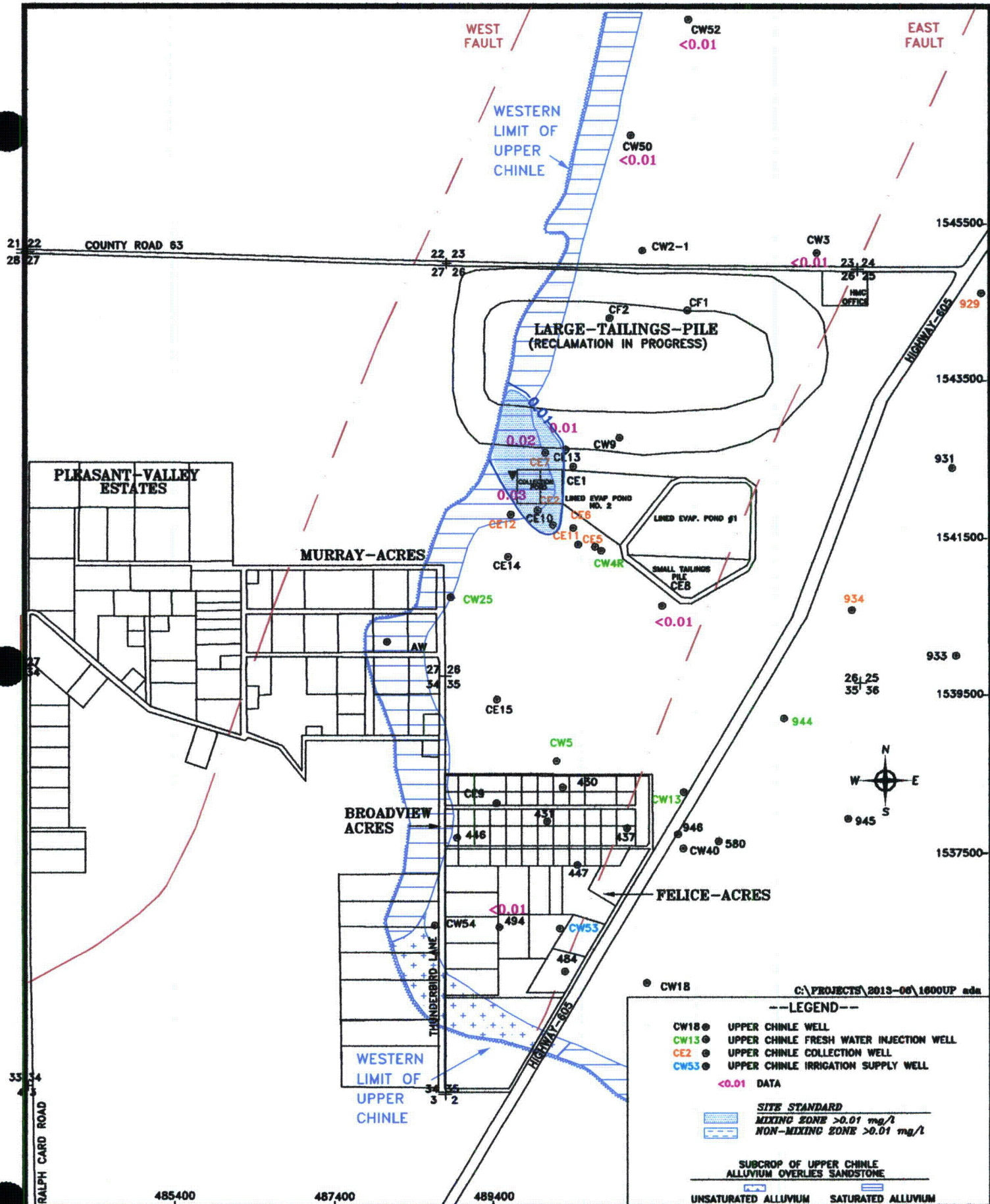


FIGURE 5.3-20. NITRATE CONCENTRATIONS OF THE UPPER CHINLE AQUIFER, 2012, mg/l



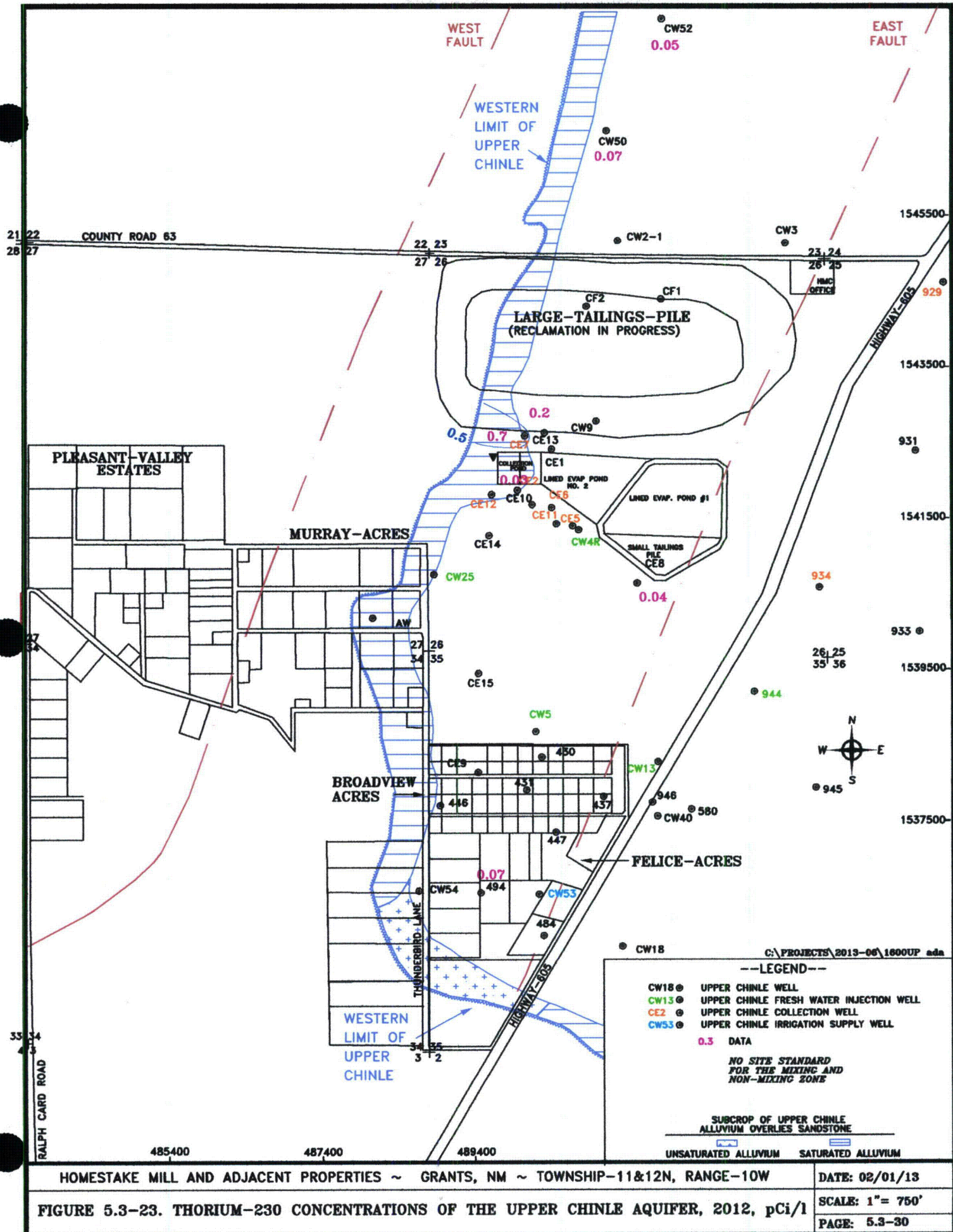


FIGURE 5.3-23. THORIUM-230 CONCENTRATIONS OF THE UPPER CHINLE AQUIFER, 2012, pCi/l

SECTION 6

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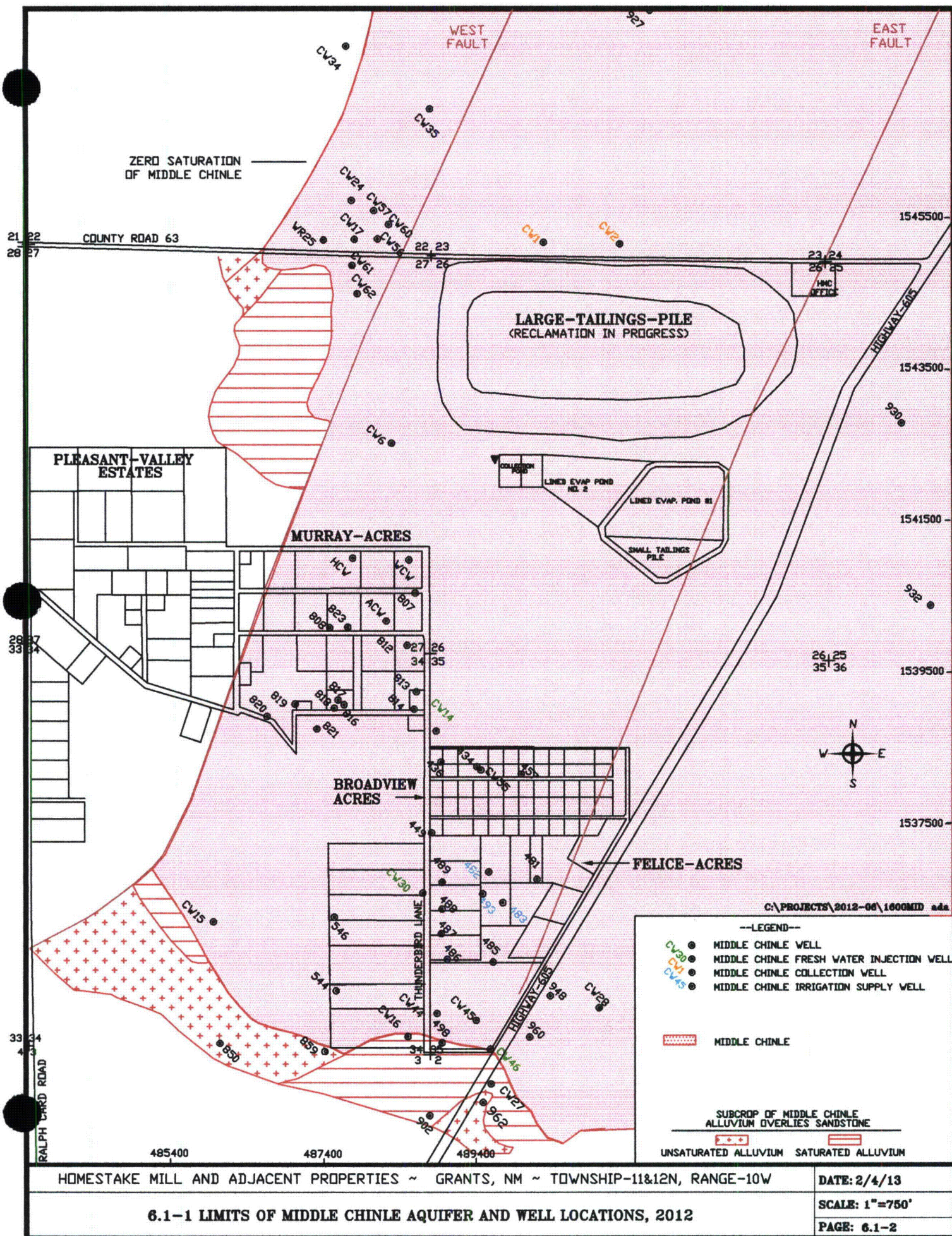
6.0 MIDDLE CHINLE AQUIFER MONITORING

6.1 MIDDLE CHINLE WELL COMPLETION AND LOCATION

Tables 5.1-1 through 5.1-4 (previous section) present the Middle Chinle well data along with other Chinle aquifer wells. Figure 6.1-1 shows the locations of the Middle Chinle wells and areas where the Middle Chinle aquifer exists at the Grants Project. The area where the alluvium is saturated and has direct contact with the Middle Chinle sandstone is very important with respect to transfer of water between these two aquifers and is shown with the red horizontal cross hatch pattern. The area where the Middle Chinle subcrops against alluvium that is not saturated is shown by the red plus (+) pattern.

The Middle Chinle aquifer also exists east of the extension of the East Fault (shown as a red pattern area on Figure 6.1-1) with an alluvium-Middle Chinle subcrop zone on the south side of this area. A limited area of Middle Chinle aquifer exists west of the West Fault. All three of these areas in the Middle Chinle aquifer act as separate ground water systems, except that there is some connection between two of the three areas of the Middle Chinle near the south end of the East Fault in the southwest corner of Section 35. Five additional Middle Chinle wells were drilled in 2012 west of the West Fault to further define conditions in this area.

Middle Chinle wells CW1 and CW2 were used in 2012 as a source of water for the tailings flushing effort. Wells CW14, CW30 and CW46 were used for fresh-water injection in 2012. Middle Chinle wells 482, 483, and 493 were used as irrigation supply wells in 2012. Well CW28 was not used as a source for fresh water injection in 2012.



6.2 MIDDLE CHINLE WATER LEVELS

Water levels in Homestake's Upper, Middle and Lower Chinle wells are presented in Appendix A. Fall 2012 water-level elevation contours for the Middle Chinle aquifer are presented on Figure 6.2-1. The hydraulic gradient in the Middle Chinle aquifer is steeper in its alluvial subcrop area in the southern portion of Felice Acres near wells 498, CW45 and CW46. This increase in gradient is due to an influx of water to the Middle Chinle aquifer from the alluvial aquifer. The red arrows on Figure 6.2-1 show the direction of ground water flow in the Middle Chinle aquifer. Flow on the east side of the East Fault is mainly toward well CW28 near the East Fault.

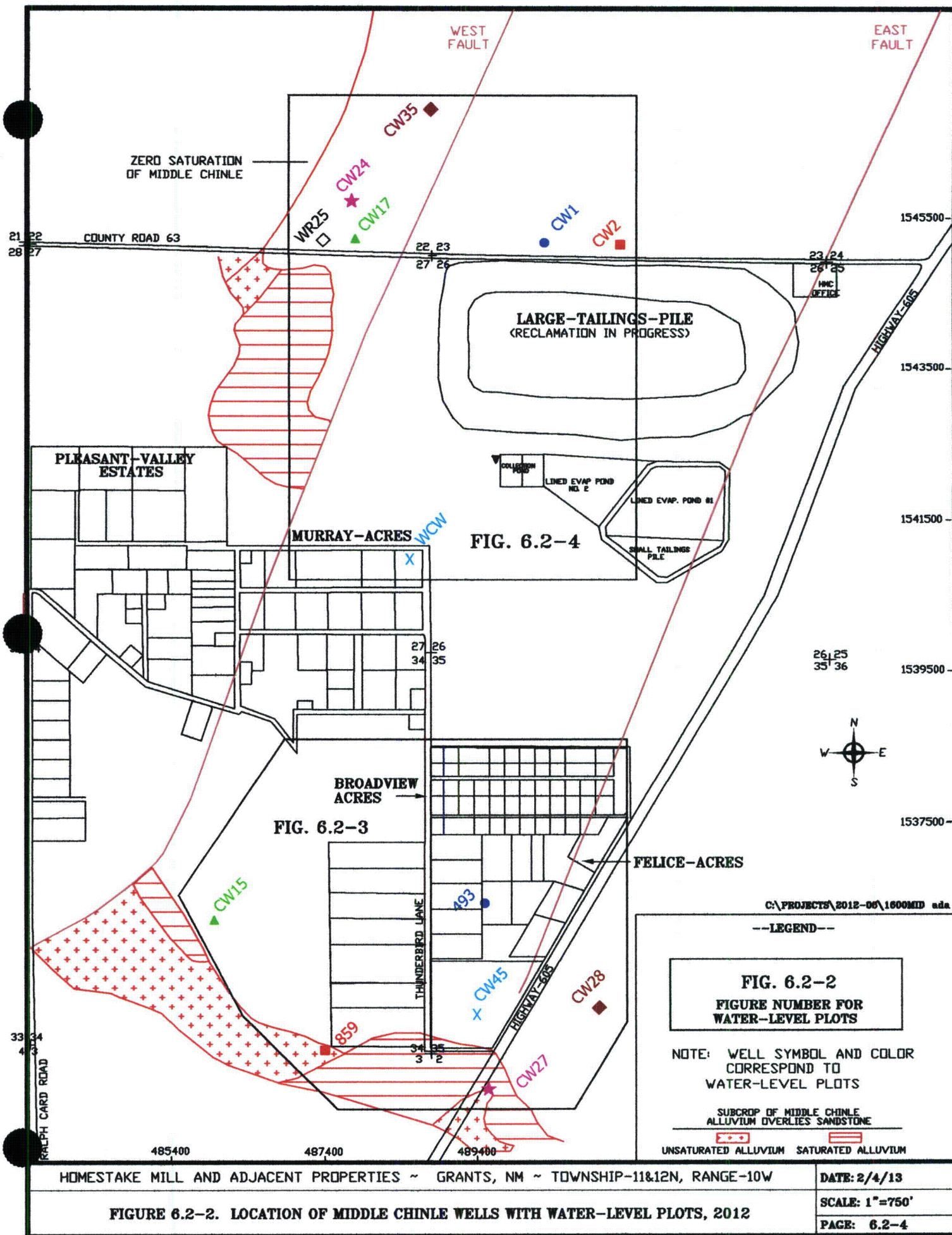
Ground water flow west of the West Fault in the Middle Chinle aquifer is mainly to the southwest, and it discharges into the alluvial aquifer. This prevents the alluvial aquifer from affecting the water quality of the Middle Chinle aquifer on the west side of the West Fault. This Middle Chinle water flows from up-gradient of the site into the area west of the Large Tailings Pile. The alluvial injection in the northern portion of Section 27 has temporarily reversed the gradient near wells CW17 and CW24 in 2006 through 2012. This has allowed some movement to the north until the water level elevation is increased in this area above those near wells CW17 and WR25. The remainder of the Middle Chinle aquifer is recharged by the alluvial aquifer south of Felice Acres.

The injection of fresh water into wells CW14 (north of Broadview Acres) and CW30 (west of Felice Acres) has created ground water mounds in their respective areas. These mounds cause the ground water to flow both north and south from these two wells. Collection of ground water from wells CW1 and CW2 intercepts the water flowing from the south in the Middle Chinle aquifer between the two faults. Pumping from these wells also draws water flow from the north. The head in the Middle Chinle aquifer on each side of the two faults is significantly different than the head between the two faults, which demonstrates that the ground water is not readily connected on each side of these faults.

Figure 6.2-2 shows the locations of the Middle Chinle wells that are used to monitor water-level changes with time. The colors and symbols used on this figure are the same as those used on the water-level elevation time plots. Figure 6.2-3 presents the water-level elevation changes versus time in Middle Chinle wells 493, 859, CW15, CW27, CW28 and CW45. The water levels are higher in Middle Chinle well CW45 than they are farther north in well 493. The

pumping of only 482, 483 and 493 Middle Chinle irrigation wells in 2012 has caused the water levels in these wells to gradually rise.

The water-level plots for the Middle Chinle wells located west of the West Fault and wells CW1, CW2 and WCW are presented on Figure 6.2-4. Water levels have been gradually increasing in the Middle Chinle aquifer west of the West Fault. Water levels were variable in pumping wells CW1 and CW2 in 2012 due to their variable pumping rates. Water levels have increased in well WCW as a result of less pumping of well CW1. As expected, water levels west of the West Fault have not responded to the pumping of water from wells CW1 and CW2 situated east of the West Fault.



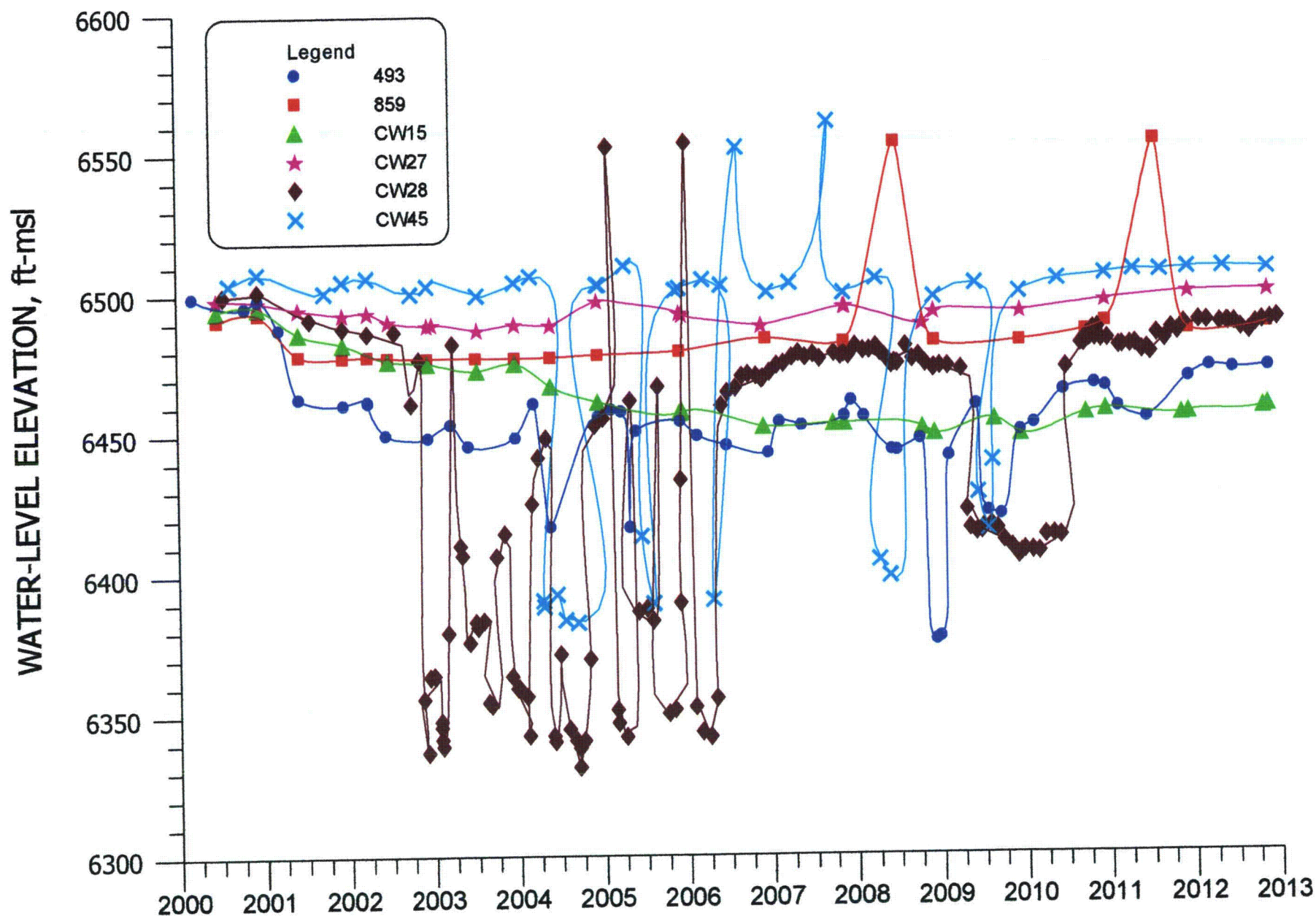


FIGURE 6.2-3. WATER-LEVEL ELEVATION FOR WELLS 493, 859, CW15, CW27, CW28, AND CW45.

6.2-6

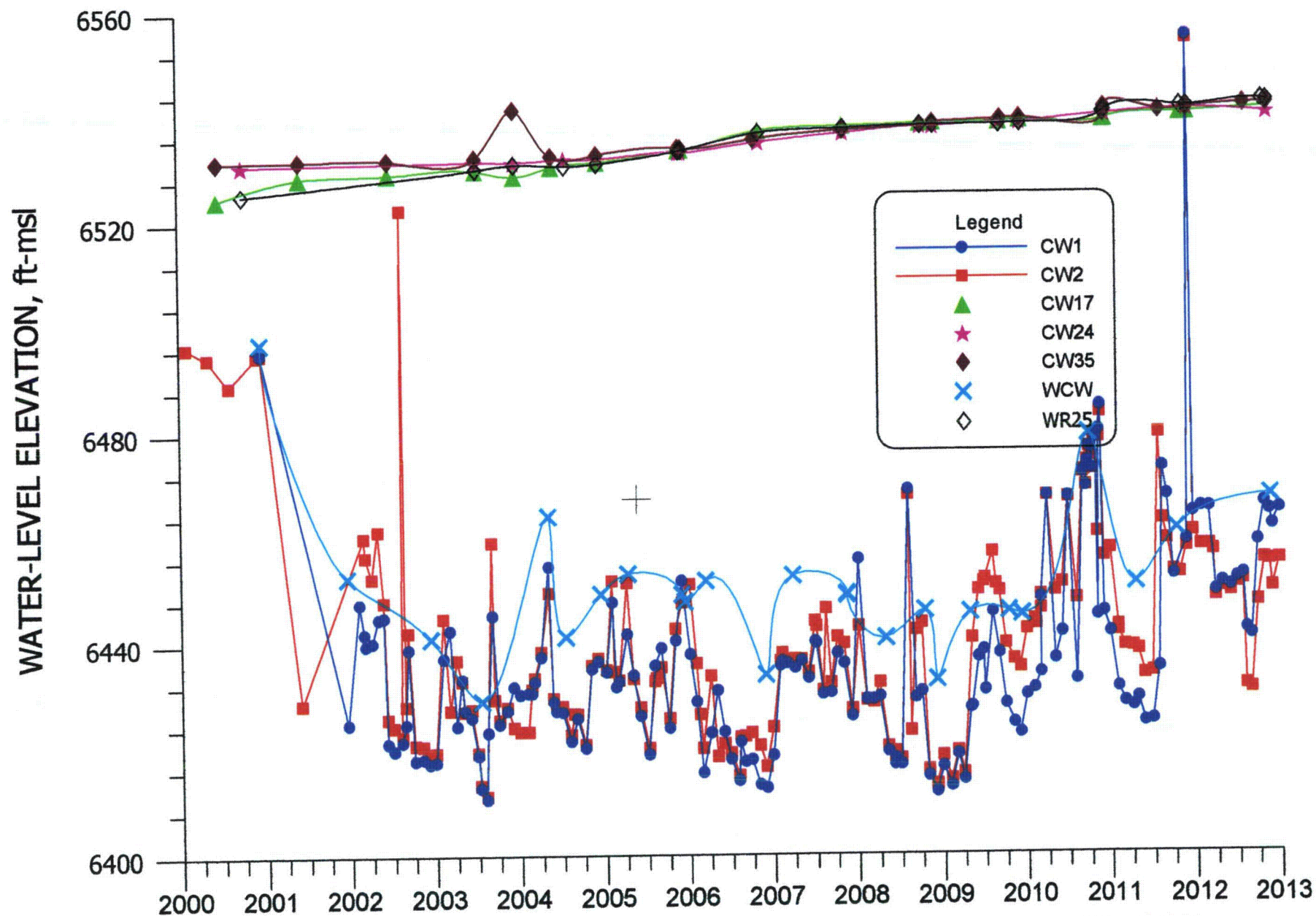


FIGURE 6.2-4. WATER-LEVEL ELEVATION FOR WELLS CW1, CW2, CW17, CW24, CW35, WCW, AND WR25.

6.3 MIDDLE CHINLE WATER QUALITY

The water-quality data for Homestake's Middle Chinle aquifer is presented with that of the other Chinle aquifer wells in Tables B.5-1 and B.5-2 of Appendix B. The Chinle aquifer water-quality results for subdivision wells are also presented in these tables. The basic well data for the Middle Chinle aquifer wells is presented in Tables 5.1-1 through 5.1-4 in the Upper Chinle aquifer monitoring section (Section 5).

The area of water-quality concern in the Middle Chinle aquifer exists in the western portion of Broadview Acres and Felice Acres. All sulfate concentrations are within the site standard except for the concentrations from wells CW24, CW60, CW61, CW62 and WR25, located in the mixing zone west of the West Fault where concentrations were natural until alluvial water has moved into this area. Uranium concentrations are above site standards in western Broadview Acres and Felice Acres, west of the West Fault, and well CW1. One natural exceedance in uranium concentration exists west of the West Fault at well CW35. Selenium concentrations also exceed the site standard in a Felice Acres area well, one well east of Felice Acres and four wells west of the West Fault. The only significant molybdenum concentration identified in the Middle Chinle aquifer is at wells CW17, CW56, CW61 and CW62.

6.3.1 SULFATE - MIDDLE CHINLE

Figure 6.3-1 presents sulfate concentration contours for the Middle Chinle aquifer for 2012 and shows that the Middle Chinle sulfate concentrations range from 388 to a high of 2150 mg/l. Sulfate site standard concentrations are given in the legend of Figure 6.3-1. All mixing-zone sulfate concentrations in the Middle Chinle aquifer are below the site standard of 1750 mg/l except for values in wells CW24, CW60, CW61, CW62 and WR25. Sulfate concentrations in these wells, which are located west of the West Fault have been recently affected by the alluvial water. The sulfates were naturally occurring in this area, until the increase in the head of the alluvial water in the subcrop area caused the alluvial water to flow into the Middle Chinle. Sulfate concentrations in the non-mixing zone of the Middle Chinle are within the natural background range and meet the site standards.

Figure 6.3-2 shows the locations of the Middle Chinle wells for which time concentration plots were developed for this report. The sulfate figure number is shown in the

group area to define the figure number for each group of wells. Two groups of wells for the Middle Chinle aquifer are presented. The colors and symbols on Figure 6.3-2 correspond to those used in the concentration time plots.

Figure 6.3-3 presents sulfate concentrations for the mixing zone Middle Chinle wells CW15, CW17, CW24, CW35, CW44, and CW45. Fairly stable sulfate concentrations were observed in 2012 in wells CW15, CW35, CW44 and CW45. The slightly higher sulfate concentrations in the past few years in well CW24 may be due to alluvial water moving into the Middle Chinle from the subcrop area. Sulfate levels in CW17 have declined for the last five years.

Figure 6.3-4 presents the sulfate concentrations for non-mixing zone Middle Chinle wells 493, CW1, CW2 and WCW, located between the two faults, and wells 930 and CW28, which are located east of the East Fault. Data presented on this plot demonstrate that sulfate concentrations have been fairly steady over time in these wells except a large increase in well WCW in October 2009, a decline in 2010, a small increase in 2011 and decrease in 2012 to a level observed before the increase. A re-sample of this well shows that little significance should be given to the large increase in 2009.

6.3.2 TOTAL DISSOLVED SOLIDS - MIDDLE CHINLE

Total dissolved solids (TDS) and sulfate are used to define changes in major constituents at the Grants Project site. Figure 6.3-5 presents contours of TDS concentrations for the Middle Chinle aquifer during 2012 and shows that all values are below 2000 mg/l near the alluvial subcrop area in the southern portion of the map.

Background data for the Middle Chinle aquifer were used to determine TDS site standards of 3140 and 1560 mg/l for the mixing and non-mixing zones, respectively. All of the TDS values measured in Middle Chinle aquifer water were less than these values in 2012, except for wells CW56, CW61, CW62 and WR25, located in the mixing zone, and wells 482, 483, 493, ACW, CW55 and WCW in the non-mixing zone.

Plots of TDS concentrations for Middle Chinle wells CW15, CW17, CW24, CW35, CW44 and CW45 are presented in Figure 6.3-6. The TDS concentrations have been fairly steady over the last few years in these wells, except for a gradual decline in well CW17.

Figure 6.3-7 presents TDS concentration-time plots for non-mixing zone Middle Chinle wells 493, 930, CW1, CW2, CW28 and WCW. Analysis of this data indicates stable TDS concentrations in water collected from these wells in 2012, except for a decrease in the TDS in well WCW and an increase in well CW28. Additional monitoring of these two wells is needed to confirm these trends.

6.3.3 CHLORIDE - MIDDLE CHINLE

Figure 6.3-8 presents chloride concentrations in the Middle Chinle aquifer during 2012, and observed concentrations varied from roughly 43 to 261 mg/l. None of the concentrations exceeded the site standard of 250 mg/l for the mixing and non-mixing zones of the Middle Chinle aquifer except for a value of 261 mg/l for well ACW. Therefore, in general chloride concentrations are not useful for defining the degree of, or the need for, restoration of the Middle Chinle aquifer. An additional sample is needed from well ACW to confirm this higher chloride concentration.

Time plots of chloride concentration are presented on Figure 6.3-9 for Middle Chinle wells CW15, CW17, CW24, CW35, CW44 and CW45. Chloride concentrations increased in Middle Chinle well CW17 in 2006 through 2009 and were steady in 2010 through 2012. Concentrations were fairly steady in the remainder of the wells. The chloride data from well CW24 indicates that the alluvial water has not affected the Middle Chinle water quality at well CW24 as it did in well CW17.

A second set of chloride concentration plots for the Middle Chinle aquifer is presented in Figure 6.3-10. Data plotted on this figure shows fairly steady 2012 concentrations, except for a small increase in wells CW1 and CW2 and a decrease in well 930. These small changes are deemed to be within natural variation in the Middle Chinle aquifer.

6.3.4 URANIUM - MIDDLE CHINLE

Uranium is an important constituent in the Middle Chinle aquifer due to the presence of elevated concentrations in the aquifer in western Broadview Acres and in the southern and western portions of Felice Acres. These elevated concentrations are a result of alluvial recharge

to the Middle Chinle aquifer in this area. Water in the saturated portion of the alluvial aquifer flows across a subcrop of the Middle Chinle aquifer just south of Felice Acres, and alluvial ground water has entered the Middle Chinle aquifer in this area. Figure 6.3-11 presents contours of uranium concentrations in the Middle Chinle aquifer during 2012. An area of concentrations greater than the mixing-zone site standard exists in the southwestern portion of Felice Acres. Uranium concentrations in the Middle Chinle aquifer, west of the West Fault, northwest of the Large Tailings Pile, naturally exceed 0.18 mg/l but values in wells CW17, CW56, CW61, CW62 and WR25 have increased above this level from the movement of alluvial water in the subcrop to these wells. The 2012 value from well CW35 equals the mixing-zone site standard concentration of 0.18 mg/l, but is naturally occurring because gradient in the Middle Chinle has not been reversed to well CW35. Flow in the Middle Chinle aquifer west of the West Fault moves from the area near well CW35 toward the subcrop area to the south. Uranium concentrations exceed 0.07 mg/l (non-mixing zone site standard) in an area of the Middle Chinle aquifer, at wells 482, 483, 493 and CW55 in Broadview Acres and Felice Acres; and in a localized area around well CW1.

Figure 6.3-12 presents uranium concentration plots versus time for Middle Chinle wells CW15, CW17, CW24, CW35, CW44 and CW45 (see Figure 6.3-2 for well locations). The 2012 uranium concentrations shown on this plot are fairly steady with and an overall decreasing trend in wells CW17, CW44 and CW45. Additional monitoring of these wells with time will better define this collection-induced trend.

The uranium concentration plots for the Middle Chinle wells in the non-mixing zone are presented on Figure 6.3-13. Uranium concentrations were small in wells 930, CW2, CW28 and WCW in 2012. The uranium concentration in well 493 water has overall increased for several years through 2010 and then variable but steady in 2011 and 2012. Uranium concentrations have gradually increased in well CW1 for the last few years.

