Department of Energy
Office of Legacy Management

MAY 17 2005

Mr. John Lusher
U. S. Nuclear Regulatory Commission
Two White Flint North
11545 Rockville Pike, Mail Stop T8A33
Rockville, MD 20852-2738

Subject: Ground Water Compliance Action Plan for the Gunnison, Colorado, Processing Site

Dear Mr. Von Till:

Enclosed is a copy of the *Final Ground Water Compliance Action Plan for the Gunnison, Colorado, Processing Site* (GCAP) for your review and concurrence.

This plan presents natural flushing as the compliance strategy for ground water cleanup at the Gunnison, Colorado, Processing Site. This final version of the GCAP addresses Colorado Department of Public Health and Environment (CDPHE) and your comments on the Site Observational Work Plan.

Conditional concurrence with the compliance strategy was granted pending modification of the monitoring network downgradient from the site and implementation of institutional controls (IC) in the potentially affected area. Additional monitor wells have been installed in selected areas and other existing monitor wells and domestic wells have been added to the monitoring network as requested. The revised monitoring program will be implemented during the May 2005 sampling event. Discussions and negotiations with Gunnison County officials and CDPHE regarding ICs and expansion of the existing domestic water supply system in the vicinity of the Gunnison site have been successfully completed.

Please contact me at (970) 248-6197 with any questions.

Sincerely,

Tracy Plessinger
Site Manager

Enclosure

cc w/enclosure:
Wendy Naugle, CDPHE
Project File: GUN402.02 (D. Roberts)

tbp\GCAPGun.doc

DOE–LM/GJ829–2005

Final
Ground Water Compliance Action Plan for the Gunnison, Colorado, Processing Site

May 2005

U.S. Department of Energy

Office of Legacy Management

Work Performed Under DOE Contract No. DE–AC01–02GJ79491 for the U.S. Department of Energy Office of Legacy Management.

DOE-LM/GJ829-2005

Final

Ground Water Compliance Action Plan for the Gunnison, Colorado, Processing Site

May 2005

Work Performed by S.M. Stoller Corporation under DOE Contract No. DE–AC01–02GJ79491
for the U.S. Department of Energy Office of Legacy Management, Grand Junction, Colorado

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Acronyms and Abbreviations

ACL	alternate concentration limits
CDPHE	Colorado Department of Public Health and Environment
CFR	*Code of Federal Regulations*
COPC	constituent of potential concern
DOE	U.S. Department of Energy
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
FONSI	Finding of No Significant Impact
ft	foot (feet)
GCAP	Ground Water Compliance Action Plan
IC	institutional control(s)
MCL	maximum concentration limit
mg/L	milligram(s) per liter
NEPA	National Environmental Policy Act
NRC	U.S. Nuclear Regulatory Commission
PEIS	Programmatic Environmental Impact Statement
RAP	Remedial Action Plan
RBC	risk-based concentration
RRM	residual radioactive material
SOWP	Site Observational Work Plan
UMTRA	Uranium Mill Tailings Remedial Action (Project)
UMTRCA	Uranium Mill Tailings Radiation Control Act

1.0 Introduction

This Ground Water Compliance Action Plan (GCAP) presents the compliance strategy for ground water cleanup at the Gunnison, Colorado, Processing Site (Gunnison site) (Figure 1). The ground water cleanup is mandated by the Uranium Mill Tailings Radiation Control Act (UMTRCA). The compliance strategy is based on U.S. Department of Energy (DOE) evaluation of information included in the Site Observational Work Plan (SOWP) (DOE 2001a). This GCAP serves as a stand-alone modification to the Remedial Action Plan (RAP) (DOE 1992) to address ground water restoration and compliance with the U.S. Environmental Protection Agency (EPA) ground water protection standards for the Uranium Mill Tailings Remedial Action (UMTRA) Project Title I sites. This GCAP is the U.S. Nuclear Regulatory Commission (NRC) concurrence document for compliance with ground water cleanup standards in Subpart B of 40 CFR 192 for the Gunnison site.

This final version of the Gunnison GCAP updates the draft version (DOE 2001b) by addressing comments from NRC and the Colorado Department of Public Health and Environment (CDPHE) on the SOWP (DOE 2001a). Conditional concurrence with the compliance strategy was granted pending modification of the monitoring network downgradient from the site and implementation of institutional controls (IC) in the potentially affected area. Additional monitor wells have been installed in selected areas and other existing monitor wells and domestic wells have been added to the monitoring network as requested. The revised monitoring program will be implemented during Fiscal Year 2005. Discussions and negotiations with Gunnison County officials and CDPHE regarding ICs and expansion of the existing domestic water supply system in the vicinity of the Gunnison site have been successfully completed.

This document has been revised to reflect that the above monitoring requirements have been met and that final ICs are in place with Gunnison County. The final GCAP has been submitted to NRC for approval and CDPHE for concurrence, and provides the guidance for long-term monitoring activities at the Gunnison site.

National Environmental Policy Act (NEPA) issues and environmental concerns are addressed in the Environmental Assessment (EA) (DOE 2002). The final EA and Finding of No Significant Impact (FONSI) have been completed and distributed.

Section 2.0 of this document provides a summary assessment of environmental data relevant for development of the ground water compliance strategy. Section 3.0 discusses development of the ground water compliance strategy and Section 4.0 addresses implementation of the compliance strategy.

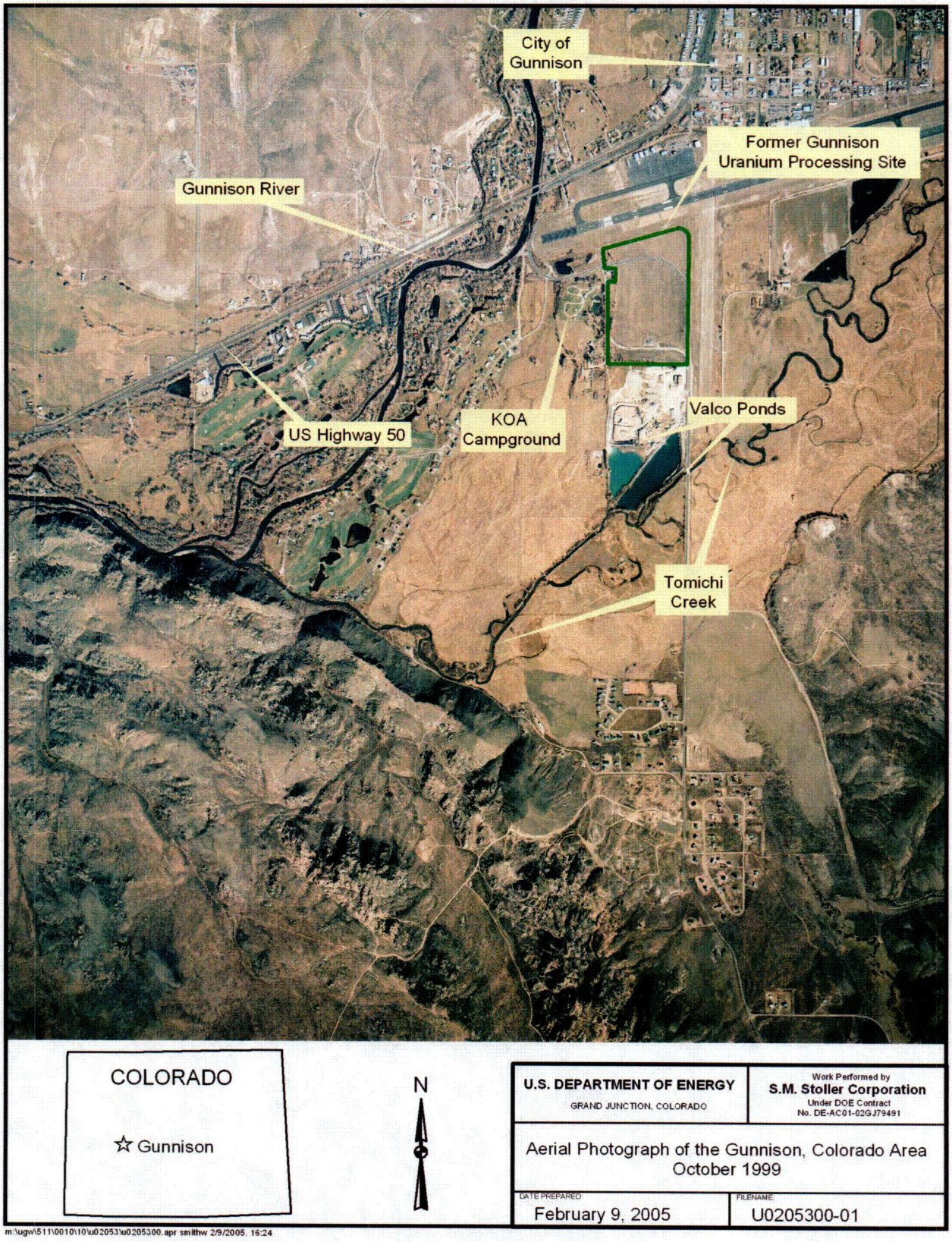

Figure 1. Aerial Photograph of the Gunnison Area

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2.0 Assessment of Environmental Data

2.1 Hydrogeology

The Gunnison site is 0.5 mile southwest of the City of Gunnison, between the Gunnison River and Tomichi Creek, in Gunnison County, Colorado (Figure 1). Site characterization details are available in the SOWP (DOE 2001a).

