.91	4902.82
10/4/2007	328.33	4903.40
12/17/2007	328.57	4903.16
4/28/2008	325.28	4906.45
8/6/2008	327.86	4903.87
10/7/2008	327.88	4903.85
3/12/2009	327.86	4903.87
4/22/2009	327.91	4903.82
7/17/2009	327.69	4904.04
12/18/2009	328.00	4903.73
URZHF-5		
7/27/2007	315.51	4902.16
7/31/2007	317.09	4900.58
8/8/2007	317.41	4900.26
10/4/2007	316.30	4901.37
12/17/2007	316.21	4901.46
4/29/2008	315.00	4902.67
8/11/2008	315.61	4902.06
10/7/2008	315.58	4902.09
3/12/2009	315.60	4902.07
4/22/2009	315.62	4902.05
7/17/2009	315.30	4902.37
8/12/2009	316.75	4900.92
12/17/2009	315.60	4902.07
1/29/2010	316.63	4901.04
2/1/2010	317.04	4900.63
URZHF-8		
6/20/2008	354.47	4895.53
4/22/2009	352.17	4897.83
7/23/2009	352.03	4897.97
8/12/2009	354.45	4895.55
12/4/2009	354.38	4895.62
1/18/2010	354.77	4895.23
URZHF-11		
1/18/2010	341.63	4890.37
URZHF-12		
1/18/2010	381.28	4898.72
URZHF-13		
1/29/2010	285.21	4893.79
2/1/2010	285.09	4893.91
URZHF-14		
1/29/2010	291.93	4893.07
2/1/2010	291.61	4893.39
URZHG-3		
6/26/2007	274.43	4954.39
6/28/2007	274.38	4954.44
7/24/2007	274.22	4954.60
10/4/2007	273.88	4954.94
12/17/2007	273.93	4954.89
4/28/2008	272.38	4956.44
8/5/2008	272.88	4955.94
10/7/2008	272.81	4956.01
3/12/2009	272.84	4955.98
4/22/2009	272.88	4955.94
7/17/2009	272.84	4955.98
8/13/2009	273.73	4955.09
12/18/2009	273.88	4954.94
URZHG-4		
7/31/2007	280.67	4935.11
8/8/2007	280.63	4935.15
10/4/2007	280.39	4935.39
12/17/2007	282.00	4933.78
URZHG-15		
12/4/2009	282.40	4961.60
1/18/2010	278.55	4965.45
URZHH-7		
9/5/2007	96.43	5072.94
10/4/2007	96.68	5072.69
12/17/2007	95.50	5073.87
3/12/2008	92.42	5076.95
4/28/2008	92.20	5077.17
8/5/2008	92.19	5077.18
10/7/2008	92.19	5077.18
3/12/2009	92.21	5077.16
4/22/2009	92.23	5077.14
7/17/2009	91.54	5077.83
8/12/2009	93.83	5075.54
8/13/2009	96.90	5072.47
8/17/2009	94.42	5074.95
12/18/2009	90.73	5078.64
URZHH-9		
7/23/2009	123.81	5033.87
8/13/2009	125.71	5031.97
URZHH-10		
7/23/2009	128.90	5129.29
8/12/2009	131.18	5127.01

Abandoned well

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- URZHH-10

TABLE D6D.2-1 WATER-LEVEL DATA FOR HANK UNIT WELLS (cont'd)

WATER-LEVEL ELEVATION (FT-MSL)

Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)	Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)	Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)	Date	Water Level (ft-MP)	Water Level Elevation (ft-MSL)
WC-MN1			6/16/2006	91.75	4850.25						
			7/31/2006	93.01	4848.99						
10/29/1979	97.00	4845.00	2/26/2007	95.71	4846.29						
6/1/1981 @	100.00	4842.00	5/21/2007	95.53	4846.47						
1/1/1999	99.00	4843.00	2/19/2008	93.40	4848.60						
10/12/1999	93.83	4848.17	6/18/2008	93.10	4848.90						
2/11/2000	93.02	4848.98	9/22/2008	92.88	4849.12						
4/6/2000	92.59	4849.41	12/3/2008	92.85	4849.15						
5/24/2000	92.45	4849.55	3/2/2009	92.93	4849.07						
8/4/2000	91.21	4850.79									
9/27/2000	91.51	4850.49									
11/8/2000	90.98	4851.02									
2/1/2001	90.73	4851.27									
2/20/2001	90.67	4851.33									
4/18/2001	90.44	4851.56									
6/26/2001	90.45	4851.55									
1/7/2002	90.64	4851.36									
3/19/2002	90.73	4851.27									
4/16/2002	90.91	4851.09									
5/20/2002	90.90	4851.10									
6/18/2002	90.97	4851.03									
7/16/2002	91.15	4850.85									
8/29/2002	91.19	4850.81									
9/12/2002	91.27	4850.73									
10/16/2002	91.28	4850.72									
11/18/2002	91.36	4850.64									
12/17/2002	91.02	4850.98									
2/18/2003	91.42	4850.58									
8/15/2003	91.91	4850.09									
10/20/2003	92.08	4849.92									
1/8/2004	92.09	4849.91									
2/20/2004	92.15	4849.85									
4/7/2004	92.20	4849.80									
5/13/2004	92.23	4849.77									
6/23/2004	92.36	4849.64									
8/12/2004	92.81	4849.19									
9/23/2004	95.50	4846.50									
11/9/2004	92.53	4849.47									
12/8/2004	92.32	4849.68									
1/31/2005	92.73	4849.27									
2/25/2005	92.70	4849.30									
5/16/2005	92.59	4849.41									
9/8/2005	93.05	4848.95									
1/11/2006	93.24	4848.76									
2/8/2006	93.05	4848.95									
3/23/2006	93.24	4848.76									
4/5/2006	92.91	4849.09									

Abandoned well

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- WC-MN1

Figure D6D.3-6 presents the water-level elevation changes for the Juniper Sand and Coal wells. Coal water levels have declined greater then 600 feet at the Juniper monitoring site. The blue data on Figure D6D.3-6 shows steady manual water-level measurements while the transducer water levels were erratic in 2007. Water-level monitoring from the Juniper Sand well does not indicate a significant amount of drawdown in this sand well from the CBM water production but the early 2009 data does indicate a gradual decline.

The Fourmile BLM monitoring site is shown on Figure D6-8b. Figure D6D.3-7 presents the water-level elevation for the coal and sand well. This data shows that the sand water levels have been fairly steady over the last year and are significantly lower than the pre-coal bed methane production in this area. The water-level elevations for the sand well have been very steady for the last year at the Fourmile monitoring site.

A second new BLM monitoring well has been added at the West Pine Tree site (see Figure D6-8b for location). The water-level monitoring at this site shows that the water level for the last year has dropped greater than 200 feet. Water-level data for the coal aquifer in this area for the last year and the sand well at the West Pine Tree site has been very steady.

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA.

Well Name	Date	Ca (mg/l)	Cl (mg/l)	CO3 (mg/l)	HCO3 (mg/l)	K (mg/l)	Mg (mg/l)	Na (mg/l)	SO4 (mg/l)	Fe (mg/l)
20-9	11/16/2006	5.0	3.0	8.0	269	2.0	< 1.0	108	18.0	< 0.03
	5/18/2007	5.0	1.0	5.0	291	2.0	< 1.0	107	19.0	< 0.03
CALVING #1	3/20/2007	12.0	6.0	2.0	153	3.0	< 1.0	100.0	109	0.05
	8/22/2007	10.0	5.0	< 1.0	158	2.0	< 1.0	96.0	110	< 0.03
DW-4L	11/2/1978	7.7	15.0	24.0	83	3.8	1.0	106	134	< 0.01
	4/21/1979	5.8	11.8	17.0	80	5.7	0.6	118	167	0.25
	10/28/1979	7.5	10.4	13.0	95	2.5	0.7	129	167	0.08
	7/7/2006	9.2	9.0	3.0	118	1.9	0.9	108	166	0.65
	9/7/2006	8.9	8.0	< 1.0	137	1.9	1.0	123	183	0.25
	12/20/2006	9.0	10.0	3.0	127	2.0	< 1.0	130	170	0.08
	5/17/2007	8.0	10.0	3.0	128	1.9	0.9	112	155	0.10
DW-4M	11/1/1978	6.6	15.0	189.0	32	6.2	1.0	90.0	< 5.00	0.17
	4/20/1979	2.4	12.6	72.0	112	6.2	0.3	67.0	24.0	1.45
	10/29/1979	17.0	9.0	13.0	149	4.0	2.5	150	230	0.05
	12/20/2006	43.0	9.0	3.0	181	4.0	6.0	160	282	< 0.03
	5/18/2007	49.0	1.0	< 1.0	193	4.0	7.0	172	324	< 0.03
DW-4U	11/8/1978	38.0	6.0	4.0	29	31.0	11.0	192	563	0.02
	4/21/1979	90.0	5.5	< 1.0	135	10.0	22.0	200	637	0.01
	10/29/1979	98.0	5.0	< 1.0	145	8.3	22.0	212	631	0.02
	12/21/2006	105.0	3.0	< 1.0	143	7.0	25.0	187	650	< 0.03
	5/14/2007	102.0	3.0	< 1.0	154	7.0	26.0	204	655	< 0.03
	5/17/2007	104.0	6.0	< 1.0	151	7.0	26.0	198	649	< 0.03
GARDEN	3/20/2007	15.0	4.0	2.0	140	3.0	1.0	112	155	0.10
	8/22/2007	14.0	5.0	1.0	145	2.0	1.0	110	157	0.14
MN-1	11/18/1978	5.3	6.0	4.0	151	1.7	0.5	84.0	85.0	0.12
	4/19/1979	5.3	6.6	7.2	152	2.4	0.4	102	108	0.08
	12/14/2006	6.0	6.0	4.0	140	2.0	< 1.0	100.0	102	< 0.03
	5/2/2007	6.0	4.0	2.8	150	2.0	< 1.0	105	111	< 0.03
	7/13/2007	6.0	8.0	3.0	153	2.0	< 1.0	114	111	< 0.03
	11/20/2008	6.0	6.0	5.0	146	2.0	< 1.0	107	94.0	< 0.03
	7/21/2009	10.0	6.0	< 5.0	179	2.0	< 1.0	104	88.0	< 0.03
MN-2	12/14/2006	8.0	7.0	3.0	137	2.0	< 1.0	111	108	< 0.03
	4/18/2007	8.0	8.0	2.0	152	2.0	< 1.0	118	132	< 0.03
	6/29/2007	8.0	6.0	< 1.0	156	2.0	< 1.0	117	136	< 0.03
	9/10/2007	8.0	5.0	4.0	151	2.0	< 1.0	111	141	< 0.03
	9/10/2007	# 7.0	# 7.0	# 4.0	# 151	# 2.0	# < 1.0	# 109	# 139	# < 0.03
MN-3	12/14/2006	11.0	14.0	3.0	146	2.0	< 1.0	115	129	< 0.03
	1/25/2007	10.0	7.0	2.0	148	3.0	< 1.0	113	149	< 0.03

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Ca (mg/l)	Cl (mg/l)	CO3 (mg/l)	HCO3 (mg/l)	K (mg/l)	Mg (mg/l)	Na (mg/l)	SO4 (mg/l)	Fe (mg/l)
MN-3	4/18/2007	10.0	7.0	2.0	151	2.0	< 1.0	122	145	< 0.03
	8/7/2007	10.0	16.0	2.0	152	2.0	< 1.0	122	152	< 0.03
MN-4	12/14/2006	7.0	8.0	3.0	133	2.0	< 1.0	113	119	< 0.03
	1/25/2007	7.0	7.0	3.0	141	2.0	< 1.0	113	138	< 0.03
	4/18/2007	7.0	7.0	2.0	147	2.0	< 1.0	117	135	< 0.03
	7/10/2007	7.0	6.0	2.0	148	2.0	< 1.0	121	136	< 0.03
MN-5	4/18/2007	7.0	6.0	3.0	149	2.0	< 1.0	115	126	< 0.03
	5/30/2007	7.0	6.0	2.0	147	2.0	< 1.0	117	125	< 0.03
	8/7/2007	7.0	5.0	2.0	152	2.0	< 1.0	115	133	< 0.03
	11/21/2008	8.0	6.0	< 1.0	168	2.0	< 1.0	113	103	0.09
MN-6	3/23/2007	7.0	7.0	4.0	152	2.0	< 1.0	115	114	< 0.03
NR#1	8/17/2009	6.0	6.0	5.0	145	2.0	< 1.0	105	109	< 0.03
	2/10/2010	6.0	6.0	< 5.0	166	2.0	< 1.0	105	109	< 0.03
URZN1-2	12/20/2006	4.0	5.0	14.0	238	2.0	< 1.0	102	2.00	< 0.03
	3/23/2007	4.0	4.0	24.0	209	3.0	< 1.0	104	2.00	< 0.03
	6/4/2007	4.0	6.0	13.0	242	2.0	< 1.0	100.0	1.000	< 0.03
	8/29/2007	3.0	5.0	12.0	246	2.0	< 1.0	92.0	1.000	< 0.03
URZNA-7	1/20/2010	10.0	6.0	7.0	157	3.0	< 1.0	114	142	< 0.03
	1/22/2010	11.0	6.0	< 5.0	160	3.0	< 1.0	111	141	< 0.03
	1/22/2010	# 9.0	# 6.0	# < 5.0	# 160	# 2.0	# < 1.0	# 110	# 141	# < 0.03
URZNA-9	2/4/2010	6.0	6.0	< 5.0	162	2.0	< 1.0	106	129	< 0.03
	3/22/2010	7.0	6.0	7.0	149	3.0	< 1.0	114	132	< 0.03
URZNB-1	12/22/2006	6.0	5.0	13.0	124	3.0	< 1.0	109	124	< 0.03
	3/21/2007	6.0	7.0	26.0	110	4.0	< 1.0	118	125	< 0.03
	5/30/2007	6.0	6.0	18.0	116	4.0	< 1.0	116	121	< 0.03
	8/7/2007	5.0	6.0	15.0	123	4.0	< 1.0	116	128	< 0.03
URZNF-3	9/10/2007	107.0	5.0	< 1.0	135	5.0	25.0	245	734	0.10
	6/25/2008	116.0	5.0	< 1.0	196	5.0	24.0	255	817	< 0.03
	9/9/2008	114.0	6.0	< 1.0	193	5.0	25.0	237	747	< 0.03
	11/17/2008	121.0	6.0	< 1.0	199	5.0	25.0	261	750	0.05
	3/18/2009	130.0	5.0	< 1.0	192	6.0	24.0	248	841	< 0.03
URZNG-5	8/17/2009	11.0	8.0	66.0	1150	22.0	30.0	463	56.0	< 0.03
	10/15/2009	11.0	9.0	< 5.0	1320	23.0	30.0	490	59.0	< 0.03
URZNG-6	8/17/2009	113.0	4.0	< 5.0	191	7.0	30.0	158	611	< 0.03
	11/30/2009	117.0	5.0	< 5.0	209	7.0	32.0	165	624	< 0.03
	11/30/2009	# 116.0	# 4.0	# < 5.0	# 203	# 7.0	# 31.0	# 161	# 603	# < 0.03
	2/3/2010	106.0	4.0	< 5.0	204	6.0	27.0	147	611	0.03

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Ca (mg/l)	Cl (mg/l)	CO3 (mg/l)	HCO3 (mg/l)	K (mg/l)	Mg (mg/l)	Na (mg/l)	SO4 (mg/l)	Fe (mg/l)
URZNQ-4	12/17/2007	480.0	31.0	< 1.0	499	11.0	139.0	426	2340	3.31
	6/24/2008	480.0	28.0	< 1.0	467	9.0	136.0	403	2370	1.13
	9/9/2008	527.0	33.0	< 1.0	470	8.0	152.0	404	2500	0.68
	11/21/2008	543.0	31.0	< 1.0	496	9.0	151.0	430	2360	0.73
W. of WW1	3/15/2007	100.0	3.0	< 1.0	194	6.0	31.0	121	518	0.53
	6/6/2007	100.0	3.0	< 1.0	198	6.0	29.0	128	517	0.06
	3/13/2009	91.0	3.0	< 1.0	195	7.0	28.0	125	498	0.07

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Temp (deg. C)	TDS (mg/l)	Cond (μmhos)	Cond(f) (μmhos)	pH (units)	pH(f) (std.	Mn (mg/l)	NH3 (mg/l)	NO3+NO2 (mg/l)
20-9	11/16/2006	12.4	298	509	503	8.73	8.34	0.01	0.06	< 0.1
	5/18/2007	13.4	268	491	505	8.54	8.66	0.01	0.12	< 0.1
CALVING #1	3/20/2007	---	298	516	---	8.34	---	< 0.01	< 0.05	< 0.1
	8/22/2007	19.8	292	477	501	8.12	8.12	< 0.01	< 0.05	< 0.1
DW-4L	11/2/1978	20.0	310	---	690	---	9.50	< 0.01	0.33	---
	4/21/1979	14.0	348	---	74.0	---	9.10	---	< 0.10	---
	10/28/1979	14.0	370	---	690	---	9.00	< 0.01	0.04	---
	7/7/2006	---	364	613	---	8.71	---	0.02	< 0.05	< 0.1
	9/7/2006	16.4	332	643	575	8.18	8.57	0.02	< 0.05	< 0.1
	12/20/2006	14.5	352	610	614	8.64	8.54	0.03	0.07	< 0.1
	5/17/2007	16.4	360	605	619	8.67	8.88	0.01	< 0.05	< 0.1
DW-4M	11/1/1978	22.0	202	---	523	---	9.10	< 0.01	0.18	---
	4/20/1979	13.0	167	---	460	---	10.20	0.01	---	---
	10/29/1979	---	490	---	---	8.70	---	< 0.01	0.07	---
	12/20/2006	10.9	536	924	933	8.39	8.10	0.04	0.08	< 0.1
	5/18/2007	14.7	618	994	1005	8.26	8.34	0.04	0.05	< 0.1
DW-4U	11/8/1978	14.0	982	---	1720	---	9.80	< 0.01	0.02	---
	4/21/1979	12.0	105	---	1740	---	7.70	0.06	< 0.10	---
	10/29/1979	---	1060	---	---	---	7.90	0.05	0.08	---
	12/21/2006	11.9	1050	1480	1483	8.01	7.41	0.06	< 0.05	< 0.1
	5/14/2007	---	1050	1560	1291	7.87	7.00	0.05	< 0.05	< 0.1
	5/17/2007	12.3	1030	1460	1484	7.90	7.78	0.05	< 0.05	< 0.1
GARDEN	3/20/2007	---	362	582	---	8.47	---	0.02	< 0.05	< 0.1
	8/22/2007	14.1	350	576	601	8.31	8.65	0.02	0.07	< 0.1
MN-1	11/18/1978	18.0	306	---	2290	---	8.60	< 0.01	0.02	---
	4/19/1979	14.0	289	---	720	---	8.50	< 0.01	< 0.10	---
	12/14/2006	14.1	296	489	512	8.68	8.68	< 0.01	< 0.05	< 0.1
	5/2/2007	15.6	322	533	517	8.59	7.26	< 0.01	< 0.05	< 0.1
	7/13/2007	17.7	294	515	508	8.60	8.41	< 0.01	< 0.05	< 0.1
	11/20/2008	8.20	304	450	573	8.54	8.56	< 0.01	< 0.05	< 0.1
	7/21/2009	17.7	351	530	508	8.18	8.41	0.02	< 0.05	0.0
MN-2	12/14/2006	13.6	334	534	554	8.57	8.45	< 0.01	< 0.05	< 0.1
	4/18/2007	14.8	348	580	569	8.45	7.56	0.01	< 0.05	< 0.1
	6/29/2007	17.1	310	577	534	7.41	8.25	< 0.01	< 0.05	< 0.1
	9/10/2007	14.7	312	549	583	8.34	8.77	0.01	< 0.05	< 0.1
	9/10/2007	---	# 320	# 550	---	# 8.32	---	# < 0.01	# < 0.05	# < 0.1
MN-3	12/14/2006	13.7	350	585	595	8.53	8.25	< 0.01	0.57	< 0.1
	1/25/2007	13.8	362	581	560	8.43	8.26	< 0.01	0.32	< 0.1

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Temp (deg. C)	TDS (mg/l)	Cond (μmhos)	Cond(f) (μmhos)	pH (units)	pH(f) (std.	Mn (mg/l)	NH3 (mg/l)	NO3+NO2 (mg/l)
MN-3	4/18/2007	---	346	595	583	8.51	8.23	< 0.01	0.18	< 0.1
	8/7/2007	16.7	358	579	583	8.46	8.26	< 0.01	0.18	< 0.1
MN-4	12/14/2006	14.9	330	571	565	8.67	8.48	< 0.01	0.05	< 0.1
	1/25/2007	14.0	338	551	541	8.49	8.41	< 0.01	0.09	< 0.1
	4/18/2007	14.9	356	577	568	8.48	7.61	< 0.01	< 0.05	< 0.1
	7/10/2007	17.0	344	559	559	8.47	8.20	< 0.01	< 0.05	< 0.1
MN-5	4/18/2007	---	334	540	554	8.51	8.39	< 0.01	< 0.05	< 0.1
	5/30/2007	14.9	328	552	512	8.51	8.20	< 0.01	< 0.05	< 0.1
	8/7/2007	16.2	338	533	535	8.46	8.27	< 0.01	< 0.05	< 0.1
	11/21/2008	7.40	341	505	624	8.04	7.78	0.01	< 0.05	< 0.1
MN-6	3/23/2007	---	310	518	507	8.74	8.31	< 0.01	0.16	< 0.1
NR#1	8/17/2009	15.8	312	494	1695	8.45	---	< 0.01	< 0.05	< 0.0
	12/1/2009	8.20	---	---	544	---	8.48	---	---	---
	2/10/2010	9.90	320	505	526	8.55	8.75	< 0.01	< 0.05	< 0.1
URZN1-2	12/20/2006	14.1	230	414	421	9.01	8.78	< 0.01	0.09	< 0.1
	3/23/2007	---	246	414	417	9.39	8.99	< 0.01	0.08	< 0.1
	6/4/2007	---	204	425	409	9.05	8.82	< 0.01	0.05	< 0.1
	8/29/2007	16.3	248	393	417	7.07	9.15	< 0.01	0.06	< 0.1
URZNA-7	1/20/2010	8.70	326	574	600	8.73	8.46	< 0.01	0.06	< 0.1
	1/22/2010	9.00	308	570	605	8.50	8.63	< 0.01	< 0.05	< 0.1
	1/22/2010	---	# 314	# 570	---	# 8.50	---	# < 0.01	# < 0.05	# < 0.1
URZNA-9	2/4/2010	14.2	341	550	530	8.71	8.25	< 0.01	0.19	< 0.1
	3/22/2010	10.3	339	562	578	8.73	8.71	< 0.01	0.11	< 0.1
URZNB-1	12/22/2006	13.4	324	540	541	9.26	9.14	< 0.01	< 0.05	< 0.1
	3/21/2007	---	278	541	535	9.63	9.43	< 0.01	< 0.05	< 0.1
	5/30/2007	---	318	557	549	9.52	9.51	< 0.01	< 0.05	< 0.1
	8/7/2007	15.8	312	537	548	9.41	9.62	< 0.01	< 0.05	< 0.1
URZNF-3	9/10/2007	13.7	1170	1710	1716	8.07	8.36	0.17	0.06	< 0.1
	6/25/2008	15.6	1280	1790	1868	7.69	6.47	0.14	< 0.10	0.1
	9/9/2008	13.2	1250	1810	1777	7.85	7.76	0.14	< 0.05	0.1
	11/17/2008	8.00	1250	1800	2070	7.80	7.39	0.14	< 0.05	< 0.1
	3/18/2009	8.80	1370	1910	1914	7.66	7.14	0.19	< 0.05	< 0.1
URZNG-5	8/17/2009	15.6	1250	1910	1740	8.52	---	< 0.01	< 0.05	< 0.0
	10/15/2009	7.20	1200	1930	988	8.27	7.77	< 0.01	0.05	< 0.1
URZNG-6	8/17/2009	13.4	1010	1420	1515	7.66	---	< 0.01	< 0.05	0.1
	11/30/2009	7.80	1050	1430	1503	7.88	6.72	0.02	< 0.05	0.1
	11/30/2009	---	# 1030	# 1430	---	# 7.77	---	# 0.02	# < 0.05	# < 0.1
	2/3/2010	6.30	962	1440	1502	7.73	7.28	< 0.01	< 0.05	0.1