6.3.5 SELENIUM - MIDDLE CHINLE

None of the Middle Chinle wells in the mixing zone contained water with selenium concentrations exceeding the 0.14 mg/l site standard in 2012, except wells CW17, CW56, CW61 and CW62 (see Figure 6.3-14). The higher selenium concentrations in these wells are caused by

movement of alluvial water in the subcrop area to these wells. The selenium concentration in the non-mixing zone well 493 currently exceeds the site standard of 0.07 mg/l. This area of elevated concentration has resulted from recharge to the Middle Chinle aquifer from the alluvium in the subcrop area just south of Felice Acres. Flow in the Middle Chinle aquifer in this locale is toward the north causing chemical constituents introduced into the Middle Chinle from the alluvium in the subcrop area to move to the north. Analysis of background selenium concentrations in the mixing and non-mixing zones resulted in setting site standards of 0.14 and 0.07 mg/l, respectively (see legend of Figure 6.3-14).

Selenium concentrations somewhat less than 0.1 mg/l have been measured in Middle Chinle wells west of the West Fault. These concentrations have been determined to be naturally occurring, because the flow prior to 2006 was from the north in this area, and therefore the ground water could not have been influenced by tailings seepage. The higher selenium concentrations observed in wells CW17, CW56, CW61 and CW62 are due to alluvial water flowing into this area of the Middle Chinle aquifer in 2006 through 2012. All other selenium concentrations in the Middle Chinle aquifer beyond these areas are low values.

Selenium concentrations with time for the mixing zone Middle Chinle wells CW15, CW17, CW24, CW35, CW44 and CW45 are presented in Figure 6.3-15. Overall steady selenium concentrations have been observed in these wells in 2012 except the decrease in well CW17. The observed higher concentration in well CW17 is believed to be a short term result of the alluvial injection near the subcrop with the Middle Chinle.

Figure 6.3-16 presents the selenium concentrations for Middle Chinle wells in the non-mixing zone. Selenium concentrations in wells CW1 and CW2, which are located north of the Large Tailings Pile, have varied over the past few years, but their values are small. The connection between the alluvial aquifer and the Middle Chinle aquifer south of Felice Acres is the cause for the elevated concentrations in well 493. The injection of fresh water into Middle Chinle wells CW14, CW30 and CW46 and the collection from Middle Chinle wells 482, 483, 493, 498, CW44 and CW45 should cause these elevated concentrations to decrease.

6.3.6 MOLYBDENUM - MIDDLE CHINLE

The 2012 molybdenum concentrations in the Middle Chinle aquifer are presented on Figure 6.3-17. None of the molybdenum concentrations for 2012 exceed the site standard of 0.10 mg/l except wells CW17, CW56, CW61 and CW62. Some restoration of molybdenum in these wells will be needed.

Figure 6.3-18 presents the molybdenum concentrations with time for Middle Chinle wells CW15, CW17, CW24, CW35, CW44 and CW45, while Figure 6.3-19 presents the molybdenum concentrations with time for wells 493, 930, CW1, CW2, CW28 and WCW. These plots show that the concentration in each of these wells has been low for 2012 except for an elevated and steady concentration in well CW17. The increase in molybdenum concentrations in well CW17 will require some restoration of this constituent in the Middle Chinle aquifer.

6.3.7 NITRATE - MIDDLE CHINLE

Nitrate concentrations have always been low in the Middle Chinle aquifer and therefore are not routinely monitored. However, nitrate concentrations were measured in all of the Middle Chinle aquifer wells in 2003 and in a number of the wells in 2012. Figure 6.3-20 presents the nitrate concentrations in the Middle Chinle aquifer and shows that the only notable levels of nitrate in the Middle Chinle aquifer are west of the West Fault. Nitrate concentrations are less than 15 mg/l, the mixing zone site standard, in all of the Middle Chinle wells west of West Fault. Due to the change in flow direction in the Middle Chinle aquifer west of the West Fault since 2006, alluvial water has entered this portion of the Middle Chinle. The concentrations were naturally occurring prior to 2006. This constituent does not require a site standard for the non-mixing zone of the Middle Chinle aquifer.

6.3.8 RADIUM-226 AND RADIUM-228 - MIDDLE CHINLE

Radium concentrations in the Middle Chinle aquifer have always been low, showing that these two parameters are not important relative to the restoration of the Middle Chinle aquifer. The 2003 updated radium-226 and radium-228 concentrations in the Middle Chinle aquifer showed that radium levels are remaining low. All of the radium-226 and radium-228 values measured in 2012 were less than detection or very small except for radium-226 values in

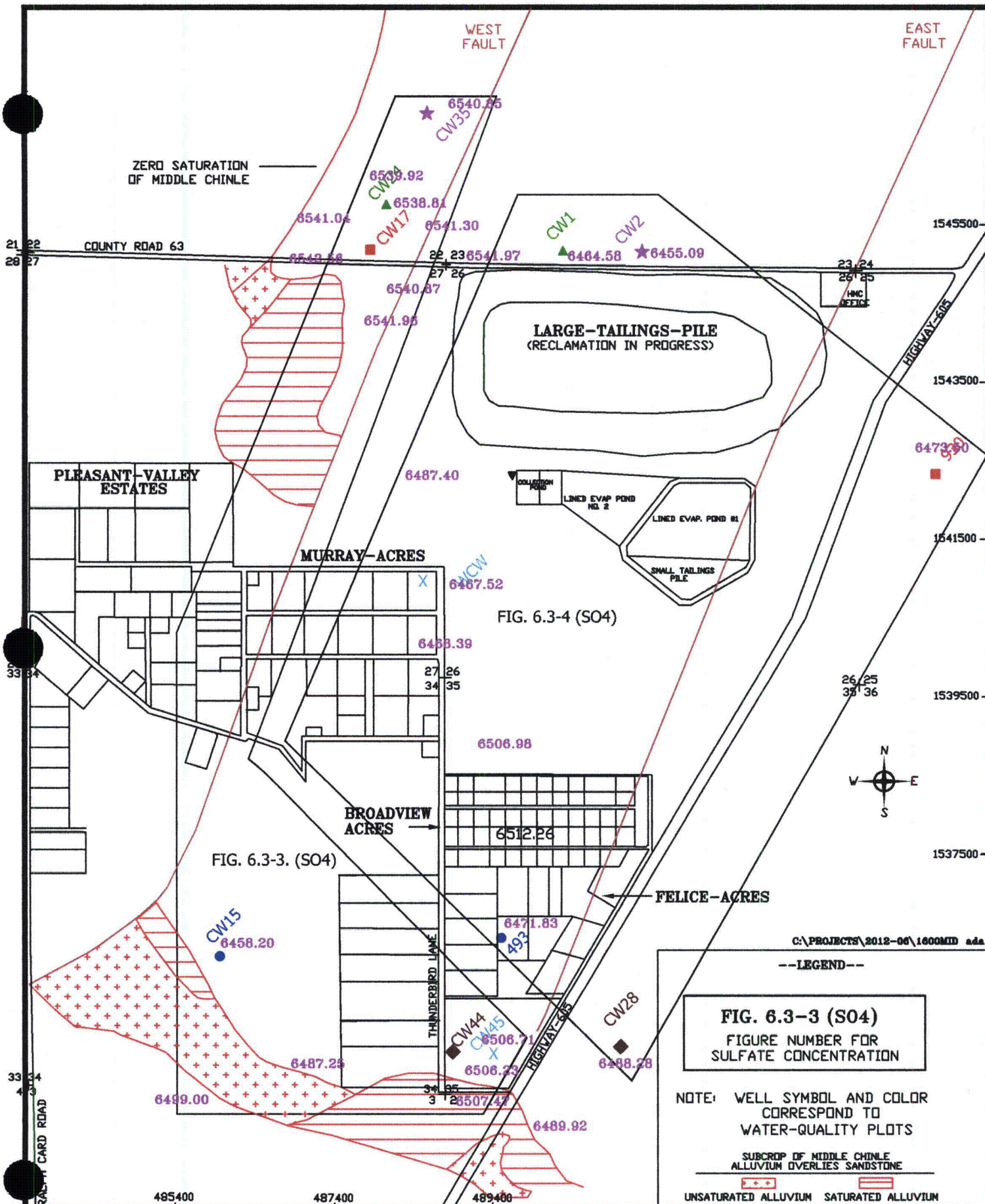
wells CW1 and CW2. Additional monitoring of radium-226 in these two wells should show that these are outliers. Radium-226 and radium-228 are not important parameters relative to the Middle Chinle aquifer and a site standard is not warranted and has not been set for these two constituents.

6.3.9 VANADIUM - MIDDLE CHINLE

Vanadium concentrations in the Middle Chinle aquifer have always been low. Previous monitoring of vanadium in the Middle Chinle aquifer has demonstrated that vanadium is not a significant parameter in this aquifer and the 2003 updated vanadium measurements confirmed the low values. Monitoring of vanadium for the Middle Chinle should be eliminated, because only a few low values have previously been detected in the alluvial aquifer near the tailings piles. All of the 2012 vanadium measurements for the Middle Chinle aquifer are low levels near the detection limit. These values are consistent with values observed previously and, therefore, reinforce the conclusion that continued monitoring of vanadium concentrations in the Middle Chinle aquifer should not be required. A site standard for vanadium has therefore not been set for the Middle Chinle aquifer.

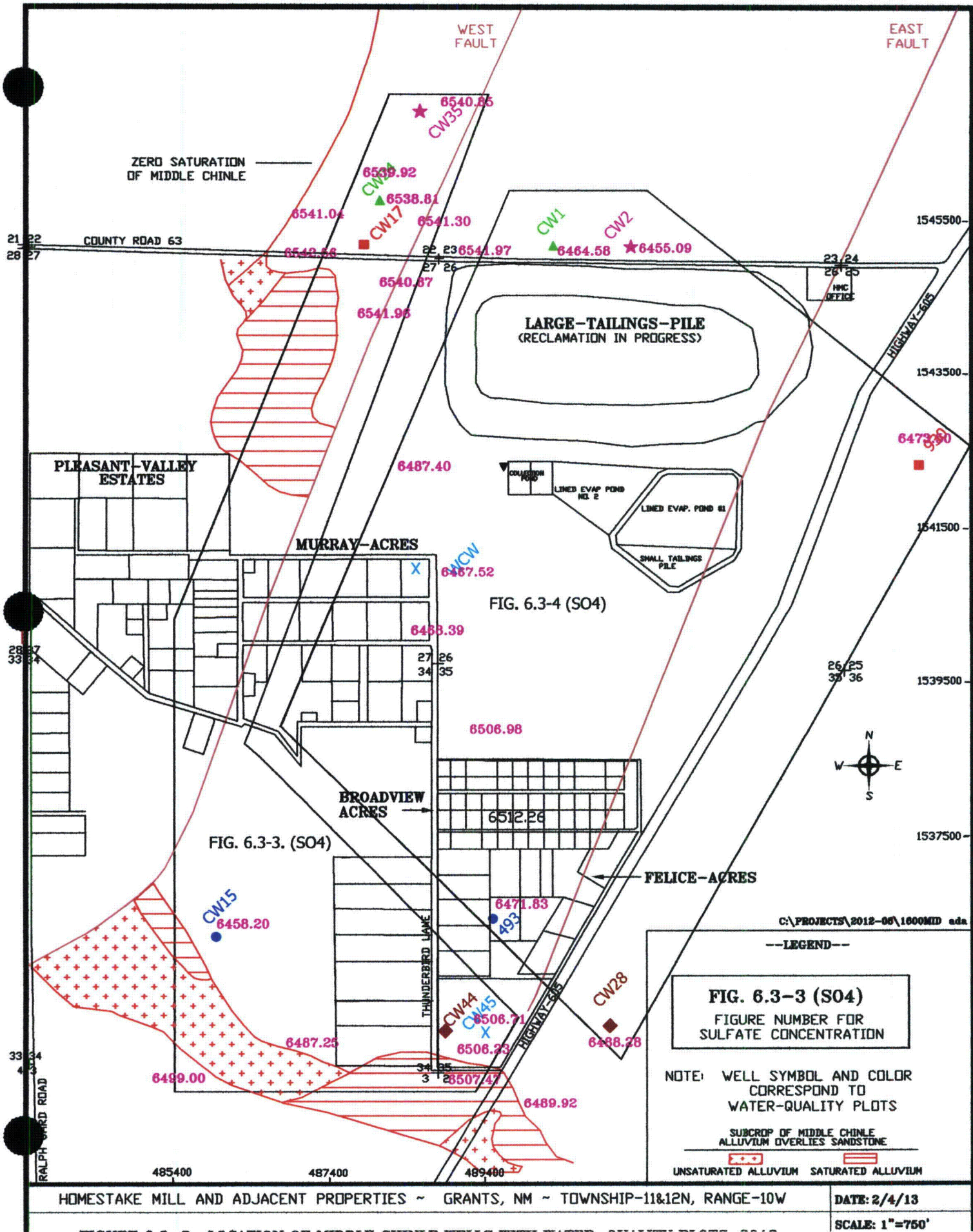
6.3.10 THORIUM-230 - MIDDLE CHINLE

Thorium-230 concentrations are not significant in the alluvial aquifer outside of the Large Tailings Pile. Therefore, the Middle Chinle aquifer does not have the potential for containing significant thorium concentrations from the tailings seepage. Thorium-230 is, therefore, not a significant parameter in the Middle Chinle aquifer and should be eliminated from future monitoring in the Middle Chinle aquifer. Thorium-230 concentrations were measured in all wells sampled from Middle Chinle wells in 2003, and all of these values were less than detection. All of the thorium-230 values measured in 2012 were very small. These thorium-230 levels are consistent with concentrations previously measured in the Middle Chinle aquifer, which shows that thorium-230 is not an important parameter in the Middle Chinle aquifer and thus a site standard has not been set.

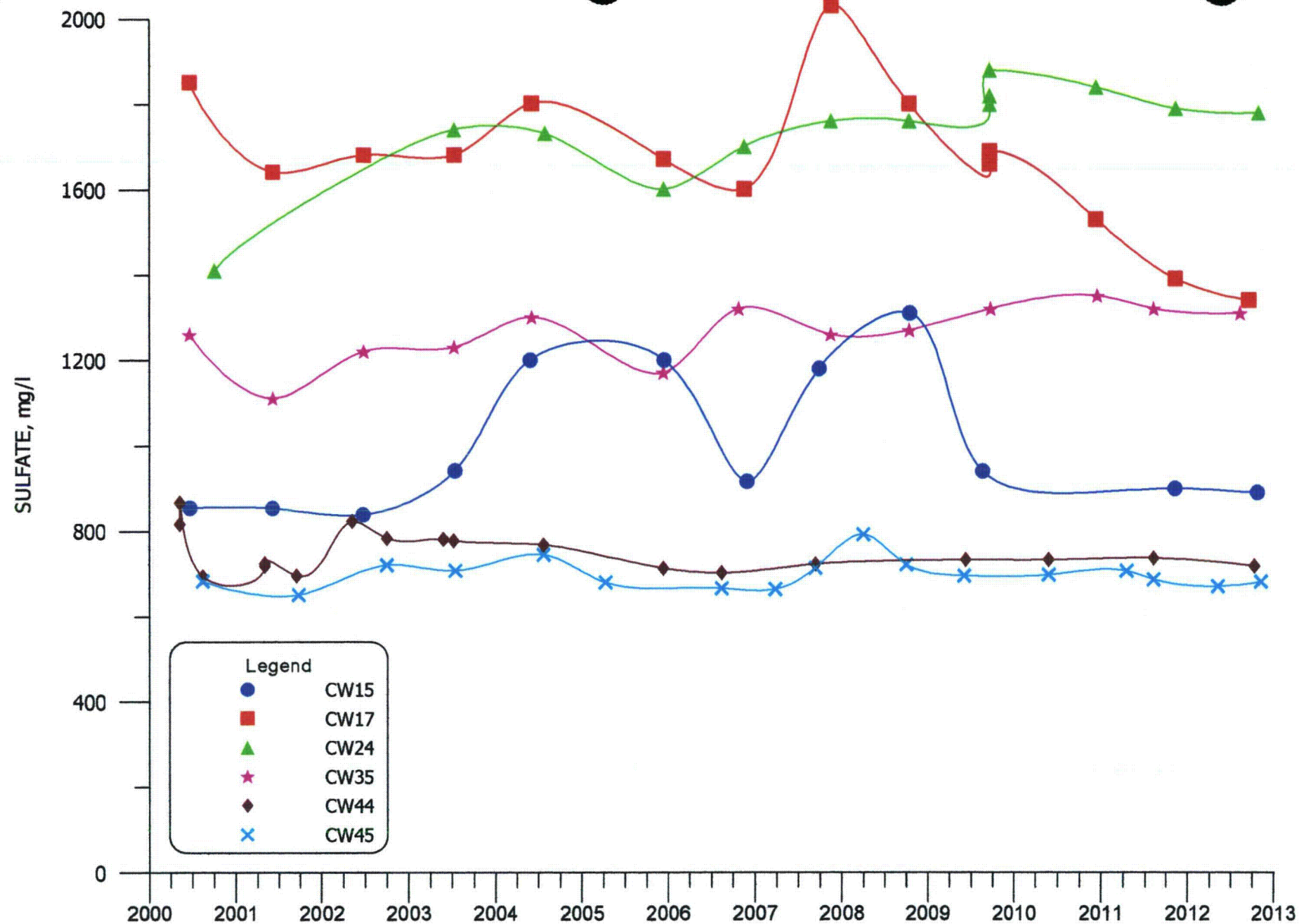


HOMESTAKE MILL AND ADJACENT PROPERTIES ~ GRANTS, NM ~ TOWNSHIP-11&12N, RANGE-10W

FIGURE 6.3-2. LOCATION OF MIDDLE CHINLE WELLS WITH WATER-QUALITY PLOTS, 2012

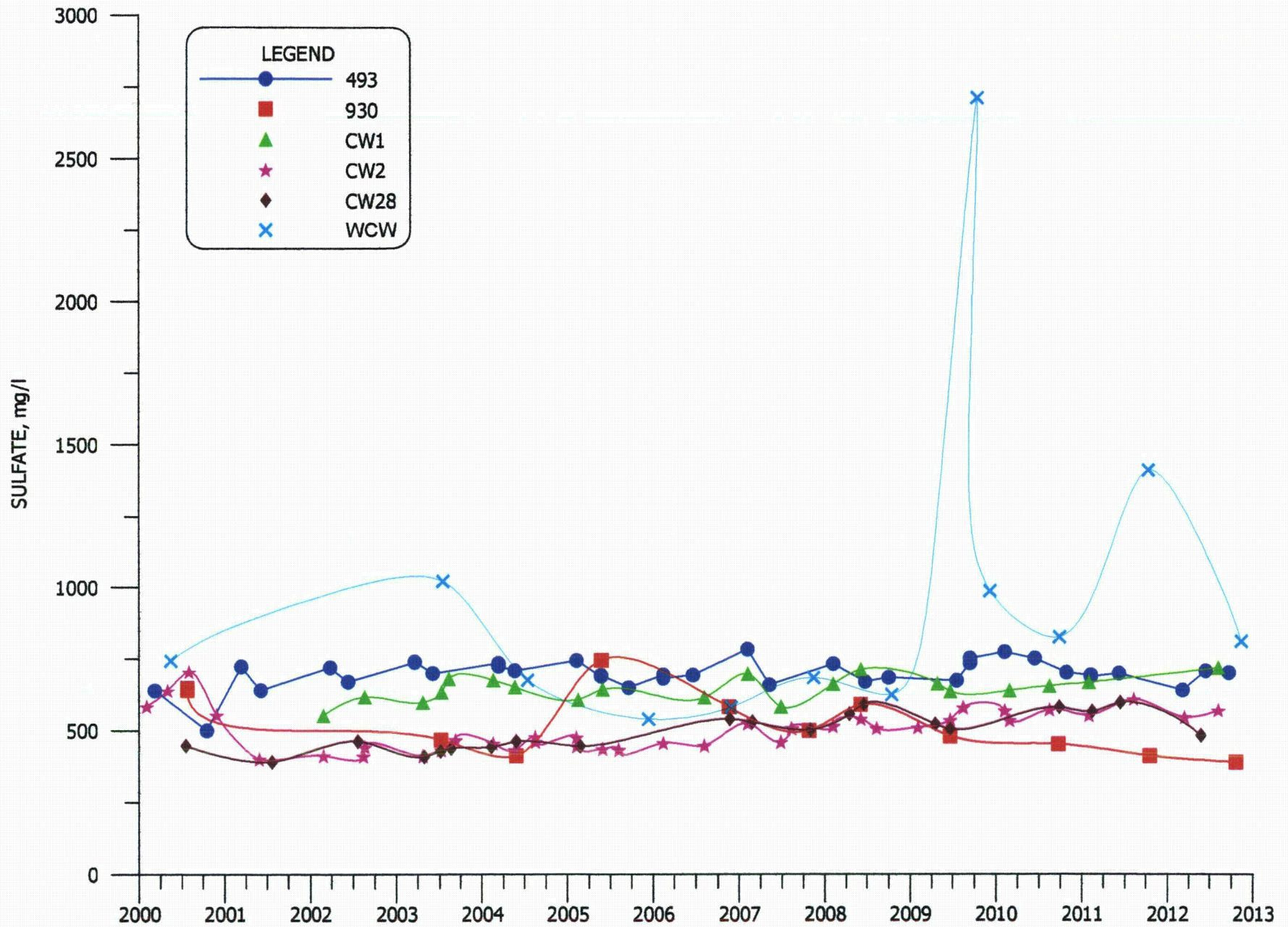


6.3-10

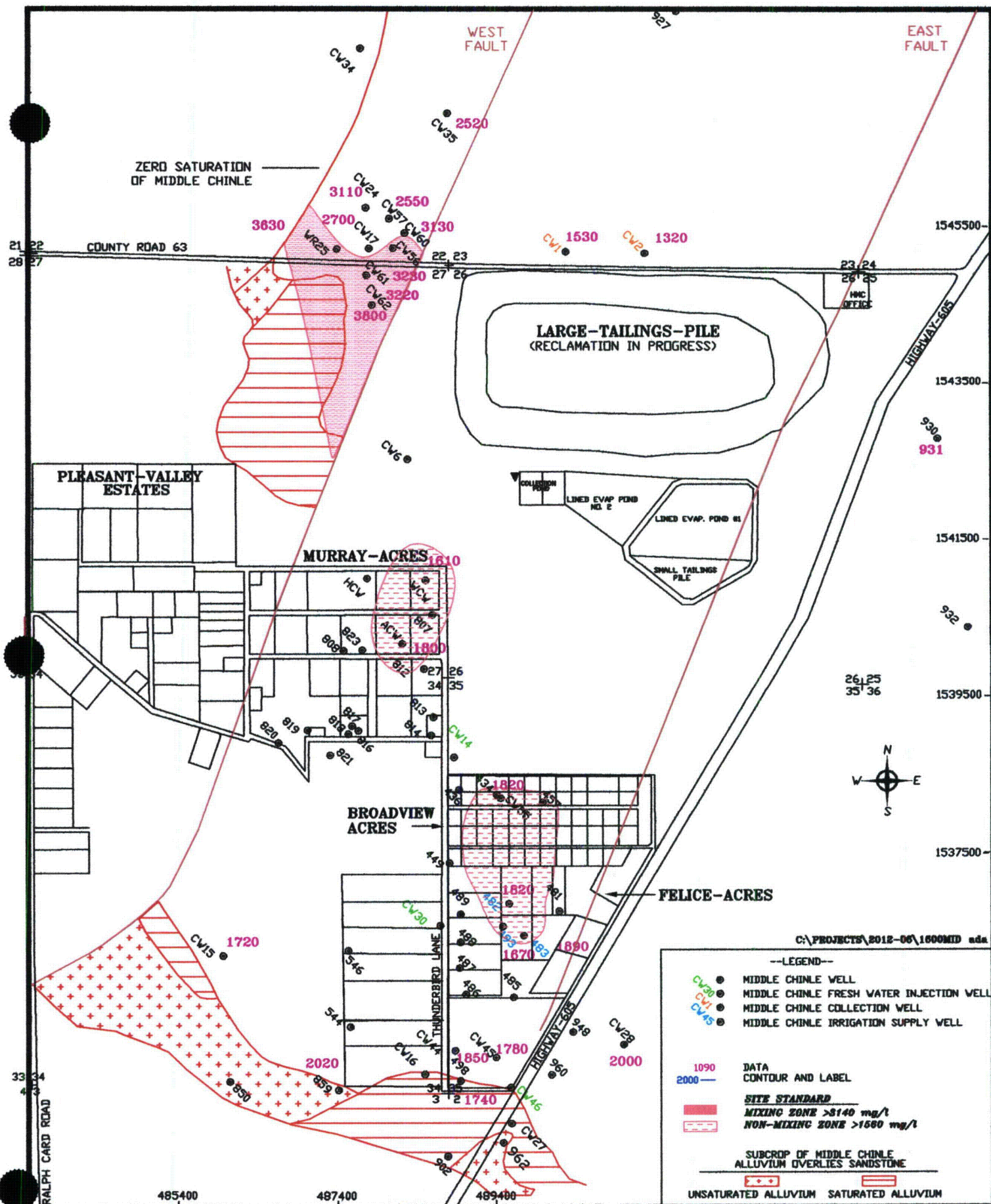


**FIGURE 6.3-3. SULFATE CONCENTRATIONS FOR MIXING ZONE WELLS
CW15, CW17, CW24, CW35, CW44, AND CW45**

6.3-11



**FIGURE 6.3-4. SULFATE CONCENTRATIONS FOR NON-MIXING ZONE WELLS
493, 930, CW1, CW2, CW28, AND WCW**



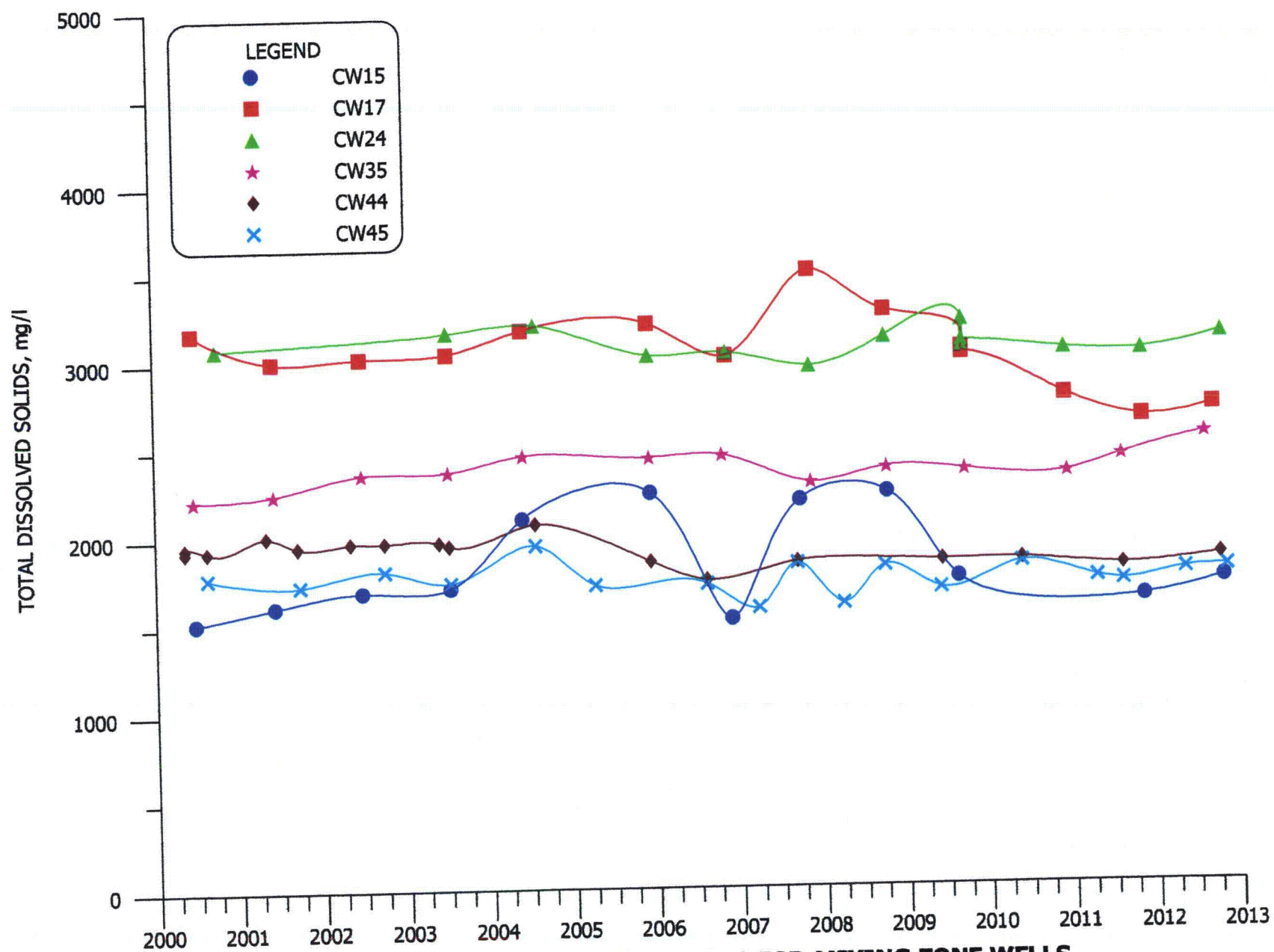
HOMESTEAK MILL AND ADJACENT PROPERTIES ~ GRANTS, NM ~ TOWNSHIP-11&12N, RANGE-10W

FIGURE 6.3-5. TDS CONCENTRATIONS OF THE MIDDLE CHINLE AQUIFER, 2012, mg/l

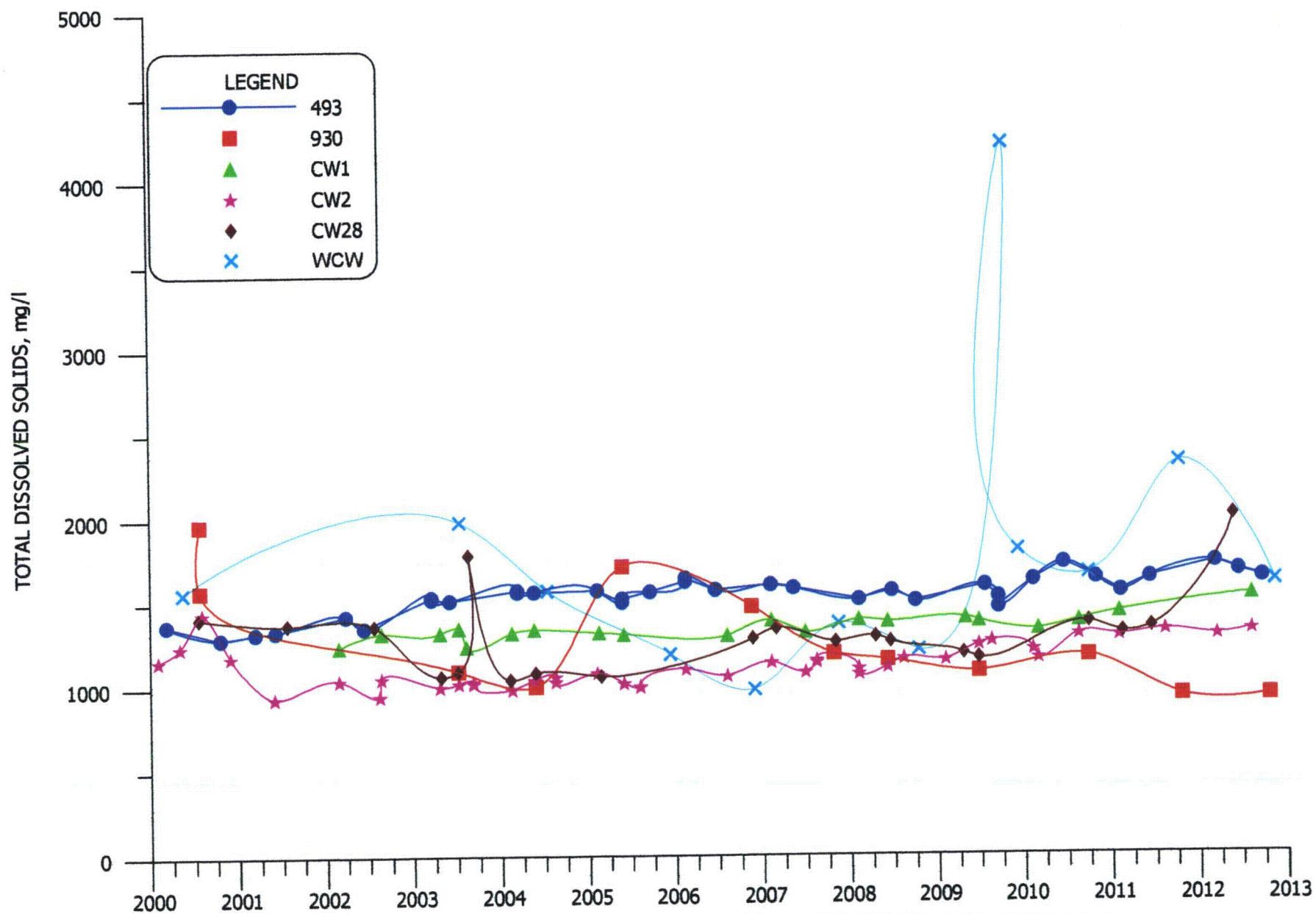
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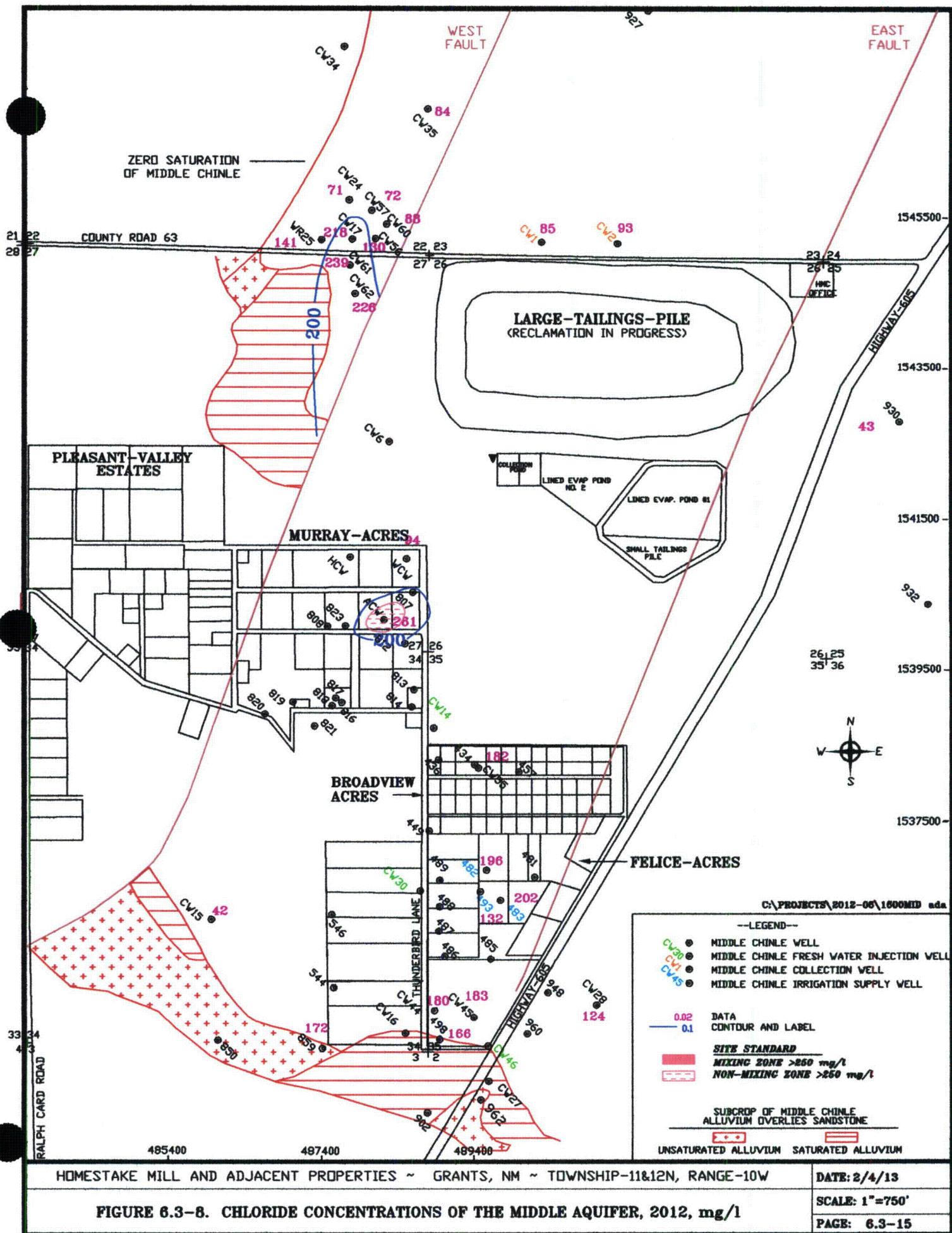
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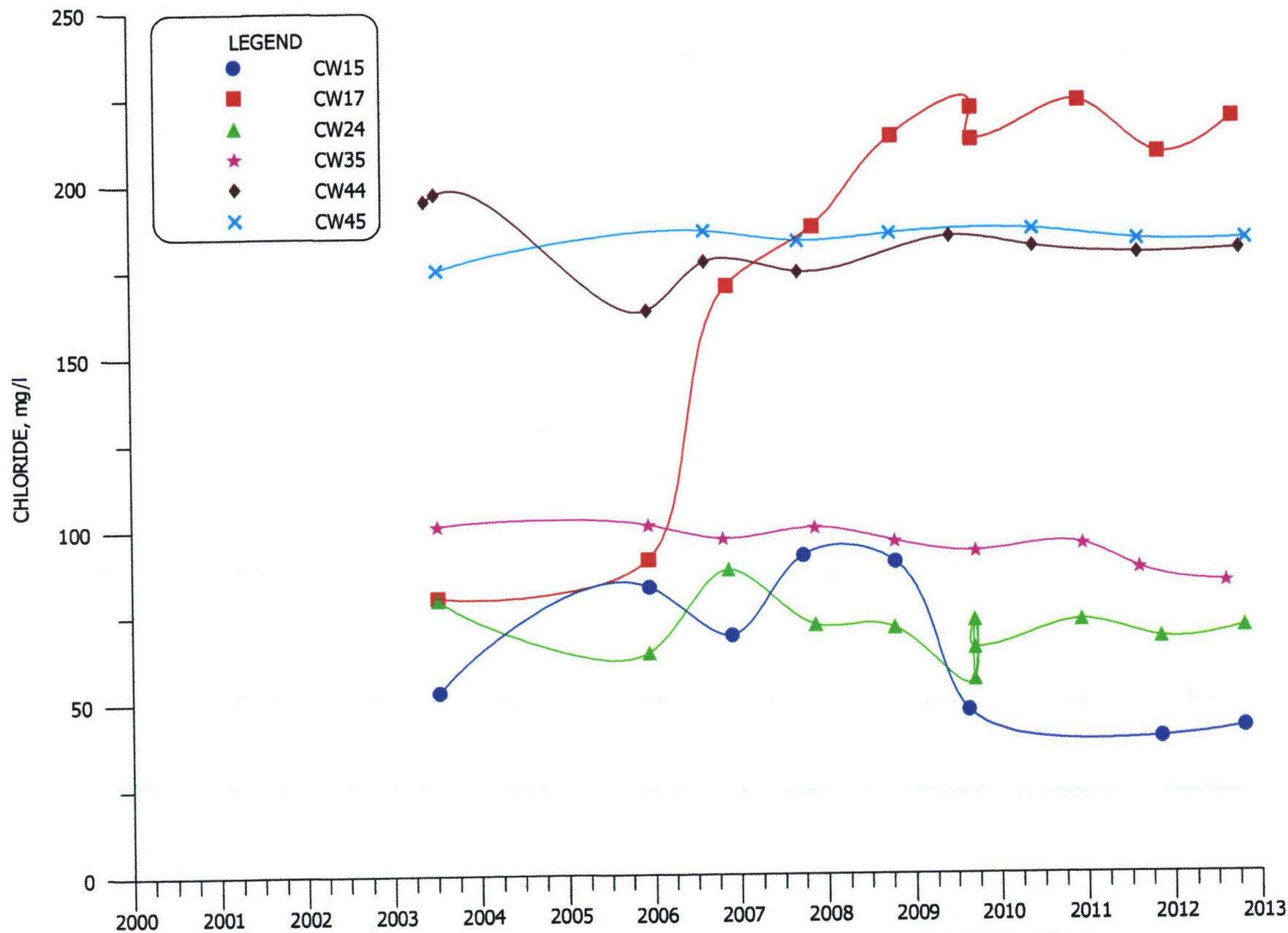
**FIGURE 6.3-6. TDS CONCENTRATIONS FOR MIXING ZONE WELLS
CW15, CW17, CW24, CW35, CW44, AND CW45**