Ground water occurs under unconfined conditions in the alluvial aquifer (uppermost aquifer) with an average depth to the water table of 5 feet (ft). The alluvium is composed of poorly sorted sediments ranging from clay-sized material through gravel, with cobbles and occasional boulders, and ranges in thickness from 70 to 130 ft. Ground water in the alluvial aquifer generally flows to the southwest with an average gradient of 0.005 ft/ft. Hydraulic conductivity ranges from 100 to 170 feet per day (ft/day). The average linear ground water velocity ranges from 1.9 to 3.2 ft/day.

Ground water in the alluvial aquifer system is recharged by ground water underflow, adjacent streams, precipitation, flood irrigation of the pasture downgradient from the site, and irrigation of the golf course and residential areas southwest of the site. Ground water is discharged naturally to adjacent streams, by evapotranspiration, and by the Valco, Inc. gravel pit dewatering operations south of the site.

2.2 Ground Water Quality

Ground water in the alluvial aquifer beneath and downgradient from the Gunnison site was contaminated by former uranium milling activities. Uranium mill tailings and other residual radioactive material (RRM) were removed from the former millsite from 1992 through 1995 and stabilized in a disposal cell 6 miles east of the City of Gunnison. RRM beneath the site was cleaned up to just below the water table with some contaminated material left in place. Clean fill was placed above these areas to prevent radiation from emanating to the surface. Details of ground water quality at the Gunnison site are available in the SOWP (DOE 2001a) and the Verification Monitoring Reports (DOE 2003 and 2004a).

Uranium is the primary constituent of potential concern (COPC) in ground water, with concentrations above the maximum concentration limit (MCL) of 0.044 milligrams per liter (mg/L) beneath the site, and also exceeding the MCL several thousand feet downgradient from the site boundary (Figure 2). Concentrations of uranium in ground water below the MCL, but above background, extend approximately 7,000 ft downgradient from the site boundary and have migrated beneath the Gunnison River just beyond the confluence with Tomichi Creek. The zone of contamination attenuates and migrates deeper into the aquifer as it progresses laterally in a southwesterly direction.

Manganese is also a COPC in ground water at the Gunnison site (Figure 3). There is no MCL for manganese, but EPA has established an unenforceable secondary standard of 0.05 mg/L for drinking water based on aesthetic concerns. Background concentrations have exceeded the secondary standard by more than an order of magnitude based on historical data (DOE 1996a). However, concentrations at and immediately adjacent to the site have been much higher than background.