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Temp (deg. C)	TDS (mg/l)	Cond (µmhos)	Cond(f) (µmhos)	pH (units)	pH(f) (std.	Mn (mg/l)	NH3 (mg/l)	NO3+NO2 (mg/l)
URZNQ-4	12/17/2007	10.7	3900	4440	2710	7.34	6.95	1.95	0.34	< 0.1
	6/24/2008	11.3	3910	4170	4270	7.19	6.83	1.84	0.20	< 0.1
	9/9/2008	10.9	3820	4360	4310	7.31	6.93	1.87	0.22	< 0.1
	11/21/2008	4.70	3980	4330	5110	7.40	6.65	1.92	0.25	< 0.1
W. of WW1	3/15/2007	12.9	884	1260	1239	7.82	7.46	0.07	< 0.05	< 0.1
	6/6/2007	13.0	872	1390	1282	7.83	7.64	0.07	< 0.05	< 0.1
	3/13/2009	9.50	870	1250	1242	7.87	6.63	0.06	< 0.05	< 0.1

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	F (mg/l)	Al (mg/l)	As (mg/l)	Ba (mg/l)	Cr (mg/l)	Cu (mg/l)	B (mg/l)	Cd (mg/l)	Hg (mg/l)
20-9	11/16/2006	0.80	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/18/2007	0.70	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
CALVING #1	3/20/2007	0.30	< 0.10	< 0.001	0.20	< 0.050	0.02	< 0.10	< 0.005	< 0.0010
	8/22/2007	0.30	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
DW-4L	11/2/1978	0.14	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	0.40	< 0.010	< 0.0005
	4/21/1979	0.10	---	---	---	---	---	---	---	0.0005
	10/28/1979	0.18	< 0.10	< 0.002	< 0.10	< 0.020	< 0.01	< 0.10	< 0.010	< 0.0003
	7/7/2006	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	9/7/2006	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	12/20/2006	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/17/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.010	< 0.0010
DW-4M	11/1/1978	1.40	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	0.60	< 0.010	0.0005
	4/20/1979	0.70	---	---	---	0.030	0.07	---	---	---
	10/29/1979	0.52	< 0.10	< 0.002	< 0.10	< 0.020	< 0.01	0.10	< 0.010	< 0.0005
	12/20/2006	0.50	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/18/2007	0.40	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
DW-4U	11/8/1978	0.07	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	< 0.10	< 0.010	< 0.0005
	4/21/1979	< 0.02	---	---	---	---	---	0.30	---	---
	10/29/1979	0.07	< 0.10	< 0.002	< 0.10	< 0.020	< 0.01	0.10	< 0.010	< 0.0020
	12/21/2006	< 0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/14/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/17/2007	< 0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
GARDEN	3/20/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	8/22/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
MN-1	11/18/1978	0.29	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	0.50	< 0.010	< 0.0005
	4/19/1979	0.30	< 0.10	0.002	< 0.10	< 0.010	< 0.01	< 0.10	< 0.010	0.0007
	12/14/2006	0.30	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/2/2007	0.30	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	7/13/2007	0.30	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/20/2008	0.30	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	7/21/2009	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
MN-2	12/14/2006	0.30	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	4/18/2007	0.20	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	6/29/2007	0.20	< 0.10	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	9/10/2007	0.30	< 0.10	0.009	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	9/10/2007	# 0.20	# < 0.10	# 0.008	# < 0.10	# < 0.050	# < 0.01	# < 0.10	# < 0.005	# < 0.0010
MN-3	12/14/2006	0.20	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	1/25/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	F (mg/l)	Al (mg/l)	As (mg/l)	Ba (mg/l)	Cr (mg/l)	Cu (mg/l)	B (mg/l)	Cd (mg/l)	Hg (mg/l)
MN-3	4/18/2007	0.30	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	8/7/2007	0.30	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
MN-4	12/14/2006	0.30	< 0.10	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	1/25/2007	0.30	< 0.10	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	4/18/2007	0.20	< 0.10	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	7/10/2007	0.30	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
MN-5	4/18/2007	0.30	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/30/2007	0.20	< 0.10	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	8/7/2007	0.30	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/21/2008	0.30	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
MN-6	3/23/2007	0.30	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
NR#1	8/17/2009	0.20	< 0.10	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	2/10/2010	0.20	< 0.10	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZN1-2	12/20/2006	0.60	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	3/23/2007	0.70	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	6/4/2007	0.60	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	8/29/2007	0.70	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZNA-7	1/20/2010	0.20	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	1/22/2010	0.20	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	1/22/2010	# 0.20	# < 0.10	# 0.002	# < 0.10	# < 0.050	# < 0.01	# < 0.10	# < 0.005	# < 0.0010
URZNA-9	2/4/2010	0.20	< 0.10	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	3/22/2010	0.20	< 0.10	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZNB-1	12/22/2006	0.30	< 0.10	0.007	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	3/21/2007	0.30	< 0.10	0.007	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/30/2007	0.30	< 0.10	0.007	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	8/7/2007	0.30	< 0.10	0.007	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZNF-3	9/10/2007	0.50	0.40	0.015	< 0.10	< 0.050	0.02	< 0.10	< 0.005	< 0.0010
	6/25/2008	0.20	< 0.10	0.188	< 0.10	< 0.050	0.33	< 0.10	< 0.005	< 0.0010
	9/9/2008	0.23	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/17/2008	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	3/18/2009	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZNG-5	8/17/2009	1.20	< 0.10	0.005	< 0.10	< 0.050	< 0.01	0.20	< 0.005	< 0.0010
	10/15/2009	1.20	< 0.10	0.005	< 0.10	< 0.050	< 0.01	0.20	< 0.005	< 0.0010
URZNG-6	8/17/2009	< 0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/30/2009	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/30/2009	# 0.10	# < 0.10	# < 0.001	# < 0.10	# < 0.050	# < 0.01	# < 0.10	# < 0.005	# < 0.0010
	2/3/2010	< 0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	F (mg/l)	Al (mg/l)	As (mg/l)	Ba (mg/l)	Cr (mg/l)	Cu (mg/l)	B (mg/l)	Cd (mg/l)	Hg (mg/l)
URZNQ-4	12/17/2007	0.20	< 0.10	0.005	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	6/24/2008	0.20	< 0.10	0.005	< 0.10	< 0.050	< 0.01	0.10	< 0.005	< 0.0010
	9/9/2008	0.17	< 0.10	0.002	< 0.10	< 0.050	< 0.01	0.10	< 0.005	< 0.0010
	11/21/2008	0.20	< 0.10	0.006	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
W. of WW1	3/15/2007	0.10	< 0.10	0.005	< 0.10	< 0.050	0.03	< 0.10	< 0.005	< 0.0010
	6/6/2007	< 0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	3/13/2009	< 0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Mo (mg/l)	Ni (mg/l)	Pb (mg/l)	Se (mg/l)	Unat (mg/l)	V (mg/l)	Zn (mg/l)
20-9	11/16/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0017	< 0.100	< 0.01
	5/18/2007	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
CALVING #1	3/20/2007	< 0.1	< 0.050	0.007	< 0.001	0.0003	< 0.100	0.07
	8/22/2007	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
DW-4L	11/2/1978	< 0.1	< 0.010	< 0.010	< 0.003	0.0006	< 0.100	< 0.01
	4/21/1979	---	---	0.080	0.001	< 0.0010	---	0.04
	10/28/1979	< 0.1	< 0.010	< 0.020	< 0.002	0.0010	< 0.100	0.02
	7/7/2006	< 0.1	< 0.050	< 0.050	< 0.001	< 0.0003	< 0.100	< 0.01
	9/7/2006	< 0.1	< 0.050	< 0.050	< 0.001	< 0.0003	< 0.100	< 0.01
	12/20/2006	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
	5/17/2007	< 0.1	< 0.050	< 0.050	< 0.001	< 0.0003	< 0.100	< 0.01
DW-4M	11/1/1978	< 0.1	< 0.010	< 0.010	< 0.003	0.0011	< 0.100	< 0.01
	4/20/1979	---	---	0.020	---	< 0.0010	---	0.07
	10/29/1979	< 0.1	< 0.010	< 0.030	< 0.002	< 0.0010	< 0.100	< 0.01
	12/20/2006	< 0.1	< 0.050	< 0.001	0.001	< 0.0003	< 0.100	< 0.01
	5/18/2007	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
DW-4U	11/8/1978	< 0.1	< 0.010	0.020	0.004	0.0170	< 0.100	0.06
	4/21/1979	---	0.010	---	---	0.0650	---	---
	10/29/1979	< 0.1	< 0.010	< 0.030	< 0.002	0.0880	< 0.100	0.03
	12/21/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0906	< 0.100	< 0.01
	5/14/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0938	< 0.100	< 0.01
	5/17/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0963	< 0.100	< 0.01
GARDEN	3/20/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0113	< 0.100	< 0.01
	8/22/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0088	< 0.100	< 0.01
MN-1	11/18/1978	0.5	< 0.010	< 0.010	< 0.003	0.0270	< 0.100	< 0.01
	4/19/1979	< 0.1	< 0.010	< 0.010	< 0.003	0.0020	< 0.100	< 0.01
	12/14/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0120	< 0.100	< 0.01
	5/2/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0114	< 0.100	< 0.01
	7/13/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0113	< 0.100	< 0.01
	11/20/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0087	< 0.100	< 0.01
	7/21/2009	< 0.1	< 0.050	< 0.001	< 0.001	0.0066	< 0.100	< 0.01
MN-2	12/14/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0214	< 0.100	< 0.01
	4/18/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0169	< 0.100	< 0.01
	6/29/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0226	< 0.100	< 0.01
	9/10/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0222	< 0.100	0.01
	9/10/2007	# < 0.1	# < 0.050	# < 0.001	# < 0.001	# 0.0204	# < 0.100	# < 0.01
MN-3	12/14/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0028	< 0.100	< 0.01
	1/25/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0021	< 0.100	< 0.01

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Mo (mg/l)	Ni (mg/l)	Pb (mg/l)	Se (mg/l)	Unat (mg/l)	V (mg/l)	Zn (mg/l)
MN-3	4/18/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0023	< 0.100	< 0.01
	8/7/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0027	< 0.100	< 0.01
MN-4	12/14/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0056	< 0.100	< 0.01
	1/25/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0051	< 0.100	< 0.01
	4/18/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0044	< 0.100	< 0.01
	7/10/2007	< 0.1	< 0.050	< 0.001	< 0.002	0.0051	< 0.100	< 0.01
MN-5	4/18/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0106	< 0.100	< 0.01
	5/30/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0122	< 0.100	< 0.01
	8/7/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0128	< 0.100	< 0.01
	11/21/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0033	< 0.100	< 0.01
MN-6	3/23/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0094	< 0.100	< 0.01
NR#1	8/17/2009	< 0.1	< 0.050	< 0.001	< 0.001	0.0121	< 0.100	< 0.01
	2/10/2010	< 0.1	< 0.050	< 0.001	< 0.001	0.0118	< 0.100	< 0.01
URZN1-2	12/20/2006	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
	3/23/2007	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
	6/4/2007	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
	8/29/2007	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
URZNA-7	1/20/2010	< 0.1	< 0.050	< 0.001	< 0.001	0.0122	< 0.100	< 0.01
	1/22/2010	< 0.1	< 0.050	< 0.001	< 0.001	0.0117	< 0.100	0.01
	1/22/2010	# < 0.1	# < 0.050	# < 0.001	# < 0.001	# 0.0115	# < 0.100	# 0.02
URZNA-9	2/4/2010	< 0.1	< 0.050	< 0.001	< 0.001	0.0173	< 0.100	< 0.01
	3/22/2010	< 0.1	< 0.050	< 0.001	< 0.001	0.0333	< 0.100	0.02
URZNB-1	12/22/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0252	< 0.100	< 0.01
	3/21/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0203	< 0.100	< 0.01
	5/30/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0194	< 0.100	< 0.01
	8/7/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0205	< 0.100	< 0.01
URZNF-3	9/10/2007	< 0.1	< 0.050	< 0.001	0.001	0.0589	< 0.100	0.08
	6/25/2008	< 0.1	< 0.050	< 0.001	0.002	0.0562	< 0.100	< 0.01
	9/9/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0513	< 0.100	< 0.01
	11/17/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0449	< 0.100	< 0.01
	3/18/2009	< 0.1	< 0.050	< 0.001	0.001	0.0390	< 0.100	< 0.01
URZNG-5	8/17/2009	< 0.1	< 0.050	< 0.001	< 0.001	0.0027	< 0.100	0.01
	10/15/2009	< 0.1	< 0.050	< 0.001	< 0.001	0.0031	< 0.100	< 0.01
URZNG-6	8/17/2009	< 0.1	< 0.050	< 0.001	0.006	0.0781	< 0.100	0.04
	11/30/2009	< 0.1	< 0.050	< 0.001	0.007	0.0725	< 0.100	< 0.01
	11/30/2009	# < 0.1	# < 0.050	# < 0.001	# 0.007	# 0.0793	# < 0.100	# < 0.01
	2/3/2010	< 0.1	< 0.050	< 0.001	0.005	0.0703	< 0.100	< 0.01

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Mo (mg/l)	Ni (mg/l)	Pb (mg/l)	Se (mg/l)	Unat (mg/l)	V (mg/l)	Zn (mg/l)
URZNQ-4	12/17/2007	< 0.1	< 0.050	< 0.001	0.002	0.0946	< 0.100	< 0.01
	6/24/2008	< 0.1	< 0.050	< 0.001	0.001	0.0832	< 0.100	< 0.01
	9/9/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0867	< 0.100	< 0.01
	11/21/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0844	< 0.100	0.04
W. of WW1	3/15/2007	< 0.1	< 0.050	0.001	0.001	0.0205	< 0.100	0.15
	6/6/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0219	< 0.100	< 0.01
	3/13/2009	< 0.1	< 0.050	< 0.001	< 0.001	0.0176	< 0.100	0.24

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd)

Well Name	Date	Ra226 (pCi/l)	Ra226(e) (pCi/l)	Ra228 (pCi/l)	Ra228(e) (pCi/l)	Alpha (pCi/l)	Beta (pCi/l)
20-9	11/16/2006	< 0.2	± 0.2	< 1.0	---	< 1.0	< 2.0
	5/18/2007	< 0.2	± 0.2	< 1.0	---	1.0	< 2.0
CALVING #1	3/20/2007	< 0.2	± 0.2	2.0	± 1.0	1.1	< 2.0
	8/22/2007	1.3	± 0.5	< 1.0	---	1.6	2.3
DW-4L	11/2/1978	< 0.2	± 0.4	---	---	---	---
	4/21/1979	< 0.2	± 0.6	---	---	---	---
	7/7/2006	4.3	± 0.6	---	---	---	---
	9/7/2006	< 0.2	± 0.2	< 1.0	---	< 1.0	2.6
	12/20/2006	1.3	± 0.5	< 1.0	---	3.0	2.8
	5/17/2007	< 0.2	± 0.2	< 1.0	---	< 1.0	< 2.0
DW-4M	11/1/1978	0.9	± 0.8	---	---	---	---
	4/20/1979	< 0.2	± 0.5	---	---	---	---
	12/20/2006	< 0.2	± 0.2	1.9	± 0.8	1.3	3.3
	5/18/2007	< 0.2	± 0.2	< 1.0	---	< 1.0	< 2.0
DW-4U	11/8/1978	3.7	± 1.5	---	---	---	---
	4/21/1979	2.7	± 1.1	---	---	---	---
	12/21/2006	< 0.2	± 0.2	< 1.0	---	76.9	25.5
	5/14/2007	0.6	± 0.3	< 1.0	---	66.3	27.7
	5/17/2007	< 0.2	± 0.2	< 1.0	---	61.3	20.4
GARDEN	3/20/2007	< 0.2	± 0.2	< 1.0	---	6.8	2.7
	8/22/2007	< 0.2	± 0.2	< 1.0	---	8.6	< 2.0
MN-1	11/18/1978	19.0	± 3.0	---	---	---	---
	4/19/1979	< 0.2	± 0.3	---	---	---	---
	12/14/2006	19.4	± 1.3	< 1.0	---	68.4	100.0
	5/2/2007	30.4	± 1.8	< 1.0	---	75.9	145.0
	7/13/2007	36.3	± 2.1	1.9	± 0.9	88.2	84.0
	11/20/2008	26.0	± 1.0	1.6	± 0.5	131.0	133.0
	7/21/2009	43.0	1.2	0.2	0.8	244.0	141.0
MN-2	12/14/2006	0.9	± 0.3	< 1.0	---	18.8	11.0
	4/18/2007	1.4	± 0.4	< 1.0	---	19.7	5.1
	6/29/2007	0.9	± 0.4	< 1.0	---	24.8	8.4
	9/10/2007	0.7	± 0.3	< 1.0	---	26.2	6.1
	9/10/2007	# 0.8	# ± 0.3	# 3.6	---	# 27.4	# 9.9
MN-3	12/14/2006	0.8	± 0.3	< 1.0	---	5.1	6.7
	1/25/2007	1.1	± 0.4	< 1.0	---	5.1	< 2.0
	4/18/2007	0.8	± 0.4	4.2	± 1.4	6.2	5.9
	8/7/2007	0.7	± 0.3	< 1.0	---	3.7	2.2
MN-4	12/14/2006	2.3	± 0.5	< 1.0	---	11.6	31.3

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd)

Well Name	Date	Ra226 (pCi/l)	Ra226(e) (pCi/l)	Ra228 (pCi/l)	Ra228(e) (pCi/l)	Alpha (pCi/l)	Beta (pCi/l)
MN-4	1/25/2007	2.9	± 0.6	< 1.0	---	15.5	32.5
	4/18/2007	3.1	± 0.6	< 1.0	---	12.5	11.9
	7/10/2007	2.9	± 0.6	< 1.0	---	13.3	20.6
MN-5	4/18/2007	2.6	± 0.6	< 1.0	---	20.4	18.4
	5/30/2007	3.3	± 0.7	< 1.0	---	16.4	10.9
	8/7/2007	2.4	± 0.5	< 1.0	---	20.8	16.1
	11/21/2008	2.7	± 0.4	1.6	± 0.8	30.2	19.4
MN-6	3/23/2007	1.7	± 0.4	< 1.0	---	11.1	30.2
NR#1	8/17/2009	17.0	1.0	0.5	0.8	99.0	84.4
	2/10/2010	16.0	0.8	0.9	0.8	112.0	118.0
URZN1-2	12/20/2006	< 0.2	± 0.2	< 1.0	---	< 1.0	2.3
	3/23/2007	< 0.2	± 0.2	< 1.0	---	< 1.0	< 2.0
	6/4/2007	< 0.2	± 0.2	< 1.0	---	< 1.0	< 2.0
	8/29/2007	< 0.2	± 0.2	< 1.0	---	< 1.0	< 2.0
URZNA-7	1/20/2010	155.0	2.5	1.3	1.0	727.0	332.0
	1/22/2010	176.0	2.8	1.3	0.8	437.0	303.0
	1/22/2010	# 174.0	# 2.9	# 1.9	# 0.8	# 490.0	# 325.0
URZNA-9	2/4/2010	72.0	1.6	1.4	0.7	387.0	183.0
	3/22/2010	68.0	1.6	1.7	0.8	417.0	171.0
URZNB-1	12/22/2006	< 0.2	± 0.2	< 1.0	---	19.7	9.9
	3/21/2007	< 0.2	± 0.2	< 1.0	---	13.9	8.5
	5/30/2007	3.2	± 1.2	< 1.0	---	19.4	7.2
	8/7/2007	< 0.2	± 0.2	< 1.0	---	11.3	6.5
URZNF-3	9/10/2007	5.0	± 0.7	< 1.0	---	50.7	19.1
	6/25/2008	17.0	± 0.9	0.3	± 0.7	63.4	27.6
	9/9/2008	2.9	± 0.3	2.3	± 0.8	73.0	23.3
	11/17/2008	2.8	± 0.3	0.7	± 0.8	68.5	31.4
	3/18/2009	1.6	± 0.3	0.2	± 0.7	49.7	14.9
URZNG-5	8/17/2009	0.1	0.1	0.0	0.6	0.9	19.5
	10/15/2009	-0.1	0.1	1.0	0.7	77.3	49.6
URZNG-6	8/17/2009	0.1	0.1	1.0	0.7	119.0	24.4
	11/30/2009	0.3	0.2	0.7	0.9	103.0	35.3
	11/30/2009	# 0.1	# 0.2	# 0.5	# 1.0	# 103.0	# 33.4
	2/3/2010	0.3	0.1	0.3	0.6	115.0	27.1
URZNQ-4	12/17/2007	0.7	± 0.3	< 1.0	---	72.6	25.8
	6/24/2008	0.6	± 0.1	0.3	± 0.7	113.0	27.8
	9/9/2008	0.4	± 0.2	1.4	± 0.8	114.0	19.6
	11/21/2008	0.9	± 0.2	1.3	± 0.8	164.0	61.9

TABLE D6E.1-1. NICHOLS RANCH UNIT GROUND-WATER QUALITY DATA. (cont'd)

Well Name	Date	Ra226 (pCi/l)	Ra226(e) (pCi/l)	Ra228 (pCi/l)	Ra228(e) (pCi/l)	Alpha (pCi/l)	Beta (pCi/l)
W. of WW1	3/15/2007	4.7	± 1.0	< 1.0	---	19.3	9.3
	6/6/2007	0.9	± 0.3	2.7	± 1.0	21.0	9.1
	3/13/2009	0.6	± 0.2	0.6	± 0.7	24.8	3.9

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA.