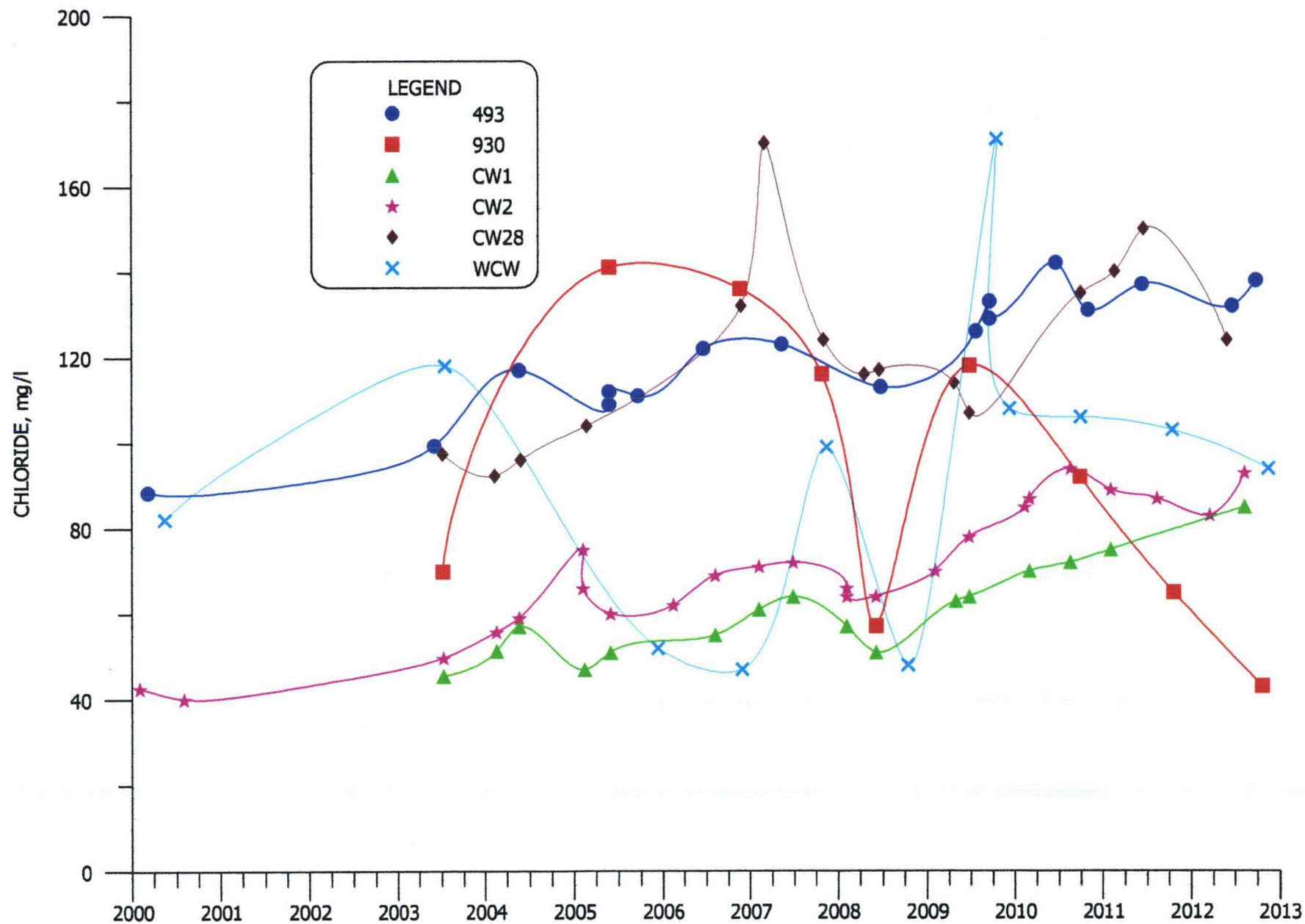
**FIGURE 6.3-7. TDS CONCENTRATIONS FOR NON-MIXING ZONE WELLS
493, 930, CW1, CW2, CW28 AND WCW**



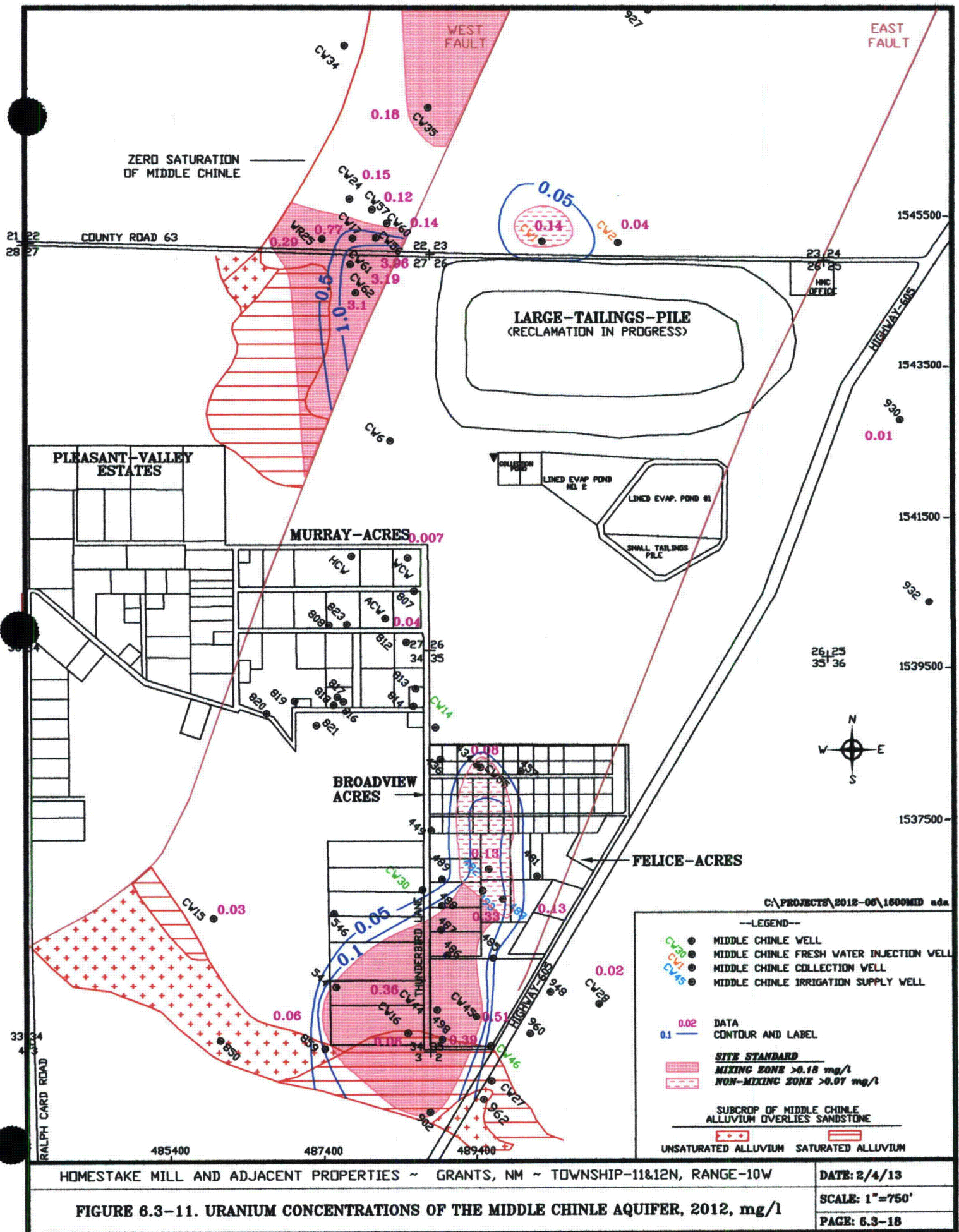
6.3-16



**FIGURE 6.3-9. CHLORIDE CONCENTRATIONS FOR MIXING ZONE WELLS
CW15, CW17, CW24, CW35, CW44 AND CW45**



**FIGURE 6.3-10. CHLORIDE CONCENTRATIONS FOR NON-MIXING ZONE WELLS
493, 930, CW1, CW2, CW28, AND WCW**



HOMESTEAK MILL AND ADJACENT PROPERTIES ~ GRANTS, NM ~ TOWNSHIP-11&12N, RANGE-10W

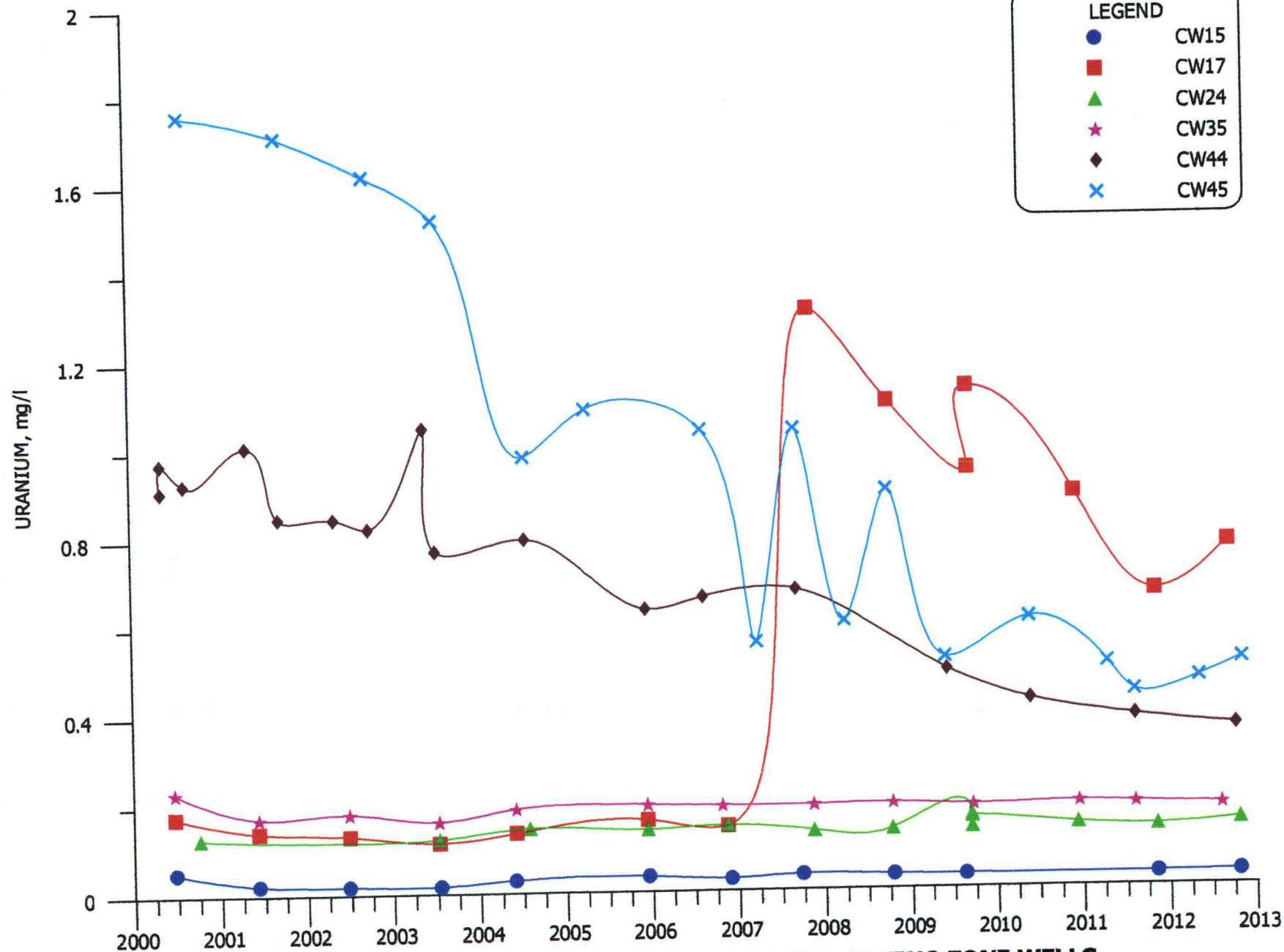
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FIGURE 6.3-11. URANIUM CONCENTRATIONS OF THE MIDDLE CHINLE AQUIFER, 2012, mg/l

SCALE: 1"=750'

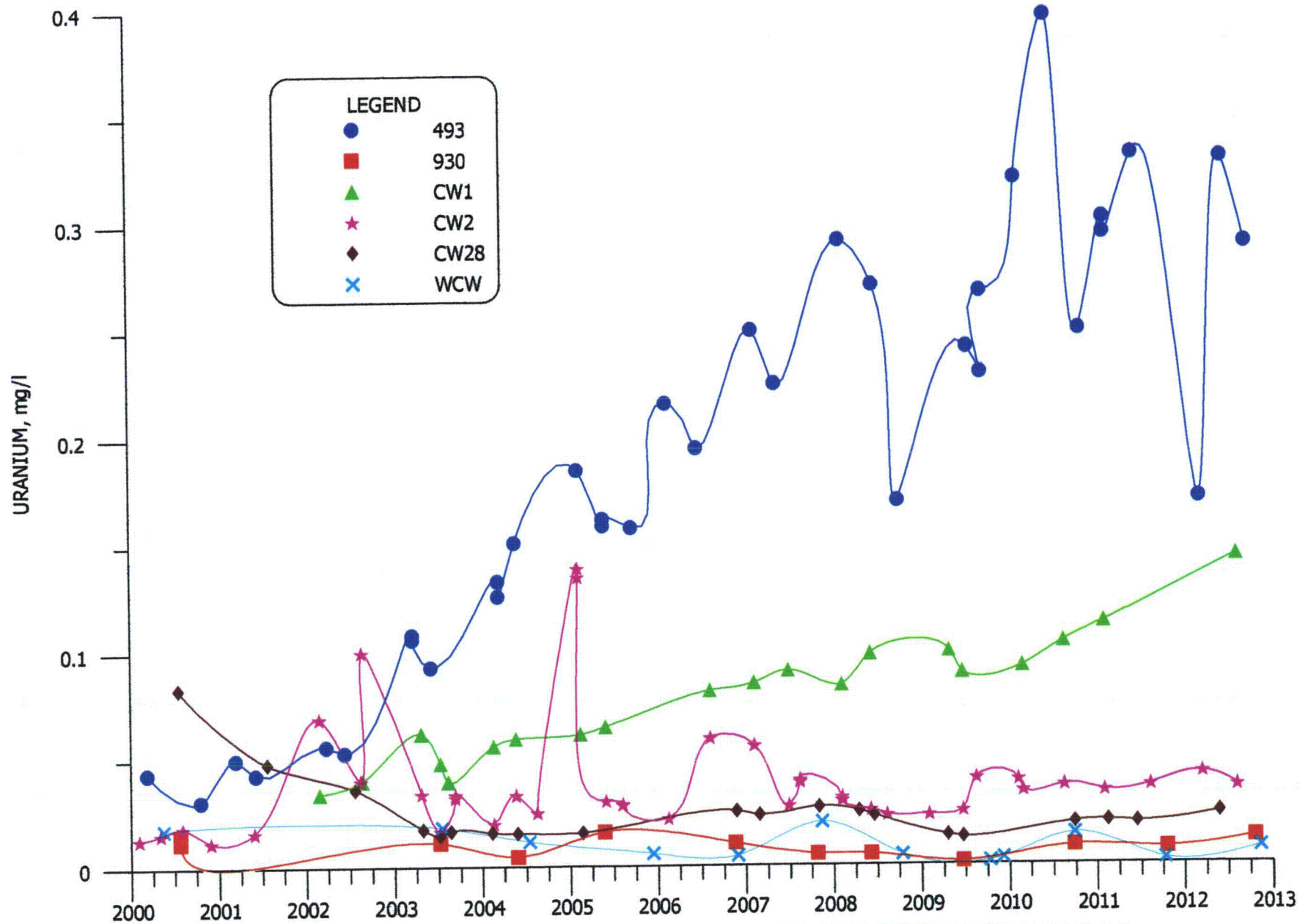
PAGE: 6.3-18

6.3-19



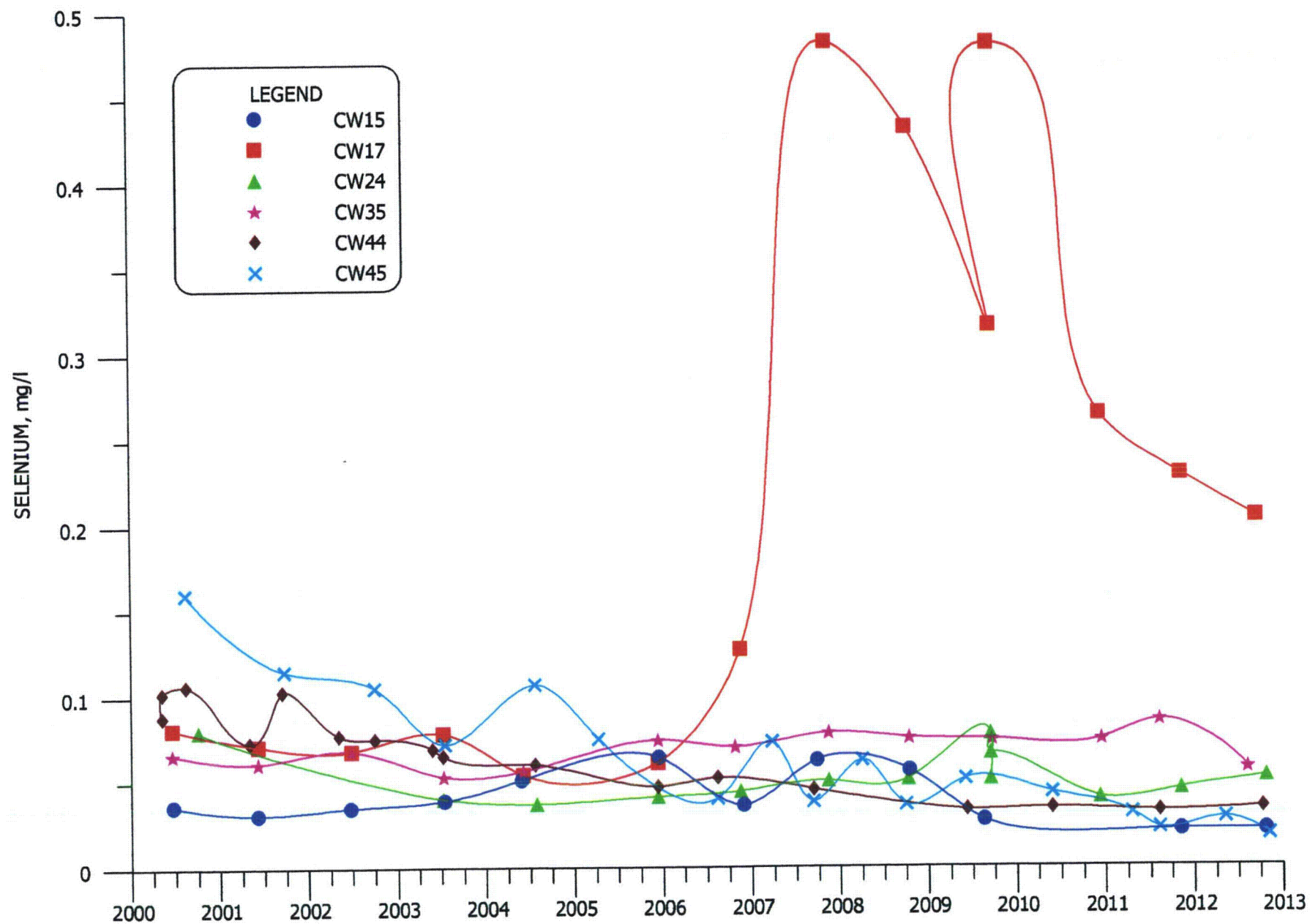
**FIGURE 6.3-12. URANIUM CONCENTRATIONS FOR MIXING ZONE WELLS
CW15, CW17, CW24, CW35, CW44, AND CW45**

6.3-20



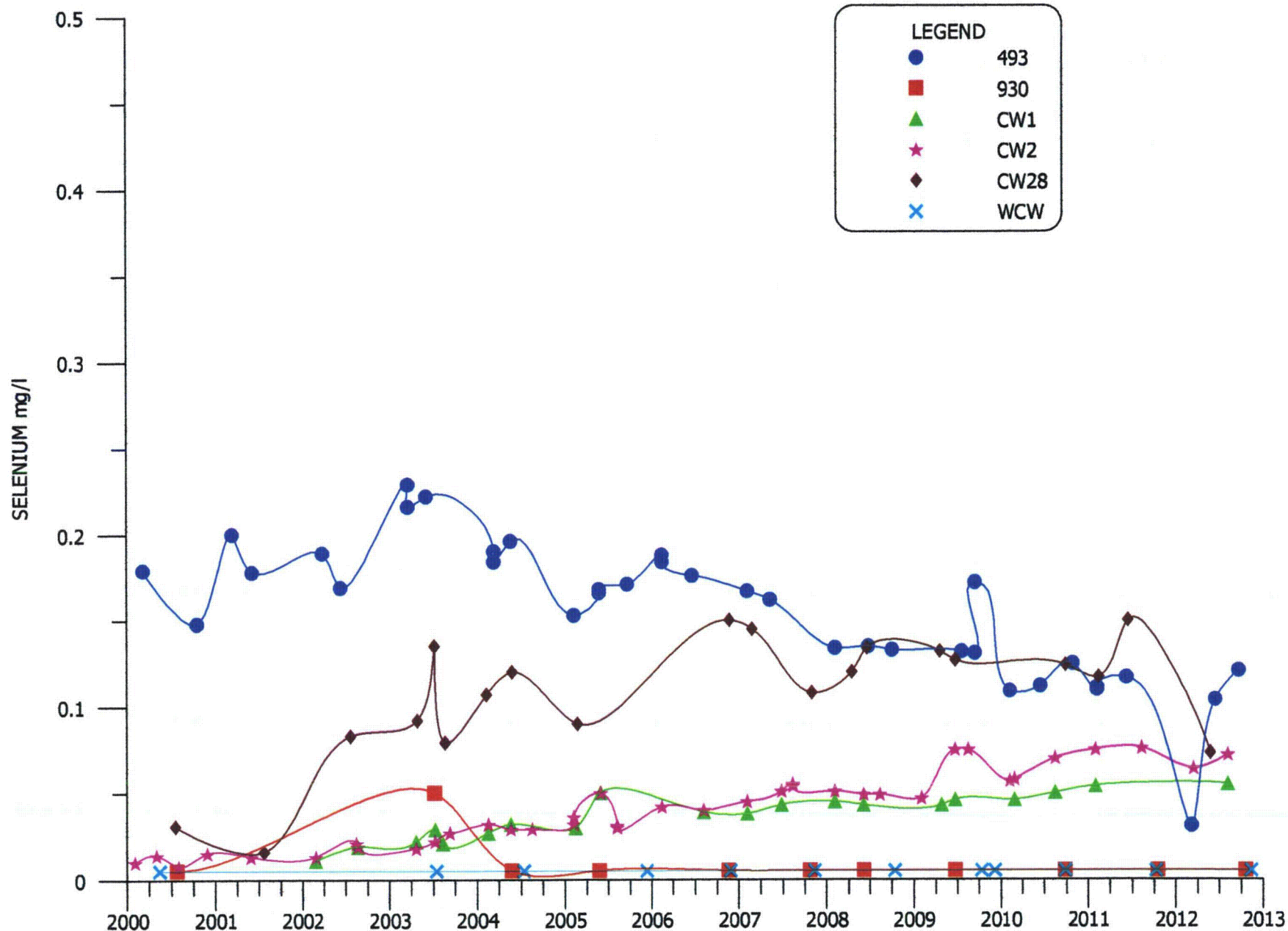
**FIGURE 6.3-13. URANIUM CONCENTRATIONS FOR NON-MIXING ZONE WELLS
493, 930, CW1, CW2, CW28, AND WCW**

6.3-22



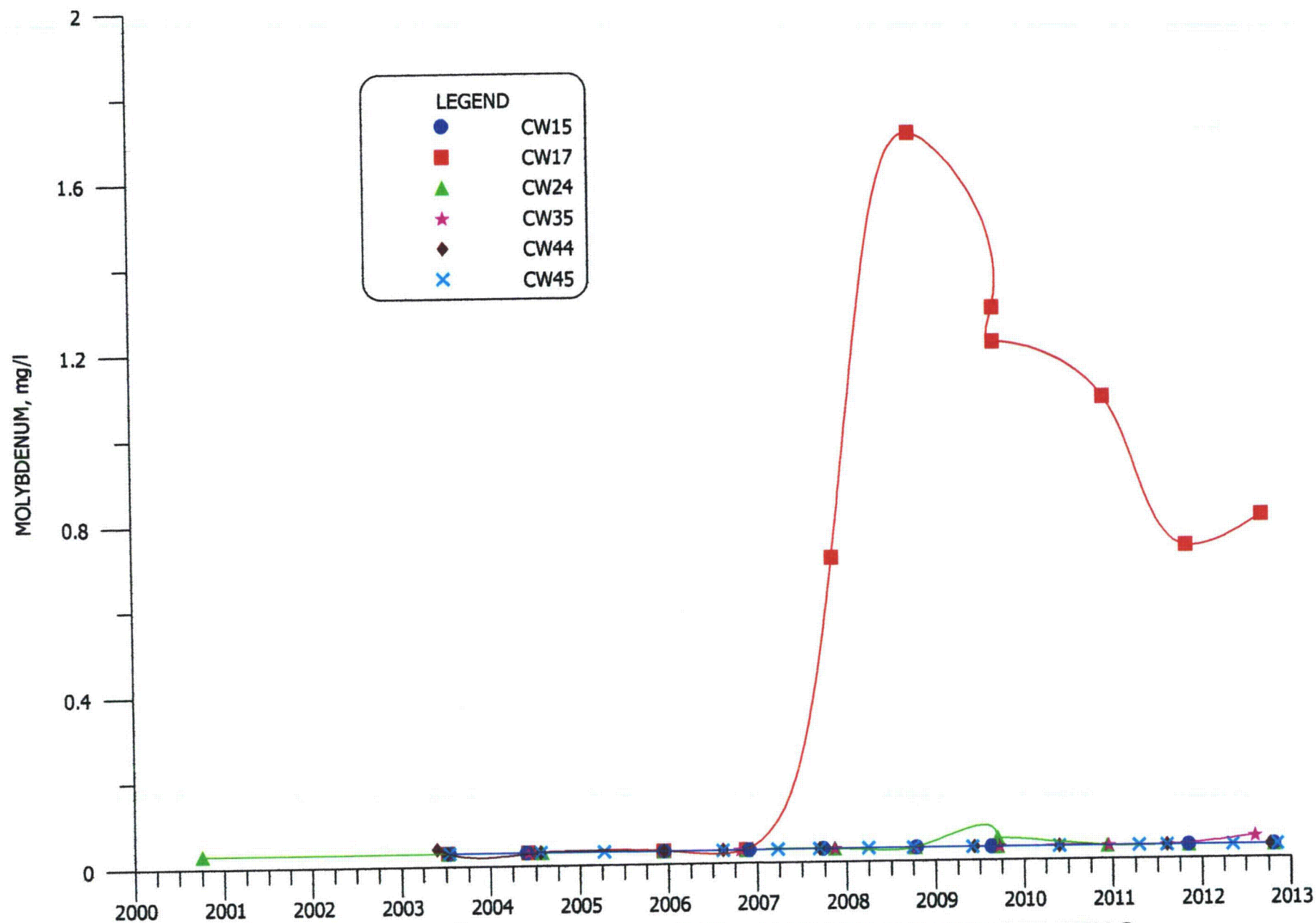
**FIGURE 6.3-15. SELENIUM CONCENTRATIONS FOR MIXING ZONE WELLS
CW15, CW17, CW24, CW35, CW44, AND CW45**

6.3-23



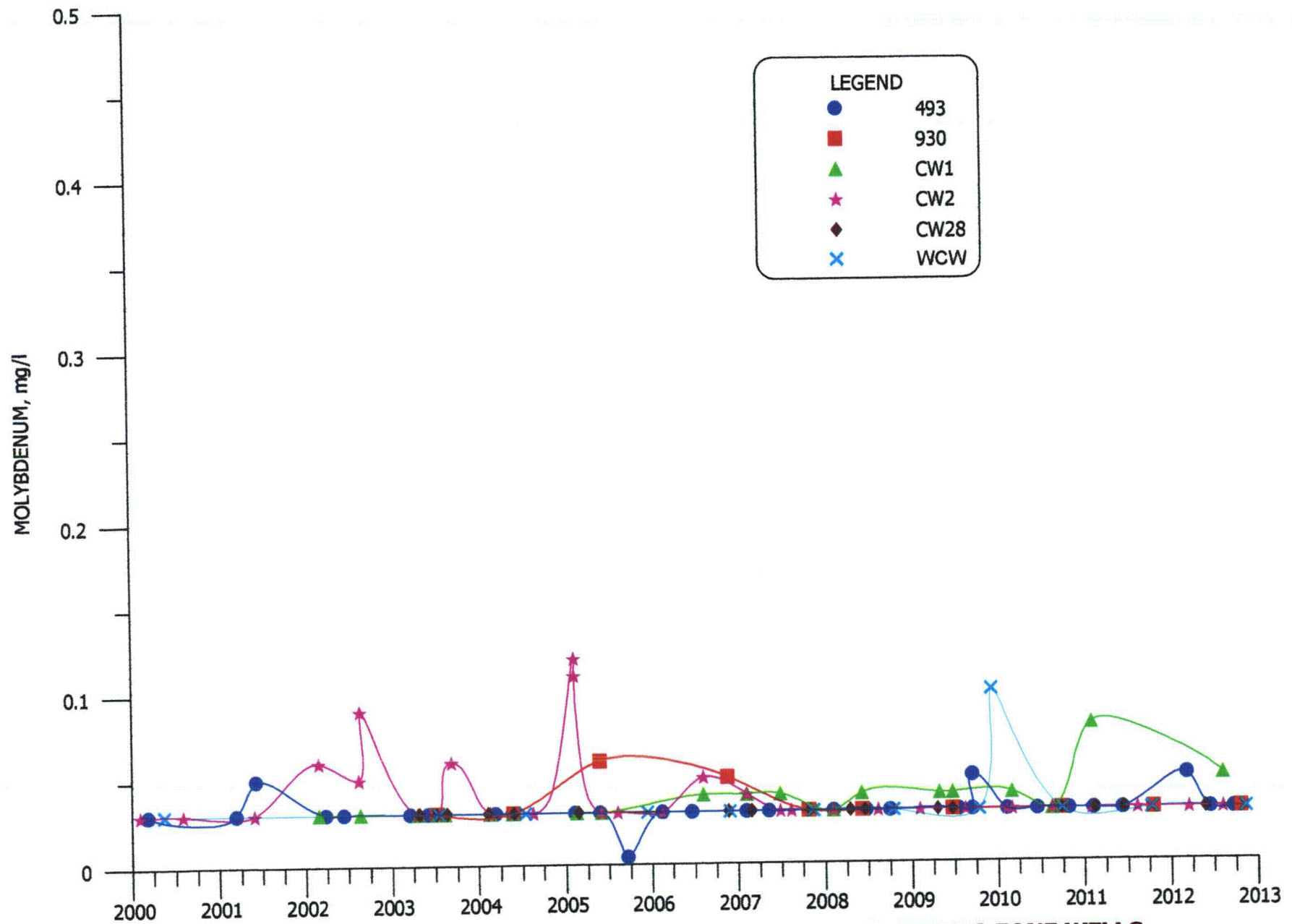
**FIGURE 6.3-16. SELENIUM CONCENTRATIONS FOR NON-MIXING ZONE WELLS
493, 930, CW1, CW2, CW28, AND WCW**