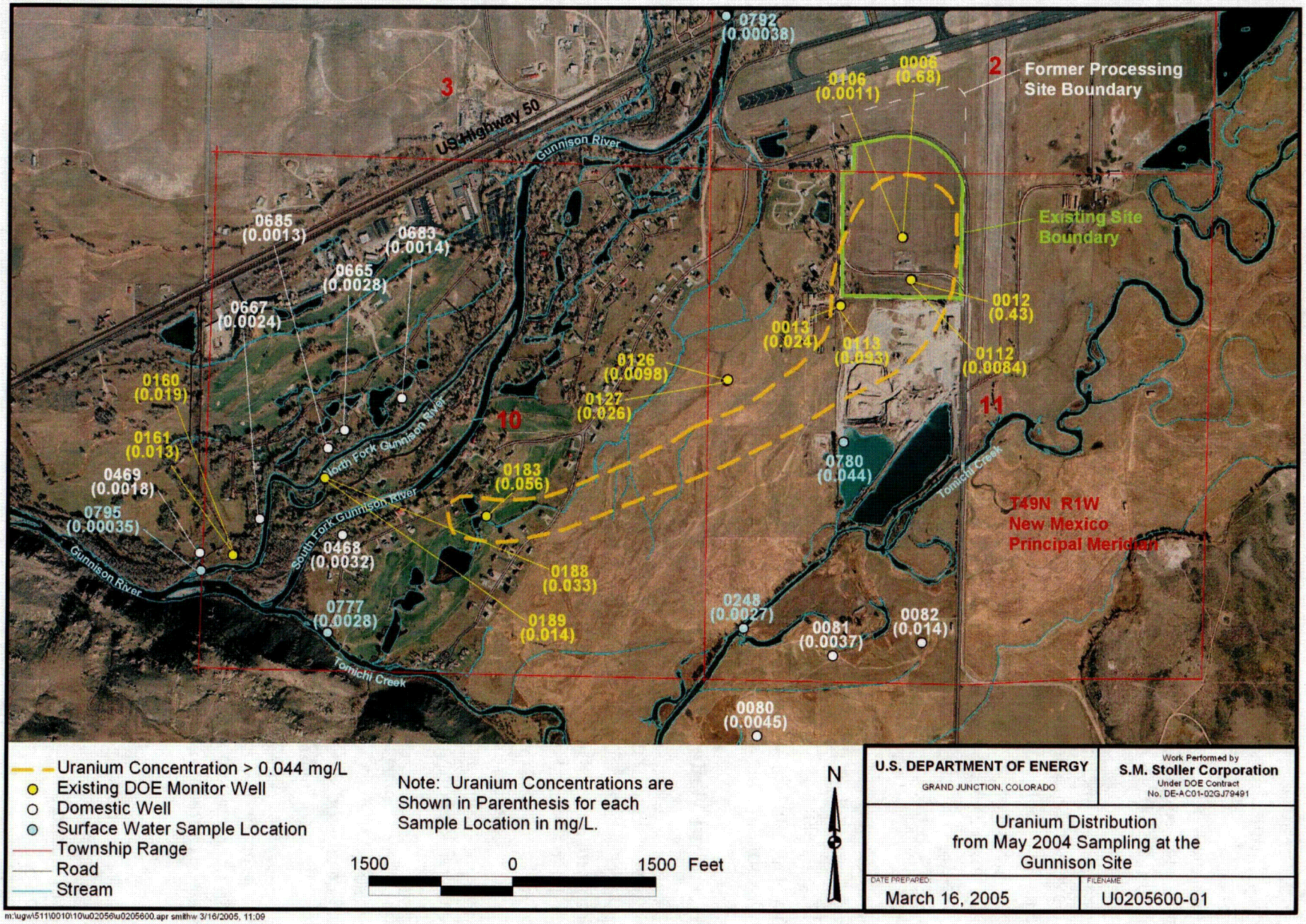

Figure 2. Distribution of Uranium at the Gunnison Site

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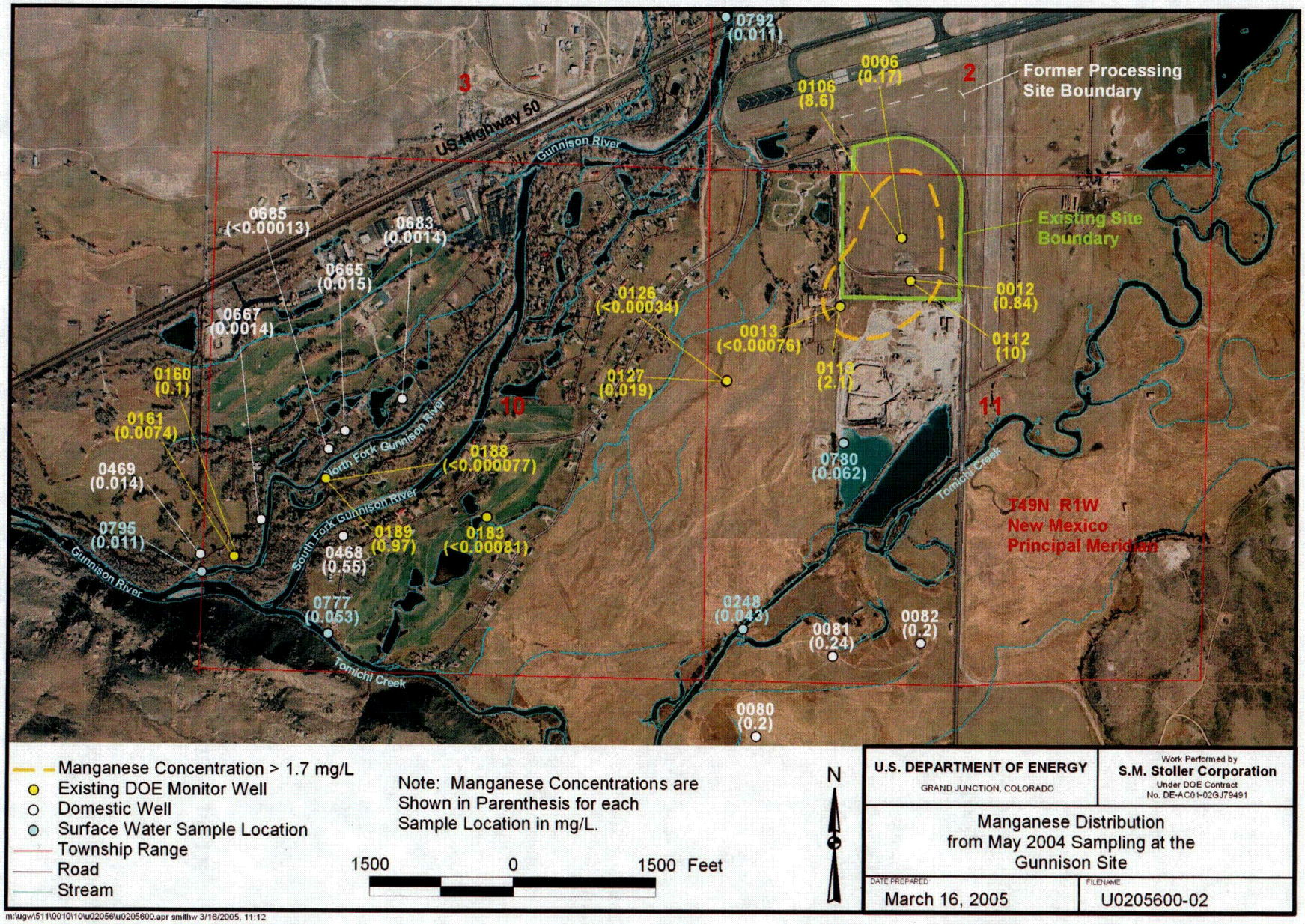

Figure 3. Distribution of Manganese at the Gunnison Site

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Based on results of ground water and surface water sampling during 2004 (DOE 2004a) the following observations were made:

- Concentrations of uranium and manganese in ground water beneath the former millsite are still above the MCL and risk-based concentration (RBC) (1.7 mg/L), respectively, but are decreasing with time, indicating that natural flushing is occurring in the alluvial aquifer.
- Concentrations of uranium in ground water downgradient from the site and deeper in the alluvial aquifer in some areas are still elevated above background, as expected, as the plume migrates downgradient.
- Concentrations of COPCs in ground water in the domestic wells in the vicinity of the site are below the MCL and CDPHE (0.020 mg/L) action levels for uranium (DOE 2004a), and comparable to background for manganese.
- Concentrations of uranium in surface water of the Gunnison River are below 0.001 mg/L, indicating no site-related contamination of the river.
- The concentration of uranium in surface water in the Valco, Inc. pond is elevated with respect to background ground-water quality, which is expected since the pit is recharged by contaminated ground water from the site. There is no unacceptable risk to human health at these levels for likely water uses based on a risk assessment in the SOWP (DOE 2001a).
- Concentrations of uranium are below background levels for ground water in Tomichi Creek.
- Concentrations of manganese in surface water are comparable to background.

2.3 Land and Water Use

The Gunnison site is owned by Gunnison County (Appendix A). Adjacent properties are owned by Gunnison County; Valco, Inc.; and other private parties. Valco, Inc. is involved in commercial aggregate mining operations just south of the Gunnison site. Some of the adjacent area most likely will be subject to residential development in the future. A domestic water supply system, funded by DOE and the State of Colorado was constructed in 1994 to provide drinking water to potentially impacted users in the IC boundary (Figure 4). Additional enhancements to the domestic water supply system were also funded by DOE and the State of Colorado during 2004 with construction scheduled for 2005. Recent discussions with Gunnison County officials and CDPHE regarding ICs in the area potentially affected by ground water contamination have been successful, and effective and enforceable ICs are in place (Appendix B).

3.0 Ground Water Compliance Strategy

3.1 Selection Framework

The ground water compliance strategy for the Gunnison site (Subpart B of 40 CFR 192) is based on the compliance strategy selection framework following the steps presented in the Programmatic Environmental Impact Statement (PEIS) (DOE 1996b). DOE's goal is to implement a cost-effective ground water compliance strategy at the Gunnison site that is protective of human health and the environment and returns contaminated ground water to its maximum beneficial use.

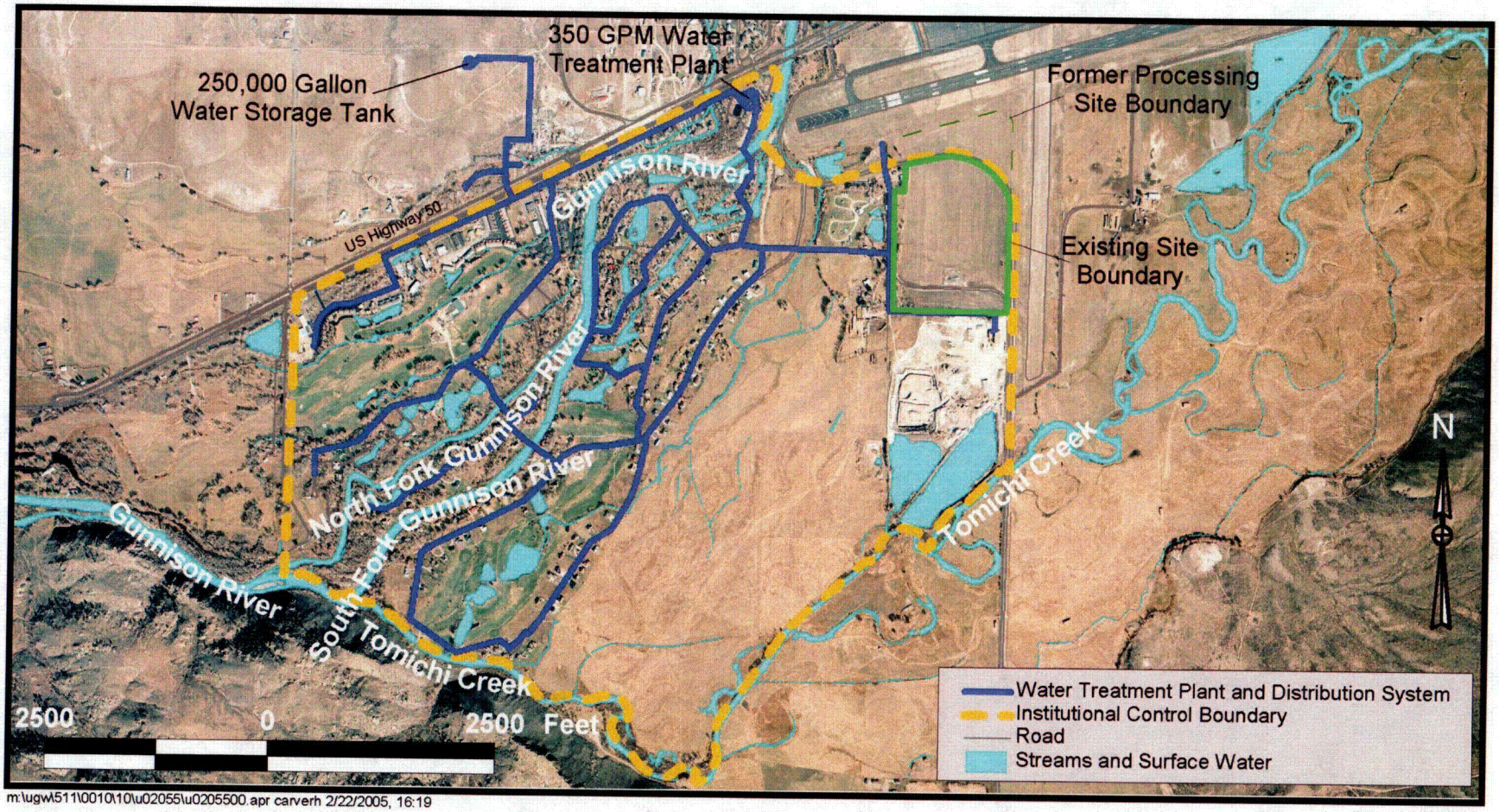

Figure 4. Institutional Control Boundary at the Gunnison Site

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After evaluating existing site information and following the decision framework in the PEIS, DOE selected a compliance strategy of natural flushing for ground water cleanup at the Gunnison site. The compliance strategy is being implemented in conjunction with continued ground water and surface water monitoring to observe the effectiveness of the strategy, and ICs are being maintained and verified during the natural flushing period to restrict access to contaminated ground water. The compliance strategy is based on the decision framework in Figure 5 and is explained in Table 1.