Well Name	Date	Ca (mg/l)	Cl (mg/l)	CO3 (mg/l)	HCO3 (mg/l)	K (mg/l)	Mg (mg/l)	Na (mg/l)	SO4 (mg/l)	Fe (mg/l)
BR-B	10/11/1979	135.0	8.0	< 1.0	244	9.0	38.0	180	600	0.02
	4/15/1980	19.0	16.0	< 1.0	151	3.0	4.0	136	220	0.24
	11/9/2006	108.0	2.0	< 1.0	271	7.4	33.5	160	528	0.35
	1/24/2007	102.0	4.0	< 1.0	273	6.8	32.0	149	553	0.05
	4/25/2007	116.0	4.0	< 1.0	278	8.0	35.0	157	539	< 0.03
BR-F	11/8/1979	78.0	20.0	24.0	99	13.0	< 1.0	93.0	84.0	0.08
	4/16/1980	10.0	6.0	48.0	83	9.0	3.0	85.0	92.0	0.60
	11/28/2006	8.0	3.0	10.0	63	3.0	2.0	80.0	126	< 0.03
	1/25/2007	8.0	3.0	38.0	13	5.0	< 1.0	74.0	129	< 0.03
	5/16/2007	14.0	3.0	< 1.0	151	6.0	2.0	83.0	99.0	0.43
	11/25/2008	15.0	3.0	< 1.0	182	4.0	4.0	79.0	79.0	< 0.03
BR-G	10/10/1979	220.0	16.0	< 1.0	122	11.0	51.0	310	1300	0.18
	4/16/1980	155.0	10.0	< 1.0	150	18.0	42.0	265	1090	0.57
	4/16/1980	190.0	12.0	< 1.0	151	10.0	53.0	290	1150	1.20
	7/30/1980	143.0	6.0	< 1.0	150	11.0	40.0	311	962	0.85
	10/28/1980	180.0	10.0	< 1.0	110	8.8	37.0	230	1100	0.51
	2/19/1981	201.0	7.0	< 1.0	136	7.9	42.0	255	1140	0.49
	6/29/1981	200.0	7.0	< 1.0	133	8.5	44.0	250	1120	0.42
	9/28/1981	204.0	11.0	< 1.0	124	8.4	46.0	260	1020	0.36
	4/20/1982	195.0	7.0	< 1.0	140	8.8	45.0	240	1160	1.60
	12/19/2006	204.0	8.0	< 1.0	117	10.0	51.0	284	1200	0.50
	2/27/2007	210.0	9.0	< 1.0	120	10.0	51.0	294	1260	0.57
	5/16/2007	211.0	8.0	< 1.0	117	10.0	52.0	289	1230	0.52
BR-H	10/12/1979	46.0	8.0	4.8	129	5.0	10.0	190	400	0.79
	4/15/1980	38.0	8.0	< 1.0	151	11.0	6.0	163	344	2.04
	11/21/2006	47.0	27.0	3.0	164	5.0	8.0	168	353	< 0.03
	1/24/2007	53.0	8.0	< 1.0	190	5.0	10.0	185	399	< 0.03
	4/25/2007	51.0	5.0	< 1.0	194	5.0	9.0	168	379	< 0.03
	11/24/2008	48.0	4.0	< 1.0	187	4.0	9.0	167	352	< 0.03
BR-I	11/30/1979	64.0	8.0	< 1.0	266	2.0	16.0	10.00	12.0	0.08
	4/16/1980	62.0	4.0	< 1.0	268	3.0	13.0	8.00	9.00	2.16
	7/30/1980	47.0	3.0	< 1.0	270	2.7	13.0	14.0	12.0	1.20
Brown #5	9/5/2007	80.0	5.0	< 1.0	109	6.0	13.0	164	495	< 0.03
Brown-WS	9/7/2006	49.2	5.0	< 1.0	95	5.1	14.4	183	522	---
	12/6/2006	45.0	5.0	< 1.0	94	5.0	13.0	176	447	0.14
	2/21/2007	48.0	7.0	< 1.0	95	5.1	13.6	186	488	0.16
	5/16/2007	50.0	5.0	< 1.0	96	6.0	14.0	192	488	0.16
BR-Q	1/9/1980	40.0	30.0	48.0	< 1	23.0	1.0	213	360	< 0.01

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Ca (mg/l)	Cl (mg/l)	CO3 (mg/l)	HCO3 (mg/l)	K (mg/l)	Mg (mg/l)	Na (mg/l)	SO4 (mg/l)	Fe (mg/l)
BR-Q	4/16/1980	36.0	9.0	40.0	< 1	15.0	10.0	175	332	0.30
	4/16/1980	26.0	16.0	34.0	< 1	10.0	1.0	184	365	0.72
	12/19/2006	74.0	5.0	< 1.0	101	6.0	14.0	215	558	0.08
	2/27/2007	78.0	3.0	< 1.0	100	7.0	13.0	223	620	0.09
	5/16/2007	78.0	4.0	< 1.0	104	6.0	13.0	224	610	0.08
	8/8/2007	68.0	3.0	< 1.0	107	6.0	12.0	204	611	0.09
	8/8/2007	69.0	5.0	< 1.0	109	6.0	12.0	208	612	0.11
BR-T	1/8/1980	67.0	7.0	< 1.0	181	18.0	22.0	85.0	360	0.03
	2/22/1980	---	---	---	---	---	---	---	604	---
	2/27/1980	85.0	8.0	< 1.0	142	7.0	19.0	---	568	0.84
	2/27/1980	60.0	6.0	< 1.0	207	5.0	13.0	---	312	---
	2/27/1980	---	---	---	---	---	---	---	603	---
	2/27/1980	---	---	---	---	---	---	---	573	---
	2/27/1980	---	---	---	---	---	---	---	420	---
	4/15/1980	84.0	10.0	< 1.0	129	7.0	16.0	---	560	0.48
	4/15/1980	60.0	4.0	< 1.0	120	13.0	14.0	---	527	0.32
	4/15/1980	79.0	7.0	< 1.0	89	6.8	16.0	---	---	0.01
	4/15/1980	79.0	8.0	6.0	104	12.0	9.0	---	540	0.27
	3/11/1981	73.0	5.0	< 1.0	168	6.9	14.0	---	509	< 0.05
	6/30/1981	69.0	4.0	< 1.0	110	5.7	15.0	---	526	0.20
	9/29/1981	85.0	5.0	< 1.0	84	5.7	16.0	---	546	0.18
	1/14/1982	75.0	4.0	< 1.0	108	6.3	14.0	---	506	1.00
	4/20/1982	66.0	4.0	< 1.0	130	5.6	13.0	---	294	0.17
	9/8/1988	80.2	5.7	< 1.0	109	6.6	16.1	187	580	0.08
	3/20/2007	62.0	4.0	< 1.0	145	5.0	13.0	158	439	< 0.03
	8/22/2007	80.0	3.0	< 1.0	109	6.0	17.0	178	609	< 0.03
BR-U	11/30/1979	224.0	14.0	< 1.0	278	7.0	53.0	106	700	0.07
	4/15/1980	216.0	24.0	< 1.0	273	7.0	72.0	97.0	766	6.24
	7/30/1980	154.0	4.0	< 1.0	280	7.2	50.0	89.0	589	0.35
C #1	11/17/1978	228.0	33.0	---	421	9.1	96.0	110	918	3.90
	4/29/1979	293.0	4.7	< 1.0	398	11.0	70.0	159	916	1.19
DW#1	11/8/1978	53.0	16.0	---	144	5.5	12.0	156	428	0.15
	5/1/1979	60.0	2.9	< 1.0	150	5.9	10.0	174	457	1.45
	3/22/2007	70.0	4.0	< 1.0	144	6.0	14.0	182	464	0.09
	5/2/2007	64.0	1.0	< 1.0	150	6.0	14.0	167	474	< 0.03
	5/24/2007	60.0	2.0	< 1.0	159	6.0	12.0	175	472	< 0.03
	9/5/2007	61.0	3.0	< 1.0	121	6.0	12.0	169	418	0.15
F. Brown #1	11/7/1978	48.0	26.0	---	242	6.6	9.1	130	292	< 0.01
	4/21/1979	56.0	80.0	< 1.0	230	4.9	7.9	180	273	0.04

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Ca (mg/l)	Cl (mg/l)	CO3 (mg/l)	HCO3 (mg/l)	K (mg/l)	Mg (mg/l)	Na (mg/l)	SO4 (mg/l)	Fe (mg/l)
Hank 1	11/17/1978	72.0	5.8	---	111	5.3	20.0	204	640	< 0.01
	5/1/1979	75.0	6.4	< 1.0	103	6.7	13.4	205	638	0.05
	6/27/2006	77.0	5.0	< 1.0	110	7.1	15.4	190	573	1.46
	6/29/2006	77.4	5.0	< 1.0	107	5.2	16.9	200	565	0.76
	12/20/2006	77.0	9.0	< 1.0	109	6.0	16.0	200	477	1.15
	1/25/2007	77.0	6.0	< 1.0	112	6.0	16.0	186	590	< 0.03
	5/2/2007	74.0	4.0	< 1.0	110	6.0	17.0	192	585	< 0.03
	6/26/2008	76.0	6.0	< 1.0	114	6.0	15.0	188	575	0.03
	1/26/2010	58.0	4.0	< 5.0	84	5.0	10.0	122	392	< 0.03
Means #1	11/16/2006	142.0	3.0	< 1.0	121	8.0	28.0	181	671	0.13
	3/12/2007	145.0	3.0	< 1.0	120	8.0	28.0	189	793	< 0.03
	6/6/2007	138.0	6.0	< 1.0	124	8.0	25.0	188	790	< 0.03
	9/5/2007	125.0	5.0	< 1.0	125	8.0	24.0	177	660	2.14
NBHW-13	11/28/2006	44.0	7.0	< 1.0	105	5.0	11.0	210	473	< 0.03
	2/23/2007	47.0	5.0	< 1.0	105	5.0	12.0	226	537	< 0.03
	5/16/2007	48.0	4.0	< 1.0	107	5.0	12.0	222	539	< 0.03
	7/25/2007	44.0	4.0	< 1.0	103	5.0	11.0	231	541	< 0.03
Old Maid #1	3/12/2007	83.0	3.0	< 1.0	171	6.0	20.0	124	461	< 0.03
OW43756	6/21/2007	182.0	4.0	< 1.0	200	9.0	57.0	87.0	722	0.24
Paden #1	12/6/2006	234.0	8.0	< 1.0	156	10.0	64.0	182	1120	< 0.03
	2/27/2007	243.0	8.0	< 1.0	151	10.0	64.0	202	1180	< 0.03
	6/6/2007	233.0	8.0	< 1.0	151	9.0	60.0	189	1170	< 0.03
	9/5/2007	204.0	9.0	< 1.0	156	9.0	55.0	172	965	< 0.03
SS1-F	10/23/1980	88.0	3.0	< 1.0	220	8.0	22.0	206	554	0.07
	1/20/1981	102.0	4.0	< 1.0	195	8.0	2.0	217	540	0.11
	4/29/1981	94.0	8.0	< 1.0	219	9.0	22.0	205	556	0.10
	7/29/1981	92.0	4.0	< 1.0	215	9.0	21.0	194	532	0.02
	4/15/1988	98.4	4.8	< 1.0	212	6.8	26.2	226	669	0.02
	6/21/2007	89.0	5.0	< 1.0	233	7.0	24.0	194	544	< 0.03
SS1-L	10/12/1978	41.0	4.2	7.0	115	4.6	8.8	198	495	< 0.01
	2/14/1979	37.0	9.0	< 1.0	193	38.0	7.3	186	344	0.07
	4/17/1979	40.0	4.6	< 1.0	127	3.9	8.4	200	476	0.10
	8/6/1979	42.0	3.6	7.0	120	4.4	10.0	240	501	< 0.01
	10/26/1979	49.0	4.0	5.0	111	4.5	10.0	233	504	< 0.01
	10/23/1980	44.0	5.0	< 1.0	122	5.0	12.0	198	460	0.03
	1/14/1981	42.0	5.0	< 1.0	117	5.0	12.0	228	542	0.10
	4/29/1981	41.0	7.0	< 1.0	146	7.0	11.0	206	458	0.11
	7/29/1981	42.0	5.0	< 1.0	136	7.0	14.0	191	443	0.02

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Ca (mg/l)	Cl (mg/l)	CO3 (mg/l)	HCO3 (mg/l)	K (mg/l)	Mg (mg/l)	Na (mg/l)	SO4 (mg/l)	Fe (mg/l)
SS1-L	4/15/1988	45.3	4.4	< 1.0	131	4.4	10.8	219	500	< 0.05
	4/27/2007	53.0	4.0	< 1.0	132	5.0	14.0	227	528	< 0.03
	6/5/2007	50.0	4.0	< 1.0	142	5.0	13.0	231	536	< 0.03
	7/25/2007	50.0	12.0	< 1.0	137	5.0	12.0	236	555	< 0.03
	11/24/2008	49.0	4.0	< 1.0	143	5.0	12.0	225	520	< 0.03
SS1-M	11/8/1978	38.0	9.0	---	120	41.0	12.0	182	511	0.23
	2/14/1979	37.0	5.8	< 1.0	104	8.8	10.0	232	512	0.33
	4/17/1979	41.0	4.5	< 1.0	111	5.7	8.9	208	522	0.08
	8/6/1979	47.0	3.5	7.0	115	4.9	11.0	250	532	0.01
	10/24/1979	56.0	4.2	4.0	119	5.1	14.0	233	528	< 0.01
	10/23/1980	47.0	5.0	< 1.0	112	5.0	10.0	197	465	0.02
	1/20/1981	52.0	4.0	< 1.0	120	5.0	10.0	234	563	0.03
	4/28/1981	47.0	11.0	< 1.0	171	7.0	14.0	205	480	0.08
	7/29/1981	51.0	5.0	< 1.0	127	8.0	10.0	191	453	0.01
	4/15/1988	43.8	4.4	< 1.0	112	4.3	9.6	221	530	< 0.05
SS1-U	10/13/1978	41.0	4.6	---	111	5.8	10.0	221	506	< 0.01
	2/14/1979	36.0	9.1	< 1.0	37	13.0	7.3	230	502	0.08
	4/17/1979	29.0	4.6	< 1.0	85	66.0	7.8	209	505	0.03
	8/6/1979	37.0	3.4	5.0	97	5.1	11.0	240	514	0.07
	10/26/1979	42.0	4.0	4.0	96	4.8	13.0	230	508	< 0.01
	10/23/1980	43.0	4.0	< 1.0	124	6.0	12.0	194	450	0.03
	1/20/1981	40.0	5.0	< 1.0	105	5.0	11.0	213	501	0.24
	4/29/1981	38.0	8.0	< 1.0	146	7.0	10.0	212	450	0.06
	7/29/1981	37.0	6.0	< 1.0	115	7.0	13.0	215	500	0.01
	4/15/1988	38.9	5.1	< 1.0	104	4.2	9.3	216	500	< 0.05
	6/20/2007	41.0	5.0	2.0	120	4.0	11.0	203	508	< 0.03
URZHB-6	8/28/2007	103.0	26.0	< 1.0	120	8.0	15.0	169	576	< 0.03
	3/13/2008	102.0	4.0	< 1.0	126	8.0	14.0	159	577	< 0.03
	3/13/2008	101.0	4.0	< 1.0	127	8.0	13.0	155	573	< 0.03
	9/10/2008	117.0	4.0	< 1.0	117	8.0	16.0	170	557	0.60
	11/25/2008	103.0	3.0	< 1.0	119	7.0	15.0	155	554	< 0.03
URZHC-2	8/7/2007	11.0	10.0	4.0	26	6.0	1.0	131	281	< 0.03
	9/7/2007	7.0	11.0	7.0	46	8.0	1.0	135	271	0.04
	11/18/2008	9.0	10.0	8.0	29	6.0	1.0	110	219	< 0.03
	8/13/2009	13.0	10.0	6.0	64	6.0	2.0	129	237	< 0.03
URZHF-1	7/27/2007	171.0	< 1.0	< 1.0	45	14.0	30.0	204	981	< 0.03
	11/18/2008	192.0	7.0	6.0	10	16.0	6.0	219	865	< 0.03
	6/29/2009	185.0	6.0	6.0	9	15.0	7.0	208	908	< 0.03
	8/27/2009	220.0	7.0	< 5.0	54	15.0	23.0	209	956	< 0.03

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Ca (mg/l)	Cl (mg/l)	CO3 (mg/l)	HCO3 (mg/l)	K (mg/l)	Mg (mg/l)	Na (mg/l)	SO4 (mg/l)	Fe (mg/l)
URZHF-5	8/2/2007	44.0	4.0	4.3	91	6.0	10.0	181	468	< 0.03
	9/17/2008	48.0	4.0	< 1.0	95	6.0	10.0	191	438	< 0.03
	8/12/2009	44.0	4.0	< 5.0	87	7.0	8.0	191	450	< 0.03
	12/17/2009	36.0	4.0	< 5.0	68	8.0	8.0	181	451	< 0.03
	3/2/2010	43.0	4.0	8.0	77	7.0	8.0	184	436	< 0.03
URZHF-8	8/12/2009	176.0	12.0	< 5.0	131	19.0	31.0	284	1020	< 0.03
	3/2/2010	63.0	5.0	< 5.0	106	10.0	12.0	191	542	< 0.03
URZHF-14	2/4/2010	43.0	4.0	< 5.0	103	5.0	10.0	168	455	< 0.03
URZHG-3	8/13/2009	87.0	5.0	< 5.0	7	9.0	7.0	169	615	0.05
URZHH-7	6/26/2008	99.0	4.0	< 1.0	113	8.0	26.0	162	610	< 0.03
	9/17/2008	104.0	4.0	< 1.0	112	8.0	28.0	180	599	< 0.03
	11/19/2008	107.0	4.0	< 1.0	113	8.0	29.0	176	608	< 0.03
	8/17/2009	90.0	4.0	< 5.0	115	8.0	24.0	160	538	< 0.03
URZHH-9	8/13/2009	39.0	4.0	< 5.0	110	5.0	9.0	181	454	< 0.03
	12/17/2009	66.0	2.0	< 5.0	91	6.0	16.0	166	518	< 0.03
	2/2/2010	66.0	3.0	< 5.0	97	6.0	14.0	154	518	< 0.03
JRZHH-10	8/12/2009	37.0	9.0	< 5.0	243	5.0	10.0	315	629	< 0.03
WC-MN1	11/14/1978	93.0	4.0	---	168	7.3	23.0	94.0	470	0.47
	4/18/1979	130.0	4.3	< 1.0	145	6.4	25.0	123	497	0.18
	10/29/1979	150.0	5.2	< 1.0	138	7.8	34.0	153	714	0.02

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Temp (deg. C)	TDS (mg/l)	Cond (µmhos)	Cond(f) (µmhos)	pH (units)	pH(f) (std.	Mn (mg/l)	NH3 (mg/l)	NO3+NO2 (mg/l)
BR-B	10/11/1979	11.1	1118	1590	1450	7.90	7.80	0.05	< 0.01	---
	4/15/1980	---	446	---	---	---	---	0.05	< 0.10	---
	5/7/1980	11.8	---	---	1060	---	---	---	---	---
	11/9/2006	10.8	1000	1430	1391	7.82	7.52	0.04	0.09	< 0.1
	1/24/2007	11.2	988	1400	1348	7.82	7.36	< 0.01	0.08	< 0.1
	4/25/2007	11.6	988	1430	1422	7.70	6.89	< 0.01	0.06	< 0.1
BR-F	10/5/1979	10.00	---	---	5150	---	---	---	---	---
	10/24/1979	14.5	---	---	2740	---	---	---	---	---
	11/8/1979	---	438	670	---	10.90	---	0.01	< 0.10	---
	1/11/1980	7.90	---	---	440	---	9.90	---	---	---
	4/16/1980	10.7	264	490	480	9.10	---	0.03	< 0.10	---
	11/28/2006	10.3	236	451	451	9.57	9.24	< 0.01	< 0.05	< 0.1
	1/25/2007	11.6	248	445	414	10.50	10.24	< 0.01	< 0.05	< 0.1
	5/16/2007	---	274	489	465	8.26	8.86	< 0.01	< 0.05	< 0.1
	11/25/2008	6.80	294	334	497	8.05	8.68	< 0.01	< 0.05	0.1
BR-G	10/10/1979	13.2	2004	2470	2380	7.80	7.59	0.29	< 0.10	---
	4/16/1980	---	1880	2260	---	7.80	---	0.20	< 0.05	---
	4/16/1980	---	1820	2280	---	7.10	---	0.21	< 0.10	---
	5/7/1980	12.1	---	---	2430	---	---	---	---	---
	7/30/1980	13.9	1730	---	2520	7.33	---	0.21	< 0.20	---
	10/28/1980	11.8	1800	---	2030	8.52	---	0.22	0.20	---
	2/19/1981	11.8	1870	---	2420	7.40	5.90	0.18	< 0.20	---
	6/29/1981	16.0	1850	---	1110	7.60	5.70	0.22	< 0.20	---
	9/28/1981	14.0	1790	---	2400	7.50	6.13	0.16	< 0.20	---
	4/20/1982	10.00	1800	---	1250	7.80	6.00	0.21	< 0.20	---
	12/19/2006	12.1	1860	2360	2400	7.81	7.37	0.20	0.10	< 0.1
	2/27/2007	13.0	1880	2360	2440	7.90	7.75	0.18	< 0.05	< 0.1
	5/16/2007	13.4	1880	2500	2390	7.80	7.60	0.20	< 0.05	< 0.1
BR-H	10/12/1979	13.4	680	1040	910	7.60	8.50	0.11	< 0.10	---
	4/15/1980	---	648	---	---	7.10	---	0.22	< 0.10	---
	5/7/1980	11.3	---	---	1060	---	---	---	---	---
	11/21/2006	12.6	686	1060	1098	8.47	7.98	0.05	0.10	< 0.1
	1/24/2007	14.8	688	1040	1006	8.21	7.94	0.08	0.16	< 0.1
	4/25/2007	12.5	696	1080	1886	8.09	7.06	0.02	0.10	< 0.1
	11/24/2008	9.90	675	1020	1078	8.06	7.75	0.12	< 0.05	< 0.1
BR-I	11/29/1979	9.10	---	---	380	---	7.50	---	---	---
	11/30/1979	---	248	439	---	7.60	---	0.03	0.66	---
	4/16/1980	---	225	400	---	7.10	---	0.17	< 0.10	---
	5/7/1980	11.6	---	---	430	---	---	---	---	---