6.3-25

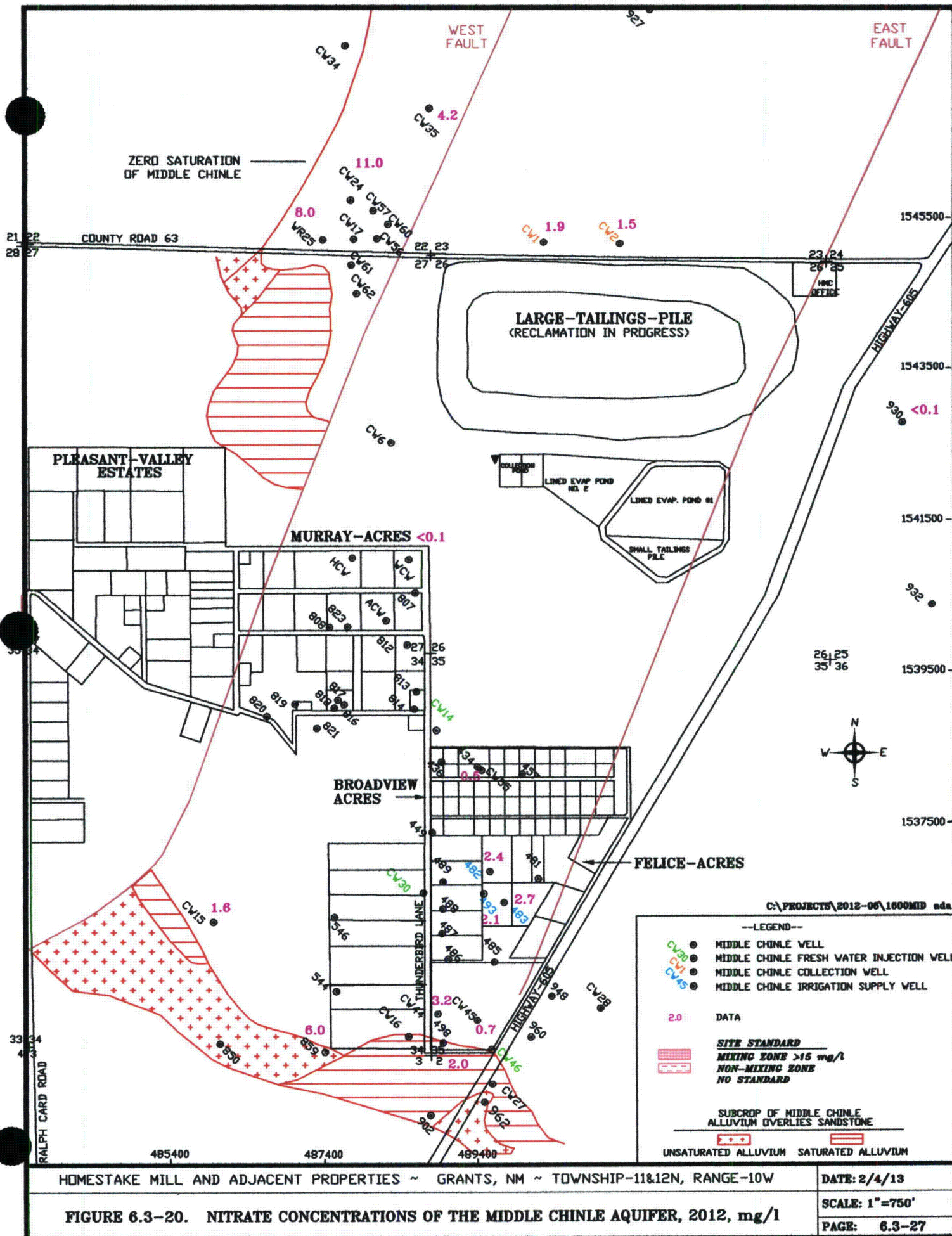


**FIGURE 6.3-18. MOLYBDENUM CONCENTRATIONS FOR MIXING ZONE WELLS
CW15, CW17, CW24, CW35, CW44 AND CW45**

6.3-26



**FIGURE 6.3-19. MOLYBDENUM CONCENTRATIONS FOR NON-MIXING ZONE WELLS
493, 930, CW1, CW2, CW28, AND WCW**



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7.0 LOWER CHINLE AQUIFER MONITORING

7.1 LOWER CHINLE WELL COMPLETION

The Lower Chinle aquifer is a permeable zone in the Chinle shale which exists below the Middle Chinle sandstone and above the San Andres aquifer. The Lower Chinle aquifer becomes important west and southwest of the Homestake Grants Project area where this unit is present at shallower depths. The general permeability of the Lower Chinle aquifer can vary dramatically, because the transmitting ability of this aquifer depends on the presence of a fractured or altered shale that provides secondary permeability. Tables 5.1-1 through 5.1-4 present the Lower Chinle basic well data along with the other Chinle aquifer wells.

Wells that are completed in the Lower Chinle aquifer are shown on Figure 7.1-1. Chinle shale exists above the top of the Lower Chinle aquifer in the area with the dot pattern. This figure also shows the location of the Lower Chinle aquifer subcrop underlying the alluvium. The cyan horizontal hatched pattern shows where the alluvium is saturated in the subcrop area, while the plus-sign pattern shows where the alluvium is not saturated in the subcrop area. Only Lower Chinle well 538 was used as irrigation supply well in 2012.

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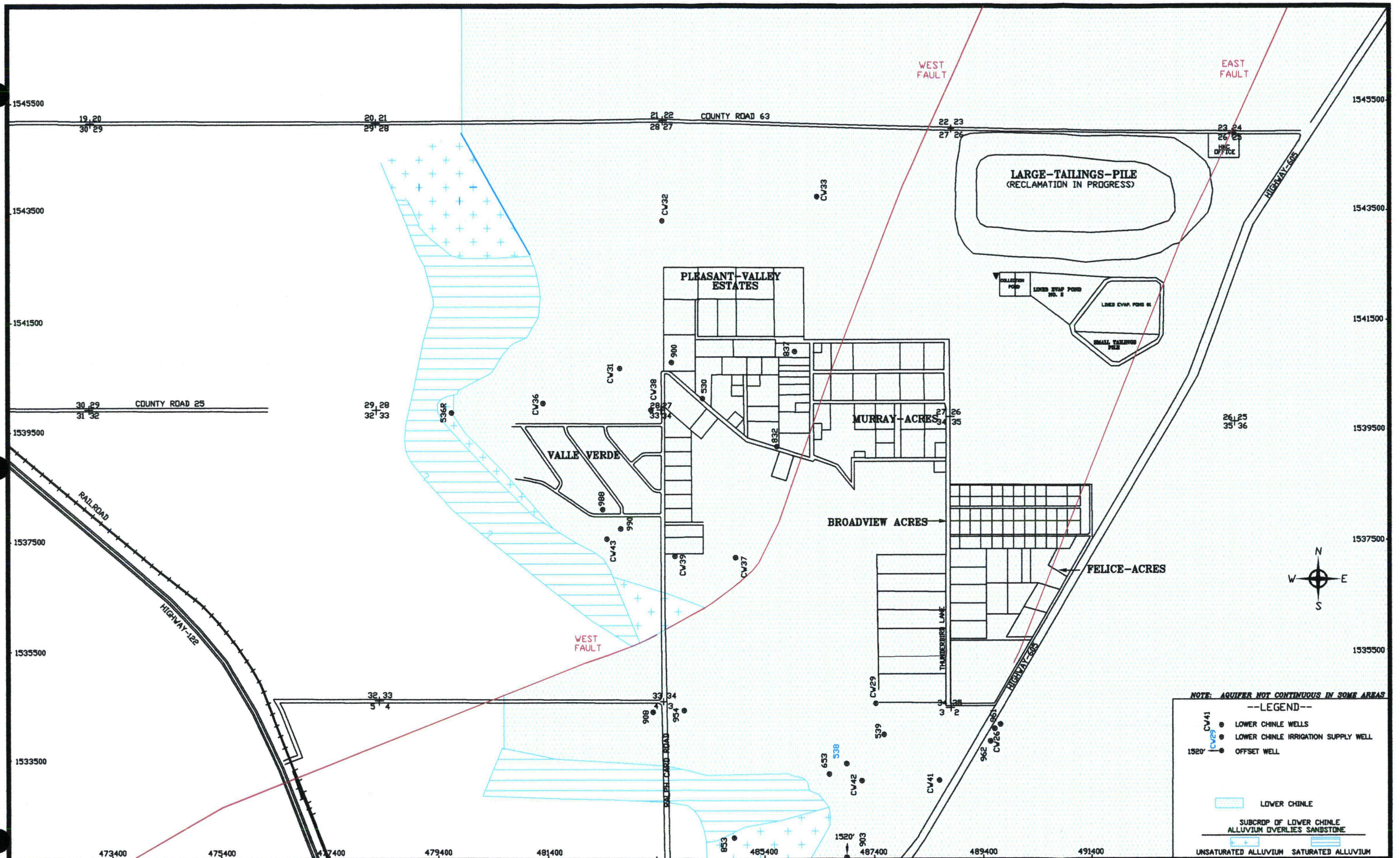


FIGURE 7.1-1. LIMITS OF LOWER CHINLE AQUIFER AND WELL LOCATIONS, 2012

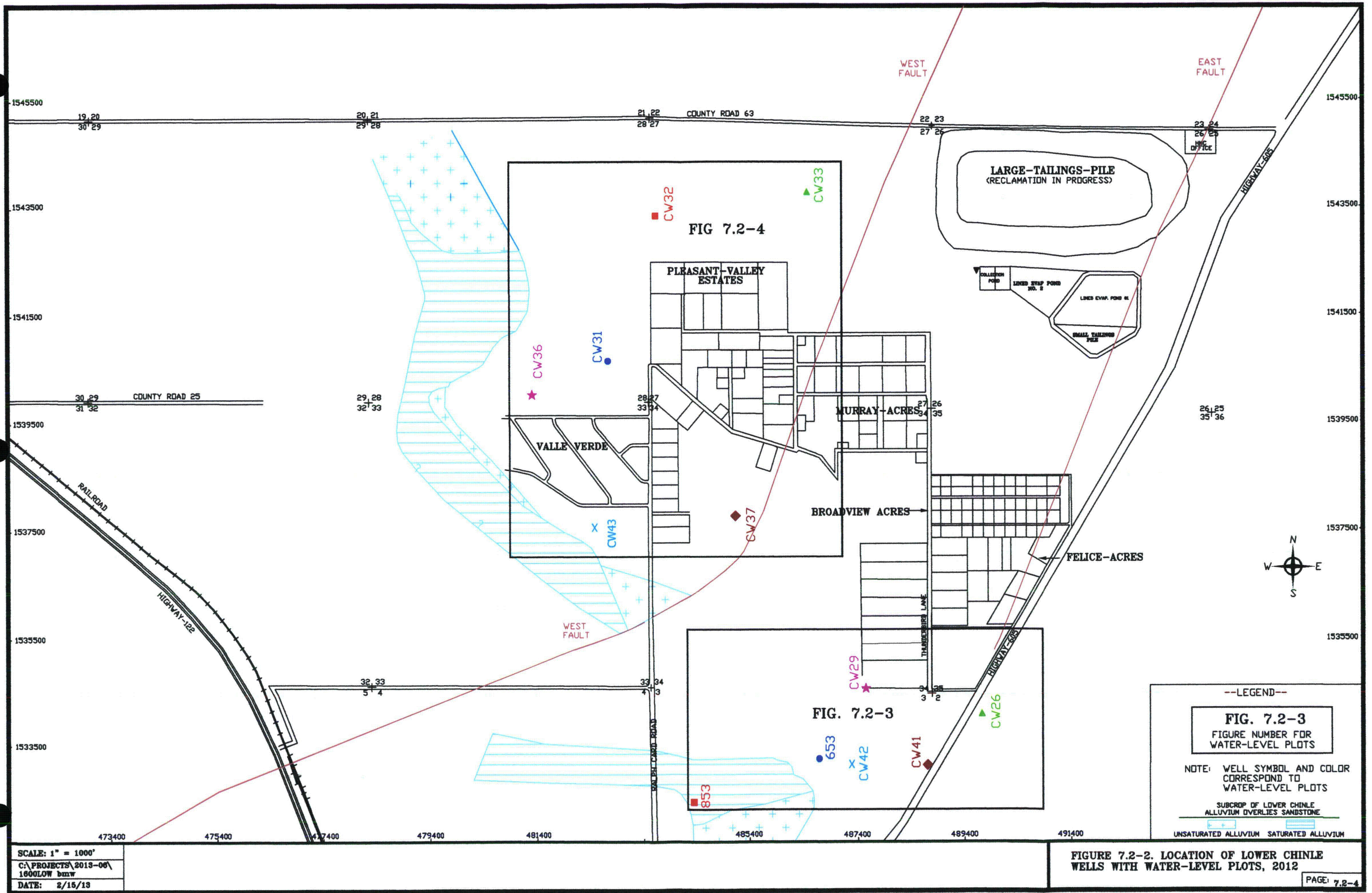
7.2 LOWER CHINLE WATER LEVELS

Water-level elevations in the Lower Chinle wells are presented along with the data for the Upper and Middle Chinle wells in Appendix A. Figure 7.2-1 presents water-level elevations in the Lower Chinle wells and the fall of 2012 water-level elevation contours. The West and East Faults are also shown on this figure. The approximate alluvial-Lower Chinle subcrop areas are also shown on this figure. Flow west of the West Fault in the Lower Chinle is mainly to the northeast. Flow between the two faults is to the northeast in the area of the tailings. The flow is to the northwest in the southern portion of the Lower Chinle aquifer between the faults. The northwesterly flow direction in this area indicates that the Lower Chinle water moves across the West Fault in the area west of Broadview Acres. Lower Chinle water levels in 2012 were similar to the 2011 values in Section 3 due to pumping on well 538 for the purpose of providing irrigation supply.

The Lower Chinle wells for which water-level time plots were prepared are shown on Figure 7.2-2. Water levels are presented for Lower Chinle wells 653, 853, CW26, CW29, CW41 and CW42 on Figure 7.2-3. Water levels in each of these Lower Chinle wells rose in 2012 except the water level in well CW41 which shows a decline. Water levels gradually decreased in Lower Chinle well CW29 prior to its use as a fresh-water injection supply well in 2003 and irrigation supply in 2004 through 2010. Small overall water-level decreases had been observed over the last few years in Lower Chinle wells 653, 853, CW26 and CW42 but the 2010 through 2012 water levels very gradually rose.

Figure 7.2-4 presents water-level elevations versus time for Lower Chinle wells CW31, CW32, CW33, CW36, CW37 and CW43 (see Figure 7.2-2 for location of these wells). Water levels had gradually declined over the last few years in wells CW31 and CW36 but gradually rose in 2010 through 2012. Water levels in wells CW37 and CW43 near the subcrop area were steady in 2012. Water levels in 2012 have been fairly steady in well CW33. Water levels have decreased in Lower Chinle well CW32 for several years, and this trend continued in 2012 at a very gradual decline. The rate and magnitude of decrease in this Lower Chinle well is similar to that observed in the alluvial and San Andres aquifers to the west in Sections 29, 32 and 33. These declines are different than the steady alluvial water levels near well CW33. This

indicates that the Lower Chinle aquifer near well CW32 is hydrologically connected to the alluvial aquifer west of this area but is isolated from the alluvial aquifer in its immediate area.



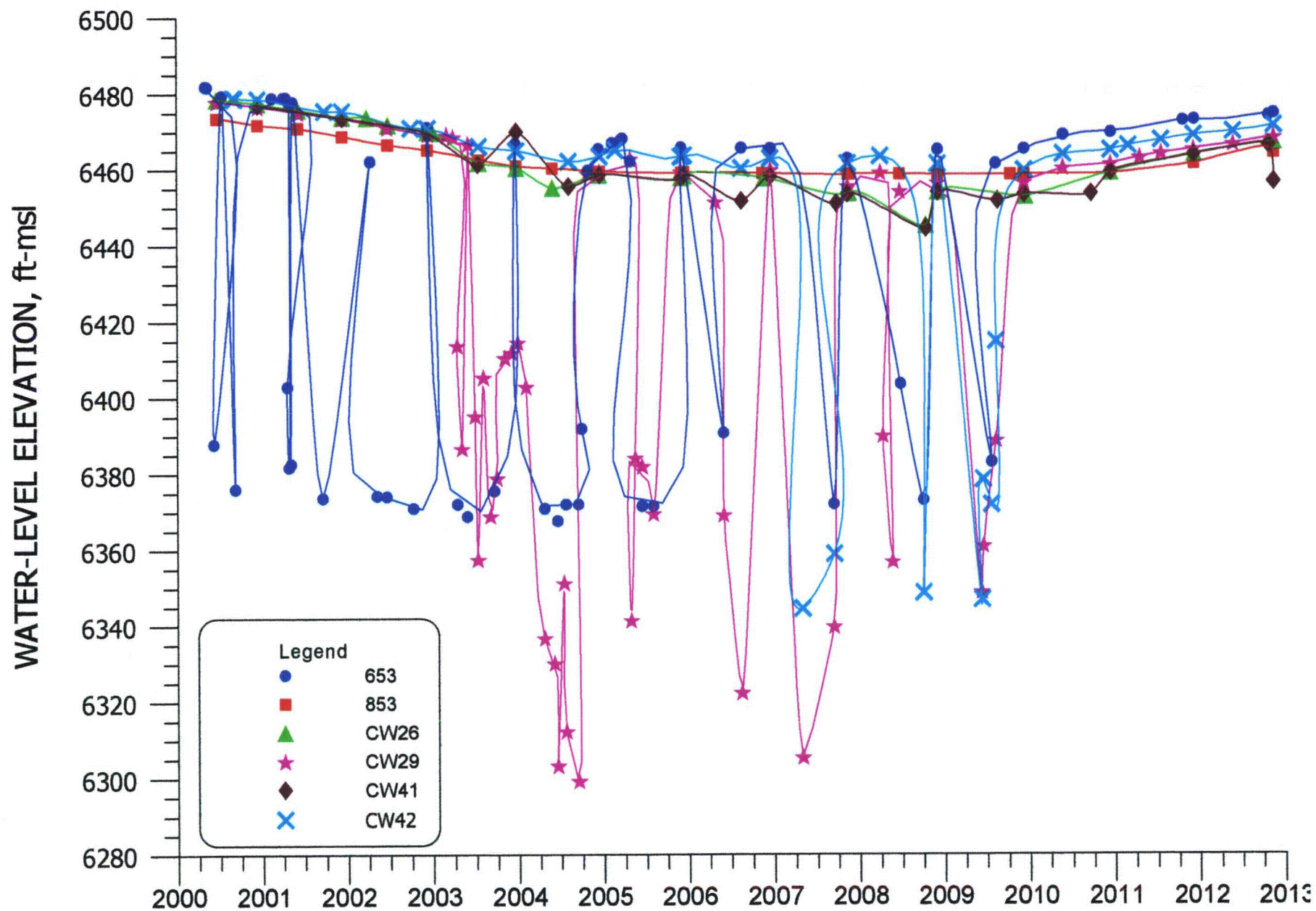


FIGURE 7.2-3. WATER-LEVEL ELEVATION FOR WELLS 653, 853, CW26, CW29, CW41, AND CW42.

7.2-6

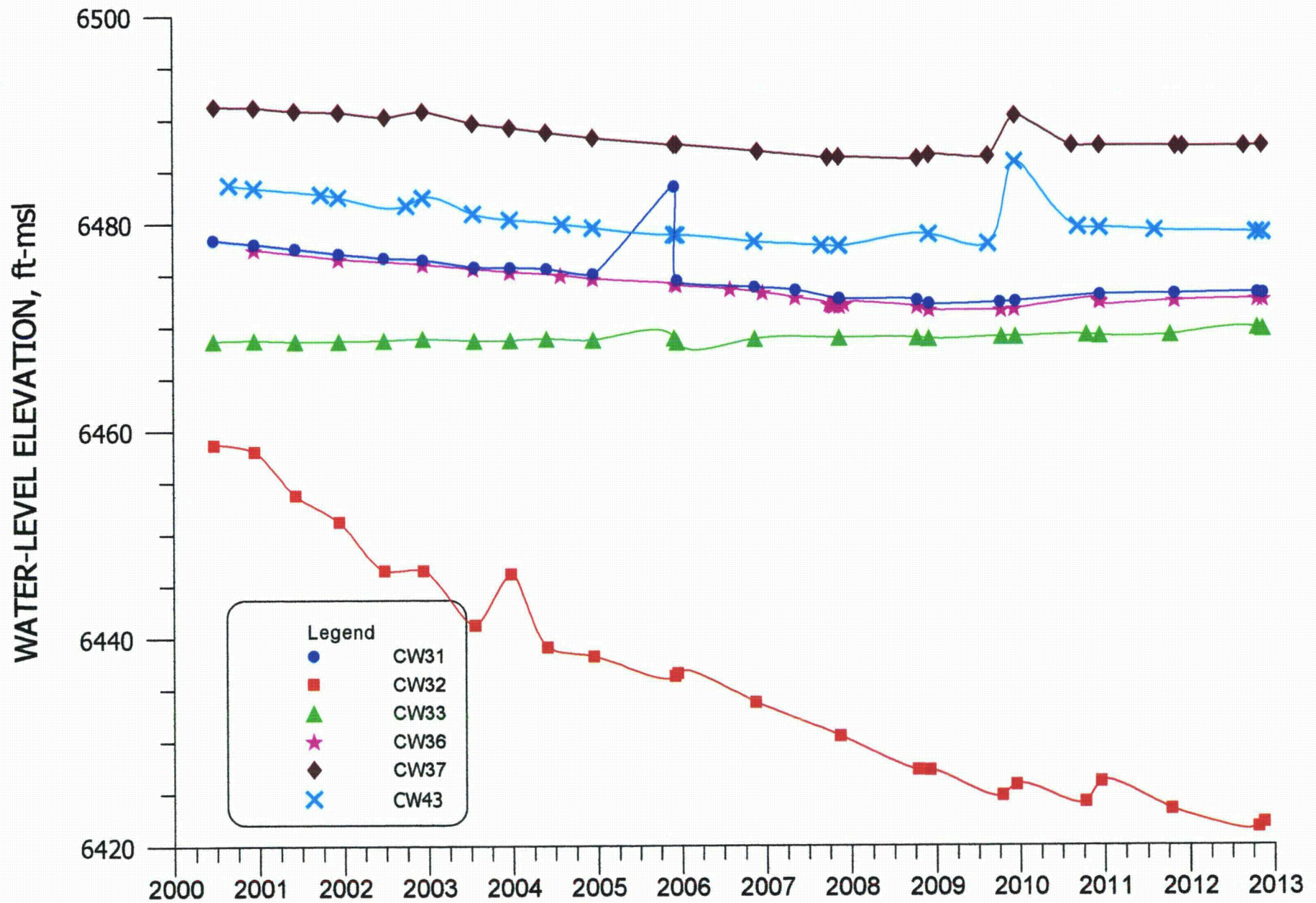


FIGURE 7.2-4. WATER-LEVEL ELEVATION FOR WELLS CW31, CW32, CW33, CW36, CW37, AND CW43.

7.3 LOWER CHINLE WATER QUALITY

Water-quality data for 2012 for the Lower Chinle aquifer are presented in Tables B.5-1 and B.5-2 of Appendix B along with water-quality data for the other Chinle aquifer wells. The basic well data presented in Tables 5.1-1 through 5.1-4, and the orientation of the well name on Figure 5.1-1 indicate which of the Chinle wells are completed in the Lower Chinle.

Constituent concentrations in the Lower Chinle aquifer exceed background conditions only in Section 3, except for some natural exceedances in the far down-gradient wells. Sulfate concentrations in the Lower Chinle aquifer are within the NRC standards except in far down-gradient well CW33 where concentrations only slightly exceed the relevant non-mixing background value. These concentrations are deemed to be of natural origin and only slightly exceed the 95th percentile level of the data base. Uranium concentrations exceed the NRC site standards only in the northeastern and central portions of Section 3. Molybdenum concentrations in the Lower Chinle aquifer are all less than the limit of detection.

7.3.1 SULFATE – LOWER CHINLE

Figure 7.3-1 presents contours of sulfate concentrations in the Lower Chinle aquifer during 2012. Lower Chinle standards based on background data are presented for sulfate in the legend of Figure 7.3-1. The Lower Chinle concentrations varied from 281 to 2080 mg/l. Only the value from well CW33 exceeded the 2000 mg/l upper limit of background for the non-mixing zone. This concentration is thought to be naturally occurring and likely exceed the full range of background because the data is limited in the downgradient portion of the Lower Chinle aquifer. None of the Lower Chinle concentrations in the mixing zone (see Section 3 and Figure 3.3-3 for zone areas) exceeded the mixing-zone sulfate site standard of 1750 mg/l. Therefore, the Lower Chinle aquifer does not require any restoration with respect to sulfate.

The locations of wells used in the plots of water quality for the Lower Chinle are presented on Figure 7.3-2. Figure 7.3-2 shows that data for mixing zone Lower Chinle wells 538, 653, CW36, CW37, CW42 and CW43 are grouped together on the water-quality time plots, and data for non-mixing zone wells CW29, CW32, CW33 and CW41 are presented on a second plot.

Figure 7.3-3 presents sulfate concentrations plotted versus time for the Lower Chinle mixing-zone wells. The sulfate concentrations in water collected from each of these wells are less than the mixing-zone site standard, showing that sulfate restoration of the Lower Chinle is not needed in the southern portion of the aquifer. Sulfate concentrations in well CW43 have increased to a level similar to levels in other Lower Chinle wells in the area.

Sulfate concentrations plotted for Lower Chinle wells CW29, CW32 and CW33 are presented on Figure 7.3-4 (see Figure 7.3-2 for location of these wells). Sulfate concentrations were fairly steady in 2012 in these Lower Chinle wells. The data collected since mid-2003 was not available when the background level was calculated. The exceedance in sulfate value from well CW33 is thought to be natural.

7.3.2 TOTAL DISSOLVED SOLIDS – LOWER CHINLE

Figure 7.3-5 presents the total dissolved solids (TDS) concentrations in the Lower Chinle aquifer during 2012. All concentrations for 2012 sampled wells are less than the non-mixing zone site standard value of 4140 mg/l. Concentrations are thought to naturally exceed this level farther down-gradient as shown by the cyan pattern. The TDS concentration naturally increases down-gradient due to the low permeability and correspondingly slow movement of water through this shale aquifer.

Figure 7.3-6 presents TDS concentrations for Upper Chinle wells 538, 653, CW36, CW37, CW42 and CW43. TDS concentrations in these wells have been fairly steady in 2012 except the increase observed in well CW43. The TDS in well CW43 has increased to a level that is above the remainder of the lower Chinle aquifer wells in this area. TDS concentrations increase in well CW43 started prior to the Section 33 Flood irrigation which was initially done in 2004. All of these concentrations are below the mixing-zone site standard of 3140 mg/l.

TDS concentrations for wells CW29, CW32, CW33 and CW41 are presented on Figure 7.3-7. This figure demonstrates that, overall, TDS concentrations have remained fairly stable during 2012. Additionally, these historical TDS concentrations are well within the range of natural fluctuation in the non-mixing zone of the Lower Chinle aquifer, except for the values from wells CW32 and CW33 being near the top of the natural observed concentrations.

7.3.3 CHLORIDE – LOWER CHINLE

Chloride concentration data in the Lower Chinle aquifer were updated during 2003 to confirm that restoration for this constituent is not necessary in the Lower Chinle aquifer. The chloride concentrations measured during 2012 continue to support this conclusion and are all less than the NRC standard.

7.3.4 URANIUM – LOWER CHINLE

Uranium concentration in the Lower Chinle aquifer is an important constituent with respect to aquifer restoration in Section 3. Figure 7.3-8 presents the uranium concentrations in the Lower Chinle aquifer for 2012. Only three of the uranium concentrations in the Lower Chinle exceeded the mixing-zone background concentration, and two exceeded the non-mixing zone background concentration. The highest values are in the northeast portion of Section 3 in water from collection wells 538, 653, CW29 and CW42. These concentrations should gradually decrease to less than background concentrations with the continuing use of this water in the irrigation program.

Uranium concentrations plotted versus time for Lower Chinle wells 538, 653, CW36, CW37, CW42 and CW43 are presented on Figure 7.3-9. The overall decline in uranium concentration in well 653 is due to pumping of Lower Chinle wells to obtain a water supply for the irrigation system. An increase in uranium concentration was observed in well CW42 in 2010, but this value declined in 2012. Additional results with time will be needed to show when the restoration of this area is adequate. Uranium concentrations in wells CW36, CW37 and CW43 have remained low.

The uranium concentrations in all of the Lower Chinle wells with data presented on Figure 7.3-10 have remained at low levels with steady and higher values in well CW29. Well CW29 is used to supply irrigation water and its pumping should eventually decrease these concentrations.

7.3.5 SELENIUM – LOWER CHINLE

Selenium concentrations in the Lower Chinle aquifer for 2012 are presented on Figure 7.3-11. None of the selenium concentrations in water from the Lower Chinle wells exceeded the site standards. The mixing and non-mixing zone site standards are 0.14 and 0.32 mg/l, respectively, for the Lower Chinle aquifer.

Figure 7.3-12 presents selenium concentration versus time plots for wells 538, 653, CW36, CW37, CW42 and CW43. The selenium concentrations in these Lower Chinle aquifer wells were steady in 2012.

Figure 7.3-13 presents selenium concentrations plotted versus time for Lower Chinle wells CW29, CW32, CW33 and CW41. Selenium concentrations measured during 2012 were consistent with the 2011 levels for each of these wells with a gradual decline in well CW29.

7.3.6 MOLYBDENUM – LOWER CHINLE

Molybdenum concentrations in water samples collected from the Lower Chinle wells in 2012 were all low at levels near the detection limit and, therefore, no areal molybdenum concentration figures or time plots were prepared. The 2012 results are consistent with historical measurements of molybdenum in the Lower Chinle aquifer. Molybdenum is not a constituent of concern in the Lower Chinle aquifer.

7.3.7 NITRATE – LOWER CHINLE

Nitrate monitoring of the Lower Chinle aquifer was updated in 2003 to confirm that concentrations remain significantly below the site standard of 15 mg/l for the mixing zone. Nitrate concentrations measured in 2012 are presented in Figure 7.3-14 and are all significantly below the site standard.

Plots of nitrate concentrations versus time were not prepared, because historically, values measured in Lower Chinle wells contained very low concentrations, similar to those measured in 2012. Nitrate concentrations from the tailings seepage are not expected to be significant in the future and therefore the potential in the Lower Chinle aquifer does not exist due

to the very limited extent of elevated concentrations in the alluvial aquifer. Establishment of a site standard for nitrate in the Lower Chinle non-mixing zone therefore has not been set.



7.3.8 RADIUM-226 AND RADIUM-228 – LOWER CHINLE

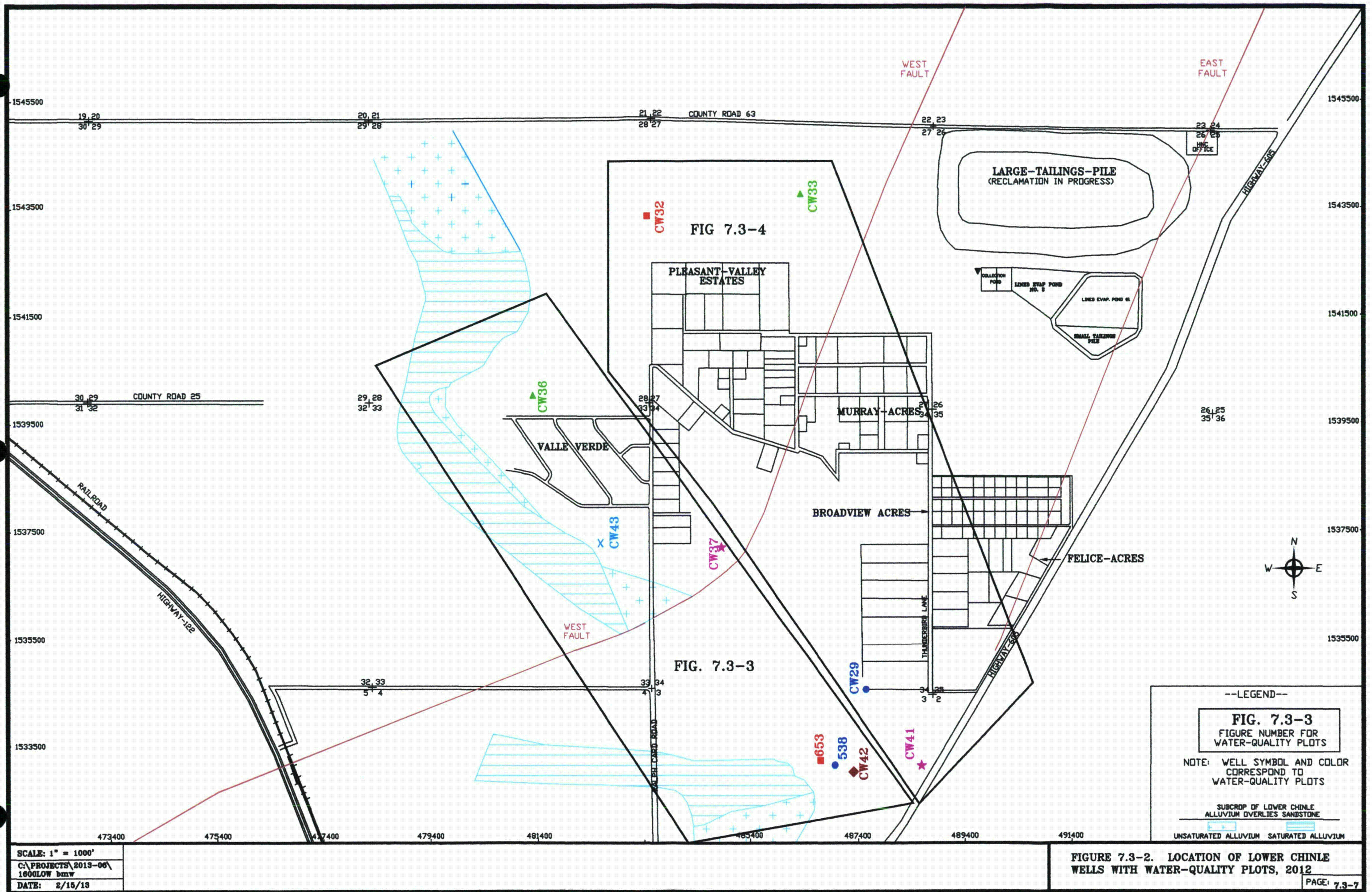
All radium concentrations have been low in past years in the Lower Chinle aquifer. Radium-226 and radium-228 are not important parameters relative to the Lower Chinle aquifer; therefore a site standard for the Lower Chinle has not been set. Radium concentrations were analyzed in all Lower Chinle wells in the 2003 update. These low levels of radium do not warrant the development of a figure presenting areal distribution of radium. Radium-228 analysis is typically more erratic than other constituents but the available data shows that radium-226 and radium-228 are not significant constituents in the Lower Chinle aquifer at the Homestake site.