To enhance this ground water compliance strategy, DOE and the State of Colorado constructed an alternate domestic water supply system in 1994 to service all existing ground water users in the area and potential future users (Figure 4). An addition to the domestic water supply system was funded by DOE and the State of Colorado during 2004.

This natural flushing compliance strategy for the Gunnison site is protective of human health and the environment and fulfills the requirements for Subpart B of 40 CFR 192.

3.2 Applicability of Natural Flushing

Ground water in the alluvial aquifer beneath and downgradient of the Gunnison site qualifies for natural flushing because ground water flow and transport modeling has predicted that site-related concentrations of uranium will decrease to below the MCL within 100 years.

The ground water flow and transport model was developed to evaluate if natural processes would reduce site-related uranium concentrations to regulatory levels in the alluvial aquifer within 100 years. Only uranium was modeled, as it appeared to be the most representative and widespread site-related contaminate in ground water. Because uranium is the primary indicator of site contamination, it is the basis for verifying the compliance strategy for ground water cleanup at the Gunnison site. Results of the modeling are summarized below and details are presented in Section 5.4 and Appendix H of the SOWP (DOE 2001a).

Two different versions of the model were developed to address conditions in the vicinity of the site. The steady state flow and transport model predicted that uranium concentrations would decrease to 0.042 mg/L after 100 years, which is below the standard of 0.044 mg/L. The steady state stochastic flow and transport model was used to quantify the uncertainty in flow and transport parameters. Similar results were predicted by the stochastic modeling effort, with maximum average concentrations below the standard at 0.043 mg/L after 100 years. The stochastic simulations predicted that after 100 years there is a moderate probability (40 percent) that the maximum concentration will be greater than the standard over a small area of the alluvial aquifer.

Based on modeling results, natural flushing is an acceptable compliance strategy that allows natural processes to reduce the ground water contaminants to below the MCL beneath and downgradient from the site within 100 years. Even though there is a moderate probability that the maximum concentration of uranium in ground water may be above the standard over a small area of the aquifer after 100 years, the natural flushing strategy is reasonable because: (1) there is no current or projected unacceptable risk to human health and the environment because of durable and enforceable ICs, and the water supply system, installed in 1994 and enhanced in 2004, eliminated the only potential pathway (which was ingestion of contaminated ground

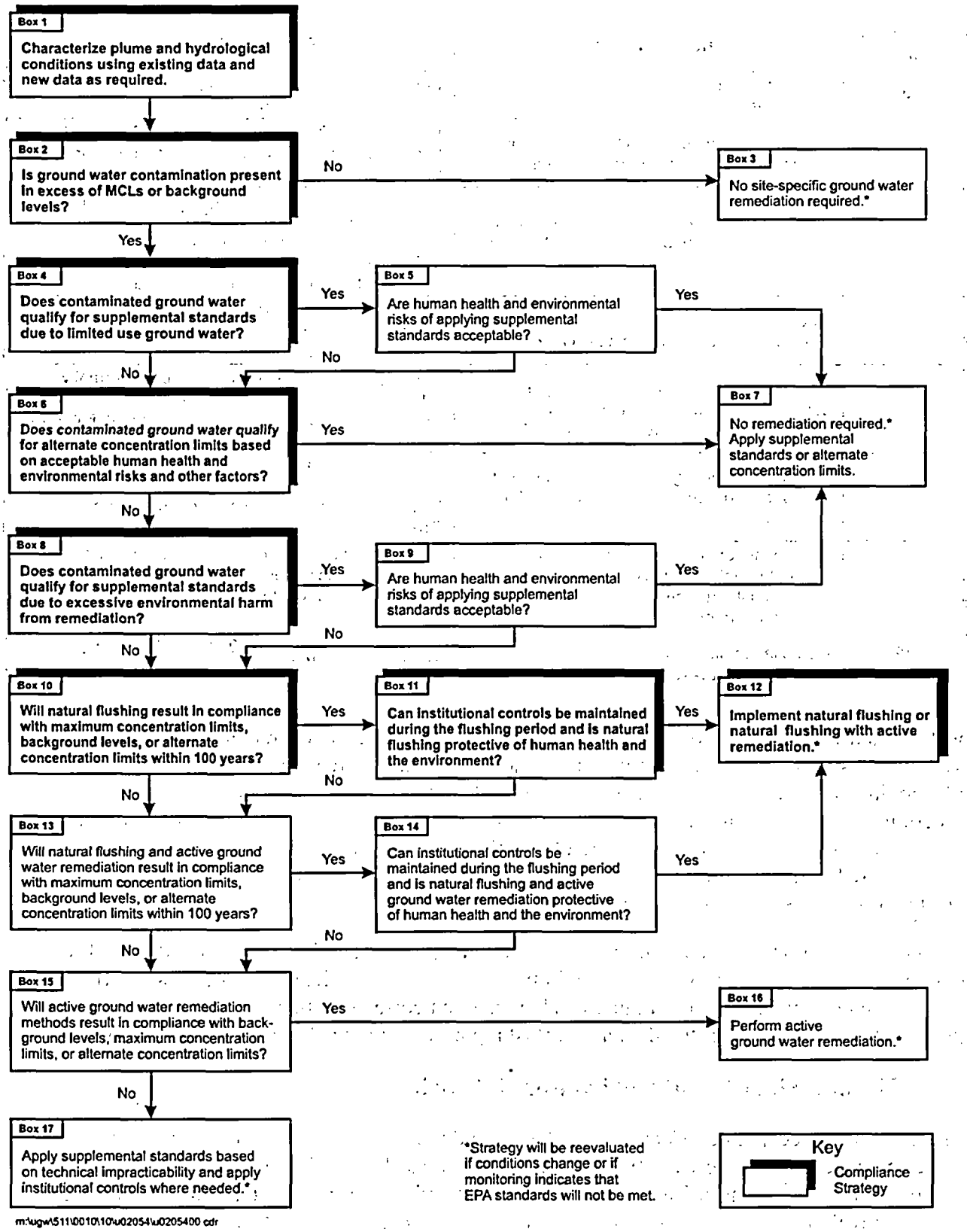

Figure 5. Compliance Strategy Decision Framework

Table 1. Compliance Strategy Selection Process for Ground Water at the Gunnison Processing Site

Box from Figure 5	Action or Question	Result or Decision
1	Characterize plume and hydrological conditions.	See conceptual site model presented in the SOWP (DOE 2001a). Move to Box 2.
2	Is ground water contamination present in excess of MCLs or background levels?	Uranium and manganese exceed the MCL and background, respectively, at one or more monitoring points. Move to Box 4.
4	Does contaminated ground water qualify for supplemental standards due to limited use ground water?	The ground water does not qualify for limited use because the background TDS is less than 10,000 mg/L, the aquifer will yield more than 150 gallons per day, and background COPC concentrations are low. Move to Box 6.
6	Does contaminated ground water qualify for alternate concentration limits (ACL)?	Ground water flow and transport modeling indicate that natural flushing will be effective and ACLs are not needed. Move to Box 8.
8	Does contaminated ground water qualify for supplemental standards due to excessive environmental harm from remediation?	Although the applicability has not been formally addressed, it is unlikely that remedial action would cause excessive harm to the environment. Move to Box 10.
10	Will natural flushing result in compliance with MCLs, background levels, or ACLs within 100 years?	Yes. Ground water flow and transport modeling have predicted that concentrations of uranium will be below the MCL within 100 years. Move to Box 11.
11	Can institutional controls be maintained during the natural flushing period and is natural flushing protective of human health and the environment?	Yes. ICs have been negotiated and implemented and a domestic water supply system has been constructed to provide drinking water. Move to Box 12.
12	Compliance strategy.	Implement natural flushing in conjunction with monitoring and ICs.

water as a drinking water source); (2) the uncertainties involved in characterization of a natural system and simulating the system with numerical modeling are recognized and manageable; (3) monitoring ground water at the site will provide data to verify the modeling predictions, ascertain that natural flushing is meeting compliance expectations, and ensure protection of human health and the environment; and (4) contingency remedies will be considered and implemented in the event that the selected compliance strategy is not effective in meeting cleanup objectives within the 100-year time frame allowed.

A comparison of uranium concentrations in alluvial aquifer ground water just off the southwest corner of the site (well 0113) versus uranium concentrations predicted by ground water flow and transport modeling is shown in Figure 6. There is good correlation between the actual and predicted results, showing that the natural flushing process in the alluvial aquifer is working.