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Temp (deg. C)	TDS (mg/l)	Cond (µmhos)	Cond(f) (µmhos)	pH (units)	pH(f) (std.	Mn (mg/l)	NH3 (mg/l)	NO3+NO2 (mg/l)
BR-I	7/30/1980	12.8	231	---	420	7.36	---	0.02	< 0.20	---
Brown #5	9/5/2007	13.9	912	1420	1380	7.92	7.93	0.01	< 0.05	< 0.1
Brown-WS	9/7/2006	13.8	736	1190	1023	7.99	7.77	< 0.01	0.07	< 0.1
	12/6/2006	11.7	764	1180	1160	8.10	7.80	< 0.01	< 0.05	< 0.1
	2/21/2007	11.6	750	1150	1119	6.34	8.46	< 0.01	< 0.05	< 0.1
	5/16/2007	12.6	750	1220	1174	8.23	8.37	0.01	< 0.05	< 0.1
BR-Q	12/16/1979	14.0	---	---	1240	---	---	---	---	---
	1/9/1980	11.1	824	---	1730	---	---	< 0.01	0.14	---
	1/11/1980	---	---	---	---	---	12.10	---	---	---
	4/16/1980	---	642	1380	---	11.30	---	0.10	0.06	---
	4/16/1980	---	472	1320	---	10.70	---	0.04	< 0.10	---
	12/19/2006	13.6	934	1390	1351	8.26	8.10	0.07	0.31	< 0.1
	2/27/2007	13.5	958	1400	1326	8.02	8.30	0.07	< 0.05	< 0.1
	5/16/2007	12.6	932	1450	1174	8.12	8.37	0.07	< 0.05	< 0.1
	8/8/2007	17.7	938	1380	1171	7.86	7.14	0.06	< 0.05	< 0.1
	8/8/2007	17.7	950	1380	1171	7.83	7.14	0.06	0.06	< 0.1
BR-T	1/8/1980	10.00	796	1130	1110	7.70	8.00	0.05	0.11	---
	2/21/1980	13.5	---	---	800	---	---	---	---	---
	2/22/1980	13.5	944	---	1370	---	---	---	---	---
	2/27/1980	13.5	---	---	780	7.40	---	0.02	---	---
	2/27/1980	7.50	598	---	560	7.90	---	---	< 0.10	---
	2/27/1980	---	899	---	1570	---	---	---	---	---
	2/27/1980	---	924	---	1280	---	---	---	---	---
	2/27/1980	---	966	---	860	---	---	---	---	---
	4/15/1980	---	814	---	1370	8.10	---	0.04	< 0.10	---
	4/15/1980	8.20	907	1290	---	---	---	0.05	0.07	---
	4/15/1980	---	---	1382	---	8.30	---	0.05	< 0.10	---
	4/15/1980	---	948	1180	---	8.20	---	0.09	0.05	---
	3/11/1981	---	918	---	---	---	---	< 0.05	0.40	---
	6/30/1981	---	899	---	---	7.80	---	< 0.05	< 0.20	---
	9/29/1981	---	926	---	---	7.60	---	< 0.01	< 0.20	---
	1/14/1982	---	864	---	---	7.70	---	0.05	0.20	---
	4/20/1982	---	843	---	---	8.10	---	0.03	< 0.20	---
	9/8/1988	14.2	916	1311	1281	7.97	6.84	0.04	< 0.05	---
	3/20/2007	8.10	698	1120	1245	7.16	7.70	0.04	< 0.05	< 0.1
	8/22/2007	15.8	916	1360	1351	8.00	7.89	0.04	< 0.05	< 0.1
BR-U	11/30/1979	---	1380	1760	---	7.00	---	1.43	0.16	---
	1/11/1980	6.50	---	---	1520	---	7.40	---	---	---
	4/15/1980	---	1330	1810	---	7.00	---	1.68	< 0.10	---

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Temp (deg. C)	TDS (mg/l)	Cond (µmhos)	Cond(f) (µmhos)	pH (units)	pH(f) (std.	Mn (mg/l)	NH3 (mg/l)	NO3+NO2 (mg/l)
BR-U	5/7/1980	7.70	---	---	1810	---	---	---	---	---
	7/30/1980	14.4	1180	---	1760	---	7.16	0.98	0.70	---
C #1	11/17/1978	9.00	1860	---	3370	---	7.60	0.26	0.13	---
	4/29/1979	11.0	1710	---	2280	---	6.70	0.23	0.06	---
DW#1	11/8/1978	14.0	820	---	1440	---	7.50	0.04	0.02	---
	5/1/1979	11.0	804	---	1440	---	7.80	0.01	0.10	---
	3/22/2007	11.3	718	1150	1162	8.12	7.15	0.03	< 0.05	< 0.1
	5/2/2007	---	798	1210	1067	8.10	7.17	0.03	< 0.05	< 0.1
	5/24/2007	13.2	804	994	1100	7.93	7.01	0.03	< 0.05	< 0.1
	9/5/2007	11.3	754	1200	1202	7.21	8.07	0.02	< 0.05	< 0.1
F. Brown #1	11/7/1978	14.0	638	---	1360	---	7.60	0.05	26.00	---
	4/21/1979	13.0	667	---	1390	---	7.90	0.03	7.50	---
Hank 1	11/17/1978	10.00	1110	---	2100	---	10.40	0.09	0.03	---
	5/1/1979	13.0	1020	---	1940	---	7.40	0.07	0.08	---
	6/27/2006	---	926	1340	---	7.36	---	0.07	0.08	< 0.1
	6/29/2006	---	924	1340	---	8.04	---	0.06	---	< 0.1
	12/20/2006	13.2	868	1340	1341	8.01	7.81	0.08	0.07	< 0.1
	1/25/2007	13.1	936	1350	1269	7.16	7.78	0.07	< 0.05	< 0.1
	5/2/2007	---	944	1400	1174	7.97	7.30	0.07	< 0.05	< 0.1
	6/26/2008	15.9	884	1350	1284	7.91	7.30	0.06	< 0.10	< 0.1
	1/26/2010	---	611	944	---	8.71	---	0.03	< 0.05	< 0.1
Means #1	11/16/2006	12.1	1200	1680	1661	8.03	7.31	0.03	< 0.05	< 0.1
	3/12/2007	13.5	1110	1630	1563	7.87	7.02	0.03	< 0.05	< 0.1
	6/6/2007	12.1	1190	1790	1631	7.80	7.73	0.07	< 0.05	< 0.1
	9/5/2007	12.4	1100	1670	1641	7.25	7.75	0.12	< 0.05	< 0.1
NBHW-13	11/28/2006	11.6	794	1260	1271	8.34	7.65	0.01	< 0.05	< 0.1
	2/23/2007	13.0	832	1240	1239	8.13	8.12	0.01	< 0.05	< 0.1
	5/16/2007	---	842	1350	1167	8.20	7.54	0.01	< 0.05	< 0.1
	7/25/2007	15.2	850	1290	1121	8.20	7.82	0.01	< 0.05	< 0.1
Old Maid #1	3/12/2007	13.0	722	1140	1113	8.03	6.97	0.04	0.06	< 0.1
OW43756	6/21/2007	15.0	1170	1570	1310	7.66	7.08	0.14	0.12	< 0.1
Paden #1	12/6/2006	12.3	1840	2250	2270	7.62	7.18	< 0.01	0.05	0.1
	2/27/2007	11.8	1740	2130	2260	7.82	7.50	< 0.01	< 0.05	< 0.1
	6/6/2007	12.8	1780	2370	2230	7.63	7.36	< 0.01	< 0.05	1.1
	9/5/2007	13.0	1710	2270	219	7.67	7.38	< 0.01	< 0.05	< 0.1
SS1-F	10/23/1980	10.00	1054	1386	1524	7.70	7.60	0.06	< 0.05	---
	1/20/1981	11.5	1088	1541	1494	7.36	7.55	0.07	0.12	---
	4/29/1981	11.0	1028	---	1526	7.75	7.60	0.08	< 0.05	---

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Temp (deg. C)	TDS (mg/l)	Cond (µmhos)	Cond(f) (µmhos)	pH (units)	pH(f) (std.	Mn (mg/l)	NH3 (mg/l)	NO3+NO2 (mg/l)
SS1-F	7/29/1981	11.2	958	1490	1779	7.79	7.60	0.03	< 0.05	---
	4/15/1988	11.8	1214	1634	1527	7.77	7.83	0.07	0.05	---
	6/21/2007	12.2	964	1410	1220	7.75	7.36	0.06	< 0.05	< 0.1
SS1-L	10/12/1978	11.0	912	---	1680	---	9.30	< 0.01	0.09	---
	2/14/1979	3.00	688	---	1740	---	7.50	0.05	0.04	---
	4/17/1979	12.0	828	---	1440	---	7.80	0.01	< 0.10	---
	8/6/1979	16.0	847	---	1450	---	7.90	< 0.01	0.11	---
	10/26/1979	14.0	852	---	1610	---	9.20	< 0.01	0.03	---
	10/23/1980	10.8	856	1195	1272	7.66	7.60	< 0.01	< 0.05	---
	1/14/1981	11.0	901	1314	1348	7.51	7.94	< 0.01	0.14	---
	4/29/1981	11.4	806	---	1280	6.79	7.50	0.02	< 0.05	---
	7/29/1981	11.3	779	1240	1501	7.71	7.70	0.01	< 0.05	---
	4/15/1988	11.6	870	1358	1222	7.98	8.08	0.01	0.05	---
	4/27/2007	12.1	882	1360	1331	8.15	7.31	0.01	0.09	< 0.1
	6/5/2007	14.0	856	1470	1178	8.16	7.66	0.01	< 0.05	< 0.1
	7/25/2007	14.2	884	1350	1199	8.14	7.74	0.01	0.05	< 0.1
	11/24/2008	7.20	902	1340	1394	8.17	7.01	0.01	< 0.05	< 0.1
SS1-M	11/8/1978	18.0	902	---	1500	---	8.00	< 0.01	0.02	---
	2/14/1979	3.00	866	---	2100	---	7.80	0.03	0.03	---
	4/17/1979	14.0	862	---	1380	---	8.10	0.01	0.10	---
	8/6/1979	16.0	891	---	1490	---	8.30	< 0.01	0.12	---
	10/24/1979	18.0	897	---	1500	---	7.20	< 0.01	0.03	---
	10/23/1980	9.00	794	1217	1303	7.73	7.40	< 0.01	< 0.05	---
	1/20/1981	12.5	937	1310	1325	7.58	7.96	< 0.01	< 0.05	---
	4/28/1981	12.5	838	---	1431	7.95	8.10	0.03	< 0.05	---
	7/29/1981	12.0	808	1260	1475	7.63	7.70	0.01	< 0.05	---
	4/15/1988	11.6	908	1332	1230	7.98	8.07	< 0.01	0.05	---
SS1-U	10/13/1978	13.0	920	---	1635	---	9.10	< 0.01	0.19	---
	2/14/1979	3.00	797	---	2010	---	8.40	< 0.01	0.07	---
	4/17/1979	14.0	820	---	1415	---	7.20	0.01	< 0.10	---
	8/6/1979	17.0	833	---	1380	---	8.10	< 0.01	0.13	---
	10/26/1979	16.0	848	---	1560	---	7.30	< 0.01	0.05	---
	10/23/1980	11.0	814	1161	1292	7.78	7.60	< 0.01	< 0.05	---
	1/20/1981	13.0	847	1258	1309	7.65	8.20	0.01	< 0.05	---
	4/29/1981	11.5	826	---	1331	8.07	8.00	0.02	< 0.05	---
	7/29/1981	11.8	855	1140	1483	7.84	7.90	0.01	< 0.05	---
	4/15/1988	13.0	864	1282	1206	7.99	8.19	< 0.01	0.05	---
	6/20/2007	14.9	832	1280	1159	8.53	7.81	< 0.01	< 0.05	< 0.1
URZHB-6	8/28/2007	14.7	904	1340	1361	7.76	7.97	0.04	< 0.05	< 0.1

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Temp (deg. C)	TDS (mg/l)	Cond (µmhos)	Cond(f) (µmhos)	pH (units)	pH(f) (std.	Mn (mg/l)	NH3 (mg/l)	NO3+NO2 (mg/l)
URZHB-6	3/13/2008	14.5	918	1280	1236	7.76	7.24	0.04	< 0.05	< 0.1
	3/13/2008	14.1	894	1290	1240	7.84	7.26	0.04	< 0.05	< 0.1
	9/10/2008	14.9	891	1310	1291	7.89	7.97	0.07	< 0.10	< 0.1
	11/25/2008	9.10	935	1340	1343	8.37	7.22	0.04	< 0.05	< 0.1
URZHC-2	8/7/2007	16.3	410	699	670	9.53	9.67	< 0.01	< 0.05	< 0.1
	9/7/2007	16.8	440	724	751	9.45	10.07	< 0.01	< 0.05	< 0.1
	11/18/2008	8.90	387	629	718	9.68	10.40	< 0.01	< 0.05	< 0.1
	8/13/2009	15.8	422	682	792	9.03	6.77	< 0.01	< 0.05	< 0.0
URZHF-1	7/27/2007	17.1	1440	1880	1393	8.50	9.21	0.01	< 0.05	< 0.1
	11/18/2008	9.70	1330	1760	1988	9.94	9.60	< 0.01	0.07	< 0.1
	6/29/2009	12.1	1400	1800	1787	9.80	9.95	< 0.01	0.06	< 0.1
	8/27/2009	9.20	1520	1890	1729	8.88	9.20	0.02	< 0.05	< 0.0
URZHF-5	8/2/2007	15.5	710	1140	995	7.49	8.76	< 0.01	< 0.05	< 0.1
	9/17/2008	16.0	735	1140	1120	8.37	8.40	< 0.01	< 0.10	< 0.1
	8/12/2009	13.9	705	1160	1216	8.23	6.74	< 0.01	< 0.05	< 0.0
	12/17/2009	9.50	766	1120	1149	9.46	---	< 0.01	< 0.05	< 0.1
	3/2/2010	9.10	659	1090	1152	9.46	9.65	< 0.01	< 0.05	< 0.1
URZHF-8	8/12/2009	14.6	1480	2210	1960	8.04	7.48	0.11	0.08	< 0.0
	3/2/2010	10.2	827	1280	1330	8.35	8.09	0.02	< 0.05	< 0.1
URZHF-14	2/4/2010	11.6	730	1120	1098	8.36	7.95	0.01	< 0.05	< 0.1
URZHG-3	8/13/2009	---	949	1310	---	9.19	---	< 0.01	< 0.05	0.1
URZHH-7	6/26/2008	15.4	1010	1430	1204	7.90	6.49	< 0.01	< 0.10	< 0.1
	9/17/2008	16.7	994	1430	760	7.92	8.80	< 0.01	< 0.10	< 0.1
	11/19/2008	5.70	1000	1420	1578	8.01	6.56	< 0.01	< 0.05	< 0.1
	8/17/2009	18.1	866	1230	1388	7.91	---	< 0.01	< 0.05	< 0.0
URZHH-9	8/13/2009	15.0	768	1130	1241	7.81	6.74	0.06	< 0.05	0.0
	12/17/2009	5.50	822	1190	1272	7.90	6.71	0.06	< 0.05	< 0.1
	2/2/2010	9.80	818	1180	1036	7.80	6.02	0.04	< 0.05	< 0.1
URZHH-10	8/12/2009	15.2	1110	1780	1745	7.89	6.80	0.01	< 0.05	1.4
WC-MN1	11/14/1978	10.00	880	---	1670	---	8.00	0.08	0.03	---
	4/18/1979	13.0	894	---	1390	---	7.10	0.05	< 0.10	---
	10/29/1979	12.0	988	---	1770	---	9.20	0.07	0.05	---

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	F (mg/l)	Al (mg/l)	As (mg/l)	Ba (mg/l)	Cr (mg/l)	Cu (mg/l)	B (mg/l)	Cd (mg/l)	Hg (mg/l)
BR-B	10/11/1979	0.12	0.05	< 0.010	< 0.05	< 0.010	< 0.01	< 1.00	< 0.002	< 0.0010
	4/15/1980	0.41	< 0.10	< 0.010	< 0.05	< 0.050	< 0.02	< 1.00	< 0.010	< 0.0010
	11/9/2006	< 0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	1/24/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.010	< 0.0010
	4/25/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
BR-F	11/8/1979	0.20	0.10	< 0.010	< 0.05	< 0.050	< 0.02	< 1.00	< 0.010	< 0.0010
	4/16/1980	0.19	0.20	< 0.010	< 0.05	< 0.050	< 0.02	< 1.00	< 0.010	< 0.0010
	11/28/2006	0.30	< 0.10	0.007	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	1/25/2007	0.30	0.50	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/16/2007	0.20	0.60	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/25/2008	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
BR-G	10/10/1979	< 1.00	< 0.05	< 0.010	< 0.05	< 0.010	< 0.01	---	< 0.002	< 0.0010
	4/16/1980	0.10	< 0.20	0.006	< 0.10	---	0.02	---	---	< 0.0010
	4/16/1980	0.10	0.20	< 0.010	< 0.05	< 0.050	< 0.02	< 1.00	< 0.010	< 0.0010
	7/30/1980	0.17	0.70	< 0.003	< 0.20	< 0.010	0.02	< 0.10	< 0.010	0.0002
	10/28/1980	0.20	< 0.50	< 0.002	< 0.10	< 0.010	0.01	0.20	< 0.010	0.0002
	2/19/1981	0.10	< 0.50	0.006	< 0.20	< 0.020	< 0.02	< 0.10	0.010	< 0.0001
	6/29/1981	0.10	< 0.50	< 0.005	< 0.20	< 0.020	0.02	0.10	0.010	0.0010
	9/28/1981	---	< 0.50	< 0.005	< 0.20	0.010	0.01	< 0.10	0.012	0.0001
	4/20/1982	---	< 0.50	< 0.005	< 0.20	< 0.005	< 0.01	0.10	0.012	< 0.0001
	12/19/2006	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	2/27/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/16/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
BR-H	10/12/1979	0.37	0.70	< 0.010	< 0.05	< 0.010	0.01	< 1.00	< 0.002	< 0.0010
	4/15/1980	0.20	0.80	< 0.010	< 0.05	< 0.050	< 0.02	1.00	< 0.010	< 0.0010
	11/21/2006	0.40	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	1/24/2007	0.30	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	4/25/2007	0.40	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/24/2008	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
BR-I	11/30/1979	0.15	< 0.10	< 0.010	< 0.05	< 0.050	< 0.02	< 1.00	< 0.010	< 0.0010
	4/16/1980	0.10	1.60	< 0.010	< 0.05	< 0.050	< 0.02	< 1.00	< 0.010	< 0.0010
	7/30/1980	0.16	1.30	< 0.002	< 0.50	< 0.010	< 0.02	< 0.10	< 0.010	0.0001
Brown #5	9/5/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
Brown-WS	9/7/2006	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	---	< 0.005	< 0.0010
	12/6/2006	0.20	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	2/21/2007	0.30	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/16/2007	0.30	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
BR-Q	1/9/1980	0.30	< 0.10	< 0.010	< 0.05	< 0.050	< 0.02	< 1.00	< 0.010	< 0.0010

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	F (mg/l)	Al (mg/l)	As (mg/l)	Ba (mg/l)	Cr (mg/l)	Cu (mg/l)	B (mg/l)	Cd (mg/l)	Hg (mg/l)
BR-Q	4/16/1980	0.60	0.40	0.006	< 0.10	< 0.020	< 0.02	---	0.010	< 0.0010
	4/16/1980	0.39	0.40	< 0.010	< 0.05	< 0.050	< 0.02	< 1.00	< 0.010	< 0.0010
	12/19/2006	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	2/27/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/16/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	8/8/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	8/8/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
BR-T	1/8/1980	0.11	< 0.10	< 0.010	< 0.05	---	< 0.02	< 1.00	< 0.010	< 0.0010
	2/27/1980	---	---	---	---	---	< 0.02	---	---	< 0.0010
	2/27/1980	0.15	< 0.10	< 0.010	< 0.05	< 0.050	---	< 1.00	< 0.010	---
	4/15/1980	0.07	< 0.10	< 0.010	< 0.05	< 0.050	< 0.02	< 1.00	< 0.010	< 0.0010
	4/15/1980	< 0.10	< 0.20	0.006	< 0.10	< 0.020	< 0.02	---	0.010	< 0.0010
	4/15/1980	0.01	0.20	< 0.010	< 0.10	0.004	0.07	0.20	< 0.001	< 0.0040
	4/15/1980	< 0.10	0.10	< 0.002	< 0.03	< 0.020	< 0.02	< 0.01	< 0.010	---
	1/8/1981	---	---	---	---	< 0.050	---	---	---	---
	3/11/1981	0.10	< 0.50	< 0.005	< 0.20	< 0.050	< 0.05	< 0.10	0.010	< 0.0004
	4/15/1981	---	< 0.10	---	---	---	---	---	---	---
	6/30/1981	0.20	< 0.50	< 0.005	< 0.20	< 0.020	< 0.02	0.20	0.020	< 0.0001
	9/29/1981	---	< 0.50	< 0.005	< 0.20	< 0.007	0.01	< 0.10	< 0.005	0.0001
	1/14/1982	---	< 0.50	< 0.005	< 0.20	< 0.010	0.03	0.10	< 0.005	0.0001
	4/20/1982	---	< 0.50	< 0.005	< 0.20	< 0.005	< 0.01	< 0.10	0.010	0.0001
	9/8/1988	< 0.10	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.010	< 0.0010
	3/20/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	8/22/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
BR-U	11/30/1979	0.31	0.10	< 0.001	< 0.05	< 0.050	0.03	< 1.00	< 0.010	< 0.0010
	4/15/1980	0.24	2.70	< 0.010	< 0.05	< 0.050	< 0.02	< 1.00	< 0.010	< 0.0010
	7/30/1980	0.69	< 0.20	0.008	0.20	< 0.010	0.02	< 0.10	< 0.010	0.0002
C #1	11/17/1978	0.03	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	< 0.10	< 0.010	< 0.0005
	4/29/1979	0.10	< 0.10	< 0.003	---	---	---	< 0.10	< 0.010	< 0.0005
DW#1	11/8/1978	0.15	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	0.20	< 0.010	< 0.0005
	5/1/1979	0.16	---	---	---	0.030	0.07	0.10	---	---
	3/22/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/2/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/24/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	9/5/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
F. Brown #1	11/7/1978	0.88	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	0.30	< 0.010	< 0.0095
	4/21/1979	0.70	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	< 0.10	< 0.010	< 0.0095
Hank 1	11/17/1978	0.04	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	< 0.10	< 0.010	< 0.0005
	5/1/1979	0.21	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	< 0.10	< 0.010	0.0013