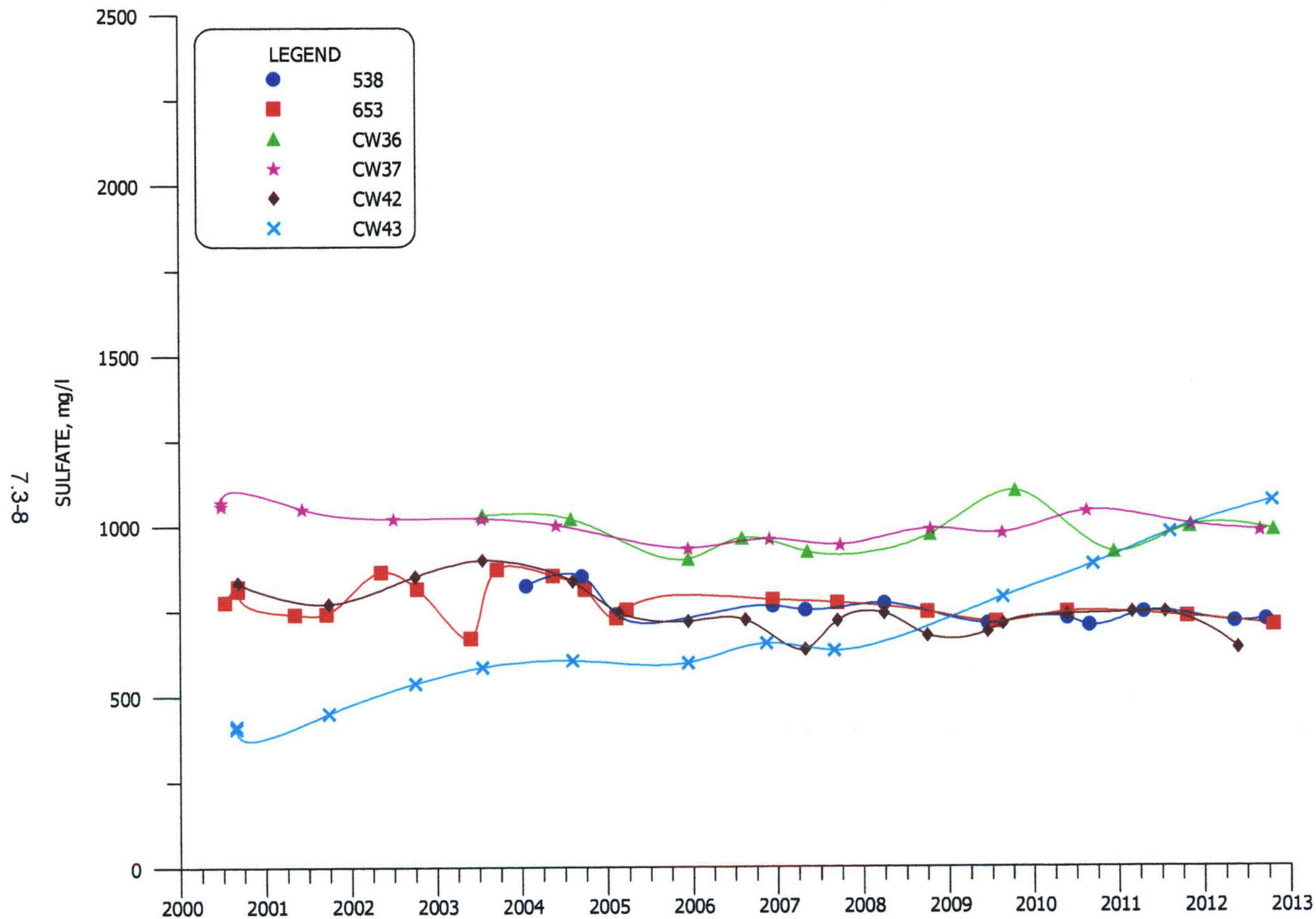
7.3.9 VANADIUM - LOWER CHINLE

Vanadium concentrations have always been low in the Lower Chinle aquifer. Significant concentrations in the Lower Chinle aquifer would not be expected because concentrations of this constituent have only been slightly elevated in the alluvial aquifer near the tailings. Vanadium concentrations in the Lower Chinle aquifer have never been large enough to support consideration of this constituent for setting a site standard. The vanadium concentration data was updated in 2003 for the Lower Chinle aquifer.

7.3.10 THORIUM-230 – LOWER CHINLE

Thorium-230 concentrations have never been significant in the Lower Chinle aquifer and, therefore, should be dropped from the Lower Chinle monitoring list and eliminated from consideration as a Lower Chinle standard. The thorium-230 concentrations measured in the Lower Chinle aquifer during 2003 were all very small. No plots of thorium-230 concentrations with time were prepared, because concentrations have historically been low.





**FIGURE 7.3-3. SULFATE CONCENTRATIONS FOR MIXING ZONE WELLS
538, 653, CW36, CW37, CW42, CW43**

7.3-9

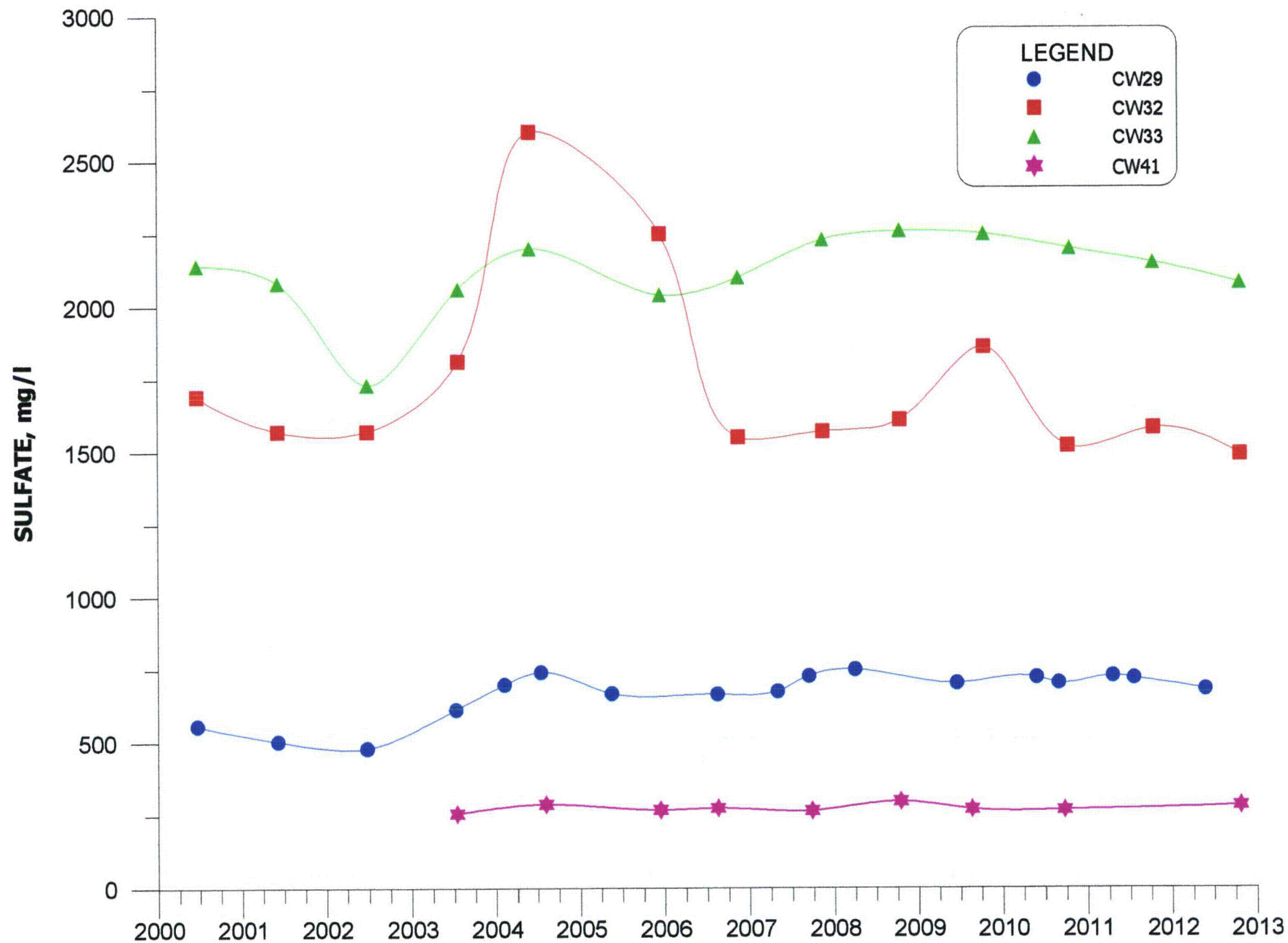
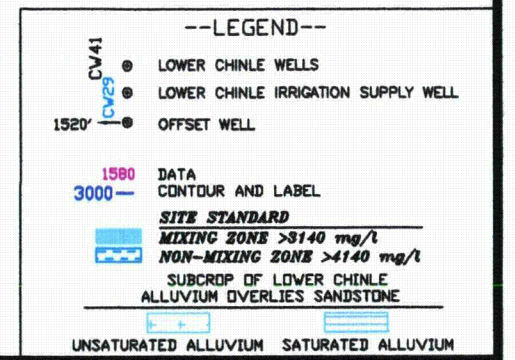
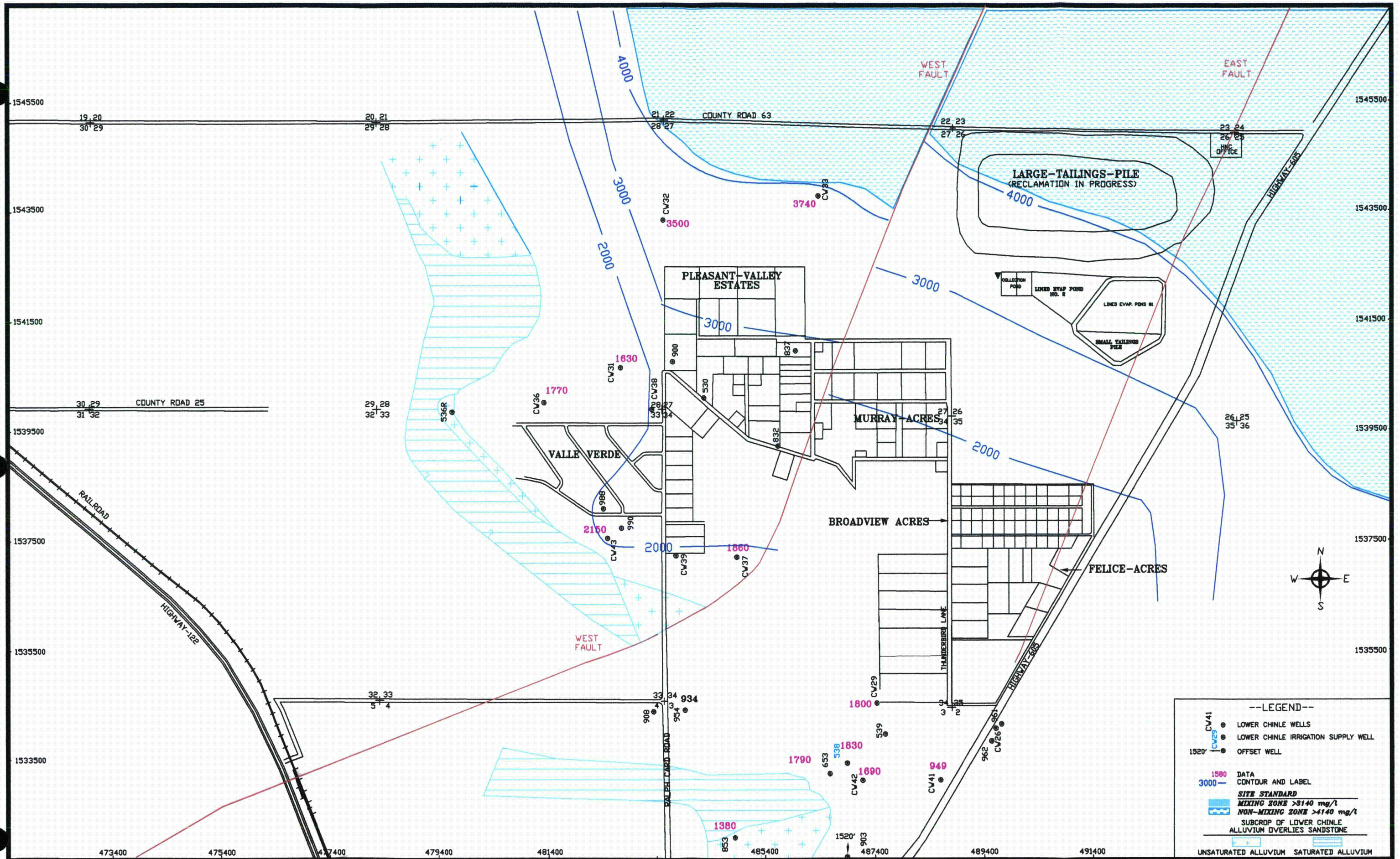


FIGURE 7.3-4. SULFATE CONCENTRATIONS FOR NON-MIXING WELLS CW29, CW32, CW33 AND CW41.



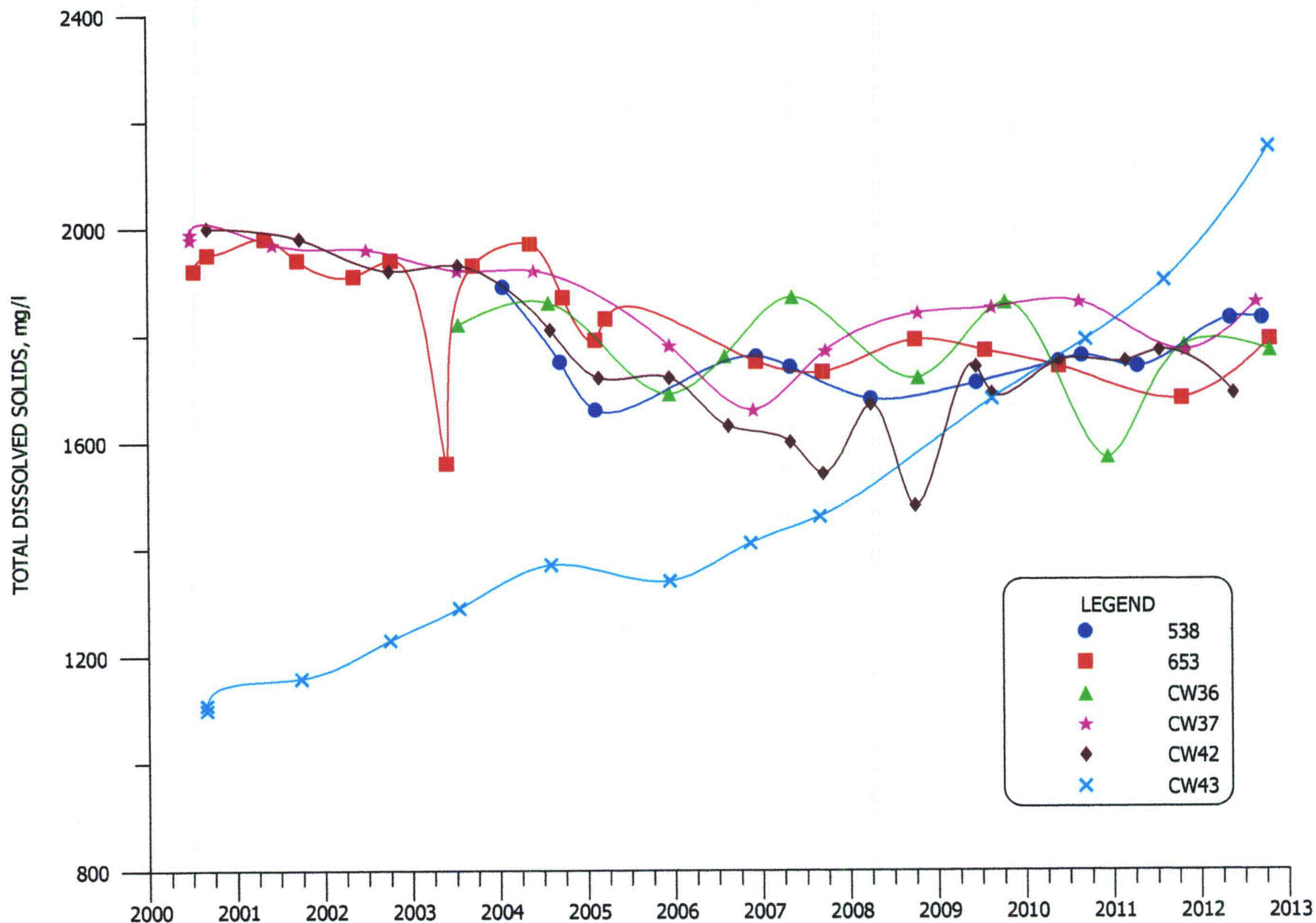
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DATE: 2/15/13

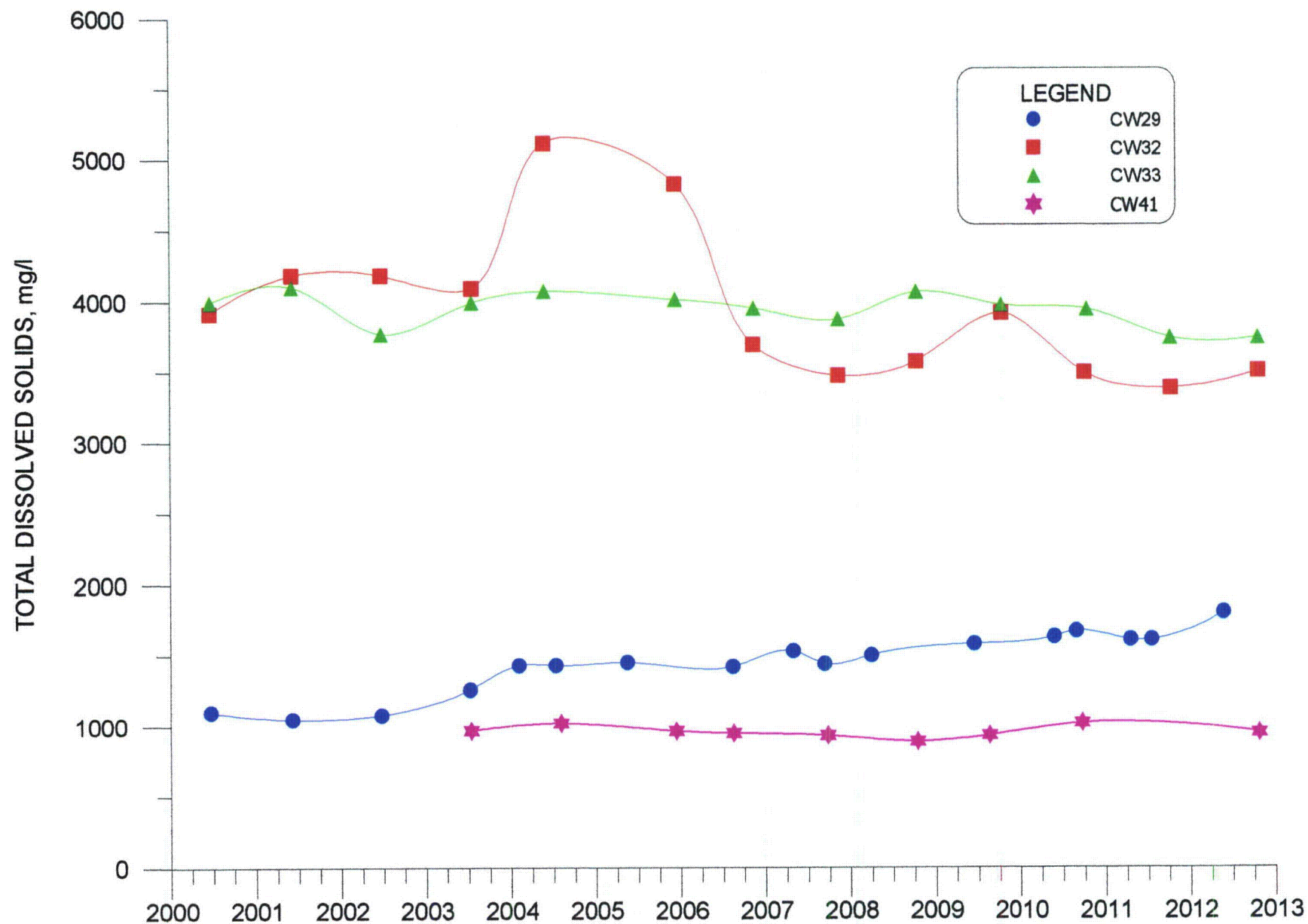
FIGURE 7.3-5. TDS CONCENTRATIONS OF THE LOWER CHINLE AQUIFER, 2012, mg/l

7.3-11



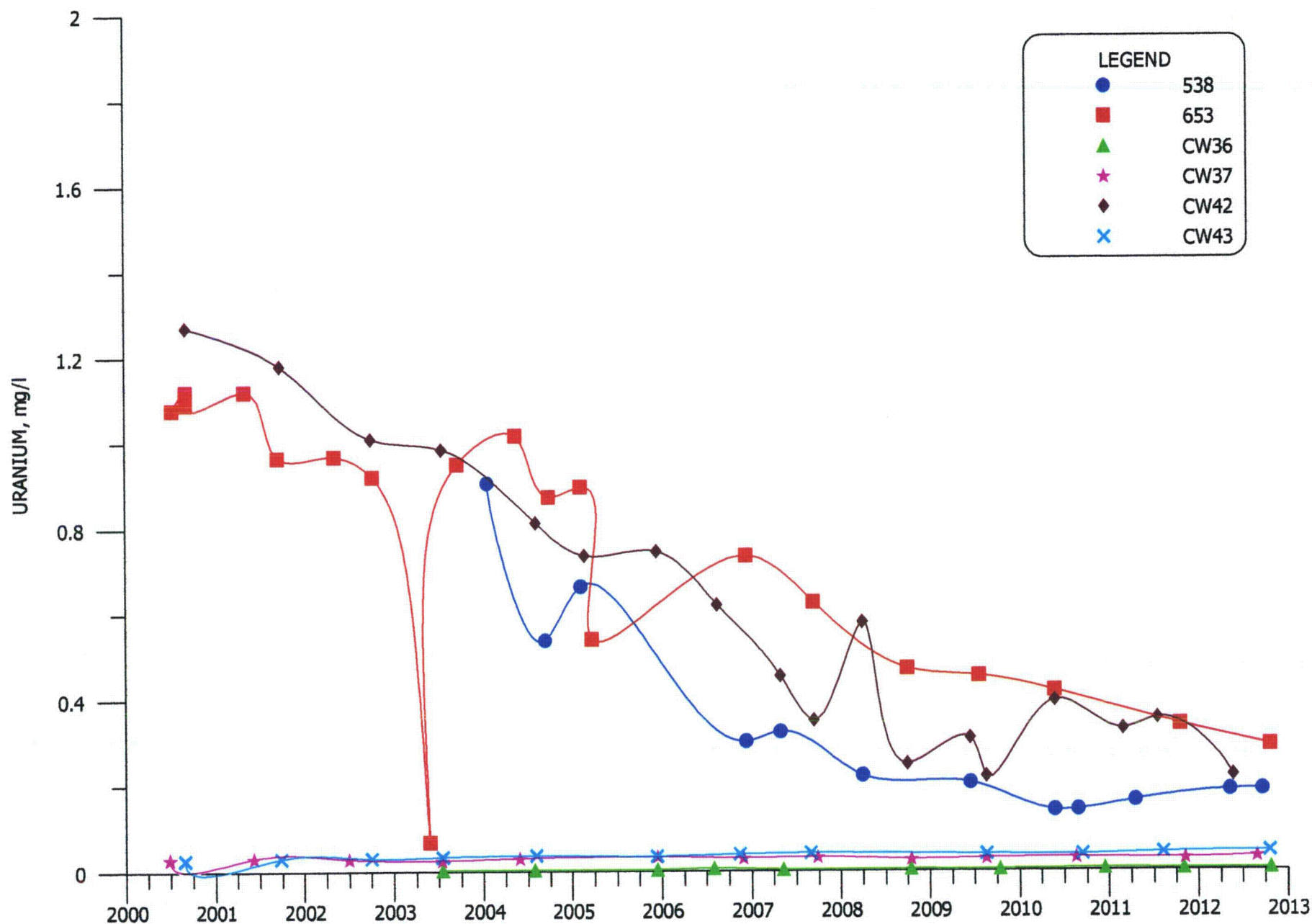
**FIGURE 7.3-6. TDS CONCENTRATIONS FOR MIXING ZONE WELLS
538, 653, CW36, CW37, CW42 AND CW43**

7.3-12



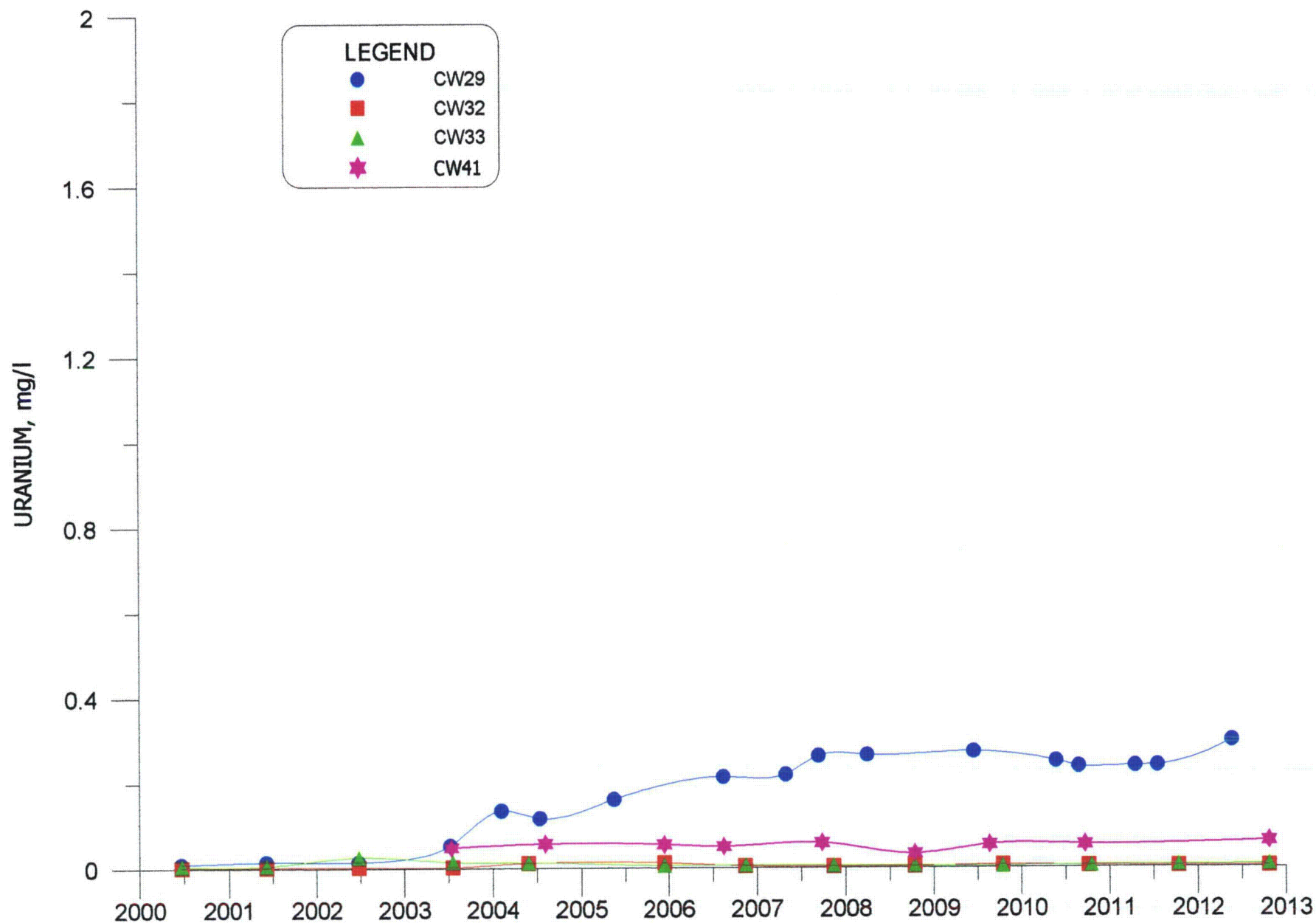
**FIGURE 7.3-7. TDS CONCENTRATIONS FOR NON-MIXING ZONE WELLS
CW29, CW32, CW33 AND CW41.**

7.3-14

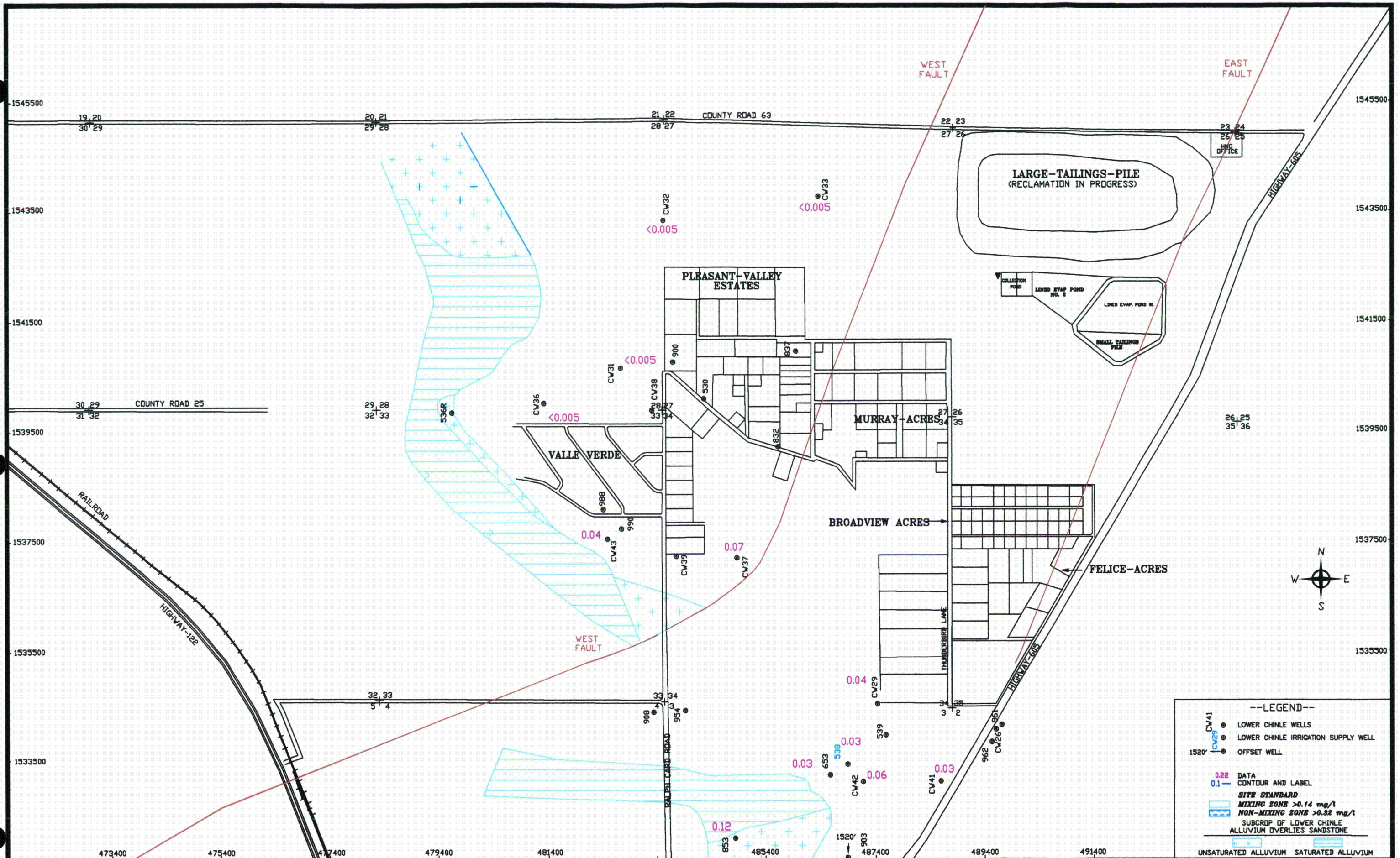


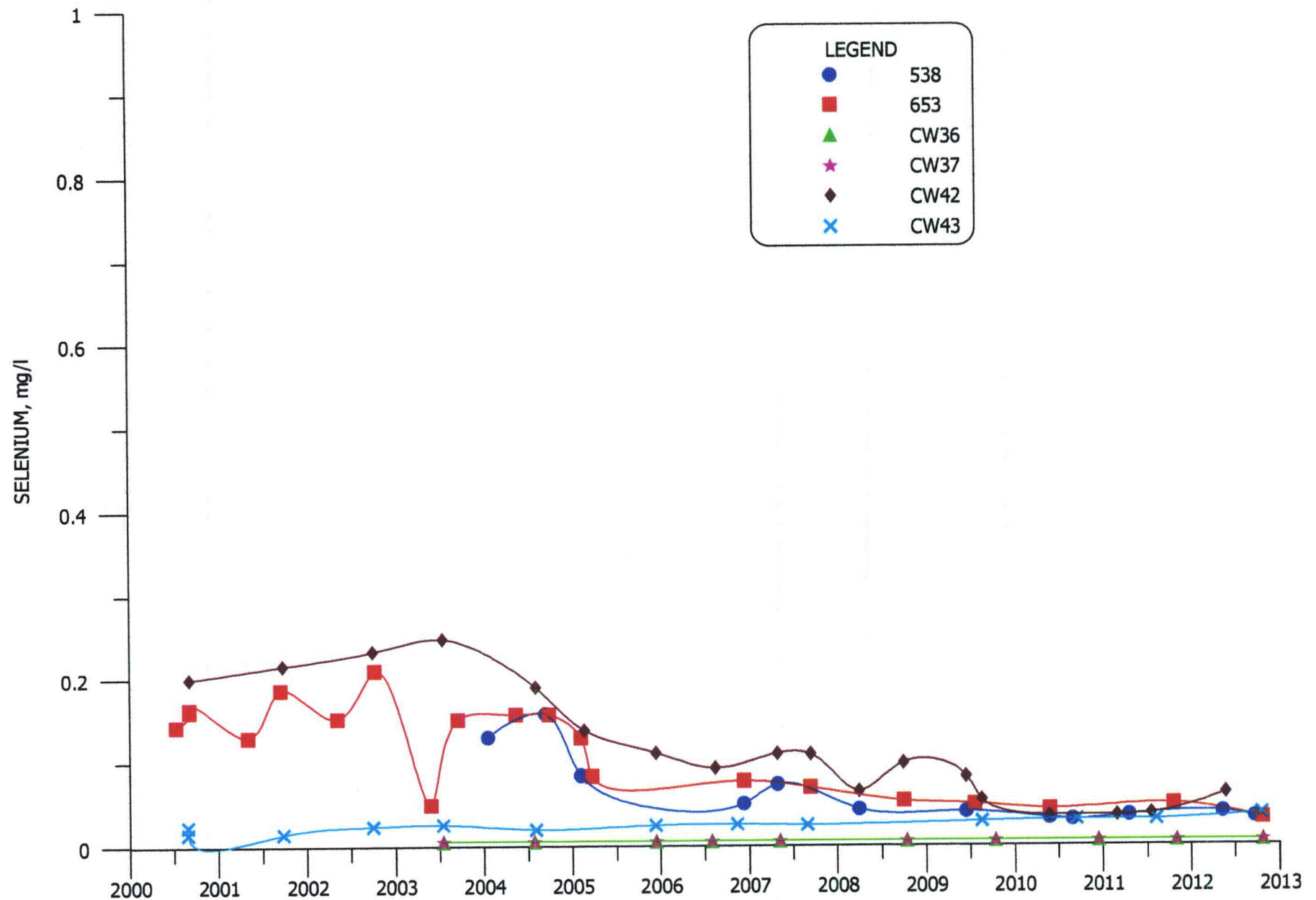
**FIGURE 7.3-9. URANIUM CONCENTRATIONS FOR MIXING ZONE WELLS
538, 653, CW36, CW37, CW42, AND CW43**