3.3 Human Health and Environmental Risk

There are no unacceptable risks to human health and the environment associated with current and projected conditions in the vicinity of the Gunnison site as long as ICs are maintained. Current gravel mining operations at Valco, Inc., expose contaminated ground water in a pond formed in a former gravel pit; however, this pond presents no unacceptable risk as documented in the SOWP (DOE 2001). Consequently, the proposed compliance strategy of natural flushing in conjunction with continued monitoring and ICs will be protective of human health and the environment.

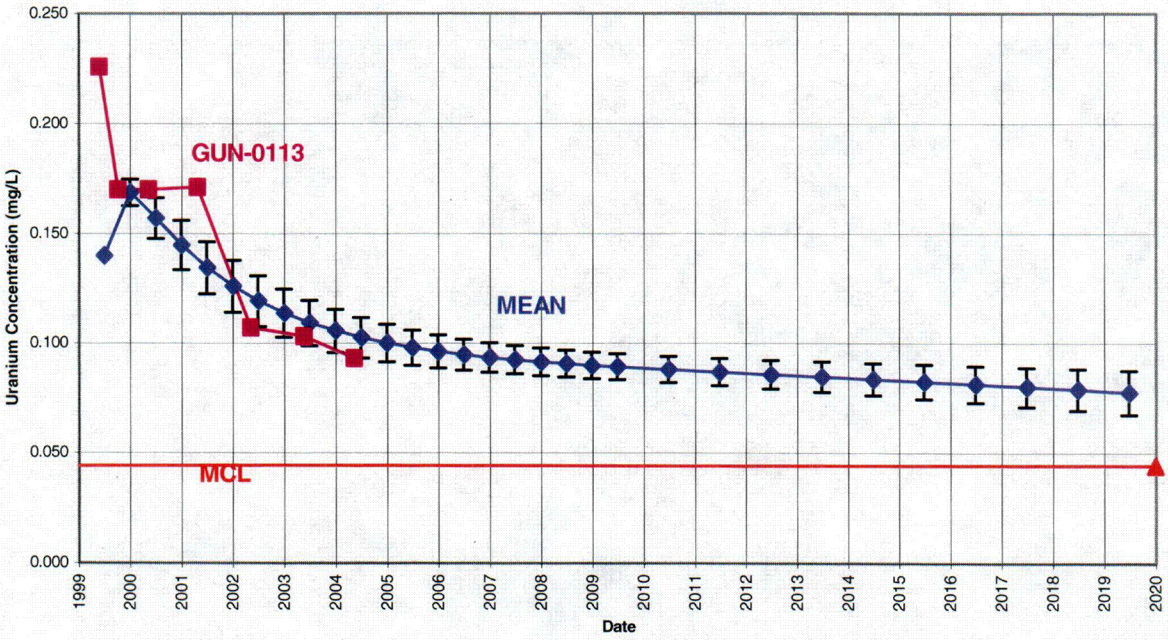

Figure 6. Predicted and 2004 Actual Uranium Concentration Versus Time in Well 0113

4.0 Compliance Strategy Implementation

The natural flushing compliance strategy for Subpart B of 40 CFR 192 for the Gunnison site will be implemented in conjunction with ground water and surface water monitoring and ICs.

4.1 Monitoring Program

The long-term monitoring network for the Gunnison site includes 29 DOE monitor wells, 5 surface water locations, and 10 domestic wells (Figure 7 and Table 2). Uranium and manganese are the COPCs that will be analyzed during each sampling event.

Verification monitoring of COPCs in ground water in the alluvial aquifer and surface water in the vicinity of the Gunnison site will be performed on an annual basis for the first 5 years after NRC concurrence with the final GCAP (this document) to ascertain that natural flushing is progressing as predicted by ground water flow and transport modeling. A review of the monitoring program will be conducted after 5 years to determine if a change in the frequency of monitoring is warranted. Ongoing monitoring requirements will be evaluated in the Verification Monitoring Report and modified as determined by DOE and the regulators.

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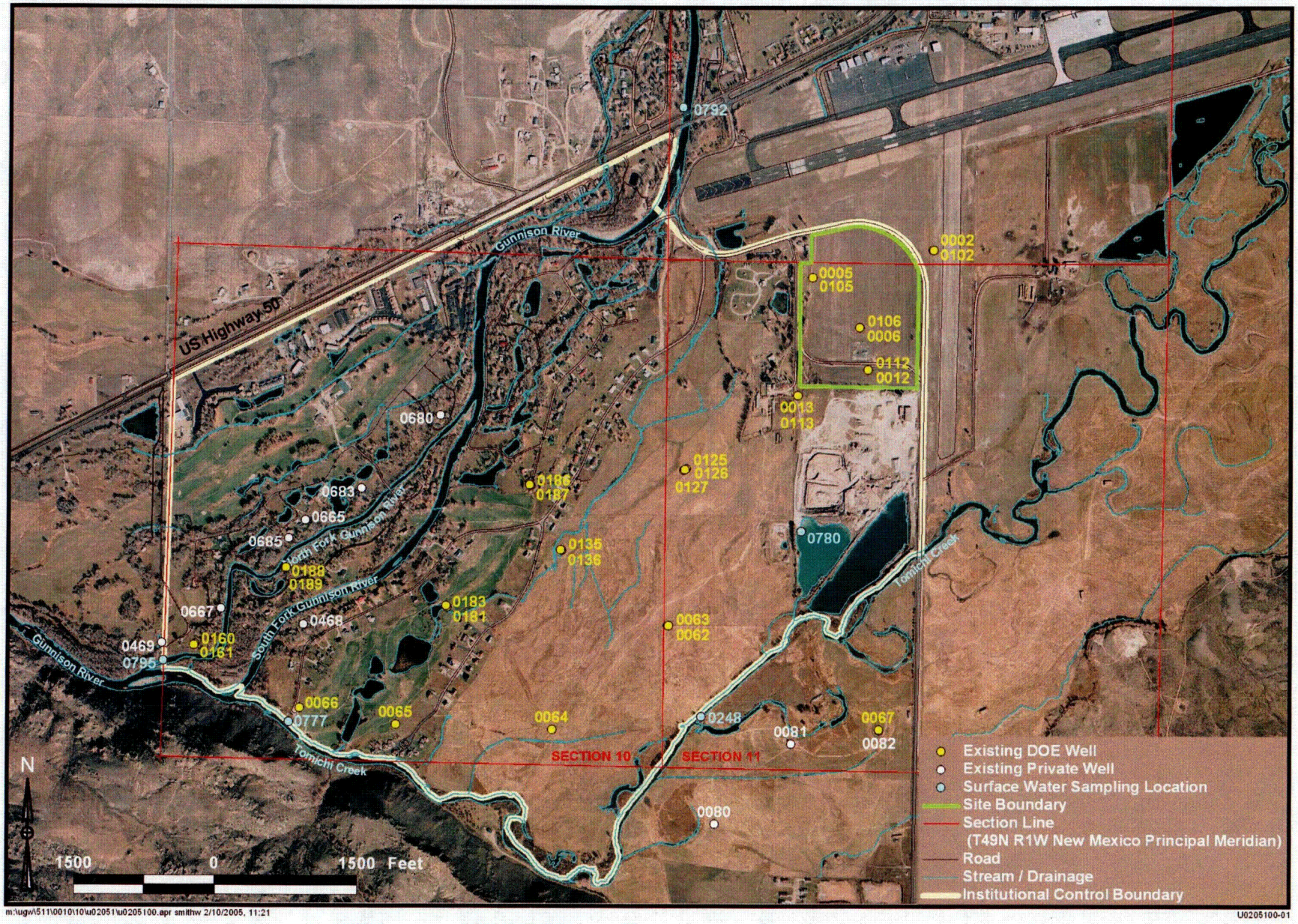

Figure 7. Ground Water and Surface Water Monitoring Locations at the Gunnison Site

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Table 2. Ground Water and Surface Water Monitoring Locations at the Gunnison Processing Site