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	F (mg/l)	Al (mg/l)	As (mg/l)	Ba (mg/l)	Cr (mg/l)	Cu (mg/l)	B (mg/l)	Cd (mg/l)	Hg (mg/l)
Hank 1	6/27/2006	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	6/29/2006	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	12/20/2006	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	1/25/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/2/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	6/26/2008	0.10	< 0.10	0.003	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	1/26/2010	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
Means #1	11/16/2006	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	3/12/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	6/6/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	9/5/2007	0.10	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
NBHW-13	11/28/2006	< 0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	2/23/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	5/16/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	7/25/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
Old Maid #1	3/12/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
OW43756	6/21/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
Paden #1	12/6/2006	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	2/27/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	0.20	< 0.005	< 0.0010
	6/6/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	9/5/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
SS1-F	10/23/1980	< 0.10	0.09	< 0.005	---	< 0.010	< 0.01	< 0.01	0.014	< 0.0005
	1/20/1981	< 0.10	< 0.05	< 0.005	< 0.03	< 0.010	0.01	< 0.01	0.002	< 0.0005
	4/29/1981	0.17	< 0.05	< 0.005	< 0.03	< 0.010	0.01	< 0.01	< 0.002	< 0.0005
	7/29/1981	0.14	< 0.05	< 0.005	< 0.03	< 0.010	< 0.01	< 0.01	< 0.002	< 0.0005
	4/15/1988	0.11	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.010	< 0.0010
	6/21/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
SS1-L	10/12/1978	0.10	< 0.10	< 0.003	< 0.10	< 0.010	0.02	0.30	< 0.010	< 0.0005
	2/14/1979	0.39	0.20	< 0.003	< 0.10	< 0.020	< 0.01	0.60	< 0.010	< 0.0005
	4/17/1979	0.10	< 0.10	< 0.003	< 0.10	< 0.020	< 0.01	< 0.10	< 0.010	< 0.0005
	8/6/1979	0.12	< 0.30	< 0.002	< 0.30	< 0.020	< 0.01	0.10	< 0.010	< 0.0010
	10/26/1979	0.08	< 0.10	< 0.002	< 0.10	< 0.020	0.03	0.20	< 0.010	0.0004
	10/23/1980	< 0.10	0.15	< 0.005	< 0.03	< 0.010	< 0.01	< 0.01	0.004	< 0.0005
	1/14/1981	0.27	< 0.05	< 0.005	< 0.03	< 0.010	< 0.01	< 0.01	0.005	< 0.0005
	4/29/1981	0.14	< 0.05	< 0.005	< 0.03	< 0.010	0.01	< 0.01	< 0.002	< 0.0005
	7/29/1981	0.14	< 0.05	< 0.005	< 0.03	< 0.010	0.02	< 0.01	< 0.002	< 0.0005
	4/15/1988	0.10	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.010	< 0.0010
	4/27/2007	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	F (mg/l)	Al (mg/l)	As (mg/l)	Ba (mg/l)	Cr (mg/l)	Cu (mg/l)	B (mg/l)	Cd (mg/l)	Hg (mg/l)
SS1-L	6/5/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	7/25/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/24/2008	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
SS1-M	11/8/1978	0.11	< 0.10	< 0.003	< 0.10	< 0.010	0.04	< 0.10	< 0.010	< 0.0005
	2/14/1979	0.17	0.70	< 0.002	< 0.03	< 0.010	0.20	< 0.10	< 0.010	< 0.0003
	4/17/1979	0.20	< 0.10	< 0.002	< 0.03	< 0.020	< 0.01	< 0.10	< 0.010	< 0.0010
	8/6/1979	0.08	< 0.30	< 0.002	< 0.30	< 0.020	< 0.01	0.10	< 0.010	< 0.0010
	10/24/1979	0.06	< 0.10	< 0.002	< 0.10	< 0.020	< 0.01	< 0.10	< 0.010	< 0.0003
	10/23/1980	< 0.10	0.13	< 0.005	< 0.03	< 0.010	0.02	< 0.01	0.010	< 0.0005
	1/20/1981	0.26	< 0.05	< 0.005	< 0.03	< 0.010	< 0.01	< 0.01	0.004	< 0.0005
	4/28/1981	0.12	< 0.05	< 0.005	< 0.03	< 0.010	< 0.01	< 0.01	< 0.002	< 0.0005
	7/29/1981	0.15	< 0.05	< 0.005	< 0.03	< 0.010	< 0.01	< 0.01	< 0.002	< 0.0005
	4/15/1988	0.10	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.010	< 0.0010
SS1-U	10/13/1978	0.09	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	0.60	< 0.010	< 0.0005
	2/14/1979	0.12	0.20	< 0.003	< 0.10	< 0.010	0.03	0.40	< 0.010	< 0.0005
	4/17/1979	0.07	< 0.10	< 0.002	< 0.30	< 0.020	< 0.01	< 0.10	< 0.010	< 0.0010
	8/6/1979	0.08	< 0.30	< 0.002	< 0.30	< 0.020	< 0.01	0.70	< 0.010	< 0.0010
	10/26/1979	0.07	< 0.10	< 0.002	< 0.10	0.020	< 0.01	0.30	< 0.010	< 0.0003
	10/23/1980	< 0.10	0.15	< 0.005	< 0.03	< 0.010	< 0.01	< 0.01	0.006	< 0.0005
	1/20/1981	0.18	< 0.05	< 0.005	< 0.03	< 0.010	< 0.01	< 0.01	0.003	< 0.0005
	4/29/1981	0.17	< 0.05	< 0.005	< 0.03	< 0.010	< 0.01	< 0.01	< 0.002	< 0.0005
	7/29/1981	0.17	< 0.05	< 0.005	< 0.03	< 0.010	< 0.01	< 0.01	< 0.002	< 0.0005
	4/15/1988	0.10	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.010	< 0.0010
	6/20/2007	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZHB-6	8/28/2007	0.20	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	3/13/2008	< 0.10	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	3/13/2008	< 0.10	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	9/10/2008	< 0.10	0.50	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/25/2008	< 0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	0.10	< 0.005	< 0.0010
URZHC-2	8/7/2007	0.40	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	9/7/2007	0.40	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/18/2008	0.40	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	0.20	< 0.005	< 0.0010
	8/13/2009	0.40	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZHF-1	7/27/2007	0.20	< 0.10	0.005	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/18/2008	0.10	< 0.10	0.001	< 0.10	< 0.050	< 0.01	0.80	< 0.005	< 0.0010
	6/29/2009	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	8/27/2009	0.10	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZHF-5	8/2/2007	0.30	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	9/17/2008	0.20	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	F (mg/l)	Al (mg/l)	As (mg/l)	Ba (mg/l)	Cr (mg/l)	Cu (mg/l)	B (mg/l)	Cd (mg/l)	Hg (mg/l)
URZHF-5	8/12/2009	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	12/17/2009	0.20	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	3/2/2010	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZHF-8	8/12/2009	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	3/2/2010	0.10	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZHF-14	2/4/2010	0.20	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZHG-3	8/13/2009	0.10	< 0.10	0.004	< 0.10	< 0.050	0.02	< 0.10	< 0.005	< 0.0010
URZHH-7	6/26/2008	0.20	< 0.10	0.004	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	9/17/2008	0.20	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	11/19/2008	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	8/17/2009	0.20	< 0.10	< 0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZHH-9	8/13/2009	0.40	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	12/17/2009	0.30	< 0.10	0.002	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
	2/2/2010	0.20	< 0.10	0.001	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
URZHH-10	8/12/2009	0.40	< 0.10	0.004	< 0.10	< 0.050	< 0.01	< 0.10	< 0.005	< 0.0010
WC-MN1	11/14/1978	0.05	< 0.10	< 0.003	< 0.10	< 0.010	< 0.01	< 0.10	< 0.010	< 0.0005
	4/18/1979	< 0.02	---	---	---	---	---	0.20	---	---
	10/29/1979	0.06	< 0.10	< 0.002	< 0.10	< 0.020	0.08	< 0.30	< 0.010	< 0.0003

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Mo (mg/l)	Ni (mg/l)	Pb (mg/l)	Se (mg/l)	Unat (mg/l)	V (mg/l)	Zn (mg/l)
BR-B	10/11/1979	---	< 0.040	< 0.050	< 0.010	0.0060	< 0.050	< 0.01
	4/15/1980	---	< 0.040	< 0.100	< 0.010	< 0.0010	< 0.050	0.07
	11/9/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0073	< 0.100	< 0.01
	1/24/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0073	< 0.100	< 0.01
	4/25/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0074	< 0.100	< 0.01
BR-F	11/8/1979	---	< 0.040	< 0.050	< 0.010	< 0.0010	< 0.050	0.01
	4/16/1980	---	< 0.004	< 0.050	< 0.010	< 0.0010	< 0.050	0.01
	11/28/2006	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
	1/25/2007	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
	5/16/2007	< 0.1	< 0.050	0.003	< 0.001	< 0.0003	< 0.100	0.01
	11/25/2008	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
BR-G	10/10/1979	---	< 0.040	< 0.050	< 0.010	0.0050	< 0.050	0.01
	4/16/1980	---	< 0.050	0.008	< 0.005	0.0120	0.017	0.01
	4/16/1980	---	< 0.040	0.100	< 0.010	< 0.0010	< 0.050	0.04
	7/30/1980	---	< 0.050	0.067	< 0.050	0.0100	< 0.005	0.01
	10/28/1980	---	< 0.020	0.011	< 0.005	0.0060	0.006	1.30
	2/19/1981	---	< 0.050	0.005	0.030	0.0110	< 0.005	1.20
	6/29/1981	---	0.050	0.009	0.005	0.0060	0.005	1.05
	9/28/1981	---	< 0.020	< 0.005	< 0.005	0.0160	< 0.005	1.03
	4/20/1982	---	0.020	< 0.016	< 0.005	0.0210	< 0.005	3.60
	12/19/2006	< 0.1	< 0.050	< 0.001	0.001	0.0005	< 0.100	< 0.01
	2/27/2007	< 0.1	< 0.050	< 0.001	< 0.002	0.0005	< 0.100	< 0.01
	5/16/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0005	< 0.100	< 0.01
BR-H	10/12/1979	---	< 0.040	< 0.050	< 0.010	0.0090	< 0.050	0.02
	4/15/1980	---	< 0.040	0.100	< 0.010	< 0.0010	< 0.050	0.12
	11/21/2006	< 0.1	< 0.050	< 0.001	0.001	0.0006	< 0.100	< 0.01
	1/24/2007	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
	4/25/2007	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	< 0.01
	11/24/2008	< 0.1	< 0.050	< 0.001	< 0.001	< 0.0003	< 0.100	0.01
BR-I	11/30/1979	---	< 0.040	< 0.050	< 0.010	0.0180	< 0.010	0.06
	4/16/1980	---	< 0.040	< 0.050	< 0.010	0.0080	< 0.050	0.10
	7/30/1980	---	< 0.050	0.117	< 0.005	0.0070	< 0.005	< 0.01
Brown #5	9/5/2007	< 0.1	< 0.050	0.001	< 0.001	0.0129	< 0.100	0.02
Brown-WS	9/7/2006	< 0.1	< 0.050	< 0.050	< 0.001	0.0103	< 0.100	0.02
	12/6/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0090	< 0.100	0.07
	2/21/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0096	< 0.100	0.12
	5/16/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0092	< 0.100	0.06
BR-Q	1/9/1980	---	< 0.040	1.860	< 0.010	< 0.0010	< 0.010	< 0.01

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Mo (mg/l)	Ni (mg/l)	Pb (mg/l)	Se (mg/l)	Unat (mg/l)	V (mg/l)	Zn (mg/l)
BR-Q	4/16/1980	---	< 0.050	0.650	< 0.005	< 0.0010	0.017	0.15
	4/16/1980	---	< 0.040	0.800	< 0.010	< 0.0010	< 0.050	0.19
	12/19/2006	< 0.1	< 0.050	0.001	0.002	0.0089	< 0.100	< 0.01
	2/27/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0107	< 0.100	< 0.01
	5/16/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0109	< 0.100	< 0.01
	8/8/2007	< 0.1	< 0.050	< 0.001	< 0.002	0.0104	< 0.100	< 0.01
	8/8/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0111	< 0.100	< 0.01
BR-T	1/8/1980	---	< 0.040	< 0.050	< 0.010	0.0060	< 0.050	< 0.01
	2/27/1980	---	< 0.040	< 0.050	< 0.010	0.0100	< 0.050	1.23
	4/15/1980	---	< 0.040	< 0.050	< 0.010	0.0110	< 0.050	1.28
	4/15/1980	---	< 0.050	0.002	< 0.005	0.0120	< 0.005	1.90
	4/15/1980	---	0.020	0.009	< 0.010	---	< 0.020	1.94
	4/15/1980	---	< 0.050	< 0.050	0.003	0.0150	< 0.100	1.21
	3/11/1981	---	< 0.050	< 0.005	< 0.005	0.0200	< 0.005	0.17
	6/30/1981	---	< 0.050	< 0.010	< 0.005	< 0.0010	< 0.005	0.21
	9/29/1981	---	< 0.020	< 0.005	< 0.005	0.0200	< 0.005	---
	1/14/1982	---	< 0.020	< 0.005	< 0.005	0.0220	< 0.005	0.52
	4/20/1982	---	< 0.020	< 0.005	< 0.005	0.2000	< 0.005	0.24
	9/8/1988	< 0.1	< 0.050	< 0.050	0.007	0.0104	< 0.100	0.08
	3/20/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0163	< 0.100	3.19
	8/22/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0139	< 0.100	0.04
BR-U	11/30/1979	---	0.040	< 0.050	< 0.010	0.0720	< 0.050	0.04
	4/15/1980	---	< 0.040	< 0.050	< 0.010	0.0690	< 0.050	0.06
	7/30/1980	---	< 0.050	0.040	0.014	0.0520	< 0.005	< 0.01
C #1	11/17/1978	< 0.1	< 0.010	< 0.010	< 0.003	0.0160	< 0.100	0.03
	4/29/1979	< 0.1	---	---	< 0.003	0.0260	< 0.100	0.05
DW#1	11/8/1978	< 0.1	< 0.010	0.050	0.004	0.0081	< 0.100	< 0.01
	5/1/1979	---	---	0.020	---	< 0.0010	---	0.07
	3/22/2007	< 0.1	< 0.050	< 0.001	< 0.010	0.0040	< 0.100	< 0.01
	5/2/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0035	< 0.100	< 0.01
	5/24/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0053	< 0.100	< 0.01
	9/5/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0033	< 0.100	< 0.01
F. Brown #1	11/7/1978	0.5	< 0.010	< 0.010	< 0.003	2.1600	< 0.100	< 0.01
	4/21/1979	< 0.1	< 0.010	< 0.010	< 0.003	0.2350	< 0.100	< 0.01
Hank 1	11/17/1978	< 0.1	< 0.010	0.010	< 0.003	< 0.0010	< 0.100	< 0.01
	5/1/1979	< 0.1	< 0.010	< 0.010	< 0.003	< 0.0010	< 0.100	0.01
	6/27/2006	< 0.1	< 0.050	< 0.050	< 0.001	0.0043	< 0.100	< 0.01
	6/29/2006	< 0.1	< 0.050	< 0.050	< 0.001	0.0043	< 0.100	< 0.01
	12/20/2006	< 0.1	< 0.050	< 0.001	0.002	0.0034	< 0.100	< 0.01

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Mo (mg/l)	Ni (mg/l)	Pb (mg/l)	Se (mg/l)	Unat (mg/l)	V (mg/l)	Zn (mg/l)
Hank 1	1/25/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0028	< 0.100	< 0.01
	5/2/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0031	< 0.100	< 0.01
	6/26/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0028	< 0.100	< 0.01
	1/26/2010	< 0.1	< 0.050	< 0.001	< 0.001	0.0022	< 0.100	0.03
Means #1	11/16/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0272	< 0.100	0.07
	3/12/2007	< 0.1	< 0.050	< 0.001	0.003	0.0214	< 0.100	0.06
	6/6/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0253	< 0.100	0.09
	9/5/2007	< 0.1	< 0.050	0.007	0.001	0.0283	< 0.100	0.18
NBHW-13	11/28/2006	< 0.1	< 0.050	< 0.001	< 0.001	0.0167	< 0.100	< 0.01
	2/23/2007	< 0.1	< 0.050	< 0.001	0.001	0.0146	< 0.100	0.01
	5/16/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0147	< 0.100	0.05
	7/25/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0148	< 0.100	< 0.01
Old Maid #1	3/12/2007	< 0.1	< 0.050	< 0.001	< 0.002	< 0.0003	< 0.100	0.22
OW43756	6/21/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0058	< 0.100	< 0.01
Paden #1	12/6/2006	< 0.1	< 0.050	< 0.001	0.032	0.2170	< 0.100	< 0.01
	2/27/2007	< 0.1	< 0.050	< 0.001	0.029	0.2680	< 0.100	< 0.01
	6/6/2007	< 0.1	< 0.050	< 0.001	0.024	0.2850	< 0.100	< 0.01
	9/5/2007	< 0.1	< 0.050	0.005	0.017	0.2940	< 0.100	0.16
SS1-F	10/23/1980	< 0.1	< 0.020	< 0.010	< 0.005	0.0160	< 0.050	0.04
	1/20/1981	< 0.1	< 0.020	< 0.010	< 0.005	0.0020	< 0.050	0.01
	4/29/1981	< 0.1	< 0.020	< 0.010	< 0.005	0.0010	< 0.050	0.02
	7/29/1981	< 0.1	< 0.020	< 0.010	< 0.005	0.0020	< 0.050	0.01
	4/15/1988	< 0.1	< 0.050	< 0.050	0.010	0.0028	< 0.100	< 0.01
	6/21/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0018	< 0.100	< 0.01
SS1-L	10/12/1978	< 0.1	0.020	< 0.010	< 0.003	0.0140	< 0.100	< 0.01
	2/14/1979	< 0.1	0.030	0.030	< 0.003	0.0010	< 0.100	0.09
	4/17/1979	< 0.1	< 0.010	0.020	< 0.003	0.0020	< 0.100	< 0.01
	8/6/1979	< 0.2	0.020	0.040	< 0.001	0.0060	< 0.700	0.02
	10/26/1979	< 0.1	< 0.010	< 0.020	< 0.002	0.0060	< 0.100	0.17
	10/23/1980	< 0.1	< 0.020	< 0.010	< 0.005	0.0080	< 0.050	0.01
	1/14/1981	< 0.1	< 0.020	< 0.010	< 0.005	0.0030	< 0.050	0.01
	4/29/1981	< 0.1	< 0.020	< 0.010	< 0.001	0.0050	< 0.050	0.03
	7/29/1981	< 0.1	< 0.020	< 0.010	< 0.005	0.0060	< 0.050	0.06
	4/15/1988	< 0.1	< 0.050	< 0.050	0.011	0.0101	< 0.100	< 0.01
	4/27/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0146	< 0.100	< 0.01
	6/5/2007	< 0.1	< 0.050	< 0.001	---	---	< 0.100	< 0.01
	7/25/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0147	< 0.100	< 0.01
	11/24/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0117	< 0.100	< 0.01

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Mo (mg/l)	Ni (mg/l)	Pb (mg/l)	Se (mg/l)	Unat (mg/l)	V (mg/l)	Zn (mg/l)
SS1-M	11/8/1978	0.4	< 0.010	< 0.010	< 0.003	0.0230	< 0.100	0.03
	2/14/1979	< 0.1	0.070	0.130	< 0.002	0.0120	< 0.400	0.19
	4/17/1979	< 0.1	< 0.010	0.040	< 0.001	0.0140	< 0.100	< 0.01
	8/6/1979	< 0.2	0.020	0.020	< 0.001	0.0140	< 0.400	0.04
	10/24/1979	< 0.1	< 0.010	< 0.020	< 0.002	0.0150	< 0.100	0.17
	10/23/1980	< 0.1	< 0.020	< 0.010	< 0.005	0.0230	< 0.050	0.01
	1/20/1981	< 0.1	< 0.020	< 0.010	< 0.005	0.0070	< 0.050	0.01
	4/28/1981	< 0.1	< 0.020	< 0.010	< 0.050	0.0160	< 0.050	0.01
	7/29/1981	< 0.1	< 0.020	< 0.010	< 0.005	0.0050	< 0.050	0.10
	4/15/1988	< 0.1	< 0.050	< 0.050	< 0.001	0.0183	< 0.100	< 0.01
SS1-U	10/13/1978	< 0.1	0.020	< 0.010	0.008	---	< 0.100	< 0.01
	2/14/1979	< 0.1	0.030	0.030	< 0.002	0.0110	< 0.100	0.04
	4/17/1979	< 0.1	< 0.020	< 0.020	< 0.001	0.0100	< 0.100	< 0.01
	8/6/1979	< 0.2	< 0.020	0.040	< 0.001	0.0120	< 0.400	0.06
	10/26/1979	< 0.1	< 0.010	< 0.020	< 0.002	0.0090	< 0.100	0.10
	10/23/1980	< 0.1	< 0.020	< 0.010	< 0.005	0.0180	< 0.050	0.18
	1/20/1981	< 0.1	< 0.020	< 0.010	< 0.005	0.0240	< 0.050	0.01
	4/29/1981	< 0.1	< 0.020	< 0.010	< 0.005	0.0130	< 0.050	< 0.01
	7/29/1981	< 0.1	< 0.020	< 0.010	< 0.005	0.0060	< 0.050	0.08
	4/15/1988	< 0.1	< 0.050	< 0.050	< 0.001	0.0079	< 0.100	< 0.01
	6/20/2007	< 0.1	< 0.050	0.001	< 0.001	0.0130	< 0.100	< 0.01
URZHB-6	8/28/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0196	< 0.100	< 0.01
	3/13/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0200	< 0.100	< 0.01
	3/13/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0176	< 0.100	< 0.01
	9/10/2008	< 0.1	< 0.050	0.003	< 0.001	0.0195	< 0.100	0.02
	11/25/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0183	< 0.100	< 0.01
URZHC-2	8/7/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0030	< 0.100	< 0.01
	9/7/2007	< 0.1	< 0.050	< 0.001	0.003	0.0008	< 0.100	< 0.01
	11/18/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0031	< 0.100	< 0.01
	8/13/2009	< 0.1	< 0.050	< 0.001	< 0.001	0.0005	< 0.100	< 0.01
URZHF-1	7/27/2007	< 0.1	< 0.050	< 0.001	0.574	5.2500	< 0.100	< 0.01
	11/18/2008	< 0.1	< 0.050	< 0.001	0.016	1.0700	< 0.100	< 0.01
	6/29/2009	< 0.1	< 0.050	< 0.001	0.011	1.0700	< 0.100	< 0.01
	8/27/2009	< 0.1	< 0.050	< 0.001	0.042	5.7300	< 0.100	< 0.01
URZHF-5	8/2/2007	< 0.1	< 0.050	< 0.001	< 0.001	0.0051	< 0.100	< 0.01
	9/17/2008	< 0.1	< 0.050	< 0.001	< 0.001	0.0036	< 0.100	0.01
	8/12/2009	< 0.1	< 0.050	< 0.001	< 0.001	0.0033	< 0.100	< 0.01
	12/17/2009	< 0.1	< 0.050	< 0.001	0.002	0.0051	< 0.100	< 0.01
	3/2/2010	< 0.1	< 0.050	< 0.001	0.001	0.0046	< 0.100	< 0.01

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd.)