7.3-15



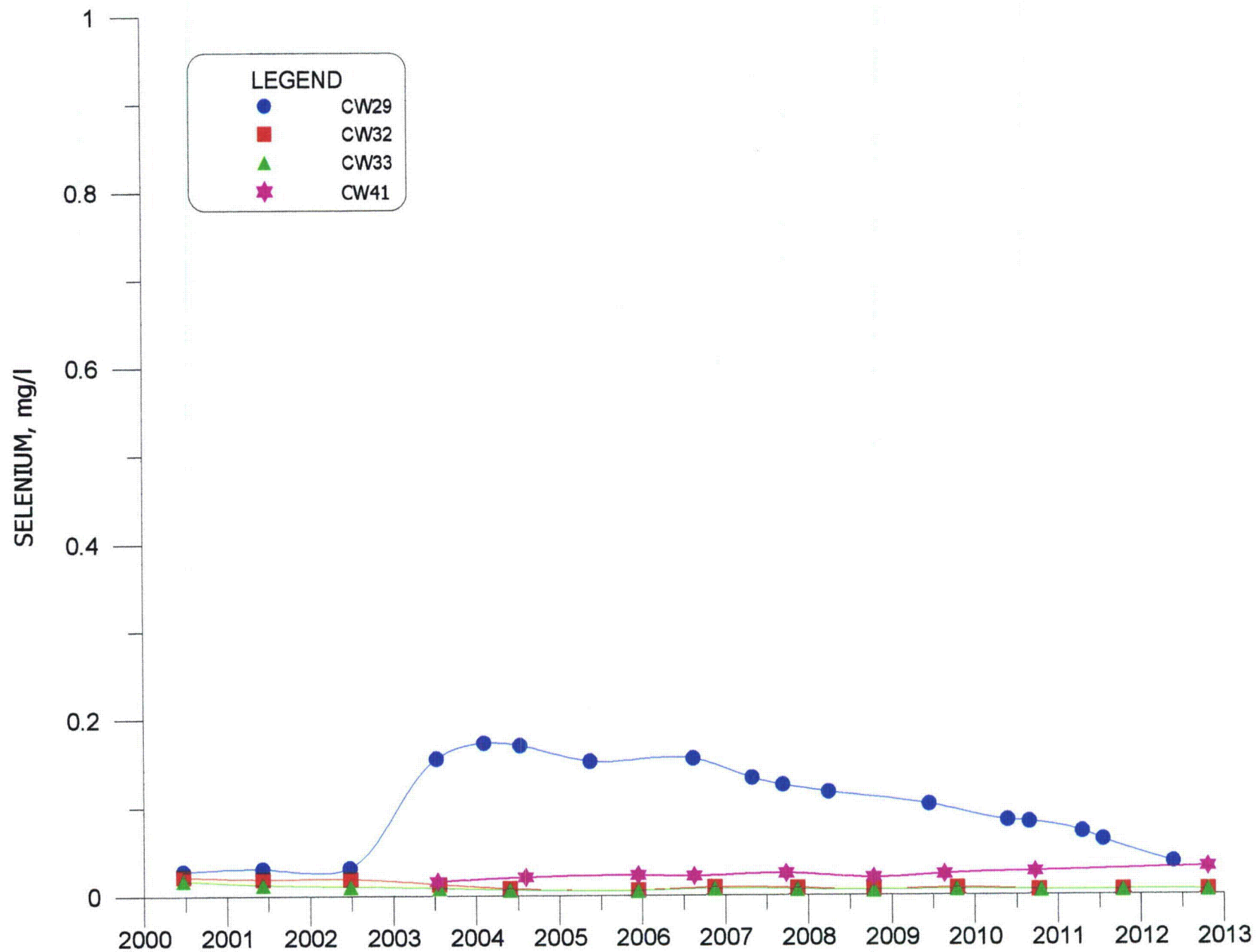
**FIGURE 7.3-10. URANIUM CONCENTRATIONS FOR NON-MIXING WELLS
CW29, CW32, CW33 AND CW41.**



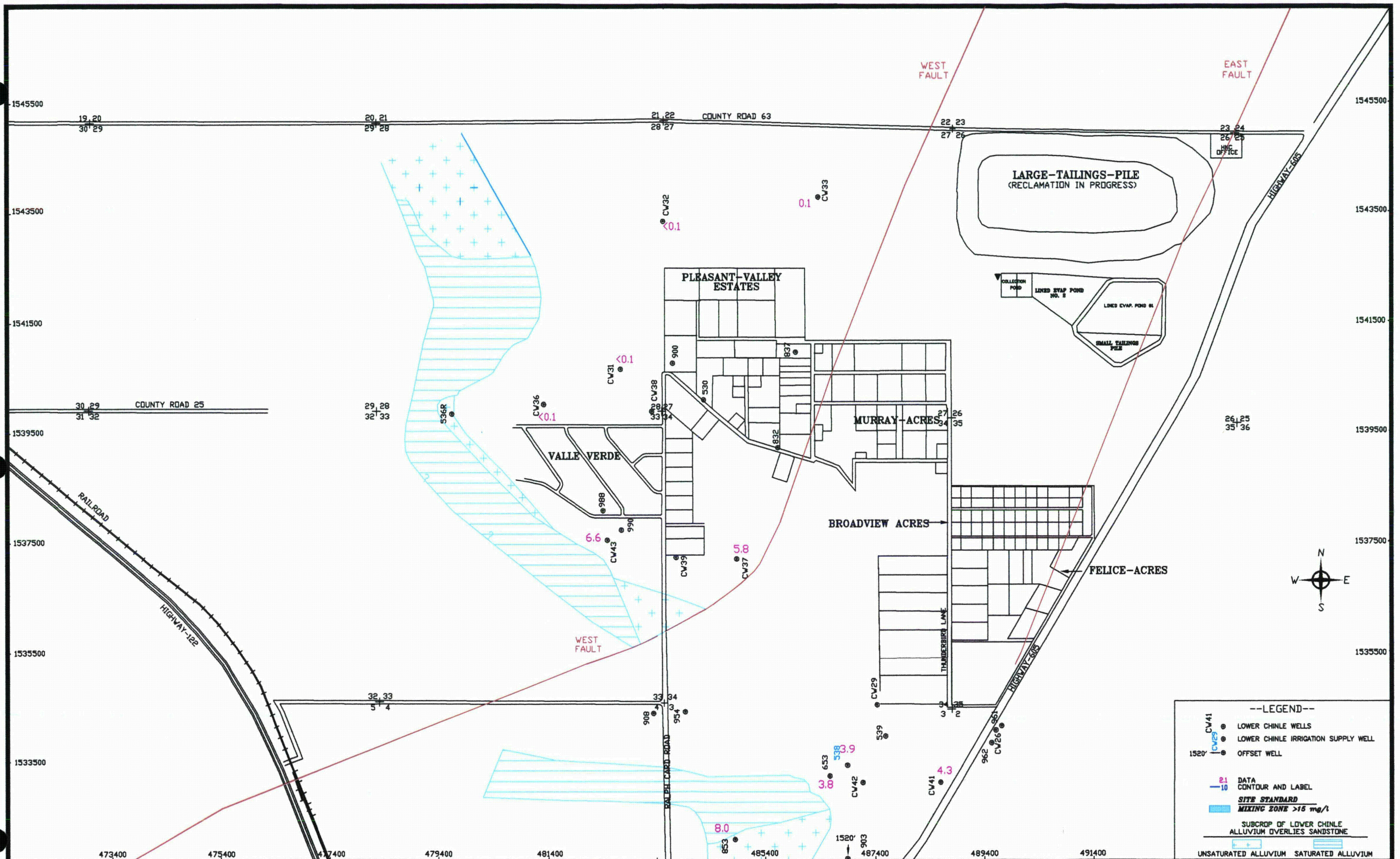


**FIGURE 7.3-12. SELENIUM CONCENTRATIONS FOR MIXING ZONE WELLS
538, 653, CW36, CW37, CW42 AND CW43**

7.3-18



**FIGURE 7.3-13. SELENIUM CONCENTRATIONS FOR NON-MIXING ZONE WELLS
CW29, CW32, CW33 AND CW41.**



SCALE: 1" = 1000'
 C:\PROJECTS\2013-06\1800LOW.bmw
 DATE: 2/15/13

FIGURE 7.3-14. NITRATE CONCENTRATIONS OF THE LOWER CHINLE AQUIFER, 2012, mg/l



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8.0 SAN ANDRES AQUIFER MONITORING

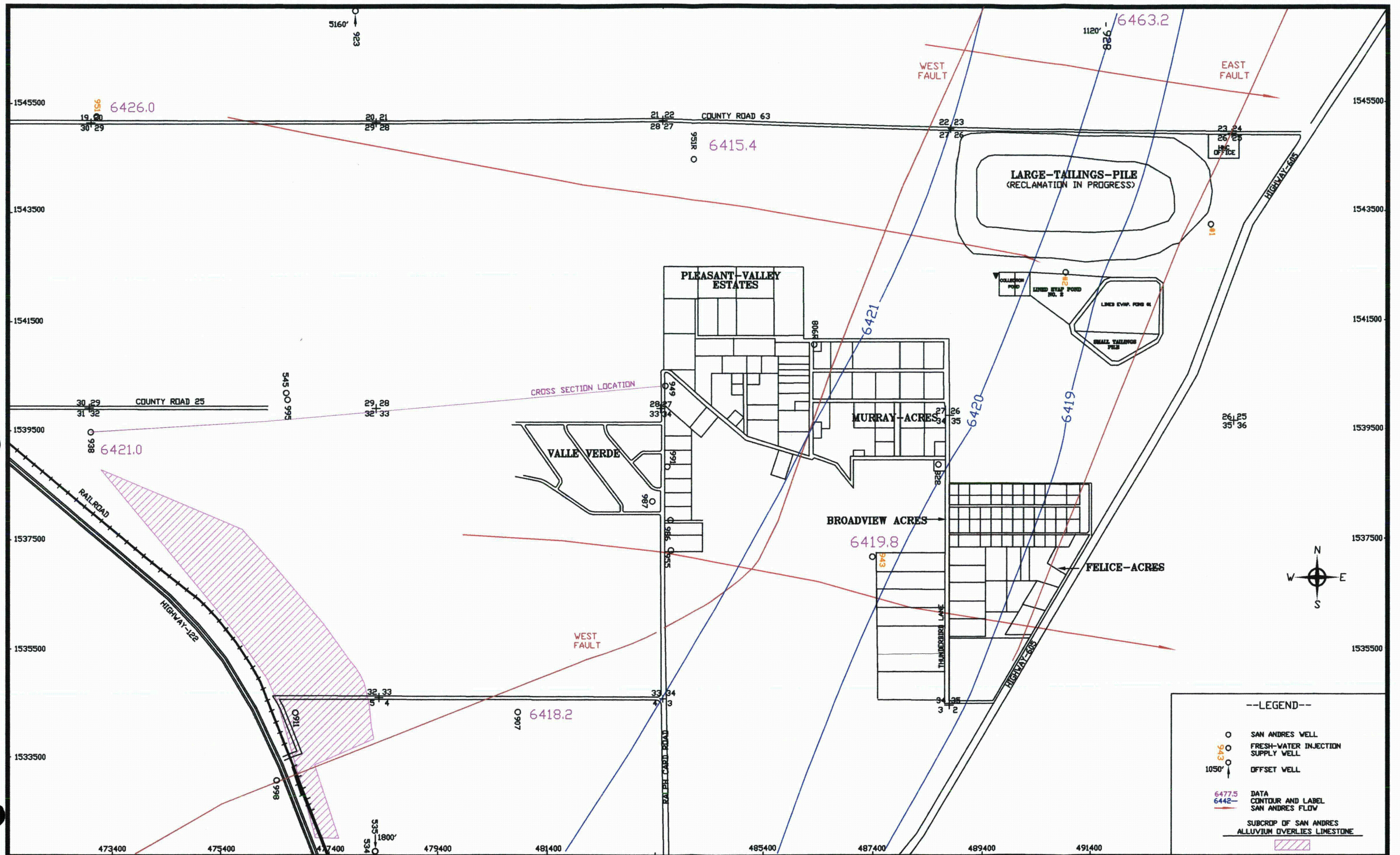
The San Andres aquifer is the most important regional aquifer in the Grants Project area. The Chinle Formation, which exists between the alluvium and the San Andres, is approximately 800 feet thick at the Homestake tailings site and is primarily a shale with a few sandstone lenses. Therefore, the alluvial aquifer and the San Andres aquifer are separated by a very thick aquitard. The difference in piezometric head between the alluvial and San Andres aquifers is in the range of 80 to 100 feet, which confirms that the flow between the two systems is restricted by the limited permeability of the Chinle Formation. The San Andres and alluvial aquifers are only in direct contact in the western portion of the area presented on Figure 8.0-1 (see magenta pattern area). With no areas of direct communication within the area where the alluvial aquifer is impacted by the Homestake tailings seepage, and only very limited hydraulic communication through the Chinle shale, the San Andres aquifer is not affected by tailings seepage. The San Andres aquifer has been used as the source for fresh-water injection into the alluvium and Chinle aquifers at the Grants Project, and as a result, a monitoring program was established for the San Andres aquifer.

Table 8.0-1 presents well completion information for the San Andres wells in this area. Homestake's two deep wells within the project area are San Andres wells, #1 Deep and #2 Deep. These wells are used to supply the fresh-water injection systems around the collection area. San Andres well 951 was used as the fresh-water injection supply for the injection system in Sections 28 and 29 through March of 2012. Replacement well 951R was used starting in July of 2012, while San Andres well 943 was used as the fresh water injection supply for the injection system in Sections 3 and 34 and Felice Acres. Well 951R was used for Section 28 irrigation supply in 2012 to meet the concentration limits of the irrigation. Figure 8.0-1 shows the locations of the San Andres wells relevant to this area. Recharge to the San Andres aquifer occurs mainly west of the area shown in the figure and in the far western portion of the figure. The structure of the San Andres aquifer dips to the east, and thus the ground water system becomes progressively deeper in the easterly direction. Figure 8.0-2 shows a cross-section from the west at San Andres well 938 to the east at San Andres well 949 (see Figure 8.0-1 for location of cross section). This cross section shows the dip of the San Andres and the thickness of Chinle shale between the alluvium and the top of the San Andres.

The water-level elevations measured during 2012 (Figure 8.0-1) show a very flat piezometric surface with the gradient being from the west-northwest to the east-southeast. The continuity of the gradient in this area indicates that the East and West faults do not significantly affect the ground water flow in the San Andres aquifer. The displacement at the faults is not large enough to completely displace the entire thickness of this aquifer system. The increase in gradient in the project area also indicates a decrease in transmissivity in the area of the steeper gradient. The faults may cause a decrease in the transmitting ability of the San Andres aquifer in this area.

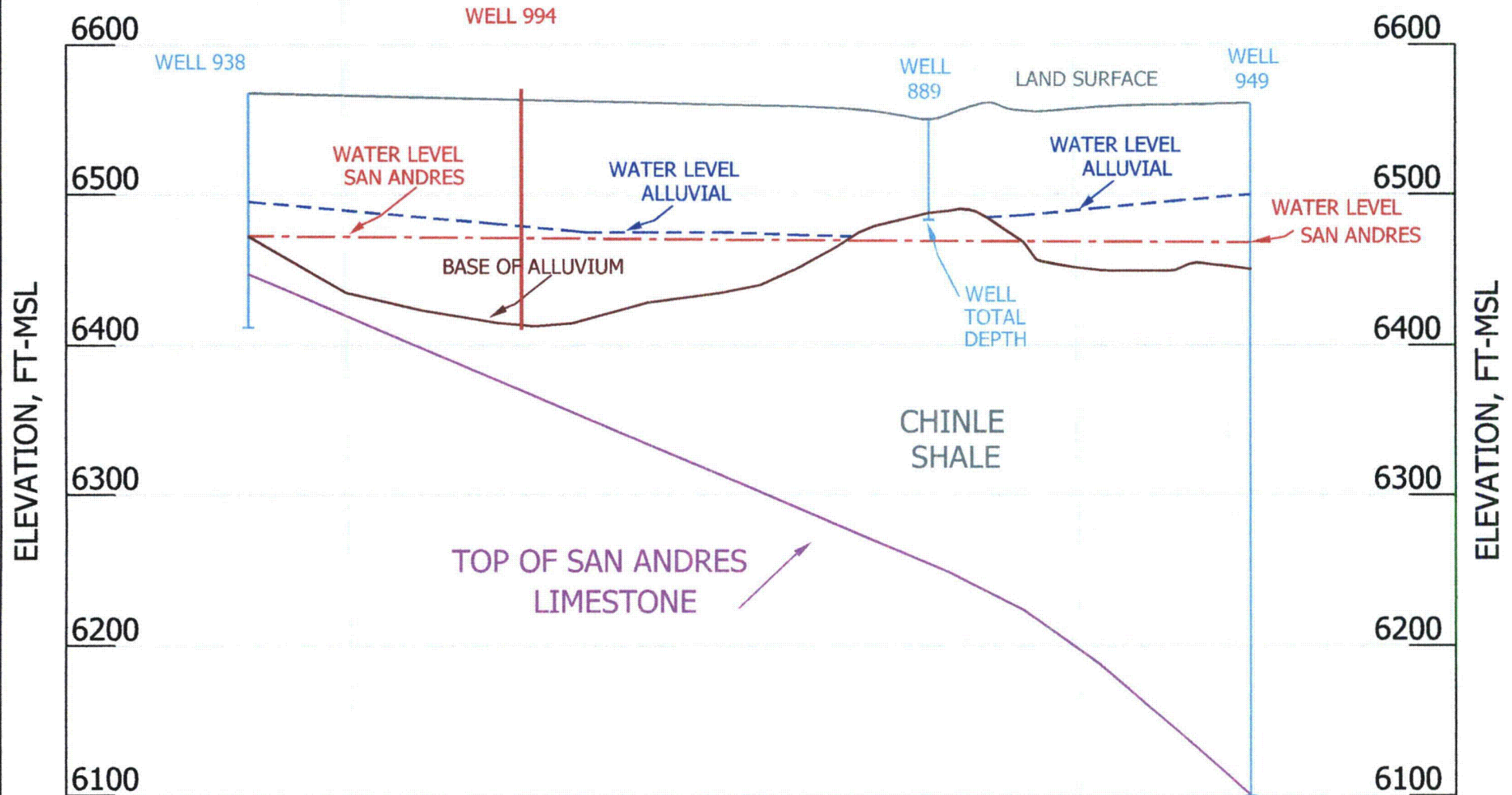
Figure 8.0-3 presents the most recent water-quality data for the San Andres aquifer. Tables B.6-1 and B.6-2 in Appendix B present the tabulation of the water-quality data for the San Andres aquifer. Figure 8.0-3 shows the 2012 data for sulfate, TDS, uranium and selenium concentrations in the San Andres aquifer. Sulfate concentrations vary from 348 mg/l to 784 mg/l in the San Andres aquifer. Sulfate concentrations are typically near 700 mg/l for Homestake #1 Deep and #2 Deep wells. TDS concentrations have varied from 960 to 2030 mg/l and generally increase in a down-gradient direction. The higher concentrations of sulfate and TDS to the east are natural and typical of a limestone aquifer where the extended contact time with the formation results in ongoing dissolution of major constituents. This increase in concentrations from the recharge area down dip is expected. Uranium concentrations were small in all of the San Andres wells monitored during 2012. Selenium concentrations in the San Andres aquifer vary from <0.005 to 0.03 mg/l. All measured molybdenum concentrations are less than 0.03 mg/l.

Figure 8.0-4 presents sulfate concentrations with time for Homestake's wells 943, 951, 951R, Deep #1 and #2 wells. This data shows that sulfate concentrations in 2012 for these four San Andres wells were similar to their historical average since injection water supply has occurred.



SCALE: 1" = 1000'
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 DATE: 2/16/2013

FIGURE 8.0-1. LOCATION OF SAN ANDRES WELLS AND WATER-LEVEL ELEVATION FOR THE SAN ANDRES AQUIFER, 2012, FT-MSL



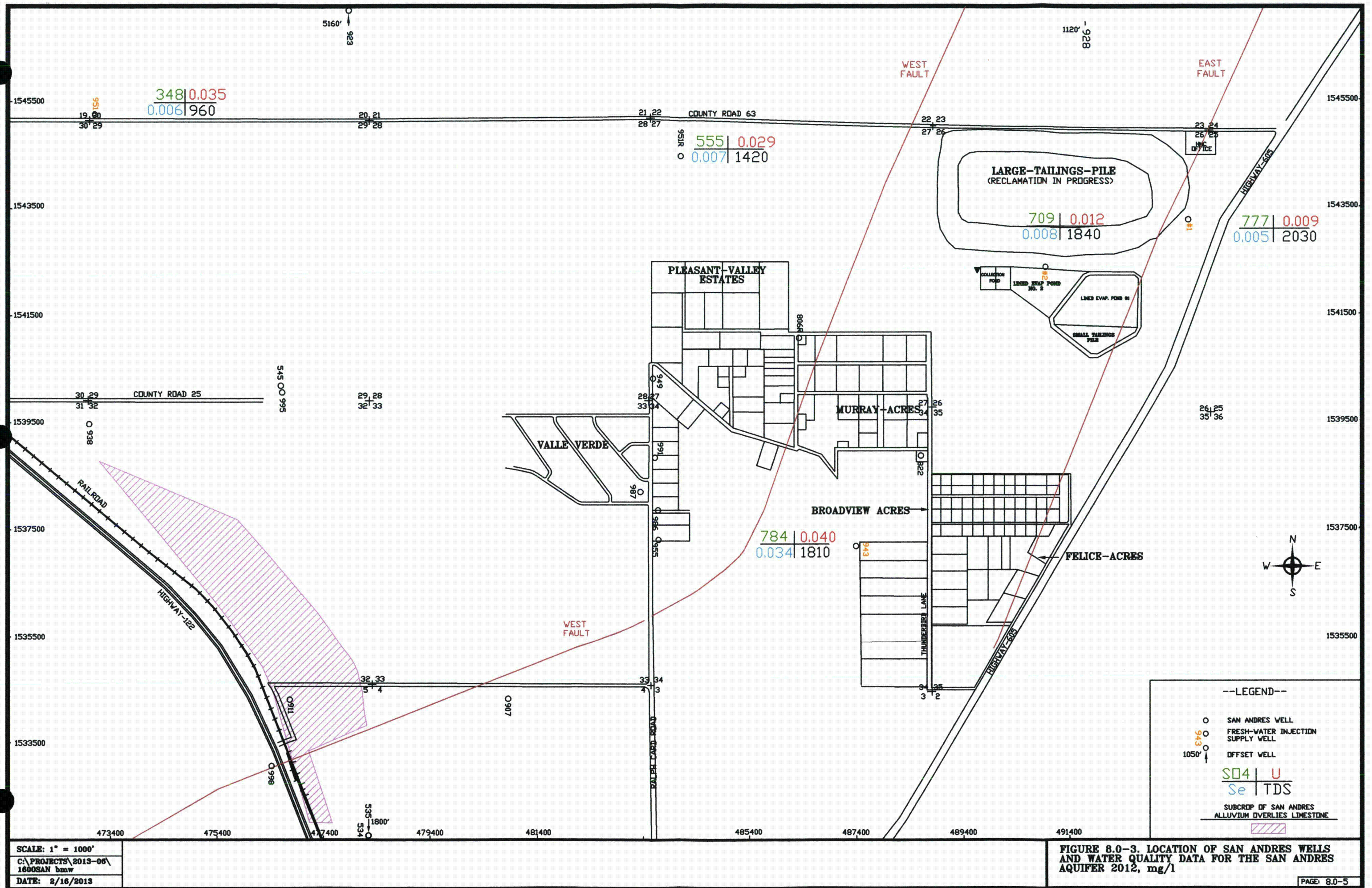
NOTE: X-SECTION BASED ON LOGS FROM WELLS
938, 889, AND 949.

FIGURE 8.0-2. SAN ANDRES CROSS-SECTION ALONG THE NORTHERN
BORDER OF SECTIONS 32 AND 33

DATE: 02/23/13

HORIZONTAL SCALE: 1" = 1600'

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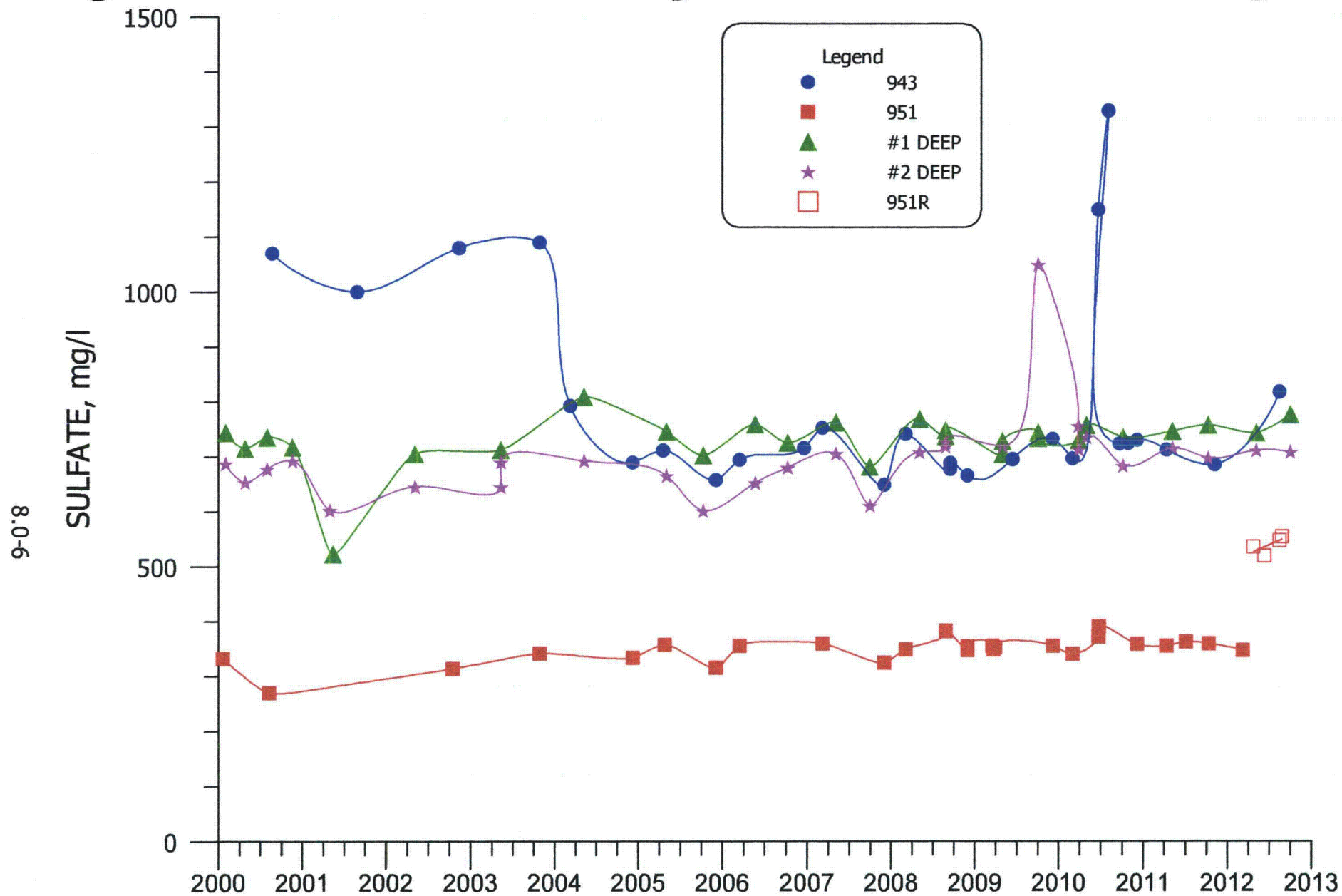


FIGURE 8.0-4. SULFATE CONCENTRATIONS FOR WELLS 943, 951, 951R, #1 DEEP, AND #2 DEEP.

TABLE 8.0-1. WELL DATA FOR THE SAN ANDRES WELLS.

WELL NAME	NORTH. COORD.	EAST. COORD.	WELL DEPTH (FT-MP)	CASING DIAM (IN)	WATER LEVEL			MP ABOVE LSD (FT)	MP ELEV. (FT-MSL)	DEPTH TO TOP OF SAN ANDRES (FT-LSD)	ELEV. TO TOP OF SAN ANDRES (FT-MSL)	CASING PERFOR-ATIONS (FT-LSD)	
					DATE	DEPTH (FT-MP)	ELEV. (FT-MSL)						
#1 Dee	1543307	493633	1000.0	10.0	12/12/2007	99.0800	6484.68	0.0	6583.76	130	6454	A	—
										303	6281	U	—
										433	6151	M	—
										597	5987	L	—
										955	5629	S	919-999
#2 Dee	1542424	490972	870.0	—	12/12/2009	152.259	6423.40	0.0	6575.66	110	6466	A	—
										800	5776	S	-
0806R	1541180	486320	600.0	16.0	4/13/2011	148.600	6418.40	—	6567.00	—	—	S	504-600
0458	1555800	500950	702.0	—	—	—	—	—	—	—	—	S	-
0459	1555800	496900	600.0	—	—	—	—	—	—	—	—	S	-
0534	1531750	478450	1000.0	16.0	12/16/2010	120.010	6432.56	0.0	6552.57	—	—	S	-
0535	1530100	478450	198.0	12.0	12/17/2010	117.849	6422.15	0.0	6540.00	—	—	S	-
0545	1540200	476600	0.0	8.0	—	—	—	—	6560.00	—	—	S	-
0806	1541120	486320	584.0	16.0	—	—	—	0.0	6567.00	90	6477	A	—
										520	6047	S	-
0822	1538920	488630	980.0	7.0	2/13/2008	135.600	6421.40	0.0	6557.00	790	5767	S	790-875
0907	1534250	480800	360.0	16.0	11/20/2012	127.419	6418.18	0.0	6545.60	123	6423	A	—
										262	6284	S	295-360
0911	1534350	476800	188.0	—	—	—	—	0.0	6552.60	—	—	S	-
0918	—	—	725.0	4.0	—	—	—	0.0	6702.40	620	6082	S	635-655
0919	—	—	628.0	5.0	—	—	—	0.0	6684.00	35	6649	A	—
										356	6328	S	364-571
0923	1552400	477900	330.0	5.0	4/6/1994	6464.97	157.63	0.0	6622.60	60	6563	A	—
										229	6394	S	234-330
0928	1548250	491700	864.0	—	11/14/2012	134.380	6463.22	1.2	6597.60	138	6458	A	—
										801	5795	S	-
0938	1539500	473040	—	—	11/20/2012	18.6000	6550.20	0.0	6568.80	95	6474	A	—
										120	6449	S	-
0943	1537222	487407	978.0	18.0	12/26/2012	136.149	6419.76	0.0	6555.91	704	5852	S	703-978
0949	1540350	483600	551.0	6.0	2/13/2008	130.600	6431.70	0.0	6562.30	112	6450	A	—
										460	6102	S	505-551
0951	1545500	473200	275.0	10.0	3/26/2012	147.699	6426.00	0.9	6573.70	110	6463	A	—
										227	6346	S	241-275
0955	1537338	483699	498.0	5.0	11/3/1995	78.0500	6471.95	0.2	6550.00	40	6510	A	—
										420	6130	S	385-498
0986	1537894	483690	467.0	5.0	8/23/2008	124	6526.00	0.8	6650.00	65	6584	A	—
										85	6564	L	—
										415	6234	S	420-467
0987	1538226	483357	500.0	5.0	11/3/1995	54.4799	6595.52	1.0	6650.00	70	6579	A	—

TABLE 8.0-1. WELL DATA FOR THE SAN ANDRES WELLS. (cont'd.)