Sample ID	Aquifer Zone	Screened Interval	Location	Rationale (Uranium)
Ground Water				
0062	Intermediate	48-58	Tomichi Creek Preserve pasture	Monitor plume migration
0063	Deep	88-98	Tomichi Creek Preserve pasture	Monitor plume migration
0064	Deep	87-97	Valco, Inc. pasture	Monitor plume migration
0065	Intermediate	50-60	Golf course	Monitor plume migration
0066	Intermediate	40-50	End of Tomichi Trail	Monitor plume migration
0067	Intermediate	40-50	South of Tomichi Creek	Confirm uranium concentration in well 0082
0002	Shallow	10-15	Airport	Upgradient
0102	Intermediate	42-47	Airport	Upgradient
0005	Shallow	10-15	On-site	Upgradient edge of plume
0105	Intermediate	42-47	On-site	Upgradient edge of plume
0006	Shallow	10-15	On-site	"Hot spot"
0106	Intermediate	34-39	On-site	Monitor vertical migration
0012	Shallow	10-15	On-site	"Hot spot"
0112	Intermediate	40-45	On-site	Monitor vertical migration
0013	Shallow	11-16	Just off-site	Monitor plume migration
0113	Intermediate	41-46	Just off-site	Monitor plume migration
0125	Shallow	18-23	Valco, Inc. pasture	Monitor plume migration
0126	Intermediate	54-59	Valco, Inc. pasture	Monitor plume migration
0127	Deep	94-99	Valco, Inc. pasture	Monitor plume migration
0135	Shallow	18-23	Valco, Inc. pasture	Monitor plume migration
0136	Intermediate	53-58	Valco, Inc. pasture	Monitor plume migration
0181	Shallow	18-23	Golf course	Monitor plume migration
0183	Deep	93-98	Golf course	Monitor plume migration
0186	Intermediate	53-58	End of Monte Vista Dr.	Monitor plume migration
0187	Deep	93-98	End of Monte Vista Dr.	Monitor plume migration
0188	Intermediate	53-58	West of Gunnison River	Monitor plume migration
0189	Deep	93-98	West of Gunnison River	Monitor plume migration
0160	Intermediate	51-56	West of Gunnison River	Adjacent to IC boundary
0161	Deep	93-98	West of Gunnison River	Adjacent to IC boundary
Surface Water				
0248	NA[a]		Tomichi Creek	Downstream of Valco, Inc. Pond
0777			Tomichi Creek	Downstream – potential aquifer discharge
0780			Valco, Inc. gravel pit	Above MCL
0792			Gunnison River	Upstream
0795			Gunnison River	Downstream
Domestic Wells				
0080	Intermediate	44 (total depth)	South of Tomichi Creek	Above background in well 0082
0081	Intermediate	44 (total depth)	South of Tomichi Creek	Above background in well 0082
0082	Intermediate	43 (total depth)	South of Tomichi Creek	Above background
0468	Shallow	Unknown	East of Gunnison River	Buffer zone
0469	Shallow	Unknown	West of Gunnison River	Buffer zone
0665	Shallow	Unknown	West of Gunnison River	Buffer zone
0667	Shallow	Unknown	West of Gunnison River	Buffer zone
0680	Shallow	Unknown	West of Gunnison River	Buffer zone
0683	Shallow	Unknown	West of Gunnison River	Buffer zone
0685	Shallow	Unknown	West of Gunnison River	Buffer zone

[a]NA = not applicable

4.2 Institutional Controls

Contaminated ground water occurs in the alluvial aquifer beneath and downgradient from the Gunnison site on property controlled by Gunnison County and private landowners. ICs applied in conjunction with the natural flushing compliance strategy are restrictions to ensure protection of human health and the environment by limiting access to the contaminated ground water. ICs in effect in the vicinity of the Gunnison processing site consist of deed restrictions on the original uranium millsite property (currently owned by Gunnison County), a Gunnison County Resolution establishing the New Well Constraint Area for the Dos Rios area of the County, and construction of a domestic water supply system. DOE entered into a NRC approved cooperative agreement (DOE 2004b) with Gunnison County where DOE agreed to fund (along with CDPHE) an extension of the domestic water supply system and the county agreed to restrict new well installation with the IC boundary.

ICs are in place within the boundary of the former millsite through deed restrictions that became effective when the State of Colorado transferred ownership to Gunnison County via a Quit Claim Deed in December 1999 (Appendix A). The deed restrictions prohibit use of contaminated ground water, control excavation of contaminated soil, and stipulate radon mitigation measures are required for habitable structures. Gunnison County is in the process of constructing an industrial park at the former millsite. Because the former millsite is within the service area of the Dos Rios water system, the planned industrial park will have a source of domestic water available. As stipulated in the Quit Claim Deed, DOE and the State of Colorado will have oversight and approval authority on the industrial park construction plans regarding handling of ground water and soil during construction, and radon mitigation measures in habitable structures.

In order to restrict the use of contaminated ground water in the vicinity of the Gunnison site, Gunnison County approved a resolution establishing the New Domestic Well Constraint Area for the Dos Rios area of the county (Resolution No. 59, Series 2004) (Appendix B). The resolution states that an established and developed residential area, in which the uses require a potable water supply now and into the future, overlies a plume of contaminated ground water caused by past uranium milling activities in the area. The resolution prohibits new domestic wells within the boundaries of the IC area and ensures that each property owner has access to a domestic water supply provided by the Dos Rios Water Treatment System. The boundaries of the IC area are based upon scientific evidence that they encompass the plume of contamination and ensure protection of the source of potable water to the residents within it (Figure 4). DOE and CDPHE contemplated alternative treatment systems and found that the method of prohibition of new domestic wells as proposed within the IC area was the preferred alternative. It was determined that this solution was in the best interest of public health, safety, and welfare.

DOE and CDPHE funded an alternate domestic water supply system in 1994 to provide drinking water to all residents potentially affected by contaminated ground water in the vicinity of the Gunnison site (Figure 4). The water system is owned and operated by Gunnison County. Additional funding was provided by DOE and CDPHE in 2004 to extend the domestic water supply system. Construction of the water supply extension is scheduled for 2005.

5.0 References

DOE (U.S. Department of Energy), 1992. *Remedial Action Plan and Site Design for Stabilization of the Inactive Uranium Mill Tailings Site at Gunnison, Colorado*, UMTRA-DOE/AL-050508.0000.

———, 1996a. *Baseline Risk Assessment of Ground Water Contamination at the Uranium Mill Tailings Site Near Gunnison, Colorado*, DOE/AL/62350-57, Rev.2.

———, 1996b. *Final Programmatic Environmental Impact Statement for the Uranium Mill Tailings Remedial Action Ground Water Project*, Vol. I, DOE/EIS-0198.

———, 2001a. *Final Site Observational Work Plan for the Gunnison, Colorado, UMTRA Project Site*, GJO-2001-214-TAR.

———, 2001b. *Ground Water Compliance Action Plan for the Gunnison, Colorado, UMTRA Project Site*, draft, GJO-2001-233-TAR.

———, 2002. *Environmental Assessment of Ground Water Compliance at the Gunnison, Colorado, UMTRA Project Site*, DOE/EA-1399, Final.

———, 2003. *Verification Monitoring Report for the Gunnison, Colorado, UMTRA Project Site*, GJO-2003-469-TAC.

———, 2004a. *Verification Monitoring Report for the Gunnison, Colorado, UMTRCA Title I Processing Site*, DOE–LM/GJ739–2004.

———, 2004b. Cooperative Agreement DE-FC01-04LM00004.

End of current text

Appendix A

Quit Claim Deed

QUIT CLAIM DEED

The Colorado Department of Public Health and the Environment ("Grantor"), whose address is 4300 Cherry Creek Drive South, Denver, Colorado, 80222-1530, City and County of Denver, State of Colorado, pursuant to 42 U.S.C § 7914 (e) (1) (B) and C.R.S. § 25-11-303, hereby donates and quit claims to the County of Gunnison ("Grantee"), whose address is 200 E. Virginia, Gunnison, Colorado, 81230, City and County of Gunnison, State of Colorado, the following real property in the County of Gunnison, State of Colorado, to wit: A parcel of land in Gunnison County, State of Colorado, containing Sixty and ninety two hundredths (60.92) acres, more or less, described as follows:

Township 49 North, Range 1 West, N.M.P.M.

A tract of land situated in the S½SW¼ of Section 2 and the NE¼NW¼ of Section 11 more particularly described as follows:

Commencing at the North quarter corner of said Section 11; thence South 89°34'00" West along the North line of said Section 11, a distance of 30.91 feet to the Westerly right-of-way line of the existing county road; thence North 00°07'00" West along said right-of-way line 742.17 feet ; thence North 53°22'00" West, 231.90 feet, to the POINT OF BEGINNING; thence Southeasterly along said right-of-way along a curve to the right, having a radius of 144.71 feet, 268.98 feet, chord bearing South 53°22'00" East, 231.90 feet; thence South 00°07'00" East along said right-of-way line, 742.17 feet, to the North line of said Section 11; thence South 00°08'00" East along said right-of-way line, to the South line of said NE¼NW¼ ; thence South 89°41'00" West along said South line, 1,271.72 feet ; thence North 01°06'00" West, 1320.03 feet to said North line of Section 11; thence North 89°34'00" East along said North line, 112.00 feet ; thence North 00°31'00" East, 219.42 feet ;thence North 89°09'00" West, 166.32 feet ; thence North 13°56'00" West 99.16 feet ; thence North 06°14'00" West, 211.88 feet to the Southerly right-of-way line of said existing county road; thence Northeasterly along said right-of-way line, to the POINT OF BEGINNING

Subject to: (i) any coal, oil, gas, or other mineral rights in any person; (ii) existing rights-of-way for roads, railroads, telephone lines, transmission lines, utilities, ditches, conduits, or pipelines on, over, or across said lands; (iii) court liens, judgments, or financial encumbrances such as deeds of trust for which a formal consent or order has been obtained from a court for the lien holder; (iv) other rights, interests, reservation or exceptions of record; and the following terms, conditions, rights, reservations and covenants:

Grantor reserves to: (i) itself, the U. S. Department of Energy, their employees, agents and contractors the right of access to the property as may be necessary to complete activities under the Uranium Mill Tailings Radiation Control Act of 1978, 42 U.S.C. § 7901 et seq. ("UMTRCA") and for other lawful purposes, until such time as Grantor and the U.S. Department of Energy determine that all remedial activities are complete; and (ii) to itself any non-tributary groundwater underlying this parcel, the right to develop tributary groundwater, and the right to surface access for groundwater development.