Well Name	Date	Mo (mg/l)	Ni (mg/l)	Pb (mg/l)	Se (mg/l)	Unat (mg/l)	V (mg/l)	Zn (mg/l)
URZHF-8	8/12/2009	< 0.1	< 0.050	< 0.001	0.004	0.0176	< 0.100	< 0.01
	3/2/2010	< 0.1	< 0.050	< 0.001	< 0.001	0.0082	< 0.100	0.01
URZHF-14	2/4/2010	< 0.1	< 0.050	< 0.001	< 0.001	0.0440	< 0.100	< 0.01
URZHG-3	8/13/2009	< 0.1	< 0.050	0.013	0.011	0.0081	< 0.100	0.13
URZHH-7	6/26/2008	< 0.1	< 0.050	< 0.001	0.002	0.0462	< 0.100	0.02
	9/17/2008	< 0.1	< 0.050	< 0.001	0.003	0.0421	< 0.100	0.02
	11/19/2008	< 0.1	< 0.050	< 0.001	0.003	0.0396	< 0.100	< 0.01
	8/17/2009	< 0.1	< 0.050	< 0.001	0.003	0.0318	< 0.100	< 0.01
URZHH-9	8/13/2009	< 0.1	< 0.050	< 0.001	0.003	0.0050	< 0.100	< 0.01
	12/17/2009	< 0.1	< 0.050	< 0.001	< 0.001	0.0007	< 0.100	< 0.01
	2/2/2010	< 0.1	< 0.050	< 0.001	< 0.001	0.0011	< 0.100	0.01
URZHH-10	8/12/2009	< 0.1	< 0.050	< 0.001	0.007	0.0526	< 0.100	0.03
WC-MN1	11/14/1978	< 0.1	< 0.010	< 0.010	< 0.003	0.0054	< 0.100	< 0.01
	4/18/1979	---	---	---	---	< 0.0010	---	0.02
	10/29/1979	< 0.1	< 0.010	< 0.020	< 0.002	0.0020	< 0.100	0.32

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd)

Well Name	Date	Ra226 (pCi/l)	Ra226(e) (pCi/l)	Ra228 (pCi/l)	Ra228(e) (pCi/l)	Alpha (pCi/l)	Beta (pCi/l)
BR-B	10/11/1979	2.3	± 0.4	---	---	---	---
	11/9/2006	1.2	± 0.5	< 1.0	---	8.5	5.0
	1/24/2007	1.6	± 0.4	< 1.0	---	11.4	12.6
	4/25/2007	2.2	± 0.5	< 1.0	---	7.6	10.0
BR-F	11/28/2006	< 0.2	± 0.2	< 1.0	---	< 1.0	< 2.0
	1/25/2007	< 0.2	---	< 1.0	---	1.2	3.1
	5/16/2007	< 0.2	± 0.2	< 1.0	---	1.4	5.6
	11/25/2008	0.1	± 0.1	1.0	± 0.8	1.5	-2.0
BR-G	10/10/1979	2.0	± 0.5	---	---	---	---
	4/16/1980	0.2	± 0.8	---	---	---	---
	7/30/1980	0.8	± 0.6	---	---	---	---
	10/28/1980	0.6	± 0.5	---	---	---	---
	2/19/1981	1.1	± 0.6	---	---	---	---
	6/29/1981	1.7	± 0.9	---	---	---	---
	9/28/1981	0.3	± 0.4	---	---	---	---
	4/20/1982	1.1	± 0.5	---	---	---	---
	12/19/2006	< 0.2	± 0.2	< 1.0	---	8.1	8.4
	2/27/2007	1.3	± 0.5	< 1.0	---	4.4	18.4
	5/16/2007	0.6	± 0.3	< 1.0	---	4.8	10.4
BR-H	11/21/2006	< 0.2	± 0.2	< 1.0	---	3.9	5.3
	1/24/2007	< 0.2	± 0.2	< 1.0	---	< 1.0	3.0
	4/25/2007	< 0.2	± 0.2	< 1.0	---	< 1.0	3.4
	11/24/2008	0.3	± 0.2	0.7	± 0.7	0.2	-2.0
BR-I	11/30/1979	1.9	± 0.4	---	---	---	---
	7/30/1980	1.0	± 0.6	---	---	---	---
Brown #5	9/5/2007	< 0.2	± 0.2	< 1.0	---	14.7	< 2.0
Brown-WS	9/7/2006	< 0.2	± 0.2	< 1.0	---	9.0	12.8
	12/6/2006	< 0.2	± 0.2	< 1.0	---	7.9	8.6
	2/21/2007	< 0.2	± 0.2	< 1.0	---	6.8	6.0
	5/16/2007	< 0.2	± 0.2	< 1.0	---	7.6	8.4
BR-Q	1/9/1980	0.4	± 0.1	---	---	---	---
	4/16/1980	1.3	± 1.0	---	---	---	---
	12/19/2006	< 0.2	± 0.2	< 1.0	---	10.9	10.1
	2/27/2007	0.8	± 0.4	< 1.0	---	9.3	10.0
	5/16/2007	< 0.2	± 0.2	< 1.0	---	6.6	9.3
	8/8/2007	0.6	± 0.2	< 1.0	---	8.1	8.4
	8/8/2007	< 0.2	± 0.2	1.1	± 0.8	8.7	9.2
BR-T	1/8/1980	15.4	± 1.0	---	---	---	---

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd)

Well Name	Date	Ra226 (pCi/l)	Ra226(e) (pCi/l)	Ra228 (pCi/l)	Ra228(e) (pCi/l)	Alpha (pCi/l)	Beta (pCi/l)
BR-T	2/27/1980	29.0	± 2.1	---	---	---	---
	2/27/1980	3.9	---	---	---	---	---
	4/15/1980	6.3	± 3.1	---	---	---	---
	4/15/1980	20.3	---	---	---	---	---
	3/11/1981	16.0	± 3.0	---	---	---	---
	6/30/1981	9.3	± 4.2	---	---	---	---
	9/29/1981	3.9	± 1.1	---	---	---	---
	1/14/1982	11.0	± 2.0	---	---	---	---
	4/20/1982	6.8	± 1.5	---	---	---	---
	9/8/1988	23.7	---	---	---	---	---
	3/20/2007	8.7	± 1.2	< 1.0	---	16.1	18.1
	8/22/2007	2.2	± 0.6	< 1.0	---	16.2	6.3
BR-U	11/30/1979	0.4	± 0.3	---	---	---	---
	7/30/1980	0.6	± 0.5	---	---	---	---
C #1	11/17/1978	21.0	± 5.0	---	---	---	---
	4/29/1979	6.2	± 1.0	---	---	---	---
DW#1	11/8/1978	33.0	± 4.0	---	---	---	---
	5/1/1979	9.1	± 1.4	---	---	---	---
	3/22/2007	44.4	± 1.9	< 1.0	---	49.3	35.2
	5/2/2007	44.1	± 2.1	< 1.0	---	47.4	31.9
	5/24/2007	42.1	± 2.1	< 1.0	---	132.0	50.1
	9/5/2007	47.7	± 2.5	< 1.0	---	103.0	46.8
F. Brown #1	11/7/1978	128.0	± 9.0	---	---	---	---
	4/21/1979	24.0	± 4.5	---	---	---	---
Hank 1	11/17/1978	10.0	± 3.0	---	---	---	---
	5/1/1979	7.7	± 1.1	---	---	---	---
	6/27/2006	40.4	± 1.9	---	---	---	---
	6/29/2006	102.0	± 2.9	---	---	---	---
	12/20/2006	119.0	± 4.3	< 1.0	---	326.0	193.0
	1/25/2007	137.0	± 3.8	< 1.0	---	338.0	210.0
	5/2/2007	153.0	± 3.9	< 1.0	---	181.0	173.0
	6/26/2008	165.0	± 2.0	0.8	± 0.7	592.0	192.0
	1/26/2010	164.0	2.6	3.6	0.8	1030.0	281.0
Means #1	11/16/2006	0.6	± 0.0	< 1.0	---	18.0	16.6
	3/12/2007	2.2	± 0.7	< 1.0	---	16.1	13.3
	6/6/2007	0.6	± 0.3	3.6	± 1.0	20.6	8.9
	9/5/2007	0.7	± 0.4	< 1.0	---	24.2	10.6
NBHW-13	11/28/2006	55.3	± 2.3	2.0	± 0.7	185.0	109.0

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd)

Well Name	Date	Ra226 (pCi/l)	Ra226(e) (pCi/l)	Ra228 (pCi/l)	Ra228(e) (pCi/l)	Alpha (pCi/l)	Beta (pCi/l)
NBHW-13	2/23/2007	99.5	± 3.0	< 1.0	---	305.0	141.0
	5/16/2007	99.8	± 3.1	< 1.0	---	404.0	169.0
	7/25/2007	95.4	± 2.9	< 1.0	---	320.0	130.0
Old Maid #1	3/12/2007	6.3	± 0.8	< 1.0	---	11.2	11.4
OW43756	6/21/2007	1.0	± 0.4	< 1.0	---	6.0	9.6
Paden #1	12/6/2006	3.7	± 0.6	3.3	± 0.9	180.0	54.8
	2/27/2007	3.6	± 0.8	< 1.0	---	193.0	64.1
	6/6/2007	3.3	± 0.6	3.5	± 1.0	189.0	47.7
	9/5/2007	3.8	± 0.7	< 1.0	---	206.0	75.8
SS1-F	10/23/1980	1.5	---	---	---	---	---
	1/20/1981	5.7	---	---	---	---	---
	4/29/1981	4.2	---	---	---	---	---
	7/29/1981	4.2	---	---	---	---	---
	4/15/1988	5.1	---	---	---	---	---
	6/21/2007	0.7	± 0.3	< 1.0	---	8.5	7.9
SS1-L	10/12/1978	53.0	± 6.0	---	---	---	---
	2/14/1979	< 0.2	± 0.5	---	---	---	---
	4/17/1979	1.0	± 0.4	---	---	---	---
	10/23/1980	2.7	---	---	---	---	---
	1/14/1981	5.0	---	---	---	---	---
	4/29/1981	1.2	---	---	---	---	---
	7/29/1981	1.7	---	---	---	---	---
	4/15/1988	82.4	---	---	---	---	---
	4/27/2007	148.0	± 4.0	1.8	± 0.8	662.0	393.0
	6/5/2007	143.0	± 5.1	3.2	---	426.0	179.0
	7/25/2007	148.0	± 3.6	< 1.0	---	492.0	247.0
	11/24/2008	128.0	± 2.2	2.5	± 0.7	483.0	246.0
SS1-M	11/8/1978	3.3	± 1.5	---	---	---	---
	2/14/1979	< 0.2	± 0.7	---	---	---	---
	4/17/1979	0.2	± 2.5	---	---	---	---
	10/23/1980	1.1	---	---	---	---	---
	1/20/1981	2.7	---	---	---	---	---
	4/28/1981	1.3	---	---	---	---	---
	7/29/1981	7.8	---	---	---	---	---
	4/15/1988	2.8	---	---	---	---	---
SS1-U	10/13/1978	54.0	± 6.0	---	---	---	---
	2/14/1979	6.1	± 1.4	---	---	---	---
	4/17/1979	15.6	± 2.1	---	---	---	---

TABLE D6E.2-1. HANK UNIT GROUND-WATER QUALITY DATA. (cont'd)

Well Name	Date	Ra226 (pCi/l)	Ra226(e) (pCi/l)	Ra228 (pCi/l)	Ra228(e) (pCi/l)	Alpha (pCi/l)	Beta (pCi/l)
SS1-U	10/23/1980	1.1	---	---	---	---	---
	1/20/1981	2.7	---	---	---	---	---
	4/29/1981	1.1	---	---	---	---	---
	7/29/1981	2.1	---	---	---	---	---
	4/15/1988	16.2	---	---	---	---	---
	6/20/2007	12.1	± 1.2	< 1.0	---	57.7	32.4
URZHB-6	8/28/2007	1.3	± 0.5	< 1.0	---	16.9	10.2
	3/13/2008	0.8	---	1.4	---	35.7	12.3
	3/13/2008	0.8	---	0.8	---	34.5	4.8
	9/10/2008	1.0	± 0.2	1.8	± 0.8	33.9	11.9
	11/25/2008	0.8	± 0.2	1.2	± 0.8	38.0	8.3
URZHC-2	8/7/2007	5.5	± 0.7	< 1.0	---	12.2	10.4
	9/7/2007	< 0.2	± 0.2	< 1.0	---	1.6	4.7
	11/18/2008	0.2	± 0.2	-0.3	± 0.7	16.3	12.6
	8/13/2009	0.0	0.1	0.0	0.8	2.1	5.9
URZHF-1	7/27/2007	562.0	± 7.2	4.0	± 1.0	5090.0	1540.0
	11/18/2008	165.0	± 2.2	2.1	± 0.7	2360.0	1050.0
	6/29/2009	175.0	2.5	2.2	0.8	2040.0	548.0
	8/27/2009	362.0	3.4	4.5	0.8	11000.0	2200.0
URZHF-5	8/2/2007	40.3	± 2.1	< 1.0	---	96.8	50.7
	9/17/2008	43.0	± 1.2	0.7	± 0.7	139.0	74.8
	8/12/2009	41.0	1.2	1.1	0.8	253.0	95.3
	12/17/2009	58.0	1.3	1.9	0.9	369.0	175.0
	3/2/2010	63.0	1.7	1.1	0.7	260.0	95.0
URZHF-8	8/12/2009	33.0	1.2	2.8	0.8	178.0	66.4
	3/2/2010	15.0	0.8	1.2	0.5	77.6	28.6
URZHF-14	2/4/2010	118.0	2.0	2.8	0.7	833.0	238.0
URZHG-3	8/13/2009	1.2	0.2	0.3	0.9	18.5	13.7
URZHH-7	6/26/2008	2.0	± 0.2	0.0	± 0.7	89.0	23.8
	9/17/2008	1.8	± 0.3	0.5	± 0.7	71.5	26.4
	11/19/2008	2.1	± 0.3	2.9	± 0.5	76.3	29.9
	8/17/2009	1.9	0.4	0.4	0.8	64.4	17.3
URZHH-9	8/13/2009	-0.2	0.1	1.7	1.0	14.1	11.7
	12/17/2009	0.3	0.1	1.0	0.8	3.9	5.9
	2/2/2010	0.6	0.2	0.3	0.7	10.8	6.6
URZHH-10	8/12/2009	0.8	0.2	1.5	0.9	924.0	676.0
WC-MN1	11/14/1978	6.1	± 2.1	---	---	---	---
	4/18/1979	4.5	± 1.1	---	---	---	---

TABLES

Table D6G.1-1 NICHOLS RANCH UNIT WATER WELLS

(permit area & adjacent)

Permit#	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	Priority	GW Appr Amt	Uses	GW Well Depth	GW Static Depth	Status
P35744W	RED SPRING ARTESIAN #1	43	76	7	SENE	BROWN LAND COMPANY	12/21/1976	3	STO	740	-6	GST
P63574W	RED SPRINGS #4 LOWER (DW-4L)	43	76	8	SENE	T-CHAIR LIVESTOCK COMPANY	4/6/1983	10	STO	795	289	GST
P63575W	RED SPRINGS #4 MIDDLE (DW-4M)	43	76	8	SENE	T-CHAIR LIVESTOCK CO.	4/6/1983	10	STO	441	291	GST
P63576W	RED SPRINGS #4 UPPER (DW-4U)	43	76	8	SENE	T-CHAIR LIVESTOCK COMPANY	4/6/1983	10	STO	310	233	GST
P53798W	NICR - MN 4	43	76	8	SWSW	RIO ALGOM MINING CORP	8/25/1980	0	MON	623	127	GST
P53800W	NICR - MN 6	43	76	17	SWNW	RIO ALGOM MINING CORP	8/25/1980	0	MON	593	84	GST
P77137W	NICHOLS RANCH #1	43	76	17	SWNW	POWER RESOURCES INC.	6/15/1988	0	MON	620	85	GST
P53795W	NICR - MN 1	43	76	17	NWSW	RIO ALGOM MINING CORP	8/25/1980	0	MON	556	30	GST
39/2/206W	URZN1-2	43	76	17	NWSW	URANERZ ENERGY CORPORATION	8/2/2006	0	TST	645	64	UNA
39/1/206W	URZNB-1	43	76	17	NWSW	URANERZ ENERGY CORPORATION	8/2/2006	0	TST	375	62	UNA
P53796W	NICR - MN 2	43	76	17	NENW	RIO ALGOM MINING CORP	8/25/1980	0	MON	670	158	GST
P53797W	NICR - MN 3	43	76	17	SWNE	RIO ALGOM MINING CORP	8/25/1980	0	MON	585	79	GST
P53799W	NICR - MN 5	43	76	18	NENE	RIO ALGOM MINING CORP	8/25/1980	0	MON	727	207	GST
P11894P	NICHOLS #1	43	76	19	NWNE	BROWN LAND COMPANY	4/23/1967	3	STO	310	-6	GST
P13634P	DRY FORK FLOWING #3	43	76	20	NWSW	FLYING DIAMOND RANCH	12/31/1958	1	STO	360	-1	GST
P11891P	PUG WELL #1	43	76	20	SWNE	BROWN LAND COMPANY	12/31/1939	2	STO	370	-6	GST
P55407W	Brown 20-9 (Cotton Art.)	43	76	20	NWNE	American Nucular Franklin Brown	1/30/1981	3	Sto / Mis	740	-4	CAN (IN USE)
P11896P	PATS WELL #1	43	76	21	NENW	BROWN LAND COMPANY	12/31/1934	2	STO	405	-6	GST
P66282W	ZINK #1	43	76	18	SESW	TXO PRODUCTION CORP.	1/13/1984		MIS			CAN

** Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.1-1 NICHOLS RANCH UNIT WATER WELLS

(permit area & adjacent)

Permit #	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	Priority	GW Appr Amt	Uses	GW Well Depth	GW Static Depth	Status
40/2/513W	PUG WELL #2	43	76	20	NWNE	T-CHAIR LAND COMPANY	1/23/2008		STO			UNA
41/3/271W	CUISINE CS FEDERAL #01	43	76	20	SWNE	Yates Petroleum Corp.	9/12/2008		CBM			UNA
41/6/492W	ENL CUISINE CS FEDERAL #01	43	76	20	SWNE	Yates Petroleum Corp.	6/22/2009		MIS			UNA
41-9-236W	ENL CUISINE CS FEDERAL #02	43	76	20	NESE	Yates Petroleum Corp.	8/13/2008		MIS/CBM			UNA
P191317.0W	URZNF-3	43	76	17	NESW	URANERZ ENERGY CORPORATION		0	MON	173	92.74	
P191318.0W	URZNQ-4	43	76	20	NWNW	URANERZ ENERGY CORPORATION		0	MON	35	5.79	
P191319.0W	URZNG-5	43	76	17	NWNW	URANERZ ENERGY CORPORATION		0	MON	60	47.97	
P191320.0W	URZNG-6	43	76	17	NENE	URANERZ ENERGY CORPORATION		0	MON	105	73.13	
P191322.0W	URZNA-7	43	76	17	NE1/4SE1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	510	41	Incomplete
P191323.0W	URZNA-8	43	76	17	NW1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	645	193	Incomplete
P191324.0W	URZNA-9	43	76	17	NW1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	685	185	Incomplete
P191325.0W	URZNB-10	43	76	17	NW1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	501	193	Incomplete
P191326.0W	URZN1-11	43	76	17	NW1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	728	206	Incomplete

** Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.1-2 NICHOLS RANCH WATER WELLS 3 MILE RADIUS

Permit#	Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	Priority	GW Appr Amt	Uses	GW Well Depth	GW Static Depth	Status
P14648P	TAYLOR #21-3	42	76	4	NWNW	TAYLOR RANCH CO.	12/31/1934	5	STO	600	-1	GST
P119027W	OLD MAID #1	43	76	2	SESE	T-CHAIR LAND COMPANY	9/20/1999	25	STO	300	202	GST
P29162W	WELL WEST OF WIDOW WOMEN #1	43	76	3	NESW	FRANKLIN BROWN	2/10/1975	5	STO	720	310	GST
P15106W	WEST OLD MAIDS WELL #1	43	76	3	SWNE	BROWN LAND COMPANY	8/29/1972	4	STO	275	125	GST
P35744W	RED SPRING ARTESIAN #1	43	76	7	SENE	BROWN LAND COMPANY	12/21/1976	3	STO	740	-6	GST
P63574W	RED SPRINGS #4 LOWER	43	76	8	SENE	T-CHAIR LIVESTOCK COMPANY	4/6/1983	10	STO	795	289	GST
P63575W	RED SPRINGS #4 MIDDLE	43	76	8	SENE	T-CHAIR LIVESTOCK CO.	4/6/1983	10	STO	441	291	GST
P63576W	RED SPRINGS #4 UPPER	43	76	8	SENE	T-CHAIR LIVESTOCK COMPANY	4/6/1983	10	STO	310	233	GST
P53798W	NICR - MN 4	43	76	8	SWSW	RIO ALGOM MINING CORP	8/25/1980	0	MON	623	127	GST
P90853W	WEST OLD MAID'S #2	43	76	10	SWSE	T-CHAIR LAND COMPANY	3/1/1993	7	STO	640	150	GST
P11897P	WEST OLD MAIDS WELL #1	43	76	10	NWSW	BROWN LAND COMPANY	3/12/1961	2	STO	570	50	GST
P63570W	FRANKLIN BROWN #1	43	76	14	NWNW	T-CHAIR LIVESTOCK CO.	4/6/1983	10	STO	520	95	GST
P62331W	STATE L #1 (WS)	43	76	16	NENE	WY BOARD OF LAND COMMISSIONERS** CITIES SERVICE COMPANY	10/8/1982		MIS			CAN
P77137W	NICHOLS RANCH #1	43	76	17	SWNW	POWER RESOURCES INC.	6/15/1988	0	MON	620	85	GST
P53800W	NICR - MN 6	43	76	17	SWNW	RIO ALGOM MINING CORP	8/25/1980	0	MON	593	84	GST
P53795W	NICR - MN 1	43	76	17	NWSW	RIO ALGOM MINING CORP	8/25/1980	0	MON	556	30	GST
39/2/206W	URZN1-2	43	76	17	NWSW	URANERZ ENERGY CORPORATION	8/2/2006	0	TST	645	64	UNA
39/1/206W	URZNB-1	43	76	17	NWSW	URANERZ ENERGY CORPORATION	8/2/2006	0	TST	375	62	UNA
P53796W	NICR - MN 2	43	76	17	NENW	RIO ALGOM MINING CORP	8/25/1980	0	MON	670	158	GST