WELL NAME	NORTH. COORD.	EAST. COORD.	WELL DEPTH (FT-MP)	CASING DIAM (IN)	WATER LEVEL			MP ABOVE LSD (FT)	MP ELEV. (FT-MSL)	DEPTH TO TOP OF SAN ANDRES (FT-LSD)	ELEV. TO TOP OF SAN ANDRES (FT-MSL)	CASING PERFOR- ATIONS (FT-LSD)
					DATE	DEPTH (FT-MP)	ELEV. (FT-MSL)					
0987	1538226	483357	500.0	5.0	11/3/1995	54.4799	6595.52	1.0	6650.00	385	6264	S 425-470
0991	1538873	483630	500.0	—	8/26/2008	126.819	6524.18	1.4	6651.00	—	—	S -
0995	1540115	476594	—	—	—	—	—	0.0	6474.00	—	—	S -
0998	1533080	476450	145.0	16.0	—	—	—	0.0	6650.00	—	—	S -

NOTE: A = Base of Alluvium
L = Lower Chinle
S = San Andres Aquifer
r = Reported
* = Abandoned

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APPENDIX A
WATER LEVELS

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Table A.1-1 WATER LEVELS FOR HOMESTAKE'S ALLUVIAL WELLS

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
0690			1P			6/25/2012	36.26	6548.68	5/29/2012	33.66	6537.24
5/22/2012	35.30	6546.76	4/17/2012	36.90	6548.34	7/2/2012	36.25	6548.69	6/4/2012	33.65	6537.25
11/13/2012	35.47	6546.59	1Q			7/9/2012	36.20	6548.74	6/11/2012	33.77	6537.13
0691			4/17/2012	36.20	6546.91	7/16/2012	36.20	6548.74	6/18/2012	33.86	6537.04
5/22/2012	42.40	6546.41	1R			7/23/2012	36.22	6548.72	6/25/2012	33.83	6537.07
11/13/2012	42.35	6546.46	4/17/2012	37.26	6548.73	7/30/2012	36.23	6548.71	7/2/2012	34.10	6536.80
0891			1S			8/6/2012	36.19	6548.75	7/9/2012	34.02	6536.88
5/23/2012	32.51	6548.61	4/17/2012	35.80	6546.19	8/13/2012	36.13	6548.81	7/16/2012	34.00	6536.90
1A			1T			8/20/2012	36.14	6548.80	7/23/2012	34.04	6536.86
4/16/2012	38.29	6547.14	4/17/2012	36.11	6548.80	8/27/2012	36.20	6548.74	7/30/2012	34.25	6536.65
1E			1U			9/4/2012	36.15	6548.79	8/6/2012	34.20	6536.70
4/16/2012	36.80	6547.51	4/17/2012	37.53	6548.69	9/10/2012	36.15	6548.79	8/13/2012	34.10	6536.80
1F			1V			9/17/2012	36.16	6548.78	8/20/2012	34.15	6536.75
4/16/2012	40.96	6546.42	1/3/2012	36.60	6548.34	9/24/2012	36.17	6548.77	8/27/2012	34.24	6536.66
1G			1/9/2012	36.59	6548.35	10/1/2012	36.15	6548.79	9/4/2012	34.26	6536.64
11/14/2012	39.28	6547.79	1/16/2012	36.60	6548.34	10/8/2012	36.14	6548.80	9/10/2012	34.31	6536.59
1J			1/23/2012	36.55	6548.39	10/15/2012	36.11	6548.83	9/17/2012	34.26	6536.64
4/17/2012	37.80	6547.60	1/30/2012	36.54	6548.40	10/22/2012	36.11	6548.83	9/24/2012	34.31	6536.59
1K			2/6/2012	36.48	6548.46	10/29/2012	36.10	6548.84	10/1/2012	34.26	6536.64
11/14/2012	35.20	6548.93	2/13/2012	36.46	6548.48	11/5/2012	36.13	6548.81	10/8/2012	34.12	6536.78
1M			2/20/2012	36.48	6548.46	11/12/2012	36.13	6548.81	10/15/2012	34.16	6536.74
11/14/2012	26.12	6549.41	2/27/2012	36.42	6548.52	11/19/2012	36.11	6548.83	10/20/2012	34.12	6536.78
1N			3/5/2012	36.42	6548.52	11/26/2012	36.07	6548.87	10/22/2012	34.18	6536.72
5/29/2012	28.51	6562.34	3/12/2012	36.39	6548.55	12/3/2012	36.05	6548.89	10/29/2012	34.15	6536.75
1O			3/19/2012	36.32	6548.62	12/10/2012	36.06	6548.88	11/5/2012	34.05	6536.85
5/29/2012	44.00	6550.94	3/26/2012	36.30	6548.64	12/17/2012	36.00	6548.94	11/12/2012	34.05	6536.85
			4/2/2012	36.28	6548.66	12/26/2012	35.93	6549.01	11/19/2012	33.93	6536.97
			4/9/2012	36.30	6548.64	B			11/26/2012	33.80	6537.10
			4/16/2012	36.28	6548.66	1/3/2012	33.49	6537.41	12/3/2012	33.64	6537.26
			4/17/2012	36.26	6548.68	1/9/2012	33.45	6537.45	12/10/2012	33.55	6537.35
			4/23/2012	36.22	6548.72	1/16/2012	33.20	6537.70	12/17/2012	33.40	6537.50
			4/30/2012	36.25	6548.69	1/23/2012	33.32	6537.58	12/26/2012	33.14	6537.76
			5/7/2012	36.18	6548.76	1/30/2012	33.20	6537.70	B1		
			5/14/2012	36.14	6548.80	2/6/2012	33.20	6537.70	11/13/2012	35.10	6536.55
			5/21/2012	36.15	6548.79	2/13/2012	33.20	6537.70	B12		
			5/29/2012	36.15	6548.79	2/20/2012	32.37	6538.53	11/14/2012	35.56	6537.46
			6/4/2012	36.05	6548.89	2/27/2012	33.28	6537.62	11/15/2012	35.60	6537.42
			6/11/2012	36.20	6548.74	3/5/2012	33.40	6537.50	B13		
			6/18/2012	36.25	6548.69	3/12/2012	33.42	6537.48	11/13/2012	32.76	6537.28
						3/19/2012	33.22	6537.68			
						3/26/2012	33.35	6537.55			
						4/2/2012	33.18	6537.72			
						4/9/2012	33.41	6537.49			
						4/16/2012	33.49	6537.41			
						4/23/2012	33.39	6537.51			
						4/30/2012	33.39	6537.51			
						5/7/2012	33.41	6537.49			
						5/14/2012	33.65	6537.25			
						5/21/2012	33.65	6537.25			

* Drawdown Tube Pressure, # Transducer Reading

0690 - B13

Table A.1-1 WATER LEVELS FOR HOMESTAKE'S ALLUVIAL WELLS (cont.)

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
BA			12/10/2012	35.98	6535.60	C11			9/24/2012	48.60	6544.68
1/3/2012	36.15	6535.43	12/17/2012	35.89	6535.69	6/25/2012	63.90	6517.48	10/1/2012	48.76	6544.52
1/9/2012	36.32	6535.26	12/26/2012	35.45	6536.13	11/30/2012	12.74	6568.64	10/22/2012	48.70	6544.58
1/16/2012	36.22	6535.36	BC			C12			11/26/2012	48.60	6544.68
1/23/2012	36.60	6534.98	11/14/2012	37.57	6537.04	6/25/2012	34.10	6546.45	12/26/2012	48.50	6544.78
1/30/2012	36.58	6535.00	11/15/2012	33.77	6540.84	11/30/2012	20.90	6559.65	DT		
2/6/2012	36.75	6534.83	BP			D1			1/23/2012	46.80	6537.01
2/13/2012	36.45	6535.13	11/14/2012	38.43	6533.87	3/26/2012	37.09	6533.81	2/27/2012	45.50	6538.31
2/20/2012	36.54	6535.04	C1			7/2/2012	38.60	6532.30	3/26/2012	45.05	6538.76
2/27/2012	36.49	6535.09	11/13/2012	30.91	6540.95	DC			4/23/2012	46.50	6537.31
3/5/2012	36.43	6535.15	C2			11/13/2012	35.82	6535.49	5/29/2012	54.00	6529.81
3/12/2012	36.39	6535.19	11/13/2012	25.68	6539.34	11/15/2012	36.04	6535.27	6/25/2012	45.90	6537.91
3/19/2012	36.17	6535.41	C5			DD			8/27/2012	44.95	6538.86
3/26/2012	36.28	6535.30	11/14/2012	27.70	6542.15	1/23/2012	50.38	6542.21	9/24/2012	46.17	6537.64
4/2/2012	35.83	6535.75	C6			2/27/2012	50.30	6542.29	10/22/2012	44.45	6539.36
4/9/2012	36.02	6535.56	6/25/2012	53.16	6531.73	3/5/2012	50.50	6542.09	11/26/2012	44.69	6539.12
4/16/2012	36.20	6535.38	11/30/2012	51.00	6533.89	3/26/2012	48.88	6543.71	12/26/2012	45.70	6538.11
4/23/2012	36.15	6535.43	C7			4/23/2012	49.09	6543.50			
4/30/2012	36.44	6535.14	6/25/2012	48.80	6535.64	5/3/2012	50.26	6542.33			
5/7/2012	36.55	6535.03	11/30/2012	47.40	6537.04	5/29/2012	50.34	6542.25			
5/14/2012	36.74	6534.84	C8			6/25/2012	50.23	6542.36			
5/21/2012	36.22	6535.36	6/25/2012	76.00	6508.49	7/23/2012	50.15	6542.44			
5/29/2012	36.04	6535.54	11/30/2012	64.60	6519.89	8/6/2012	50.11	6542.48			
6/4/2012	35.79	6535.79	C9			8/27/2012	50.13	6542.46			
6/11/2012	35.72	6535.86	6/25/2012	76.30	6508.25	9/24/2012	49.90	6542.69			
6/18/2012	35.47	6536.11	11/30/2012	59.45	6525.10	10/1/2012	49.95	6542.64			
6/25/2012	35.83	6535.75	C10			10/22/2012	49.86	6542.73			
7/2/2012	35.95	6535.63	6/25/2012	54.80	6530.46	11/26/2012	49.82	6542.77			
7/9/2012	36.02	6535.56	11/30/2012	54.78	6530.48	12/26/2012	49.70	6542.89			
7/16/2012	36.09	6535.49	C11			DD2					
7/23/2012	36.05	6535.53	6/25/2012	76.30	6508.25	1/23/2012	49.05	6544.23			
7/30/2012	36.91	6534.67	11/30/2012	59.45	6525.10	2/27/2012	48.93	6544.35			
8/6/2012	36.30	6535.28	C12			3/5/2012	49.05	6544.23			
8/13/2012	35.99	6535.59	6/25/2012	54.80	6530.46	3/26/2012	50.35	6542.93			
8/20/2012	36.04	6535.54	11/30/2012	54.78	6530.48	4/23/2012	50.40	6542.88			
8/27/2012	36.05	6535.53	C13			5/3/2012	49.00	6544.28			
9/4/2012	35.98	6535.60	6/25/2012	76.30	6508.25	5/29/2012	48.85	6544.43			
9/10/2012	36.23	6535.35	11/30/2012	59.45	6525.10	6/25/2012	48.83	6544.45			
9/17/2012	36.11	6535.47	C14			7/23/2012	48.60	6544.68			
9/24/2012	36.27	6535.31	6/25/2012	76.30	6508.25	8/7/2012	48.83	6544.45			
10/1/2012	35.88	6535.70	11/30/2012	59.45	6525.10	8/27/2012	48.92	6544.36			
10/8/2012	36.06	6535.52	C15								
10/15/2012	36.29	6535.29	6/25/2012	76.30	6508.25						
10/22/2012	36.23	6535.35	11/30/2012	59.45	6525.10						
10/29/2012	36.35	6535.23	C16								
11/5/2012	36.04	6535.54	6/25/2012	76.30	6508.25						
11/12/2012	36.28	6535.30	11/30/2012	59.45	6525.10						
11/19/2012	36.12	6535.46	C17								
11/26/2012	33.11	6538.47	6/25/2012	76.30	6508.25						
12/3/2012	35.97	6535.61	11/30/2012	59.45	6525.10						

* Drawdown Tube Pressure, # Transducer Reading

BA - DT

Table A.1-1 WATER LEVELS FOR HOMESTAKE'S ALLUVIAL WELLS (cont.)

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
DZ			11/26/2012	47.75	6542.78	K5			5/14/2012	27.44	6544.28
1/3/2012	49.35	6541.18	12/3/2012	47.69	6542.84	11/30/2012	62.00	6539.73	5/21/2012	27.77	6543.95
1/9/2012	49.44	6541.09	12/10/2012	47.82	6542.71	K7			5/29/2012	27.85	6543.87
1/16/2012	49.60	6540.93	12/17/2012	47.75	6542.78	11/30/2012	59.90	6541.63	6/4/2012	27.63	6544.09
1/23/2012	49.45	6541.08	12/26/2012	48.48	6542.05	K8			6/11/2012	27.97	6543.75
1/30/2012	49.46	6541.07	F			11/30/2012	60.10	6540.39	6/18/2012	27.53	6544.19
2/6/2012	49.47	6541.06	3/14/2012	30.09	6534.73	K9			6/25/2012	27.40	6544.32
2/13/2012	49.22	6541.31	9/17/2012	30.46	6534.36	11/30/2012	62.02	6538.32	7/2/2012	27.35	6544.37
2/20/2012	49.42	6541.11	11/14/2012	30.34	6534.48	K10			7/9/2012	27.75	6543.97
2/27/2012	49.35	6541.18	FB			11/30/2012	58.18	6542.63	7/13/2012	28.00	6543.72
3/5/2012	49.71	6540.82	3/14/2012	31.70	6533.96	K11			7/16/2012	27.79	6543.93
3/12/2012	49.68	6540.85	9/17/2012	31.90	6533.76	11/30/2012	61.37	6539.24	7/23/2012	27.85	6543.87
3/19/2012	49.29	6541.24	GA			KEB			7/30/2012	27.75	6543.97
3/26/2012	49.55	6540.98	11/13/2012	32.84	6529.95	7/13/2012	21.72	6548.01	8/6/2012	27.92	6543.80
4/2/2012	48.93	6541.60	GF			KF			8/13/2012	28.00	6543.72
4/9/2012	49.36	6541.17	11/13/2012	34.20	6531.81	11/14/2012	25.98	6544.23	8/20/2012	27.86	6543.86
4/16/2012	49.37	6541.16	GH			KZ			8/27/2012	27.99	6543.73
4/23/2012	49.25	6541.28	3/14/2012	30.08	6532.68	1/3/2012	27.88	6543.84	9/4/2012	28.46	6543.26
4/30/2012	49.20	6541.33	9/17/2012	31.90	6530.86	1/9/2012	28.02	6543.70	9/10/2012	28.11	6543.61
5/7/2012	49.18	6541.35	11/13/2012	31.85	6530.91	1/16/2012	27.85	6543.87	9/17/2012	27.80	6543.92
5/14/2012	49.40	6541.13	GK			1/23/2012	27.90	6543.82	9/24/2012	27.70	6544.02
5/21/2012	48.98	6541.55	4/13/2012	33.17	6533.59	1/30/2012	27.74	6543.98	10/1/2012	27.70	6544.02
5/29/2012	48.61	6541.92	GN			2/6/2012	27.70	6544.02	10/8/2012	27.59	6544.13
6/4/2012	48.38	6542.15	4/16/2012	34.60	6533.37	2/13/2012	27.60	6544.12	10/15/2012	27.93	6543.79
6/11/2012	48.38	6542.15	GV			2/20/2012	27.66	6544.06	10/22/2012	28.04	6543.68
6/18/2012	48.07	6542.46	5/8/2012	47.90	6529.48	2/27/2012	27.50	6544.22	10/29/2012	28.18	6543.54
6/25/2012	48.29	6542.24	11/13/2012	48.26	6529.12	3/5/2012	27.55	6544.17	11/5/2012	28.18	6543.54
7/2/2012	48.96	6541.57	11/27/2012	48.20	6529.18	3/12/2012	27.55	6544.17	11/12/2012	28.40	6543.32
7/9/2012	26.32	6564.21	I			3/19/2012	27.35	6544.37	11/19/2012	28.29	6543.43
7/16/2012	28.68	6561.85	10/20/2012	31.83	6535.37	3/26/2012	27.46	6544.26	11/26/2012	27.97	6543.75
7/23/2012	35.32	6555.21	K4			4/2/2012	27.21	6544.51	12/3/2012	27.82	6543.90
7/26/2012	36.40	6554.13	11/30/2012	68.30	6533.72	4/9/2012	27.47	6544.25	12/10/2012	27.79	6543.93
7/30/2012	37.76	6552.77	L			4/16/2012	27.50	6544.22	12/17/2012	27.74	6543.98
7/31/2012	37.77	6552.76	1/16/2012	38.75	6536.22	4/23/2012	27.32	6544.40	12/26/2012	28.14	6543.58
8/6/2012	49.67	6540.86	4/13/2012	45.86	6529.11	4/30/2012	27.25	6544.47	L5		
8/13/2012	49.51	6541.02	7/13/2012	44.06	6530.91	5/7/2012	27.48	6544.24	1/16/2012	33.20	6542.87
8/20/2012	49.60	6540.93	L6			L			4/13/2012	40.60	6535.47
8/27/2012	48.41	6542.12	L5			L			7/13/2012	36.71	6539.36
9/4/2012	49.15	6541.38	1/16/2012	38.75	6536.22	L6			L		
9/10/2012	48.93	6541.60	4/13/2012	45.86	6529.11	L5			L		
9/17/2012	48.82	6541.71	7/13/2012	44.06	6530.91	L6			L		
9/24/2012	48.80	6541.73	L5			L6			L		
10/1/2012	48.95	6541.58	1/16/2012	38.75	6536.22	L6			L		
10/8/2012	49.03	6541.50	4/13/2012	45.86	6529.11	L5			L		
10/15/2012	48.20	6542.33	7/13/2012	44.06	6530.91	L6			L		
10/22/2012	48.12	6542.41	L5			L6			L		
10/29/2012	49.39	6541.14	1/16/2012	38.75	6536.22	L6			L		
11/5/2012	49.01	6541.52	4/13/2012	45.86	6529.11	L5			L		
11/12/2012	48.26	6542.27	7/13/2012	44.06	6530.91	L6			L		
11/19/2012	47.98	6542.55	L5			L6			L		

* Drawdown Tube Pressure, # Transducer Reading

DZ - L6

Table A.1-1 WATER LEVELS FOR HOMESTAKE'S ALLUVIAL WELLS (cont.)

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
L7			10/22/2012	62.43	6508.16	MV			3/12/2012	52.07	6537.72
1/16/2012	31.50	6545.11	MA			11/19/2012	64.44	6505.34	3/19/2012	51.96	6537.83
4/13/2012	40.16	6536.45	11/15/2012	39.80	6532.42	11/27/2012	63.75	6506.03	3/26/2012	51.87	6537.92
7/13/2012	36.50	6540.11	MC			MW			4/2/2012	50.89	6538.90
L8			11/15/2012	42.30	6529.76	11/15/2012	60.10	6514.81	4/23/2012	50.74	6539.05
1/16/2012	40.08	6536.41	MF			11/20/2012	59.62	6515.29	4/30/2012	50.73	6539.06
4/13/2012	44.93	6531.56	11/15/2012	45.85	6526.43	MX			5/7/2012	50.84	6538.95
7/13/2012	42.38	6534.11	MH			11/27/2012	49.58	6519.03	5/29/2012	50.80	6538.99
L9			11/15/2012	50.25	6523.67	MY			6/18/2012	50.70	6539.09
1/16/2012	35.16	6542.07	MJ			11/27/2012	54.78	6518.78	6/25/2012	50.95	6538.84
4/13/2012	25.20	6552.03	11/15/2012	54.10	6518.84	MZ			7/23/2012	50.59	6539.20
7/13/2012	28.00	6549.23	ML			11/13/2012	64.70	6511.94	8/20/2012	50.75	6539.04
L10			11/15/2012	48.04	6524.66	11/19/2012	63.86	6512.78	8/27/2012	50.75	6539.04
1/16/2012	38.80	6538.03	11/19/2012	47.92	6524.78	N			9/4/2012	44.21	6545.58
4/13/2012	40.41	6536.42	MO			11/20/2012	38.64	6545.33	9/17/2012	51.42	6538.37
7/13/2012	40.10	6536.73	10/2/2012	64.18	6508.71	NC			9/24/2012	51.80	6537.99
M5			MQ			11/15/2012	42.25	6543.58	10/1/2012	51.69	6538.10
11/13/2012	37.75	6537.59	11/15/2012	68.70	6505.60	11/19/2012	42.35	6543.48	10/15/2012	51.60	6538.19
12/6/2012	37.44	6537.90	MR			ND			10/22/2012	51.37	6538.42
M6			6/25/2012	64.44	6501.82	5/30/2012	44.20	6548.69	11/12/2012	51.25	6538.54
11/15/2012	60.60	6514.44	11/19/2012	65.15	6501.11	O			11/19/2012	51.19	6538.60
11/19/2012	60.13	6514.91	MS			11/20/2012	41.64	6546.19	11/26/2012	51.83	6537.96
M7			4/12/2012	59.25	6511.42	P			12/10/2012	51.18	6538.61
11/15/2012	56.10	6516.75	11/19/2012	59.55	6511.12	5/3/2012	43.76	6543.50	12/26/2012	51.21	6538.58
11/19/2012	55.81	6517.04	MT			10/1/2012	43.93	6543.33			
M9			10/23/2012	60.56	6506.87	P2					
7/30/2012	64.16	6512.65	MU			1/9/2012	51.95	6537.84			
11/15/2012	67.00	6509.81	11/15/2012	35.39	6538.80	1/23/2012	30.00	6559.79			
M10			11/19/2012	35.41	6538.78	2/6/2012	51.85	6537.94			
11/15/2012	60.58	6512.78				2/27/2012	52.09	6537.70			
11/17/2012	60.01	6513.35				3/5/2012	52.09	6537.70			
M16											
8/27/2012	60.70	6509.89									
9/24/2012	62.23	6508.36									

* Drawdown Tube Pressure, # Transducer Reading

L7 - P2

Table A.1-1 WATER LEVELS FOR HOMESTAKE'S ALLUVIAL WELLS (cont.)

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
P3			8/27/2012	51.30	6538.22	6/11/2012	35.00	6538.72	2/13/2012	40.65	6534.04
1/9/2012	52.39	6537.56	9/4/2012	39.22	6550.30	6/18/2012	34.85	6538.87	2/20/2012	40.88	6533.81
1/23/2012	52.37	6537.58	9/17/2012	51.54	6537.98	6/25/2012	34.87	6538.85	2/27/2012	40.80	6533.89
2/6/2012	52.52	6537.43	9/24/2012	51.34	6538.18	7/2/2012	34.84	6538.88	3/5/2012	40.98	6533.71
2/27/2012	52.60	6537.35	10/1/2012	51.40	6538.12	7/2/2012	34.77	6538.95	3/12/2012	40.95	6533.74
3/5/2012	52.92	6537.03	10/15/2012	50.95	6538.57	7/9/2012	34.72	6539.00	3/19/2012	40.65	6534.04
3/12/2012	52.78	6537.17	10/22/2012	48.10	6541.42	7/16/2012	40.00	6533.72	3/26/2012	40.75	6533.94
3/19/2012	52.78	6537.17	11/12/2012	49.70	6539.82	7/23/2012	34.87	6538.85	4/2/2012	40.44	6534.25
3/26/2012	53.00	6536.95	11/19/2012	50.02	6539.50	7/30/2012	35.12	6538.60	4/9/2012	40.70	6533.99
4/2/2012	52.65	6537.30	11/26/2012	51.38	6538.14	8/6/2012	35.29	6538.43	4/16/2012	40.36	6534.33
4/23/2012	52.87	6537.08	12/10/2012	50.22	6539.30	8/13/2012	35.43	6538.29	4/23/2012	40.10	6534.59
4/30/2012	52.90	6537.05	12/26/2012	50.00	6539.52	8/20/2012	35.03	6538.69	4/30/2012	39.95	6534.74
5/7/2012	53.00	6536.95	Q			8/27/2012	35.36	6538.36	5/7/2012	39.86	6534.83
5/29/2012	53.10	6536.85	5/29/2012	45.36	6548.46	9/4/2012	35.65	6538.07	5/14/2012	39.99	6534.70
6/18/2012	52.97	6536.98	R			9/10/2012	35.74	6537.98	5/21/2012	39.90	6534.79
6/25/2012	51.87	6538.08	5/30/2012	41.26	6562.77	9/17/2012	35.72	6538.00	5/29/2012	39.55	6535.14
7/23/2012	50.96	6538.99	S			9/24/2012	35.41	6538.31	6/4/2012	39.46	6535.23
8/20/2012	52.10	6537.85	11/13/2012	39.60	6541.57	10/1/2012	35.60	6538.12	6/11/2012	39.41	6535.28
8/27/2012	52.44	6537.51	S2			10/8/2012	35.53	6538.19	6/18/2012	39.21	6535.48
9/4/2012	40.53	6549.42	1/3/2012	35.40	6538.32	10/15/2012	35.55	6538.17	6/25/2012	39.79	6534.90
9/17/2012	52.55	6537.40	1/9/2012	35.42	6538.30	10/22/2012	35.44	6538.28	7/2/2012	40.52	6534.17
9/24/2012	53.00	6536.95	1/16/2012	35.29	6538.43	10/29/2012	35.64	6538.08	7/9/2012	39.90	6534.79
10/1/2012	53.15	6536.80	1/16/2012	35.45	6538.27	11/5/2012	35.71	6538.01	7/16/2012	40.10	6534.59
10/15/2012	53.03	6536.92	1/23/2012	35.20	6538.52	11/12/2012	35.80	6537.92	7/23/2012	40.92	6533.77
10/22/2012	52.12	6537.83	1/30/2012	35.11	6538.61	11/13/2012	35.73	6537.99	7/30/2012	41.46	6533.23
11/12/2012	51.41	6538.54	2/6/2012	34.99	6538.73	11/19/2012	35.70	6538.02	8/6/2012	41.43	6533.26
11/19/2012	51.41	6538.54	2/13/2012	34.90	6538.82	11/26/2012	35.58	6538.14	8/13/2012	41.43	6533.26
11/26/2012	52.86	6537.09	2/20/2012	35.33	6538.39	12/3/2012	35.37	6538.35	8/20/2012	40.22	6534.47
12/10/2012	51.73	6538.22	2/27/2012	35.25	6538.47	12/10/2012	35.23	6538.49	8/27/2012	40.86	6533.83
12/26/2012	51.02	6538.93	3/5/2012	35.42	6538.30	12/17/2012	35.15	6538.57	9/4/2012	41.03	6533.66
P4			3/12/2012	35.35	6538.37	12/26/2012	34.98	6538.74	9/10/2012	41.40	6533.29
1/9/2012	52.75	6536.77	3/19/2012	35.18	6538.54	S3			9/17/2012	41.43	6533.26
1/23/2012	53.00	6536.52	3/26/2012	35.32	6538.40	11/13/2012	37.39	6537.39	9/24/2012	41.48	6533.21
2/6/2012	52.70	6536.82	4/2/2012	35.08	6538.64	12/11/2012	37.04	6537.74	10/1/2012	41.60	6533.09
2/27/2012	50.70	6538.82	4/9/2012	38.40	6535.32	S4			10/8/2012	41.50	6533.19
3/5/2012	51.90	6537.62	4/16/2012	35.03	6538.69	3/13/2012	35.68	6539.61	10/15/2012	41.50	6533.19
3/12/2012	51.96	6537.56	4/23/2012	34.77	6538.95	7/2/2012	35.44	6539.85	10/22/2012	40.90	6533.79
3/19/2012	51.89	6537.63	4/30/2012	34.71	6539.01	11/13/2012	36.38	6538.91	10/29/2012	41.42	6533.27
3/26/2012	51.90	6537.62	5/7/2012	34.58	6539.14	S5			11/5/2012	41.41	6533.28
4/2/2012	51.80	6537.72	5/14/2012	34.67	6539.05	1/3/2012	40.38	6534.31	11/12/2012	41.55	6533.14
4/23/2012	51.90	6537.62	5/21/2012	34.83	6538.89	1/9/2012	40.80	6533.89	11/19/2012	41.49	6533.20
4/30/2012	51.95	6537.57	5/29/2012	34.85	6538.87	1/16/2012	40.70	6533.99	11/26/2012	41.40	6533.29
5/7/2012	52.14	6537.38	6/4/2012	34.90	6538.82	1/23/2012	40.53	6534.16	12/3/2012	41.32	6533.37
5/29/2012	52.15	6537.37				1/30/2012	40.75	6533.94	12/10/2012	41.30	6533.39
6/18/2012	51.68	6537.84				2/6/2012	40.44	6534.25	12/17/2012	41.28	6533.41
6/25/2012	51.22	6538.30							12/26/2012	40.33	6534.36
7/23/2012	50.09	6539.43									
8/20/2012	51.00	6538.52									

* Drawdown Tube Pressure, # Transducer Reading

P3 - S5

Table A.1-1 WATER LEVELS FOR HOMESTAKE'S ALLUVIAL WELLS (cont.)

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
S11			10/8/2012	41.09	6537.82	9/10/2012	38.10	6540.64	8/6/2012	38.55	6540.71
10/23/2012	31.76	6546.63	10/15/2012	40.91	6538.00	9/17/2012	38.15	6540.59	8/13/2012	38.75	6540.51
11/13/2012	32.04	6546.35	10/22/2012	40.35	6538.56	9/24/2012	38.18	6540.56	8/20/2012	38.65	6540.61
S12			10/29/2012	41.06	6537.85	10/1/2012	38.20	6540.54	8/27/2012	38.33	6540.93
1/17/2012	40.68	6538.17	11/5/2012	41.10	6537.81	10/8/2012	38.06	6540.68	9/4/2012	38.72	6540.54
SE6			11/12/2012	41.24	6537.67	10/15/2012	38.08	6540.66	9/10/2012	38.80	6540.46
1/3/2012	40.11	6538.80	11/19/2012	41.18	6537.73	10/22/2012	37.98	6540.76	9/17/2012	38.86	6540.40
1/9/2012	40.41	6538.50	11/26/2012	41.05	6537.86	10/29/2012	38.18	6540.56	9/24/2012	38.91	6540.35
1/16/2012	40.32	6538.59	12/3/2012	40.97	6537.94	11/5/2012	38.19	6540.55	10/1/2012	38.97	6540.29
1/23/2012	39.85	6539.06	12/10/2012	40.91	6538.00	11/12/2012	38.30	6540.44	10/8/2012	38.74	6540.52
1/30/2012	39.69	6539.22	12/17/2012	40.78	6538.13	11/19/2012	38.23	6540.51	10/15/2012	38.83	6540.43
2/6/2012	39.58	6539.33	12/26/2012	39.66	6539.25	11/26/2012	38.17	6540.57	10/22/2012	38.70	6540.56
2/13/2012	40.12	6538.79	SM			12/3/2012	38.11	6540.63	10/29/2012	38.87	6540.39
2/20/2012	40.28	6538.63	1/3/2012	37.72	6541.02	12/10/2012	38.07	6540.67	11/5/2012	38.92	6540.34
2/27/2012	40.25	6538.66	1/9/2012	37.74	6541.00	12/10/2012	37.98	6540.76	11/12/2012	39.01	6540.25
3/5/2012	40.45	6538.46	1/16/2012	37.60	6541.14	12/17/2012	37.97	6540.77	11/13/2012	38.96	6540.30
3/12/2012	40.44	6538.47	1/23/2012	37.60	6541.14	12/26/2012	37.57	6541.17	11/19/2012	38.95	6540.31
3/19/2012	40.20	6538.71	1/30/2012	37.40	6541.34	SN			11/26/2012	38.83	6540.43
3/26/2012	40.27	6538.64	2/6/2012	37.30	6541.44	1/3/2012	38.40	6540.86	12/3/2012	38.69	6540.57
4/2/2012	40.07	6538.84	2/13/2012	37.36	6541.38	1/9/2012	38.40	6540.86	12/10/2012	38.68	6540.58
4/9/2012	40.30	6538.61	2/20/2012	37.49	6541.25	1/16/2012	38.30	6540.96	12/17/2012	38.60	6540.66
4/16/2012	39.41	6539.50	2/27/2012	37.41	6541.33	1/23/2012	38.32	6540.94	12/26/2012	38.32	6540.94
4/23/2012	39.13	6539.78	3/5/2012	37.34	6541.40	1/30/2012	38.17	6541.09			
4/30/2012	39.00	6539.91	3/12/2012	37.49	6541.25	2/6/2012	38.15	6541.11			
5/7/2012	38.89	6540.02	3/19/2012	37.27	6541.47	2/13/2012	38.15	6541.11			
5/14/2012	38.91	6540.00	3/26/2012	37.35	6541.39	2/20/2012	38.28	6540.98			
5/21/2012	39.11	6539.80	4/2/2012	37.17	6541.57	2/27/2012	38.23	6541.03			
5/29/2012	39.00	6539.91	4/9/2012	37.31	6541.43	3/5/2012	38.35	6540.91			
6/4/2012	38.67	6540.24	4/16/2012	37.28	6541.46	3/12/2012	38.33	6540.93			
6/11/2012	38.98	6539.93	4/23/2012	37.05	6541.69	3/19/2012	38.13	6541.13			
6/18/2012	38.87	6540.04	4/30/2012	36.95	6541.79	3/26/2012	38.28	6540.98			
6/25/2012	39.14	6539.77	5/7/2012	36.81	6541.93	4/2/2012	38.02	6541.24			
7/2/2012	39.55	6539.36	5/14/2012	36.93	6541.81	4/9/2012	38.28	6540.98			
7/9/2012	39.18	6539.73	5/21/2012	36.92	6541.82	4/16/2012	38.09	6541.17			
7/16/2012	39.05	6539.86	5/29/2012	36.90	6541.84	4/23/2012	38.87	6540.39			
7/23/2012	40.27	6538.64	6/4/2012	36.87	6541.87	4/30/2012	37.80	6541.46			
7/30/2012	40.77	6538.14	6/11/2012	36.90	6541.84	5/7/2012	37.63	6541.63			
8/6/2012	40.79	6538.12	6/18/2012	36.83	6541.91	5/14/2012	37.80	6541.46			
8/13/2012	41.00	6537.91	6/25/2012	37.01	6541.73	5/21/2012	37.68	6541.58			
8/20/2012	39.63	6539.28	7/2/2012	37.16	6541.58	5/29/2012	37.59	6541.67			
8/27/2012	40.67	6538.24	7/9/2012	37.12	6541.62	6/4/2012	37.55	6541.71			
9/4/2012	41.03	6537.88	7/16/2012	36.85	6541.89	6/11/2012	37.53	6541.73			
9/10/2012	41.09	6537.82	7/23/2012	37.37	6541.37	6/18/2012	37.44	6541.82			
9/17/2012	41.15	6537.76	7/30/2012	37.73	6541.01	6/25/2012	37.62	6541.64			
9/24/2012	41.14	6537.77	8/6/2012	37.80	6540.94	7/2/2012	37.98	6541.28			
10/1/2012	41.20	6537.71	8/13/2012	37.92	6540.82	7/9/2012	37.85	6541.41			
			8/20/2012	37.59	6541.15	7/16/2012	37.60	6541.66			
			8/27/2012	37.75	6540.99	7/23/2012	38.19	6541.07			
			9/4/2012	38.00	6540.74	7/30/2012	38.56	6540.70			

* Drawdown Tube Pressure, # Transducer Reading

S11 - SN

Table A.1-1 WATER LEVELS FOR HOMESTAKE'S ALLUVIAL WELLS (cont.)