Grantee covenants to hold harmless the Grantor and the Department of Energy for any liability associated with disruption of any public purpose ventures on the property conveyed by this deed, the disruption of any improvement on said property made by the Grantee, its successors and assigns, and any temporary or permanent limitations to the use of the property, should the Grantor and the Department of Energy be required to perform additional surface remedial activities on the property conveyed by this deed.

Grantee covenants (i) to comply with the applicable provisions of UMTRCA, 42 U.S.C. §7901 et. seq., as amended; (ii) not to use ground water from the site for any purpose, and not to construct wells or any means of exposing ground water to the surface unless prior written approval for such use is given by the Grantor and the U.S. Department of Energy; (iii) not to sell or transfer the land to anyone other than a governmental entity within the state; (iv) that any sale or transfer of the property described in this deed shall have prior written approval from the Grantor and the U.S. Department of Energy; and that any deed or other document created for such sale or transfer and any subsequent sale or transfer will include information stating that the property was once used as a uranium milling site and all other information regarding the extent of residual radioactive materials removed from the property as required by Section 104(d) of the Uranium Mill Tailings, 42 U.S.C. sec. 7014(d), and as set forth in the Annotation attached hereto; (v) not to perform construction and/or excavation or soil removal of any kind on the property without permission from the Grantor and the U.S. Department of Energy unless prior written approval of construction plans (e.g., facilities type and location), is given by the Grantor and the U.S. Department of Energy; (vi) that any habitable structures constructed on the property shall employ a radon ventilation system or other radon mitigation measures; and (vii) that its use of the property shall not adversely impact groundwater quality, nor interfere in any way, with groundwater remediation under UMTRCA activities; and (viii) to use the

property and any profits or benefits derived therefrom only for public purposes as required by UMTRCA sec. 104(e)(1)(C), 42 U.S.C. 7914(e)(1)(C).

These covenants are made in favor and to the benefit of Grantor, shall run with the land and be binding upon Grantee and its successors and assigns, and shall be enforceable by Grantor, and its successors and assigns;

Grantee acknowledges that the property was once used as a uranium milling site, and that the Grantor makes no representations or warranties that the property is suitable for Grantee's purposes;

IN WITNESS WHEREOF:

GRANTOR:

APPROVED AS TO FORM:

David Kreutzer - Assistant Attorney General

STATE OF COLORADO
Bill Owens, Governor
Acting by and through
The Department of Public Health and Environment

By: _____
Executive Director

By: _____
Program Approval

ACCEPTANCE OF DEED
AND COVENANTS

GRANTEE:
Board of County Commissioners
Gunnison County, CO
(Full Legal Name or Agency)

By: _____
(Name)

Title: Chairperson, Gunnison County Commissioners

(Affix Seal)

ATTESTATION:

_____
City/County Clerk

Signed this 6th day of December, 19 99

STATE OF COLORADO. } ss.
County of Denver

The foregoing instrument was acknowledged before me this 19th day of January, 2000 , by Maria S. Zepeda-Sanchez

My commission expires April 14, 2003

Witness my hand and official seal

_____
Notary Public.

No. _____

499861 02/24/2000 10:19A 3 of 6 R 0.00 D 0.00 N 0.00 Gunnison County

QUIT CLAIM DEED

TO

STATE OF COLORADO, } ss.
County of

I hereby certify that this instrument was filed for record in my office, at _____ o'clock _M., _____, 19_ and is duly recorded in book _____ page _____.

Film No. _____ Reception No. _____

_____
Recorder.

By _____
Deputy.

Fees, $ _____

ATTACHMENT A

LAND ANNOTATION

GUNNISON, COLORADO PROCESSING SITE

The Uranium Mill Tailings Radiation Control Act (Public Law 95-604), Section 104, requires that the State notify any person who acquires a designated processing site of the nature and extent of residual radioactive materials removed from the site, including notice of the date when such action took place, and the condition of the site after such action. The following information is provided to fulfill this requirement.

The Gunnison, Colorado processing site consists of two separate land parcels. The northern parcel contained the tailings pile, while the southern parcel contained the mill building and associated structures. However, since the two sites are contiguous and physically similar, the remainder of this annotation will address the mill site as a whole.

Approximately 734,000 cubic yards of contaminated materials which included 1) tailings; 2) subpile soils; 3) surficial materials in the mill yard; 4) windblown materials; and 5) mill demolition debris were removed from the mill site from 1993 to 1995. The remediation was conducted in accordance with regulations promulgated by the U.S. Environmental Protection Agency, in 40 CFR 192. These regulations require that the concentration of radium-226 in land averaged over any area of 100 square meters shall not exceed the background level by more than: 5 pCi/g (picocuries per gram), averaged over the first 15 cm (centimeters) of soil below the surface, and 15 pCi/g averaged over 15 cm thick layers of soil more than 15 cm below the surface. Verification measurements were conducted at the site by dividing the site into approximately 2,900 30-foot by 30-foot grids. A soil sample was collected and analyzed for contaminants from each grid to verify that the standards had been met.

After remediation was complete the site was backfilled with approximately 450,000 cubic yards of clean fill material, graded for drainage and revegetated. Backfill materials were routinely analyzed for radium-226 and were determined to have concentrations near background. Material with radium-226 concentrations less than 5 pCi/g were used for surface backfill.

Excavation of residual radioactive material was also conducted for thorium-230 beneath the tailings pile in the subpile soils which consisted mainly of large cobbles, sands and gravels. For thorium-230, the cleanup standard was determined as a projected 1,000 year radium-226 concentration based on the eventual decay of the thorium to radium. Because the material contained large cobbles, a mass correction factor was applied which allowed for the averaging of the thorium concentration throughout the soil mass. This resulted in a bulk thorium-230 concentration of approximately 35 pCi/g as the clean-up standard.

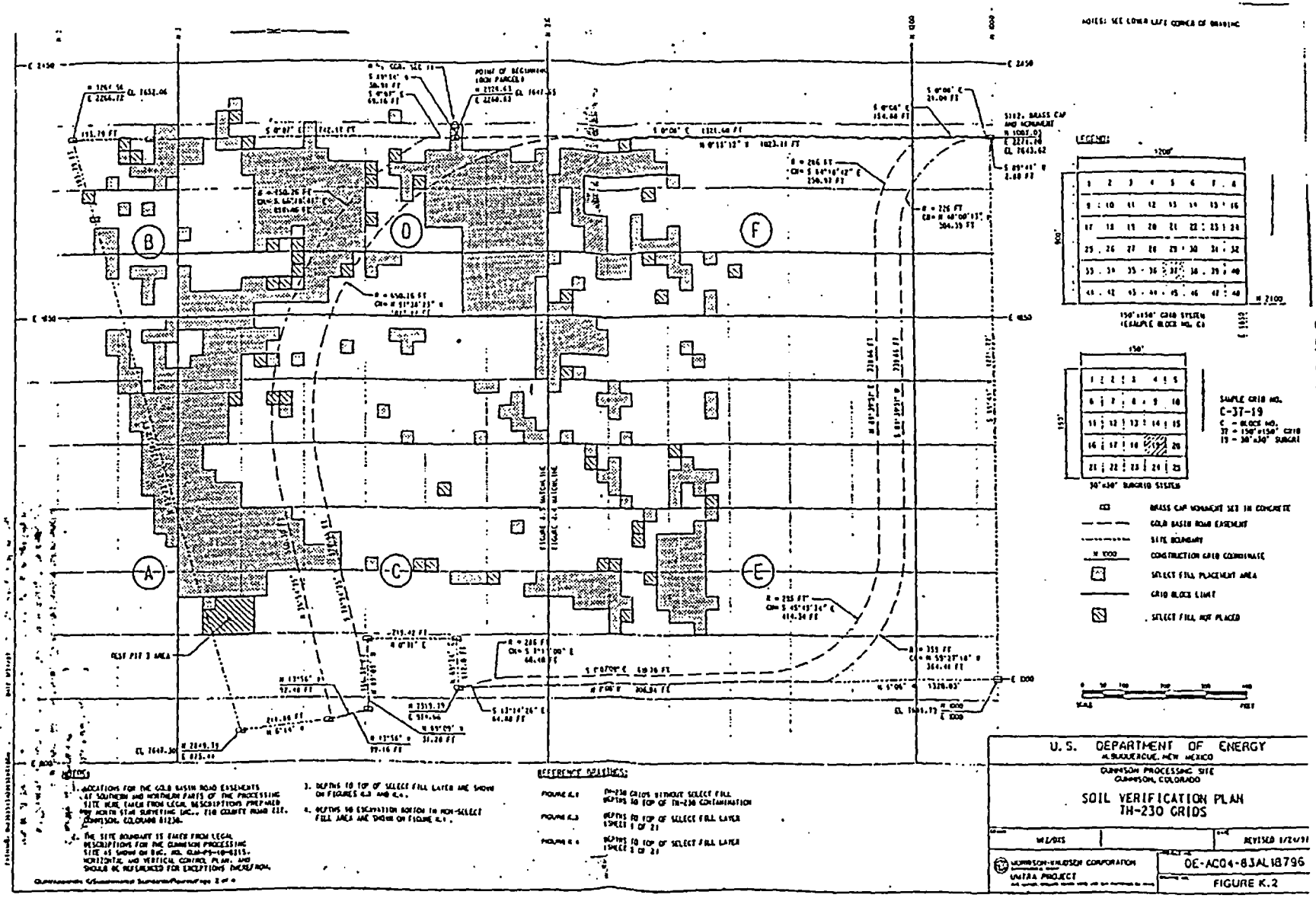
Due to the shallow depth of the water table beneath the tailings pile, complete excavation of all thorium-contaminated material was not feasible without extensive dewatering. Thus, in accordance with the EPA regulations a procedure was developed whereby thorium contamination