** Wyo. State Engineer's Office Abbreviations found in Table D6F.1-2

Table D6G.1-2 NICHOLS RANCH WATER WELLS 3 MILE RADIUS

Permit #	Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	Priority	GW Appr Amt	Uses	GW Well Depth	GW Static Depth	Status
P53797W	NICR - MN 3	43	76	17	SWNE	RIO ALGOM MINING CORP	8/25/1980	0	MON	585	79	GST
P53799W	NICR - MN 5	43	76	18	NENE	RIO ALGOM MINING CORP	8/25/1980	0	MON	727	207	GST
P66282W	ZINK #1	43	76	18	SESW	TXO PRODUCTION CORP.	1/13/1984		MIS			CAN
P11894P	NICHOLS #1	43	76	19	NWNE	BROWN LAND COMPANY	4/23/1967	3	STO	310	-6	GST
P13634P	DRY FORK FLOWING #3	43	76	20	NWSW	FLYING DIAMOND RANCH	12/31/1958	1	STO	360	-1	GST
P11891P	PUG WELL #1	43	76	20	SWNE	BROWN LAND COMPANY	12/31/1939	2	STO	370	-6	GST
40/2/513W	PUG WELL #2	43	76	20	NWNE	T-CHAIR LAND COMPANY	1/23/2008		STO			UNA
P55407W	Brown 20-9 (Cotton Art.)	43	76	20	NWNE	American Nuclear Franklin Brown	1/30/1981	3	Sto / Mis	740	-4	CAN (IN USE)
P55408W	Brown 21-6 (Solar)	43	76	21	NWNE	American Nuclear Franklin Brown	1/30/1981	1	Sto / Mis	653	-4	CAN (IN USE)
P63605W	FETTY WELL #1	43	76	21	SWSW	T-CHAIR LIVESTOCK CO.	4/6/1983	5	STO	655	135	GST
P11896P	PATS WELL #1	43	76	21	NENW	BROWN LAND COMPANY	12/31/1934	2	STO	405	-6	GST
40/1/513W	CAR BODY WELL #1	43	76	21	NWNE	T-CHAIR LAND COMPANY	1/23/2008		STO			UNA
P158257W	P1	43	76	22	NWSW	T-CHAIR LAND COMPANY	4/21/2004	6	STO	450	150	GST
P158258W	(1) SAME WELL AS P1 MORE COMPLETE	43	76	22	NWSW	T-CHAIR LAND COMPANY	4/21/2004	5	STO	450	150	GST
P97762W	6	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	295	24	GST
P97773W	BC-1A	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	296.4	47	GST
P33631W	BROWN #4	43	76	22	SESE	POWER RESOURCES INC	6/1/1976	20	STO	820	0	GST
P11902P	DOUGHSTICK #1	43	76	22	NESE	BROWN LAND COMPANY	4/18/1967	1	STO	455	-6	GST
P11904P	DOUGHSTICK #3	43	76	22	NESE	BROWN LAND COMPANY	4/1/1961	6	DOM,STO	550	90	GST
P15107W	DOUGHSTICK #5	43	76	22	NWSE	BROWN LAND COMPANY	8/29/1972	4	STO	253	48	GST

** Wyo. State Engineer's Office Abbreviations found in Table D6F.1-2

Table D6G.1-2 NICHOLS RANCH WATER WELLS 3 MILE RADIUS

Permit #	Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	Priority	GW Appr Amt	Uses	GW Well Depth	GW Static Depth	Status
P153652W	GARDEN WELL	43	76	22	NESE	T-CHAIR LAND COMPANY	8/27/2003	25	DOM	520	18	GST
P97766W	LC1	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	492	44	GST
P97764W	LS1	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	520	39	GST
P97770W	LS2	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	520	20	GST
P97772W	LS4	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	520	55	GST
P97760W	O2	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	460	49	GST
P169657W	T-CHAIR 12-22	43	76	22	NWSW	T-CHAIR LAND COMPANY	8/26/2005		STO			GSI
P97765W	UC1	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	149.4	30	GST
P97763W	US1	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	160	20	GST
P97767W	US2	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	150	25	GST
P97769W	US4B	43	76	22	NWSW	POWER RESOURCES INC	11/8/1994	0	MON	160	28	GST
P45994W	CALVING #1	43	76	23	NWSW	BROWN LAND COMPANY	11/28/1978	18	STO	560	82	GST
P11905P	DOUGHSTICK #4	43	76	23	SWSW	BROWN LAND COMPANY	6/15/1961	6	STO	690	80	GST
P11903P	DOUGHSTICK #2	43	76	27	NWNW	BROWN LAND COMPANY	1/14/1961	0	STO	960	-6	GST
P77136W	DOUGHSTICK 1	43	76	28	SWNE	POWER RESOURCES INC.	6/15/1988	0	MON	620	60	GST
P13626P	EAST DRY FORK #1	43	76	30	SENW	FLYING DIAMOND RANCH	12/31/1963	4	STO	360	-1	GST
P163351W	MWAL-12-30-1	43	76	30	SWNW	WILLIAMS PRODUCTION	10/26/2004	0	MON	9.5	-7	GST
P13637P	SEVENTEEN MILE #1	43	76	31	NWNW	FLYING DIAMOND RANCH	12/31/1946	2	STO	490	-1	GST
P14650P	TAYLOR #22-1	43	76	32	SESW	TAYLOR RANCH CO.	10/31/1966	3	STO	135	60	GST
P69103W	TAYLOR UNIT #9	43	76	33	NWNE	TAYLOR RANCH CO. LTD.	11/21/1984	25	STO	1127	480	GST
P191317.0W	URZNF-3	43	76	17	NESW	URANERZ ENERGY CORPORATION		0	MON	173	92.74	Complete

** Wyo. State Engineer's Office Abbreviations found in Table D6F.1-2

Table D6G.1-2 NICHOLS RANCH WATER WELLS 3 MILE RADIUS

Permit #	Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	Priority	GW Appr Amt	Uses	GW Well Depth	GW Static Depth	Status
P191318.0W	URZNQ-4	43	76	20	NWNW	URANERZ ENERGY CORPORATION		0	MON	35	5.79	Complete
P191319.0W	URZNG-5	43	76	17	NWNW	URANERZ ENERGY CORPORATION		0	MON	60	47.97	Complete
P191320.0W	URZNG-6	43	76	17	NENE	URANERZ ENERGY CORPORATION		0	MON	105	73.13	Complete
P191322.0W	URZNA-7	43	76	17	NE1/4SE1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	510	41	Incomplete
P191323.0W	URZNA-8	43	76	17	NW1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	645	193	Incomplete
P191324.0W	URZNA-9	43	76	17	NW1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	685	185	Incomplete
P191325.0W	URZNB-10	43	76	17	NW1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	501	193	Incomplete
P191326.0W	URZN1-11	43	76	17	NW1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	728	206	Incomplete
P13632P	DRY FORK FLOWING #1	43	77	11	SESE	FLYING DIAMOND RANCH	12/31/1949	1	STO	410	-1	GST
P163346W	MWAL-12-11-1	43	77	11	SWNW	WILLIAMS PRODUCTION RMT COMPANY	10/26/2004	0	MON	10	9.52	GST
P13633P	DRY FORK FLOWING #2	43	77	13	SESW	FLYING DIAMOND RANCH	12/31/1956	4	STO	400	-1	GST
P13625P	FOUR CORNERS FLOWING #1	43	77	23	SESW	FLYING DIAMOND RANCH	12/31/1960	1	STO	480	-1	GST
P13627P	KERR-MCGEE #1	43	77	23	NENE	FLYING DIAMOND RANCH	12/31/1968	4	STO	420	-1	GST
39/8/17W	DRY FORK #1	43	77	24	NENE	DRY FORK LAND & LIVESTOCK, LLC	5/5/2006		DOM			UNA
P13635P	DRY FORK FLOWING #4	43	77	24	SENE	FLYING DIAMOND RANCH	12/31/1944	2	STO	400	-1	GST
P13636P	DRY FORK FLOWING #5	43	77	25	SENE	FLYING DIAMOND RANCH	12/31/1947	2	STO	420	-1	GST
P164476W	TAYLOR FEDERAL JOHNSON PR 4 MW-01 & MW-02	43	77	26	SWNE	BLACK DIAMOND ENERGY	12/21/2004		MON			CAN

** Wyo. State Engineer's Office Abbreviations found in Table D6F.1-2

Table D6G.1-2 NICHOLS RANCH WATER WELLS 3 MILE RADIUS

Permit #	Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	Priority	GW Appr Amt	Uses	GW Well Depth	GW Static Depth	Status
P164477W	TAYLOR FEDERAL JOHNSON PR 5 MW-01 & MW-02	43	77	26	NESW	BLACK DIAMOND ENERGY	12/21/2004		MON			CAN
P164475W	TAYLOR FEDERAL JOHNSON PR 3 MW-01 & MW-02	43	77	26	SENE	BLACK DIAMOND ENERGY	12/21/2004		MON			CAN
P16446W	TAYLOR FEDERAL JOHNSON PR 3 MW-01 & MW-02	43	77	35	nenw	BLACK DIAMOND ENERGY	12/21/2004		MON			CAN
P164464.0	TAYLOR FEDERAL MOORE PR-8 MW-01 & MW-02	43	77	35	NE1/4NW1/4	BLACK DIAMOND ENERGY	12/21/2004		MON			CAN
P13647P	LITTLE BULLWHACKER #1	43	77	27	NENE	FLYING DIAMOND RANCH	12/31/1946	2	STO	600	-1	GST
P13622P	BILL SMITH #1	43	77	35	NENW	FLYING DIAMOND RANCH	12/31/1946	2	STO	655	-1	GST
P26091W	AMERICAN NUCLEAR #1	43	77	36	NWSW	FLYING DIAMOND RANCH	3/1/1974	5	STO	387	360	GST
P24090P	TABLE MOUNTAIN WELL #12	44	77	35	NESE	JOHN CHRISTENSEN** BUREAU OF LAND MANAGEMENT	12/31/1959	4	STO	550	90	GSI
P24101P	BEECHER NE WELL #25	44	76	28	SWSW	JOHN CHRISTENSEN	12/31/1966	4	STO	340	240	GST
P90060W	MW - 104	44	76	31	SESW	COGEMA MINING, INC.	11/9/1992	0	MON	428	76.2	GST
P90061W	MW - 105	44	76	31	SWSW	COGEMA MINING, INC.	11/9/1992	0	MON	408	72.9	GST
P90062W	MW - 106	44	76	31	SESW	COGEMA MINING, INC.	11/9/1992	0	MON	387	46.7	GST

** Wyo. State Engineer's Office Abbreviations found in Table D6F.1-2

Table D6G.2-1 HANK UNIT WATER WELLS

(permit area & adjacent)

Permit #	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P12283P	CONNIE #2	43	75	5	NWSE	INC. RUBY RANCH	12/31/1960	5	STO	350	-1	PUW
P103967W	PADEN #1	43	75	5	SWSW	RUBY RANCH	9/19/1996	10	STO	650	290	UNA
P116152W	*NORTH DRY* WILLOW #1	43	75	6	NESE	*T-CHAIR LAND* COMPANY	5/28/1999	25	STO	1132	200	GST
39/10/205W	URZHG-3	43	75	6	SWNE	URANERZ ENERGY CORPORATION	8/2/2006	0	TST	300	274	UNA
39/8/205W	URZHF-1	43	75	6	SWNE	URANERZ ENERGY CORPORATION	8/2/2006	0	TST	440	329	UNA
39/9/205W	URZHC-2	43	75	6	SWNE	URANERZ ENERGY CORPORATION	8/2/2006	0	TST	470	343	UNA
P191314.0W	URZHH-7	43	75	6	SENW	URANERZ ENERGY CORPORATION	-	0	MON	135	91.54	
P191316.0W	URZHH-9	43	75	6	SWSE	URANERZ ENERGY CORPORATION	-	0	MON	155	123.81	
P33462W	DRY WILLOW 1	43	75	7	SENE	RIO ALGOM MINING CORP	9/30/1975	15	TEM,MIS,DRI	320	228	UNA
P35984W	MEANS #1	43	75	18	NWNE	BROWN LAND COMPANY	1/27/1977	20	STO	700	310	PUW
P50576W	BROWN J	44	75	29	NWNW	POWER RESOURCES	10/29/1979	0	MON	110	95	GST
P50573W	BROWN G	44	75	29	SWSW	POWER RESOURCES	10/29/1979	0	MON	320	169	GST
P50583W	BROWN Q	44	75	29	SWSW	POWER RESOURCES	10/29/1979	0	MON	600	305	GST
P50569W	BROWN C	44	75	30	NWNE	POWER RESOURCES	10/29/1979	0	MON	340	170	GST
P36013W	BROWN #5	44	75	30	SWNE	FRANKLIN BROWN	1/17/1977	45	STO	540	90	PUW
P50572W	BROWN F	44	75	30	SWNE	POWER RESOURCES	10/29/1979	0	MON	160	69	GST
P50568W	BROWN B	44	75	30	NWNW	POWER RESOURCES	10/29/1979	0	MON	300	143	GST
P50571W	BROWN E	44	75	30	SENW	POWER RESOURCES	10/29/1979	0	MON	300	166	GST
P50570W	BROWN D	44	75	30	SENW	POWER RESOURCES	10/29/1979	0	MON	305	164	GST
P50575W	BROWN I	44	75	30	SWNW	POWER RESOURCES	10/29/1979	0	MON	80	49	GST
P48652W	CITIES SERVICE BROWN (WS)	44	75	31	NWNW	BROWN LAND COMPANY	6/21/1979	25	STO	702	280	PUW
P33463W	HANK 1	44	75	31	NWSE	RIO ALGOM MINING CORP	9/30/1975	14	TEM,MIS,DRI	440	370	PUW
40/1/92W	URZHB-6	44	75	31	NENE	URANERZ ENERGY CORPORATION	4/25/2007	0	TST	650	352	UNA
40/10/91W	URZHF-5	44	75	31	NENE	URANERZ ENERGY CORPORATION	4/25/2007	0	TST	410	317	UNA
40/9/91W	URZHG-4	44	75	31	NENE	URANERZ ENERGY CORPORATION	4/25/2007	0	TST	290	280	UNA
P183847W	URZHF-8	44	75	31	SWNE	URANERZ ENERGY CORPORATION	11/21/2007	0	MON	433	355	UNA
P191315.0W	URZHH-10	44	75	31	SENW	URANERZ ENERGY CORPORATION	-	0	MON	135	128.9	
P191327.0W	URZHF-11	44	75	31	NE1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	420	341	Incomplete
P191328.0W	URZHF-12	44	75	31	NE1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	482		Incomplete
P191329.0W	URZHF-13	44	75	31	SE1/4NE1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	330		Incomplete
P191330.0W	URZHF-14	44	75	31	SE1/4NE1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	385		Incomplete
P191331.0W	URZHG-15	44	75	31	SE1/4NE1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	314	272	Incomplete
P191332.0W	URZHC-16	44	75	31	SE1/4NE1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	523		Incomplete

** Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.2-2 HANK UNIT WATER WELLS 3 MILE RADIUS

Permit #	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P12294P	J D R #6	43	75	2	SWSW	INC. RUBY RANCH	12/31/1958	25	STO	340	-1	GST
P53794W	DW - P1	43	75	3	SWNE	CLEVELAND-CLIFFS IRON COMPANY	8/25/1980	0	MON	720	485	ABA
P144910W	Pumpkin Butte Ranch House	43	75	4	NENW	Pumpkin Butte Ranch, LLC	9/18/2008	25	DOM, STO	500		Incomplete
P12283P	CONNIE #2	43	75	5	NWSE	INC. RUBY RANCH	12/31/1960	5	STO	350	-1	GST
P103967W	PADEN #1	43	75	5	SWSW	RUBY RANCH	9/19/1996	10	STO	650	290	GST
P116152W	NORTH DRY WILLOW #1	43	75	6	NESE	T-CHAIR LAND COMPANY	5/28/1999	25	STO	1132	200	GST
39/10/205W	URZHG-3	43	75	6	SWNE	URANERZ ENERGY CORPORATION	8/2/2006	0	TST	300	274	UNA
39/8/205W	URZHF-1	43	75	6	SWNE	URANERZ ENERGY CORPORATION	8/2/2006	0	TST	440	329	UNA
39/9/205W	URZHC-2	43	75	6	SWNE	URANERZ ENERGY CORPORATION	8/2/2006	0	TST	470	343	UNA
P33462W	DRY WILLOW 1	43	75	7	SENE	RIO ALGOM MINING CORP	9/30/1975	15	TEM,MIS,DRI	320	228	UNA
P12289P	SIMPSON #1	43	75	9	SWSE	INC. RUBY RANCH	5/1/1967	6	STO	703	360	GST
P63582W	(DW - 5M) EYCHANER #5 MIDDLE	43	75	10	SESE	(Cleveland Cliffs Iron) T-CHAIR LIVESTOCK CO.	4/6/1983	9	STO / (MON)	804	486	GST
P63580W	(DW - 5U) EYCHANER #5 UPPER	43	75	10	SESE	(Cleveland Cliffs Iron) T-CHAIR LIVESTOCK CO.	4/6/1983	10	STO / (MON)	649	487	GST
P63581W	DW - 5L) EYCHANER #5 LOWER	43	75	10	SESE	(Cleveland Cliffs Iron) T-CHAIR LIVESTOCK CO.	4/6/1983	10	STO / (MON)	872	489	GST
P89252W	SOUTH BUTTE #1	43	75	10	SWSE	T-CHAIR LAND COMPANY	8/11/1992	20	STO	450	243.4	GST
P15070P	BROWN #3	43	75	15	SWNE	BROWN LAND COMPANY	12/31/1965	1	STO	6	-4	GST
P35984W	MEANS #1	43	75	18	NWNE	BROWN LAND COMPANY	1/27/1977	20	STO	700	310	GST
P63598W	C#1	43	75	20	NWSW	INC. RUBY RANCH	4/6/1983	5	STO	232	160	GST
P8892W	JDR #1	43	75	22	NWSE	RUBY RANCH	4/19/1971	10	STO	800	400	GST
P35336W	BUTTE #1	43	75	28	NWNW	INC. RUBY RANCH	11/18/1976	25	STO	960	200	GST
P12295P	JDR #7	43	75	28	SENW	INC. RUBY RANCH	3/1/1966	5	STO	610	-1	GST
P12290P	JDR #2	43	75	29	NWSE	INC. RY RANCH	12/15/1965	5	STO	510	175	GST
P11898P	RAYS WELL #1	43	75	30	SWSW	BROWN LAND COMPANY	12/31/1939	6	STO	400	115	GST

Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.2-2 HANK UNIT WATER WELLS 3 MILE RADIUS

Permit #	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P119027W	OLD MAID #1	43	76	2	SESE	T-CHAIR LAND COMPANY	9/20/1999	25	STO	300	202	GST
P15106W	WEST OLD MAIDS WELL #1	43	76	3	SWNE	BROWN LAND COMPANY	8/29/1972	4	STO	275	125	GST
P29162W	WELL WEST OF WIDOW WOMEN #1	43	76	3	NESW	FRANKLIN BROWN	2/10/1975	5	STO	720	310	GST
P90853W	WEST OLD MAID'S #2	43	76	10	SWSE	T-CHAIR LAND COMPANY	3/1/1993	7	STO	640	150	GST
P11897P	WEST OLD MAIDS WELL #1	43	76	10	NWSW	BROWN LAND COMPANY	3/12/1961	2	STO	570	50	GST
P63570W	FRANKLIN BROWN #1	43	76	14	NWNW	T-CHAIR LIVESTOCK CO.	4/6/1983	10	STO	520	95	GST
P11902P	DOUGHSTICK #1	43	76	22	NESE	BROWN LAND COMPANY	4/18/1967	1	STO	455	-6	GST
P11904P	DOUGHSTICK #3	43	76	22	NESE	BROWN LAND COMPANY	4/1/1961	6	DOM,STO	550	90	GST
P153652W	GARDEN WELL	43	76	22	NESE	T-CHAIR LAND COMPANY	8/27/2003		DOM	520	18	GST
P15107W	DOUGHSTICK #5	43	76	22	NWSE	BROWN LAND COMPANY	8/29/1972	4	STO	253	48	GST
P33631W	BROWN #4	43	76	22	SESE	POWER RESOURCES INC	6/1/1976	20	STO	820	0	GST
P45994W	CALVING #1	43	76	23	NWSW	BROWN LAND COMPANY	11/28/1978	18	STO	560	82	GST
P11905P	DOUGHSTICK #4	43	76	23	SWSW	BROWN LAND COMPANY	6/15/1961	6	STO	690	80	GST
P29420W	FRANKLIN BROWN #2	43	76	24	NESW	CLEVELAND-CLIFFS IRON COMPANY	6/10/1974	75	IND,MIN,DRI			CAN
P35814W	SAVAGETON EQUITY STATE #1	44	75	16	NESE	NAOMI A. JORDAN	12/1/1981	35	STO	760	70	GST
P58966W	SHEEPTICK WELL #1	44	75	17	NENE	BROWN LAND COMPANY	11/13/1981	25	STO			CAN
P89253W	CCI #2	44	75	17	NWSE	T-CHAIR LAND COMPANY	8/11/1992	8	STO	440	214.6	GST
P87756W	M6	44	75	18	SESW	POWER RESOURCES	4/24/1992	0	MON	640	300	GST
P87754W	M4	44	75	18	SESW	POWER RESOURCES	4/24/1992	0	MON	580	273	GST
P87755W	M5	44	75	18	SESW	POWER RESOURCES	4/24/1992	0	MON	640	292	GST
P87776W	UM3	44	75	18	SESW	POWER RESOURCES	4/24/1992	0	MON	340	193	GST

Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.2-2 HANK UNIT WATER WELLS 3 MILE RADIUS

Permit#	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P53741W	NORTH BUTTE MN 1	44	75	18	SESW	POWER RESOURCES INC	8/6/1980	0	MON	966	385	GST
P87759W	M9	44	75	18	SWSW	POWER RESOURCES	4/24/1992	0	MON	640	323	GST
P87760W	M10	44	75	18	SWSW	POWER RESOURCES	4/24/1992	0	MON	640	323	GST
P87778W	UM5	44	75	18	SWSW	POWER RESOURCES	4/24/1992	0	MON	360	190	GST
P87785W	UUM2	44	75	18	SWSW	POWER RESOURCES	4/24/1992	0	MON	220	119	GST
P87757W	M7	44	75	18	SWSW	POWER RESOURCES	4/24/1992	0	MON	640	314	GST
P87777W	UM4	44	75	18	SWSW	POWER RESOURCES	4/24/1992	0	MON	360	139	GST
P53753W	NORTH BUTTE P 6	44	75	18	SWSW	POWER RESOURCES INC	8/6/1980	0	MON	660	145	GST
P87758W	M8	44	75	18	SWSW	POWER RESOURCES INC	4/24/1992	0	MON	640	325	GST
P87779W	UM6	44	75	18	SWSW	POWER RESOURCES INC	4/24/1992	0	MON	350	190	GST
P88791.0W	WELL BLOCK #2	44	75	18	SE1/4SW1/4	Pathfinder Mines Corp.	04/24/1992	0	IND_GW			CAN
P76616W	SSEA 2	44	75	19	NWNE	POWER RESOURCES INC	4/15/1988	0	MON	670	330	GST
P87751W	M1	44	75	19	NWNE	POWER RESOURCES INC	4/24/1992	0	MON	560	230	GST
P87752W	M2	44	75	19	NWNE	POWER RESOURCES INC	4/24/1992	0	MON	560	260	GST
P53770W	NORTH BUTTE SSE U	44	75	19	NWNE	POWER RESOURCES INC	8/6/1980	0	MON	291	184	GST
P76617W	SSEA 3	44	75	19	NWNE	POWER RESOURCES INC	4/15/1988	0	MON	666	330	GST
P76619W	SSEA1 AQ	44	75	19	NWNE	POWER RESOURCES INC	4/15/1988	0	MON	677.5	330	GST
P76615W	SSEA 1	44	75	19	NWNE	POWER RESOURCES INC	4/15/1988	0	MON	668	330	GST
P87784W	UUM1	44	75	19	NWNE	POWER RESOURCES INC	4/24/1992	0	MON	180	92	GST
P53772W	NORTH BUTTE SSE L	44	75	19	NWNE	POWER RESOURCES INC	8/6/1980	0	MON	680	343	GST
P87770W	M20	44	75	19	NWNE	POWER RESOURCES INC	4/24/1992	0	MON	560	262	GST
P53771W	NORTH BUTTE SSE M	44	75	19	NWNE	POWER RESOURCES INC	8/6/1980	0	MON	556	272	GST
P87774W	UM1	44	75	19	NWNE	POWER RESOURCES INC	4/24/1992	0	MON	320	150	GST
P76618W	SSE1 1	44	75	19	NWNE	POWER RESOURCES INC	4/15/1988	0	MON	740	322	GST

Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.2-2 HANK UNIT WATER WELLS 3 MILE RADIUS

Permit #	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P87769W	M19	44	75	19	SWNE	POWER RESOURCES INC	4/24/1992	0	MON	560	239	GST
P87766W	M16	44	75	19	NENW	POWER RESOURCES INC	4/24/1992	0	MON	640	261	GST
P87782W	UM9	44	75	19	NENW	POWER RESOURCES INC	4/24/1992	0	MON	340	161	GST
P87768W	M18	44	75	19	NENW	POWER RESOURCES INC	4/24/1992	0	MON	560	249	GST
P53756W	NORTH BUTTE P 9	44	75	19	NENW	POWER RESOURCES INC	8/6/1980	0	MON	640	197	GST
P87767W	M17	44	75	19	NENW	POWER RESOURCES INC	4/24/1992	0	MON	560	265	GST
P87775W	UM2	44	75	19	NENW	POWER RESOURCES INC	4/24/1992	0	MON	420	197	GST
P87780W	UM7	44	75	19	NWNW	POWER RESOURCES INC	4/24/1992	0	MON	320	192	GST
P87765W	M15	44	75	19	NWNW	POWER RESOURCES INC	4/24/1992	0	MON	640	279	GST
P53755W	NORTH BUTTE P 8	44	75	19	NWNW	POWER RESOURCES INC	8/6/1980	0	MON	760	378	GST
P87781W	UM8	44	75	19	NWNW	POWER RESOURCES INC	4/24/1992	0	MON	340	132	GST
P50584W	BROWN R	44	75	19	NESE	POWER RESOURCES INC	10/29/1979	0	MON	520	265	GST
P50579W	BROWN M	44	75	19	NESE	POWER RESOURCES INC	10/29/1979	0	MON	528	261	GST
P50580W	BROWN N	44	75	19	NESE	POWER RESOURCES INC	10/29/1979	0	MON	405	183	GST
P50578W	BROWN 1	44	75	19	NESE	POWER RESOURCES INC	10/29/1979	0	MON	640	290	GST
P87753W	M3	44	75	19	SESW	POWER RESOURCES INC	4/24/1992	0	MON	580	275	GST
P88793.0W	WELL BLOCK #4	44	75	19	SW1/4SW1/4	Pathfinder Mines Corp.	04/24/1992	0	IND_GW			CAN
P50581W	BROWN O (OH)	44	75	20	SWNW	POWER RESOURCES INC	10/29/1979	0	MON	580	282	GST
P50567W	BROWN A	44	75	20	NESW	POWER RESOURCES INC	10/29/1979	0	MON	320	229	GST
P11892P	EAST PFISTER #1	44	75	21	NESE	BROWN LAND COMPANY	12/15/1962	2	STO	335	110	GST
P37541W	GILL #1	44	75	27	NENE	WILLIAM G. CAMBLIN	3/16/1977	15	STO,IRR	1000	380	???
P50582W	BROWN P	44	75	29	SENE	POWER RESOURCES INC	10/29/1979	0	MON	595	361	GST

Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.2-2 HANK UNIT WATER WELLS 3 MILE RADIUS

Permit #	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P50577W	BROWN K	44	75	29	NENW	POWER RESOURCES INC	10/29/1980	0	MON	124	120	GST
P50576W	BROWN J	44	75	29	NWNW	POWER RESOURCES INC	10/29/1979	0	MON	110	95	GST
P50573W	BROWN G	44	75	29	SWSW	POWER RESOURCES INC	10/29/1979	0	MON	320	169	GST
P50583W	BROWN Q	44	75	29	SWSW	POWER RESOURCES INC	10/29/1979	0	MON	600	305	GST
P114048W	DOBIE HILL WELL #1	44	75	29	SWSE	T-CHAIR LAND COMPANY	2/18/1999	25	STO	640	295	GST
P50569W	BROWN C	44	75	30	NWNE	POWER RESOURCES INC	10/29/1979	0	MON	340	170	GST
P36013W	BROWN #5	44	75	30	SWNE	FRANKLIN BROWN	1/17/1977	45	STO	540	90	GST
P50572W	BROWN F	44	75	30	SWNE	POWER RESOURCES INC	10/29/1979	0	MON	160	69	GST
P50568W	BROWN B	44	75	30	NWNW	POWER RESOURCES INC	10/29/1979	0	MON	300	143	GST
P50571W	BROWN E	44	75	30	SENW	POWER RESOURCES INC	10/29/1979	0	MON	300	166	GST
P50570W	BROWN D	44	75	30	SENW	POWER RESOURCES INC	10/29/1979	0	MON	305	164	GST
P50575W	BROWN I	44	75	30	SWNW	POWER RESOURCES INC	10/29/1979	0	MON	80	49	GST
P48652W	CITIES SERVICE BROWN (WS)	44	75	31	NWNW	BROWN LAND COMPANY	6/21/1979	25	STO	702	280	GST
P33463W	HANK 1	44	75	31	NWSE	RIO ALGOM MINING CORP	9/30/1975	14	TEM,MIS,DRI	440	370	???
40/1/92W	URZHB-6	44	75	31	NENE	URANERZ ENERGY CORPORATION	4/25/2007	0	TST	650	352	UNA
40/10/91W	URZHF-5	44	75	31	NENE	URANERZ ENERGY CORPORATION	4/25/2007	0	TST	410	317	UNA
40/9/91W	URZHG-4	44	75	31	NENE	URANERZ ENERGY CORPORATION	4/25/2007	0	TST	290	280	UNA
P191327.0W	URZHF-11	44	75	31	NE1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	420		Incomplete
P191328.0W	URZHF-12	44	75	31	NE1/4NW1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	482		Incomplete
P191329.0W	URZHF-13	44	75	31	SE1/4NE1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	330		Incomplete
P191330.0W	URZHF-14	44	75	31	SE1/4NE1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	385		Incomplete
P191331.0W	URZHG-15	44	75	31	SE1/4NE1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	314	272	Incomplete

Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.2-2 HANK UNIT WATER WELLS 3 MILE RADIUS

Permit #	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P191332.0W	URZHC-16	44	75	31	SE1/4NE1/4	URANERZ ENERGY CORPORATION	08/10/2009	0	MON	523		Incomplete

Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.2-2 HANK UNIT WATER WELLS 3 MILE RADIUS

Permit#	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P15068P	BROWN #1	44	76	13	NWNW	BROWN LAND COMPANY	12/31/1955	5	STO	5	-4	GST
P53757W	NORTH BUTTE P 10	44	76	13	NESE	POWER RESOURCES INC	8/6/1980	0	MON	720	379	GST
P104127W	NBHW-2	44	76	13	NWSE	POWER RESOURCES INC	10/15/1996	0	MON	760	422.8	GST
P104128W	NBHW-3	44	76	13	NWSE	POWER RESOURCES INC	10/15/1996	0	MON	810	501.9	GST
P104126W	NBHW-1	44	76	13	SESE	POWER RESOURCES INC	10/15/1996	0	MON	720	378.5	GST
P53759W	NORTH BUTTE P 12	44	76	13	SESE	POWER RESOURCES INC	8/6/1980	0	MON	660	341	GST
P53744W	NORTH BUTTE P 1 U	44	76	13	SESE	POWER RESOURCES INC	8/6/1980	0	MON	700	172	GST
P53752W	NORTH BUTTE R 5	44	76	13	SESE	POWER RESOURCES INC	8/6/1980	0	MON	760	133	GST
P53751W	NORTH BUTTE P 4	44	76	13	SESE	POWER RESOURCES INC	8/6/1980	0	MON	660	328	GST
P74579W	NORTH BUTTE P 1 M 291P	44	76	13	SESE	POWER RESOURCES INC	5/11/1987	0	MON	780	34	GST
P53750W	NORTH BUTTE P 3	44	76	13	SESE	POWER RESOURCES INC	8/6/1980	0	MON	780	251	GST
P53746W	NORTH BUTTE P 1 L	44	76	13	SESE	POWER RESOURCES INC	8/6/1980	-1	MON	800	253	GST
P104129W	NBHW-4	44	76	13	SWSE	POWER RESOURCES INC	10/15/1996	0	MON	760	526.6	GST
P104130W	NBHW-5	44	76	13	SWSE	POWER RESOURCES INC	10/15/1996	0	MON	635	417.9	GST
P15069P	BROWN #2	44	76	14	NESE	BROWN LAND COMPANY	12/31/1960	8	STO	3	-4	GST
P53754W	NORTH BUTTE P 7	44	76	24	NENE	POWER RESOURCES INC	8/6/1980	0	MON	660	539	GST
P53747W	NORTH BUTTE P 2 U	44	76	24	NENE	POWER RESOURCES INC	8/6/1980	0	MON	760	337	GST
P53749W	NORTH BUTTE P 2 L	44	76	24	NENE	POWER RESOURCES INC	8/6/1980	0	MON	1000	378	GST
P53748W	NORTH BUTTE P 2 M	44	76	24	NENE	POWER RESOURCES INC	8/6/1980	0	MON	800	145	GST
P53758W	NORTH BUTTE P 11	44	76	24	NWNE	POWER RESOURCES INC	8/6/1980	0	MON	820	384	GST
P76612W	SS2BC 1	44	76	24	SWNE	POWER RESOURCES INC	4/15/1988	0	MON	640	298	GST

Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.2-2 HANK UNIT WATER WELLS 3 MILE RADIUS

Permit #	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P53782W	N BUTTE SS2 P U	44	76	24	SWNE	POWER RESOURCES INC	8/25/1980	0	MON	378	221	GST
P76614W	SS2FBC AQ	44	76	24	SWNE	POWER RESOURCES INC	4/15/1988	0	MON	459	225	GST
P53786W	N BUTTE SS2 P L	44	76	24	SWNE	POWER RESOURCES INC	8/25/1980	0	MON	800	379	GST
P74578W	N BUTTE SS2 P M 1285P	44	76	24	SWNE	POWER RESOURCES INC	5/11/1987	0	MON	640	143	GST
P76613W	SS2BC 2	44	76	24	SWNE	POWER RESOURCES INC	4/15/1988	0	MON	650	298	GST
P53781W	N BUTTE SS2 U	44	76	24	SWNE	POWER RESOURCES INC	8/25/1980	0	MON	377	227	GST
P53783W	N BUTTE SS2 M	44	76	24	SWNE	POWER RESOURCES INC	8/25/1980	0	MON	645	306	GST
P53785W	N BUTTE SS2 L	44	76	24	SWNE	POWER RESOURCES INC	8/25/1980	0	MON	780	366	GST
P104140W	NBHW-15	44	76	24	NENW	POWER RESOURCES INC	10/15/1996	0	MON	350	126.2	GST
P104136W	NBHW-11	44	76	24	NENW	POWER RESOURCES INC	10/15/1996	0	MON	665	225.8	GST
P104131W	NBHW-6	44	76	24	NENW	POWER RESOURCES INC	10/15/1996	0	MON	600	373.4	UNA
P40889W	BROWN #6	44	76	24	NWNW	BROWN LAND COMPANY	11/25/1977	40	STO,MIS	780	400	CAN
P33982W	NORTH BUTTE #1	44	76	24	NWNW	BROWN LAND COMPANY	6/24/1976	22.5	STO	700	385	CAN
P104145W	NBHW-20	44	76	24	NWNW	POWER RESOURCES INC	10/15/1996	0	MON	630	372	GST
P104139W	NBHW-14	44	76	24	SENW	POWER RESOURCES INC	10/15/1996	0	MON	520	107.7	GST
P104132W	NBHW-7	44	76	24	SENW	POWER RESOURCES INC	10/15/1996	0	MON	610	357.3	GST
P104138W	NBHW-13	44	76	25	SENW	POWER RESOURCES INC	10/15/1996	0	MON	470	125.4	GST
P104137W	NBHW-12	44	76	24	SENW	POWER RESOURCES INC	10/15/1996	0	MON	646	195.7	GST
P104144W	NBHW-19	44	76	24	SWNW	POWER RESOURCES INC	10/15/1996	0	MON	660	326.3	GST
P104142W	NBHW-17	44	76	24	NESW	POWER RESOURCES INC	10/15/1996	0	MON	555	207.4	GST
P104134W	NBHW-9	44	76	24	NESW	POWER RESOURCES INC	10/15/1996	0	MON	560	218.1	GST
P104133W	NBHW-8	44	76	24	NESW	POWER RESOURCES INC	10/15/1996	0	MON	640	343.6	GST

Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.2-2 HANK UNIT WATER WELLS 3 MILE RADIUS

Permit #	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P104143W	NBHW-18	44	76	24	NESW	POWER RESOURCES INC	10/15/1996	0	MON	630	290.4	GST
P35770W	BROWNS LAKE #1	44	76	24	NWSW	CLEVELAND CLIFFS IRON COMPANY	12/10/1976	22	MIS	600	282	CAN
P104135W	NBHW-10	44	76	24	SESW	POWER RESOURCES INC	10/15/1996	0	MON	490	171.3	GST
P104141W	NBHW-16	44	76	24	SWSW	POWER RESOURCES INC	10/15/1996	0	MON	670	221.3	GST
P53761W	NORTH BUTTE SS1 P U	44	76	25	NENW	POWER RESOURCES INC	8/6/1980	0	MON	354	145	GST
P53762W	NORTH BUTTE SS1 M	44	76	25	NENW	POWER RESOURCES INC	8/6/1980	0	MON	454	139	GST
P53765W	NORTH BUTTE SS1 P L	44	76	25	NENW	POWER RESOURCES INC	8/6/1980	0	MON	606	208	GST
P53764W	NORTH BUTTE SS1 L	44	76	25	NENW	POWER RESOURCES INC	8/6/1980	0	MON	654	139	GST
P53760W	NORTH BUTTE P SS1 U	44	76	25	NENW	POWER RESOURCES INC	8/6/1980	0	MON	372	136	GST
P53763W	NORTH BUTTE SS1 P M	44	76	25	NENW	POWER RESOURCES INC	8/6/1980	0	MON	446	146	GST
P53779W	N BUTTE SS1 (F) U	44	76	25	NENW	POWER RESOURCES INC	8/25/1980	0	MON	185	114	GST
P53780W	N BUTTE SS1 (F) P U	44	76	25	NENW	POWER RESOURCES INC	8/25/1980	0	MON	191	115	GST
P63604W	RED BARREL #1	44	76	25	SWNW	T-CHAIR LIVESTOCK CO.	4/6/1983	10	STO	525	125	GST
P50574W	BROWN H	44	76	25	NWSW	POWER RESOURCES INC	10/29/1979	0	MON	200	90	GST
P53766W	NORTH BUTTE SSW U	44	76	26	SENE	POWER RESOURCES INC	8/6/1980	0	MON	216	107	GST
P53769W	NORTH BUTTE SSW L	44	76	26	SWNE	POWER RESOURCES INC	8/6/1980	0	MON	605	216	GST
P53767W	NORTH BUTTE SSW UM	44	76	26	SWNE	POWER RESOURCES INC	8/6/1980	0	MON	346	104	GST
P53768W	NORTH BUTTE SSW LM	44	76	26	SWNE	POWER RESOURCES INC	8/6/1980	0	MON	483	104	GST
P24095P	CALVING SHED #18	44	76	27	NWNW	JOHN CHRISTENSEN	12/21/1953	4	STO	140	40	GST
P24083P	DRY PASTURE #2	44	76	34	NENE	JOHN CHRISTENSEN	9/21/1936	4	STO	160	60	GST
P29418W	SOUTH FORK #1	44	76	35	NESE	CLEVELAND-CLIFFS IRON COMPANY	6/10/1974	75	IND,MIN,DRI			CAN
P53791W	WC - MN 1	44	76	35	SWSE	RIO ALGOM MINING CORP	8/25/1980	0	MON	210	100	GST

Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

Table D6G.2-2 HANK UNIT WATER WELLS 3 MILE RADIUS

Permit #	GW Facility Name	Township	Range	Section	Qtrqtr	GW Applicant	GW Priority	GW Appr Amt	GW Uses	GW Well Depth	GW Stat Depth	Status
P131197.0W	PUMPKIN BUTTES SHANNON UNIT - WATER SOURCE WELL	44	76	36	SW1/4SW1/4	Wyo State Board of Land Commissioners	12/01/2000	0	IND_GW			Complete

Wyo. State Engineer's Office Abbreviations found in table D6F.1-2

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D6J.1.5 NEUMAN EQUATION

Theis' equation with Jacob's (1944) correction for aquifer thinning has been used to extensively analyze unconfined aquifer tests. However, this equation does not take into account the free surface boundary of the water table. Theories of unconfined aquifers are more complicated than the Theis equation due to the moving boundary at the phreatic surface. Boulton (1954) presented an unconfined flow equation for drawdown at the free surface. This equation has not been used very extensively, because drawdowns at the phreatic surface and from a well which fully penetrates the aquifer are considerably different. Stallman (1963, 1965) developed type curves for an unconfined aquifer from an electric analog, but these curves have not been used extensively because they are for limited well conditions. Dagan (1967) and Neuman (1972, 1974) have developed computer programs which compute type curve values for unconfined aquifer conditions. Neuman showed that unconfined aquifers have some storage from compression of the aquifer structure and the expansion of the fluid. His equation, therefore, has both a storage coefficient and a specific yield term. Dagan's equation considers only the specific yield for storage. All of these unconfined aquifer equations produce equal type curves for the same conditions except Neuman's curves, which depart from the other curves at early pumping times. Unconfined aquifers which demonstrate the confining effect normally have a flat drawdown curve after the confined portion of the drawdown curve. Finally, the drawdown curve returns to a Theis type drawdown curve. Neuman (1974) and Dagan (1967) have demonstrated that the flat portion of the drawdown curve is due to the vertical flow effects. This flat portion of the drawdown curve will be more obvious as the anisotropic ration (vertical permeability divided by horizontal permeability) decreases.

Development of Neuman (1974) type curves requires execution of a computer program for each individual pump test. Streltsova (1972, 1973) developed an approximation of the vertical flow equation and has shown this approximation is the same as Boulton's (1963) flow equation. Streltsova's approximation allows Boulton's type curves to be used to analyze an unconfined aquifer with consideration of vertical flow, if all wells are fully penetrating. Penetration (the length of the well bore where water enters) of the pumping and observation wells is significant for the pump tests conducted in this investigation. The confining effects of the unconfined aquifer is also important for matching the early drawdown data. Therefore, only Neuman's (1974) method will be further discussed.

Neuman (1974) presents the theory of his unconfined flow equation which is used in the development of Neuman type curves using a computer program. The following is a form of Neuman's unconfined aquifer equation:

$$T = 114.6\,(Q)\,(s_D/s)$$
$$S_y = Tt/\{10{,}770\,(r^2)(t_y)\}$$
$$\beta = (r^2/D^2)(K_v/K_h)$$
$$\alpha = S/S_y$$

where: all terms are the same as previously defined, plus

s_D = dimensionless drawdown (same as well function in Theis equation, except it accounts for penetration and two storage terms)

t_y = dimensionless time (same as 0.25 (1/u) in Theis' equation)

D = aquifer thickness, in feet
S_y = specific yield
K_v = vertical permeability, in feet/day
K_h = horizontal permeability, in feet/day

This basic form of the Neuman is used with the geometric setting of the pumping and observation wells and penetration information in the computer program to produce dimensionless drawdown (s_D) versus dimensionless time (t_y) data points for different β (BETA) and α (ALPHA) conditions. Figure J-1 presents the variables used to define well penetrations. The pumping well penetrations are defined by two variables and the observation well's penetration can be defined by two variables which define the top and bottom of the observation well perforation. It can be shown that most observation wells can be represented by a piezometer at the center ZD of the perforated interval without introducing significant errors. The radius of the observation well from the pumping well and the aquifer thickness are included in the BETA term. This term is typically varied for different anisotropic ratios (K_v/K_h). Neuman (1975) recommends the use of a small ALPHA (S/S_y) value for the computer development of the type curves and then adjusting the ALPHA as outlined by Neuman (1975) to obtain the ALPHA value that best fits the observed data.

Neuman's or Dagan's equations do not account for aquifer thinning. Therefore, Jacob's (1944) correction for aquifer thinning is recommended for pump test analyses with these theories also. Pump test data are analyzed by matching the log-log plot of drawdown versus time to Neuman's type curve (s_D vs. t_y) and applying the above equation to the match.

Jacob's straight-line method can be used to analyze drawdown in unconfined aquifers, but the u value is not the only criterion to determine if this method is applicable. A semi-log plot of Neuman's type curves are presented in Figure 2 of Neuman (1975) to demonstrate the applicability of using the straight-line plot to determine transmissivity for unconfined aquifers. Early- and late-time portions of the Theis equation, which form a straight-line, are shown as a solid line on this plot. The straight-line method should yield an accurate transmissivity when the Neuman type curves converge with solid lines. The specific yield value could be in error, however, because partial penetration can cause the late straight line to be shifted parallel to the Theis straight line.

The slope of the straight line from a Neuman type curve is likely to be different from the slope of the Theis straight line. The Theis straight line coefficient of 264 needs to be adjusted to account for the variation in slopes. Therefore, the straight line coefficient adjustment should be made to account for the Neuman unconfined flow theory for the semi-log plots.

D6J.1.6 WTAQ METHOD

The U.S. Geological Survey (USGS) has developed a computer program (WTAQ) to develop type-curves for partially penetrating wells in confined and unconfined aquifers. The unconfined program is based on the Neuman unconfined aquifer equation with a few added features.

The following is the form of the WTAQ equation for fully penetrating wells and an isotropic aquifer using the units of gallons, minutes and feet for the log-log type curve match:

$$T = \frac{114.6Qhd}{s}$$

$$S = \frac{Tt}{10{,}770 t_D r^2}$$

Where parameters are same as above plus:

hd = dimensionless drawdown
t_D = dimensionless time
SIGMA = S/Sy
KV/KH = vertical anisotropic ratio

For semi-log straight-line method:

$$T = \frac{264Q}{\Delta s}$$

$$S = \frac{Tt_o}{1200r^2}$$

Where parameters are the same as above

The unconfined and partial penetration conditions can require that the straight line coefficients (264 and 1200) for the fully penetrating and isotropic need to be adjusted. The slope and intercept of the straight line for the partially penetrating and/or unconfined type curve needs to be compared to the fully penetrating isotropic WTAQ confined type curve to obtain the adjustments in the coefficients.

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