was left in place at depth. once the water table was reached in the excavation. Any concentration of thorium above 175 pCi/g that was to remain in place was to receive a cap layer of one foot of fine-grained backfill. called "select fill" as low in the excavation as possible. to reduce the eventual emissions of radon gas from the thorium deposits. (The value of 175 pCi/g was based on a radon emanation model that determined that after backfill. the radon escaping from a deposit of less than 175 pCi/g would be below the EPA standard for radon emanation. Any concentration greater than 175 pCi/g would need to have a cap layer that would minimize the radon emissions.) At the Gunnison site, 596 grids received the select backfill material (approximately 22.000 cubic yards of select fill were used at the site). An additional 41 grids contain thorium deposits in concentrations greater than 175 pCi/g. but are not covered by the select fill material. The locations of the thorium-containing grids are shown on the attached map. Additional information regarding the depth to the thorium deposits and the depth to the select fill is available upon request from Colorado Department of Public Health and Environment and has been provided to Gunnison County. The select fill can be visually distinguished from the general fill by its darker color and fine-grained texture (the general fill was a coarse-grained sand/gravel material).

The groundwater beneath the Gunnison Mill site remains contaminated and will be addressed during Phase II of the uranium mill tailings remedial action project. Several groundwater monitor wells are present on and downgradient of the site and will remain in place until the U.S. Department of Energy determines that they can be removed.

Any person who acquires a designated processing site shall apply for any permits, including U.S. Army Corps of Engineers Section 404 permits regarding construction in or near wetlands, as required by law.

Additional information concerning the remedial action. groundwater conditions. and thorium deposits is available from the Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division.



Appendix B

New Domestic Well Constraint Special Area – Gunnison County

Gunnison County
COLORADO

John DeVore CHIEF EXECUTIVE OFFICER
PHONE 970.641.0248 FAX 970.641.3061
CELL 970.209.5353

November 17, 2004

Tracy Plessinger
Department of Energy
2597 B ¾ Road
Grand Junction, Colorado 81503

Dear Tracy:

Enclosed is the Resolution establishing the New Domestic Well Constraint Area for the Dos Rios area of the County. Let me know if you need anything else. Thanks for all your assistance with this project.

Sincerely,

John DeVore,
Chief Executive Officer

200 East Virginia Avenue • Gunnison, CO 81230

BOARD OF COUNTY COMMISSIONERS OF GUNNISON COUNTY
RESOLUTION NO. 59, SERIES 2004

A RESOLUTION APPROVING A SPECIAL GEOGRAPHIC AREA, THE NEW DOMESTIC WELL CONSTRAINT AREA

WHEREAS, the Gunnison County Board of Commissioners on May 25, 2004 directed its staff to initiate proceedings for the creation of a Special Geographic Area, the "New Domestic Well Constraint Special Area" in an area south of the City of Gunnison, generally known as the Dos Rios area.

WHEREAS, on June 7, 2004, the request to initiate, and proposed regulations, a report evaluating the need for the proposed designation, and a map of the boundaries of the area, titled "New Domestic Well Constraint Area" were submitted to the Planning Department, pursuant to the requirements of Section 1-110, *Process for Designation Special Areas*, of the *Gunnison County Land Use Resolution*; and,

WHEREAS, after a review of the application and all information, documentation and testimony related to it, the Gunnison County Planning Commission did, on September 3, 2004 forward a Recommendation of approval of that application with certain Findings and conditions; and

WHEREAS, having reviewed and considered the Planning Commission's recommendation, the Board makes the following Findings:

This is an established and developed residential area in which the uses require a potable water supply. That need will continue to exist for any foreseeable development in this area.

The past uranium milling activities in the area resulted in a plume of contaminated groundwater under the area.

1. This is an established and developed residential area in which the uses require a potable water supply. That need will continue to exist for any foreseeable development in this area.

2. The past uranium milling activities in the area resulted in a plume of contaminated groundwater under the area.

3. To ensure that contaminated ground water is not made available for domestic purposes, it is necessary for the public health to prohibit new domestic wells, to ensure that development can safely occur within the boundaries of the New Domestic Well Constraint Special Area, and to ensure that each property owner has access to a domestic water supply provided by the Dos Rios Water Treatment System.

4. The boundaries of the proposed area, are reasonably based upon scientific evidence that they encompass the plume of contamination and ensure protection for the source of potable water to the residents within it.

5. This review and decision incorporates, but is not limited to, all the documentation submitted to the County and included within the Planning Office file relative to this application; including the map, report, the proposed regulations, and all other exhibits, references and documents as included therein.

6. Formation of this special geographic area does not conflict with the City of Gunnison's Three Mile Plan.

7. The U.S. Department of Energy and Colorado Department of Health have contemplated alternative treatment systems, and found that the method of prohibition of new domestic wells as proposed within this special geographic area designation is the preferred alternative. Based upon the best available scientific evidence provided by, and recommendations of, both these agencies, that this alternative ensures the greatest public protection and benefit to the residents within this Special Geographic Area, the Board finds this to be in the best interest of public health, safety and welfare.

8. There are no adverse impacts contemplated to result from the formation, operation and maintenance of this special geographic area.

9. This permit is limited to the activities described within the "Project Description" of this application, and as depicted on the plans submitted as part of this application. Any uses other than those will require either an application for amendment of this permit, or submittal of an application for a new permit, in compliance with applicable requirements of the *Gunnison County Land Use Resolution.*

10. This permit may be revoked or suspended if Gunnison County determines that any material fact set forth herein or represented by the applicant was false or misleading, or that the applicant failed to disclose facts necessary to make any such fact not misleading.

11. The removal or material alteration of any physical feature of the property (geological, topographical or vegetative) relied on herein to mitigate a possible conflict shall require a new or amended land use change permit.

NOW, THEREFORE, BE IT RESOLVED by the Board of County Commissioners of Gunnison County, Colorado, that the New Domestic Well Constraint Area is hereby approved.

THIS APPROVAL is effected noting that decision documentation includes, but is not limited to the application and the entire Planning Department application file relative to this application

This approval is founded on each individual finding and requirement. Should the applicant successfully challenge any such finding or requirement, this approval if null and void.

THIS RESOLUTION AND THE APPROVAL GRANTED HEREBY shall not be effective unless and until a copy is recorded in the Office of the Clerk and Recorder of Gunnison County.

INTRODUCED by Commissioner Jim Starr, seconded by Commissioner Perry Anderson, and passed on this 8th day of November, 2004.

BOARD OF COUNTY COMMISSIONERS

Fred Field,
Chairperson

Jim Starr,
Commissioner

Perry Anderson,
Commissioner

ATTEST:

Kelly Balch
Deputy Clerk
Gunnison County Clerk and Recorder

Dos Rios Water Constraint Area Special Geographic Area Res.wpd