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

	Water Level			Water Level			Water Level			Water Level	
Date	Level (ft-MP)	Elevation (ft+MSL)	Date	Level (ft-MP)	Elevation (ft+MSL)	Date	Level (ft-MP)	Elevation (ft+MSL)	Date	Level (ft-MP)	Elevation (ft+MSL)
SO			12/10/2012	39.28	6539.51	11/5/2012	39.07	6539.59	3/26/2012	22.17	6549.44
1/3/2012	39.03	6539.76	12/11/2012	39.08	6539.71	11/12/2012	39.18	6539.48	4/2/2012	22.28	6549.33
1/9/2012	39.09	6539.70	12/17/2012	39.15	6539.64	11/19/2012	39.15	6539.51	4/23/2012	22.10	6549.51
1/16/2012	38.92	6539.87	12/26/2012	38.55	6540.24	11/26/2012	39.10	6539.56	5/29/2012	23.85	6547.76
1/23/2012	38.88	6539.91	SP			12/3/2012	38.95	6539.71	6/25/2012	22.90	6548.71
1/30/2012	38.68	6540.11				12/10/2012	38.88	6539.78	7/2/2012	22.48	6549.13
2/6/2012	38.58	6540.21				12/17/2012	38.78	6539.88	7/23/2012	23.15	6548.46
2/13/2012	38.71	6540.08				12/26/2012	38.17	6540.49	8/27/2012	23.60	6548.01
2/20/2012	38.88	6539.91				ST			9/24/2012	23.03	6548.58
2/27/2012	38.78	6540.01							10/3/2012	22.71	6548.90
3/5/2012	38.92	6539.87	1/3/2012	38.53	6540.13	1/16/2012	55.60	6523.71	10/22/2012	23.50	6548.11
3/12/2012	38.88	6539.91	1/9/2012	38.58	6540.08	SW			11/26/2012	23.20	6548.41
3/19/2012	38.66	6540.13	1/16/2012	38.45	6540.21				12/26/2012	23.75	6547.86
3/26/2012	38.70	6540.09	1/23/2012	38.88	6539.78	SZ			X13		
4/2/2012	38.56	6540.23	1/30/2012	38.20	6540.46						
4/9/2012	38.81	6539.98	2/6/2012	38.10	6540.56				4/16/2012	39.61	6547.33
4/16/2012	38.60	6540.19	2/13/2012	38.24	6540.42	T			X16		
4/23/2012	38.33	6540.46	2/20/2012	38.38	6540.28						
4/30/2012	38.25	6540.54	2/27/2012	38.33	6540.33				11/13/2012	35.75	6545.72
5/7/2012	38.11	6540.68	3/5/2012	38.45	6540.21	12/6/2012	35.61	6545.86	X18		
5/14/2012	38.19	6540.60	3/12/2012	38.41	6540.25	T2					
5/21/2012	38.28	6540.51	3/19/2012	38.20	6540.46				12/10/2012	116.80	6548.02
5/29/2012	38.30	6540.49	3/26/2012	38.40	6540.26	TA			WR12		
6/4/2012	38.30	6540.49	4/2/2012	38.16	6540.50						
6/11/2012	38.35	6540.44	4/9/2012	38.40	6540.26	TB			X		
6/18/2012	38.24	6540.55	4/16/2012	38.10	6540.56						
6/25/2012	38.39	6540.40	4/23/2012	37.85	6540.81	10/18/2012	36.48	6547.09	W		
7/2/2012	38.48	6540.31	4/30/2012	37.75	6540.91	W					
7/9/2012	38.37	6540.42	5/7/2012	37.61	6541.05				10/15/2012	42.06	6530.08
7/16/2012	38.09	6540.70	5/14/2012	37.72	6540.94	11/13/2012	42.59	6529.55	WR12		
7/23/2012	38.68	6540.11	5/21/2012	37.73	6540.93	X					
7/30/2012	38.97	6539.82	5/29/2012	37.72	6540.94				1/23/2012	22.65	6548.96
8/6/2012	39.12	6539.67	6/4/2012	37.70	6540.96	2/27/2012	22.31	6549.30	3/5/2012	22.31	6549.30
8/13/2012	39.25	6539.54	6/11/2012	37.71	6540.95	W					
8/20/2012	38.79	6540.00	6/18/2012	37.64	6541.02				WR12		
8/27/2012	39.11	6539.68	6/25/2012	37.81	6540.85	11/13/2012	7.00	6561.19			
9/4/2012	39.28	6539.51	7/2/2012	37.99	6540.67	X					
9/10/2012	39.49	6539.30	7/9/2012	37.87	6540.79				WR12		
9/17/2012	39.47	6539.32	7/16/2012	37.57	6541.09	X					
9/24/2012	39.46	6539.33	7/23/2012	38.25	6540.41				WR12		
10/1/2012	39.36	6539.43	7/30/2012	38.60	6540.06	X					
10/8/2012	39.33	6539.46	8/6/2012	38.70	6539.96				WR12		
10/15/2012	39.31	6539.48	8/13/2012	38.85	6539.81	X					
10/22/2012	39.22	6539.57	8/20/2012	38.31	6540.35				WR12		
10/29/2012	39.43	6539.36	8/27/2012	38.63	6540.03	X					
11/5/2012	39.50	6539.29	9/4/2012	38.85	6539.81				WR12		
11/12/2012	39.64	6539.15	9/10/2012	39.04	6539.62	X					
11/19/2012	39.57	6539.22	9/17/2012	39.06	6539.60				WR12		
11/26/2012	39.43	6539.36	9/24/2012	39.07	6539.59	X					
12/3/2012	39.33	6539.46	10/1/2012	39.02	6539.64				WR12		
			10/8/2012	38.94	6539.72	X					
			10/15/2012	39.00	6539.66				WR12		
			10/22/2012	38.78	6539.88	X					
			10/29/2012	39.05	6539.61				WR12		
						X					

* Drawdown Tube Pressure, # Transducer Reading

SO - X20

TABLE A.1-2 WATER LEVELS FOR THE SUBDIVISION ALLUVIAL WELLS

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
0427			11/26/2012	87.06	6475.66						
9/20/2012	33.61	6536.39	12/10/2012	88.18	6474.54						
			12/26/2012	36.40	6526.32						
0490			0804								
3/6/2012	35.34	6527.08	5/23/2012	42.70	6519.30						
6/13/2012	34.86	6527.56	0844								
10/3/2012	37.30	6525.12	3/6/2012	36.75	6519.38						
11/14/2012	36.27	6526.15	7/27/2012	36.75	6519.38						
0491			11/15/2012	35.66	6520.47						
11/15/2012	37.67	6524.95	11/27/2012	35.66	6520.47						
0496			0845								
5/7/2012	51.48	6511.04	3/6/2012	34.56	6522.49						
11/14/2012	52.09	6510.43	7/27/2012	34.50	6522.55						
0497			11/15/2012	34.63	6522.42						
5/7/2012	50.28	6512.34	11/27/2012	34.62	6522.43						
10/9/2012	51.37	6511.25	AW								
11/14/2012	50.90	6511.72	11/12/2012	32.70	6530.73						
0498			CW44								
7/9/2012	52.00	6508.59	10/9/2012	54.80	6505.94						
11/14/2012	53.12	6507.47	11/14/2012	54.51	6506.23						
0688			Sub1								
3/14/2012	59.54	6503.08	5/2/2012	33.31	6527.69						
8/27/2012	59.34	6503.28	10/5/2012	34.00	6527.00						
11/15/2012	59.65	6502.97	Sub3								
0802			5/2/2012	28.33	6528.74						
1/23/2012	36.42	6526.30	10/5/2012	28.86	6528.21						
2/27/2012	35.41	6527.31									
3/26/2012	88.23	6474.49									
4/23/2012	73.82	6488.90									
5/29/2012	86.65	6476.07									
6/18/2012	87.65	6475.07									
6/25/2012	88.04	6474.68									
8/27/2012	88.00	6474.72									
9/24/2012	86.45	6476.27									
10/22/2012	45.60	6517.12									
10/29/2012	87.60	6475.12									
11/12/2012	39.52	6523.20									
11/19/2012	88.28	6474.44									

* Drawdown Tube Pressure, # Transducer Reading

0427 - Sub3

TABLE A.1-3 WATER LEVELS FOR REGIONAL ALLUVIAL WELLS

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
0520			0555			0640			0657		
5/7/2012	47.68	6538.34	3/6/2012	42.10	6515.04	11/13/2012	50.59	6529.38	5/9/2012	107.10	6444.71
10/16/2012	48.00	6538.02	7/27/2012	42.90	6514.24				11/13/2012	101.35	6450.46
11/13/2012	48.50	6537.52	11/27/2012	42.98	6514.16	0644			0658		
0521			0556			11/13/2012	74.91	6468.99	3/13/2012	107.28	6442.90
1/16/2012	46.97	6537.47	3/6/2012	49.92	6506.10	0646			7/9/2012	107.50	6442.68
5/7/2012	44.80	6539.64	7/27/2012	51.78	6504.24	10/22/2012	80.44	6462.91	8/1/2012	107.52	6442.66
7/9/2012	50.20	6534.24	11/27/2012	52.61	6503.41	0647			11/13/2012	108.19	6441.99
10/15/2012	51.58	6532.86	0557			3/13/2012	104.70	6447.21	0659		
0522			3/6/2012	43.14	6510.63	11/13/2012	105.83	6446.08	4/12/2012	70.31	6489.86
1/16/2012	45.80	6534.73	7/27/2012	43.40	6510.37	0648			11/19/2012	70.80	6489.37
5/7/2012	45.43	6535.10	11/27/2012	43.51	6510.26	3/9/2012	120.20	6427.59	0681		
7/9/2012	47.12	6533.41	0631			5/9/2012	120.00	6427.79	5/21/2012	64.61	6495.91
10/16/2012	48.19	6532.34	5/9/2012	91.14	6449.96	0649			0683		
0538			11/13/2012	90.82	6450.28	3/13/2012	102.78	6440.51	5/21/2012	91.05	6464.99
5/9/2012	73.08	6475.86	0632			5/9/2012	102.70	6440.59	10/19/2012	90.41	6465.63
11/13/2012	71.65	6477.29	5/9/2012	90.60	6450.70	7/9/2012	102.90	6440.39	0684		
0540			11/13/2012	90.79	6450.51	8/1/2012	102.93	6440.36	10/19/2012	85.95	6467.33
11/13/2012	59.83	6496.08	0634			11/13/2012	103.05	6440.24	0685		
0541			4/12/2012	73.74	6486.33	0650			11/14/2012	96.95	6459.62
11/14/2012	90.47	6465.15	11/19/2012	72.25	6487.82	3/13/2012	83.30	6463.81	0686		
0551			0636			8/27/2012	83.52	6463.59	10/17/2012	113.61	6465.19
3/9/2012	99.37	6447.93	10/17/2012	104.79	6468.65	10/19/2012	83.69	6463.42	0687		
8/1/2012	99.40	6447.90	0637			11/15/2012	83.58	6463.53	11/14/2012	95.42	6460.54
11/13/2012	99.80	6447.50	10/17/2012	111.94	6463.26	0652			0846		
0553			0638			11/13/2012	86.44	6451.71	3/14/2012	45.08	6503.84
3/9/2012	104.30	6443.18	10/15/2012	40.59	6544.97	0653			8/27/2012	45.02	6503.90
8/1/2012	104.28	6443.20	11/13/2012	41.18	6544.38	10/22/2012	71.18	6473.79	11/15/2012	45.02	6503.90
11/13/2012	104.46	6443.02	0639			11/13/2012	70.65	6474.32	0855		
0554			1/16/2012	48.45	6539.43	0654			3/7/2012	89.77	6451.34
3/9/2012	99.32	6447.85	5/7/2012	51.20	6536.68	5/9/2012	74.58	6475.92			
8/1/2012	106.04	6441.13	7/9/2012	53.00	6534.88	10/19/2012	73.47	6477.03			
11/13/2012	106.52	6440.65	10/18/2012	51.00	6536.88	11/19/2012	72.10	6478.40			

* Drawdown Tube Pressure, # Transducer Reading

0520 - 0855

TABLE A.1-3 WATER LEVELS FOR REGIONAL ALLUVIAL WELLS (cont.)

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
0862			0885			0909					
5/22/2012	56.78	6499.40	5/21/2012	65.10	6499.54	5/9/2012	91.95	6446.95			
11/13/2012	56.65	6499.53	10/23/2012	65.51	6499.13						
			11/19/2012	64.45	6500.19						
0864			0886			0921					
5/23/2012	72.16	6474.56	3/13/2012	68.40	6496.15	10/17/2012	39.90	6584.10			
			7/27/2012	67.56	6496.99						
0867			11/1/2012	68.40	6496.15	0922					
11/13/2012	61.11	6494.79	11/19/2012	68.22	6496.33	10/17/2012	50.15	6571.55			
0869			0887			0935					
5/23/2012	74.70	6469.79	5/29/2012	60.18	6507.55	10/19/2012	92.08	6466.04			
11/13/2012	72.64	6471.85									
			0888			0994					
0876			5/29/2012	75.35	6481.98	4/2/2012	93.61	6461.39			
11/13/2012	72.89	6471.37	11/19/2012	75.10	6482.23	5/2/2012	94.04	6460.96			
						6/6/2012	94.26	6460.74			
0879			0890			7/2/2012	94.17	6460.83			
11/13/2012	69.22	6475.33	4/12/2012	82.70	6475.73	8/3/2012	93.70	6461.30			
			11/19/2012	75.25	6483.18	9/6/2012	93.33	6461.67			
0881						10/1/2012	93.18	6461.82			
3/13/2012	72.88	6492.16	0893								
7/27/2012	72.51	6492.53	3/6/2012	68.41	6495.56						
11/1/2012	73.09	6491.95	7/27/2012	67.63	6496.34						
11/19/2012	73.50	6491.54	11/1/2012	68.23	6495.74						
			11/19/2012	68.26	6495.71						
0882			0895								
3/6/2012	64.83	6496.33	10/19/2012	84.73	6469.11						
7/27/2012	64.13	6497.03									
11/1/2012	64.84	6496.32	0896								
			10/19/2012	85.93	6469.68						
0883											
5/21/2012	60.49	6496.64	0899								
10/23/2012	60.47	6496.66	10/19/2012	100.46	6470.38						
0884			0905								
3/6/2012	72.46	6493.64	5/9/2012	102.00	6443.00						
7/27/2012	72.34	6493.76									
11/1/2012	72.76	6493.34									

* Drawdown Tube Pressure, # Transducer Reading

0862 - 0994

TABLE A.2-1 WATER LEVELS FOR CHINLE AQUIFERS

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
0493			11/26/2012	98.82	6493.75	CE5			CE8		
3/6/2012	88.21	6472.07	12/26/2012	144.52	6448.05	1/23/2012	30.33	6538.22	11/13/2012	43.61	6526.09
6/13/2012	89.10	6471.18	0930			2/27/2012	39.35	6529.20	CE9		
11/14/2012	88.45	6471.83	11/13/2012	120.04	6478.50	3/26/2012	39.28	6529.27	5/2/2012	34.51	6528.61
0494			0931			4/23/2012	44.10	6524.45	10/5/2012	35.14	6527.98
3/6/2012	33.00	6527.14	10/24/2012	155.59	6454.97	5/29/2012	44.21	6524.34	11/15/2012	34.70	6528.42
6/13/2012	32.51	6527.63	11/13/2012	48.78	6561.78	6/25/2012	35.74	6532.81	CE10		
11/14/2012	33.95	6526.19	0934			7/13/2012	41.10	6527.45	11/13/2012	43.30	6527.56
0498			1/23/2012	45.38	6540.21	7/23/2012	40.65	6527.90	CE11		
7/9/2012	52.00	6508.59	2/27/2012	41.13	6544.46	8/27/2012	44.10	6524.45	1/23/2012	45.81	6519.61
11/14/2012	53.12	6507.47	3/26/2012	40.99	6544.60	9/24/2012	46.55	6522.00	2/27/2012	46.33	6519.09
0538			4/23/2012	41.70	6543.89	10/22/2012	45.87	6522.68	3/26/2012	46.55	6518.87
5/9/2012	73.08	6475.86	5/22/2012	45.94	6539.65	11/26/2012	43.95	6524.60	4/23/2012	47.27	6518.15
11/13/2012	71.65	6477.29	5/23/2012	45.90	6539.69	12/26/2012	42.95	6525.60	5/29/2012	47.65	6517.77
0653			5/29/2012	54.11	6531.48	CE6			6/25/2012	43.05	6522.37
10/22/2012	71.18	6473.79	6/25/2012	83.80	6501.79	1/23/2012	97.70	6467.49	7/23/2012	44.30	6521.12
11/13/2012	70.65	6474.32	8/27/2012	110.97	6474.62	2/27/2012	93.62	6471.57	8/27/2012	48.10	6517.32
0850			ACW			3/26/2012	91.45	6473.74	9/24/2012	49.23	6516.19
11/12/2012	50.15	6499.00	11/12/2012	95.41	6468.39	4/23/2012	94.70	6470.49	10/22/2012	47.55	6517.87
0853			AW			5/29/2012	92.50	6472.69	11/13/2012	45.80	6519.62
11/13/2012	77.36	6464.02	11/12/2012	32.70	6530.73	6/25/2012	43.22	6521.97	11/26/2012	70.09	6495.33
11/13/2012	77.43	6463.95	CE1			7/23/2012	43.60	6521.59	12/26/2012	45.50	6519.92
0859			11/13/2012	34.50	6535.69	8/27/2012	46.80	6518.39	CE12		
11/12/2012	65.51	6487.25	CE2			9/24/2012	61.63	6503.56	1/23/2012	57.51	6514.72
0929			1/23/2012	52.18	6524.17	10/22/2012	59.20	6505.99	2/27/2012	57.36	6514.87
1/23/2012	51.90	6540.67	2/27/2012	52.66	6523.69	11/13/2012	55.63	6509.56	3/26/2012	57.25	6514.98
2/27/2012	47.70	6544.87	3/26/2012	52.63	6523.72	11/26/2012	60.30	6504.89	4/23/2012	56.00	6516.23
3/26/2012	47.65	6544.92	4/23/2012	51.30	6525.05	12/26/2012	56.47	6508.72	5/29/2012	56.07	6516.16
4/23/2012	48.40	6544.17	5/29/2012	51.25	6525.10	CE7			6/25/2012	56.44	6515.79
5/22/2012	52.98	6539.59	6/25/2012	52.20	6524.15	1/23/2012	40.35	6535.64	7/13/2012	56.54	6515.69
5/29/2012	54.11	6538.46	7/13/2012	51.47	6524.88	2/27/2012	72.52	6503.47	7/23/2012	54.89	6517.34
6/25/2012	77.20	6515.37	7/23/2012	49.90	6526.45	3/26/2012	87.71	6488.28	8/27/2012	57.15	6515.08
8/27/2012	128.66	6463.91	8/27/2012	52.57	6523.78	4/23/2012	83.30	6492.69	9/24/2012	57.75	6514.48
9/24/2012	152.05	6440.52	9/24/2012	73.26	6503.09	5/29/2012	36.80	6539.19	10/22/2012	56.70	6515.53
10/22/2012	162.88	6429.69	10/22/2012	71.29	6505.06	6/25/2012	78.37	6497.62	11/26/2012	57.25	6514.98
11/13/2012	152.20	6440.37	CE13			7/23/2012	71.40	6504.59	12/26/2012	54.50	6517.73
						8/27/2012	37.80	6538.19			
						9/24/2012	36.22	6539.77			
						10/20/2012	72.41	6503.58			
						10/22/2012	36.60	6539.39			
						11/13/2012	73.05	6502.94			
						11/26/2012	76.31	6499.68			
						12/26/2012	32.22	6543.77			

* Drawdown Tube Pressure, # Transducer Reading

0493 - CE13

TABLE A.2-1 WATER LEVELS FOR CHINLE AQUIFERS (cont.)

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
CE14			CW2-1			12/26/2012	67.05	6505.60	CW35		
7/30/2012	33.75	6535.70	11/13/2012	44.21	6541.27	CW24			8/7/2012	49.54	6541.63
CE15			CW3			11/14/2012	48.75	6539.92	11/14/2012	49.43	6541.74
7/30/2012	36.38	6529.70	1/23/2012	52.70	6534.48	CW26			CW36		
CF1			2/27/2012	52.80	6534.38	11/13/2012	94.54	6466.89	10/23/2012	78.54	6472.55
7/9/2012	128.19	6537.72	3/26/2012	52.92	6534.26	CW27			11/15/2012	78.59	6472.50
CF2			4/23/2012	53.55	6533.63	11/13/2012	63.96	6498.92	CW37		
7/2/2012	133.68	6532.48	5/29/2012	53.67	6533.51	CW28			8/27/2012	63.88	6487.29
CW1			6/25/2012	52.51	6534.67	1/23/2012	83.55	6488.13	11/12/2012	63.82	6487.35
1/23/2012	119.95	6465.27	7/23/2012	53.95	6533.23	2/27/2012	83.70	6487.98	CW39		
2/27/2012	120.00	6465.22	8/6/2012	54.11	6533.07	4/23/2012	84.40	6487.28	10/22/2012	> 28.56	< 6522.15
3/26/2012	135.80	6449.42	8/27/2012	55.00	6532.18	5/23/2012	84.17	6487.51	CW40		
4/23/2012	134.20	6451.02	9/24/2012	55.75	6531.43	5/29/2012	84.40	6487.28	11/13/2012	87.85	6491.09
5/29/2012	134.90	6450.32	10/22/2012	55.25	6531.93	6/25/2012	84.36	6487.32	CW41		
6/25/2012	133.42	6451.80	11/26/2012	53.90	6533.28	7/23/2012	86.30	6485.38	10/22/2012	89.31	6466.10
7/23/2012	132.69	6452.53	12/26/2012	54.00	6533.18	8/27/2012	87.48	6484.20	11/13/2012	99.00	6456.41
8/6/2012	143.03	6442.19	CW6			9/24/2012	84.85	6486.83	CW42		
8/27/2012	144.15	6441.07	11/13/2012	88.24	6487.40	10/22/2012	83.85	6487.83	5/22/2012	79.18	6469.60
9/24/2012	126.41	6458.81	CW9			11/26/2012	83.40	6488.28	11/13/2012	77.65	6471.13
10/22/2012	119.10	6466.12	11/13/2012	57.74	6534.09	12/26/2012	82.80	6488.88	CW43		
11/13/2012	120.64	6464.58	CW15			CW29			10/19/2012	69.82	6478.97
11/26/2012	123.43	6461.79	10/22/2012	93.79	6457.53	5/22/2012	85.90	6466.32	11/15/2012	69.86	6478.93
12/26/2012	120.37	6464.85	11/12/2012	93.12	6458.20	11/13/2012	84.15	6468.07	CW44		
CW2			CW17			CW31			10/9/2012	54.80	6505.94
1/23/2012	127.52	6457.96	9/14/2012	48.50	6540.82	10/23/2012	87.11	6473.15	11/14/2012	54.51	6506.23
2/27/2012	127.50	6457.98	11/14/2012	48.28	6541.04	11/15/2012	87.15	6473.11	CW45		
3/14/2012	128.40	6457.08	CW18			CW32			5/7/2012	54.03	6507.28
3/26/2012	137.15	6448.33	1/23/2012	22.27	6550.38	10/23/2012	145.58	6421.70	11/14/2012	54.60	6506.71
4/23/2012	135.50	6449.98	2/27/2012	17.78	6554.87	11/15/2012	145.15	6422.13	CW50		
5/29/2012	136.29	6449.19	4/23/2012	20.03	6552.62	CW33			10/24/2012	47.18	6541.38
6/25/2012	134.63	6450.85	5/23/2012	27.34	6545.31	10/23/2012	105.10	6469.79	11/14/2012	47.08	6541.48
7/23/2012	134.04	6451.44	5/29/2012	20.03	6552.62	11/15/2012	105.21	6469.68			
8/6/2012	153.93	6431.55	6/25/2012	41.34	6531.31						
8/27/2012	154.72	6430.76	7/23/2012	124.70	6447.95						
9/24/2012	138.09	6447.39	8/27/2012	107.87	6464.78						
10/22/2012	130.17	6455.31	9/24/2012	123.00	6449.65						
11/13/2012	130.39	6455.09	10/22/2012	89.97	6482.68						
11/26/2012	135.50	6449.98	11/13/2012	82.50	6490.15						
12/26/2012	130.20	6455.28	11/26/2012	54.44	6518.21						

* Drawdown Tube Pressure, # Transducer Reading

CE14 - CW50

TABLE A.2-1 WATER LEVELS FOR CHINLE AQUIFERS (cont.)

WATER LEVEL ELEVATION (FT-MSL)

2/4/2013

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)
CW52											
10/24/2012	70.27	6522.13									
11/14/2012	69.91	6522.49									
CW53											
11/14/2012	75.44	6489.50									
CW54											
11/12/2012	24.75	6533.80									
CW55											
10/5/2012	58.26	6505.90									
11/15/2012	57.18	6506.98									
CW56											
10/14/2012	45.89	6541.97									
CW57											
10/12/2012	46.09	6538.81									
CW60											
9/18/2012	42.90	6541.30									
CW61											
10/13/2012	41.96	6540.87									
CW62											
9/19/2012	37.90	6541.96									
WCW											
11/20/2012	99.85	6467.52									
WR25											
10/24/2012	43.90	6542.56									
11/14/2012	44.04	6542.42									

TABLE A.3-1 WATER LEVELS FOR THE SAN ANDRES AQUIFER

WATER LEVEL ELEVATION (FT-MSL)

3/19/2013

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)
0907											
5/9/2012	121.00	6424.60									
11/20/2012	127.42	6418.18									
0928											
5/30/2012	138.56	6459.04									
11/14/2012	134.38	6463.22									
0938											
10/24/2012	147.76	6421.04									
11/20/2012	18.60	6550.20									
0943											
1/23/2012	134.30	6421.61									
2/27/2012	133.48	6422.43									
3/26/2012	138.80	6417.11									
4/23/2012	146.90	6409.01									
5/9/2012	134.10	6421.81									
5/29/2012	158.80	6397.11									
6/25/2012	141.58	6414.33									
7/23/2012	135.82	6420.09									
9/24/2012	141.77	6414.14									
10/22/2012	140.30	6415.61									
11/26/2012	136.15	6419.76									
12/26/2012	136.15	6419.76									
0951											
1/23/2012	187.40	6386.30									
2/27/2012	150.98	6422.72									
3/9/2012	150.68	6423.02									
3/26/2012	147.70	6426.00									
0951R											
5/29/2012	157.65	6419.13									
6/25/2012	160.60	6416.18									
7/23/2012	160.37	6416.41									
9/24/2012	159.86	6416.92									
10/22/2012	160.48	6416.30									
11/26/2012	160.30	6416.48									
12/26/2012	160.75	6416.03									

APPENDIX B
WATER QUALITY

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GROUND-WATER MONITORING
FOR HOMESTAKE'S GRANTS PROJECT

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TABLE B.1-1 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
CN1	10/13/2012	ENER	--	--	--	--	--	--	1310	8390	16800	* 15200	--
CN2	11/16/2012	ENER	--	--	--	--	--	--	853	6610	13000	* 18800	--
CN3	10/16/2012	ENER	--	--	--	--	--	--	785	5340	11700	* 12100	--
CN4	10/16/2012	ENER	--	--	--	--	--	--	211	1590	3520	* 4430	--
CN6	9/10/2012	ENER	--	--	--	--	--	--	525	3510	8700	* 8410	--
CS1	10/11/2012	ENER	--	--	--	--	--	--	676	4740	8980	* 9630	--
CS2	10/15/2012	ENER	--	--	--	--	--	--	465	2800	5530	* 6200	--
CS8	10/17/2012	ENER	--	--	--	--	--	--	430	2540	6010	* 6860	--
EC4	10/16/2012	ENER	--	--	--	--	--	--	431	1900	4490	* 5820	--
EC8	9/13/2012	ENER	--	--	--	--	--	--	375	3620	9950	* 11200	--
	10/9/2012	ENER	--	--	--	--	--	--	397	3840	11000	* 11400	--
ED3	7/31/2012	ENER	--	--	--	--	--	--	287	2360	5500	* 6710	--
EE2	10/15/2012	ENER	--	--	--	--	--	--	396	3070	8240	* 8930	--
EF4	10/9/2012	ENER	--	--	--	--	--	--	575	3530	9720	* 10900	--
EF8	7/30/2012	ENER	--	--	--	--	--	--	287	2190	4980	* 6210	--
EG7	10/9/2012	ENER	--	--	--	--	--	--	214	1910	4980	* 5900	--
EG9	10/18/2012	ENER	--	--	--	--	--	--	446	3500	10400	* 9940	--
EG12	7/30/2012	ENER	--	--	--	--	--	--	265	2180	5860	* 6970	--
EG13	10/9/2012	ENER	--	--	--	--	--	--	200	2180	5830	* 6650	--
EH1	7/30/2012	ENER	--	--	--	--	--	--	338	2950	7400	* 9020	--
EH2	7/30/2012	ENER	--	--	--	--	--	--	261	2020	5070	* 6510	--
EH3	10/9/2012	ENER	--	--	--	--	--	--	349	3010	7900	* 8810	--
EH5	7/30/2012	ENER	--	--	--	--	--	--	165	1830	4260	* 5310	--

* Signifies Specific Conductivity from HMC

TABLE B.1-1 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
EH11	7/30/2012	ENER	—	—	—	—	—	—	301	2540	6330	* 7860	—
EH12	10/9/2012	ENER	—	—	—	—	—	—	251	2620	6850	* 7850	—
EH14	10/9/2012	ENER	—	—	—	—	—	—	278	2540	6460	* 7540	—
EN1	10/11/2012	ENER	—	—	—	—	—	—	728	6550	16300	* 11100	—
EN2	10/11/2012	ENER	—	—	—	—	—	—	194	1540	3660	* 4340	—
EN9	7/30/2012	ENER	—	—	—	—	—	—	390	3330	9200	* 9780	—
EN12	7/30/2012	ENER	—	—	—	—	—	—	282	2150	4550	* 6150	—
EN16	7/30/2012	ENER	—	—	—	—	—	—	336	2980	7800	* 8840	—
EN18	7/31/2012	ENER	—	—	—	—	—	—	342	3540	10200	* 10800	—
EO17	10/15/2012	ENER	—	—	—	—	—	—	167	1150	2520	* 3290	—
ES1	10/11/2012	ENER	—	—	—	—	—	—	562	3210	6220	* 6830	—
ES2	10/15/2012	ENER	—	—	—	—	—	—	563	3250	7180	* 7930	—
ES3	10/15/2012	ENER	—	—	—	—	—	—	425	2530	6290	* 7400	—
ES10	10/15/2012	ENER	—	—	—	—	—	—	1100	6120	13700	* 13700	—
NE Tails	3/5/2012	ENER	—	—	—	—	—	—	—	3090	8000	* 11710	—
	11/30/2012	ENER	3.30	2.30	11.8	2820	1310	1180	307	3020	7440	* 10850	0.932
NE1	10/11/2012	ENER	—	—	—	—	—	—	107	1270	2740	* 3410	—
NE6	10/16/2012	ENER	—	—	—	—	—	—	129	1110	2880	* 3660	—
NW Tails	3/5/2012	ENER	—	—	—	—	—	—	—	2410	6030	* 8814	—
	11/30/2012	ENER	19.2	5.60	7.80	2500	1960	348	655	2670	6870	* 9170	0.937
SE Tails	3/5/2012	ENER	—	—	—	—	—	—	—	2790	7510	* 10670	—
	11/30/2012	ENER	3.00	3.40	10.5	2530	1240	993	334	2790	7330	* 10100	0.916
SE2	10/15/2012	ENER	—	—	—	—	—	—	310	2590	6160	* 7180	—

* Signifies Specific Conductivity from HMC

TABLE B.1-1 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
SW Tails	3/5/2012	ENER	--	--	--	--	--	--	--	2090	5600	* 8125	--
	11/30/2012	ENER	7.20	6.60	6.90	1980	1050	495	332	2350	5580	* 7451	0.948
SW1	10/15/2012	ENER	--	--	--	--	--	--	445	4500	10100	* 11200	--
SW2	10/15/2012	ENER	--	--	--	--	--	--	1100	5550	10700	* 12400	--
WA4	7/27/2012	ENER	--	--	--	--	--	--	173	1390	3560	* 4640	--
WA5	7/26/2012	ENER	--	--	--	--	--	--	191	1440	3990	* 5040	--
WA8	7/26/2012	ENER	--	--	--	--	--	--	229	1750	4300	* 5410	--
WA10	10/9/2012	ENER	--	--	--	--	--	--	201	1350	3270	* 4310	--
WB2	7/26/2012	ENER	--	--	--	--	--	--	349	2930	7620	* 10400	--
WB7	7/27/2012	ENER	--	--	--	--	--	--	299	2250	5680	* 6690	--
WB10	7/27/2012	ENER	--	--	--	--	--	--	433	2710	6060	* 7200	--
WB16	7/27/2012	ENER	--	--	--	--	--	--	287	3510	9970	* 10900	--
WC9	10/10/2012	ENER	--	--	--	--	--	--	259	1950	4980	* 6260	--
WC14	7/31/2012	ENER	--	--	--	--	--	--	194	1560	3810	* 5090	--
WC15	10/16/2012	ENER	--	--	--	--	--	--	169	939	2160	* 2570	--
WC17	7/26/2012	ENER	--	--	--	--	--	--	294	2560	7210	* 8550	--
WC19	7/31/2012	ENER	--	--	--	--	--	--	232	1870	4490	* 5920	--
WD3	11/15/2012	ENER	--	--	--	--	--	--	1060	4680	11700	* 14500	--
WD4	9/10/2012	ENER	--	--	--	--	--	--	301	2810	7690	* 9490	--
WD6	7/27/2012	ENER	--	--	--	--	--	--	332	2580	6570	* 7860	--
WD8	7/26/2012	ENER	--	--	--	--	--	--	498	3150	8690	* 10400	--
	9/10/2012	ENER	--	--	--	--	--	--	324	2250	5700	* 7270	--
WD9	7/27/2012	ENER	--	--	--	--	--	--	247	2270	5910	* 72500	--

* Signifies Specific Conductivity from HMC

TABLE B.1-1 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
WD10	7/26/2012	ENER	—	—	—	—	—	—	233	1770	4570	* 5540	—
WE3	7/26/2012	ENER	—	—	—	—	—	—	239	1740	4220	* 5600	—
WE5	7/31/2012	ENER	—	—	—	—	—	—	262	2040	5500	* 6760	—
WE6	7/31/2012	ENER	—	—	—	—	—	—	296	2400	5890	* 8670	—
WE9	2/2/2012	ENER	4.00	3.00	5.00	1150	478	234	197	1250	2800	—	1.07
	3/15/2012	ENER	5.70	3.80	5.90	1100	526	182	206	1290	3000	—	1.03
	5/8/2012	ENER	86.0	23.5	11.6	630	473	6.00	187	1120	2450	—	0.928
WE13	1/31/2012	ENER	30.0	—	—	—	562	19.0	205	1130	2470	—	—
WE14	10/10/2012	ENER	—	—	—	—	—	—	337	1780	4040	* 5230	—
WE16	10/10/2012	ENER	—	—	—	—	—	—	383	3090	8820	* 20600	—
WE18	7/26/2012	ENER	—	—	—	—	—	—	191	1050	2320	3040	—
WF1	7/26/2012	ENER	—	—	—	—	—	—	285	1770	4200	* 5470	—
WF2	2/1/2012	ENER	38.4	16.9	9.60	872	529	23.0	209	1120	2480	—	1.07
	3/15/2012	ENER	43.5	16.6	9.80	827	524	26.0	196	1030	2370	—	1.09
	5/8/2012	ENER	31.7	12.9	9.80	698	535	28.0	193	1010	2560	—	0.919
WF5	7/26/2012	ENER	—	—	—	—	—	—	284	2290	5820	* 7080	—
WF7	7/26/2012	ENER	—	—	—	—	—	—	291	1700	3760	* 4840	—
WF8	5/17/2012	ENER	—	—	—	—	—	—	198	1320	3210	—	—
WF9	2/1/2012	ENER	84.0	23.1	9.30	770	511	< 5.00	192	1120	2380	—	1.07
	3/16/2012	ENER	75.4	20.7	8.40	762	513	< 5.00	191	1100	2470	—	1.05
	5/9/2012	ENER	4.60	2.00	5.40	970	507	220	184	1210	2940	—	0.928
WF10	2/1/2012	ENER	56.8	17.0	7.10	825	511	< 5.00	204	1120	2340	—	1.07
	3/16/2012	ENER	38.6	12.4	5.80	805	495	8.00	188	1040	2370	—	1.08
	5/9/2012	ENER	43.2	13.8	7.00	730	499	7.00	191	1090	2430	—	0.965

* Signifies Specific Conductivity from HMC

TABLE B.1-1 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
WF11	2/2/2012	ENER	7.00	5.00	5.00	1050	494	153	227	1230	2730	—	1.03
	3/15/2012	ENER	7.20	5.10	5.30	1050	542	122	229	1240	2880	—	1.03
	5/8/2012	ENER	7.70	5.60	6.80	906	553	100.0	224	1200	2810	—	0.925
WF12	2/2/2012	ENER	12.0	10.00	7.00	1500	669	253	277	1630	3100	—	1.09
	3/15/2012	ENER	7.40	11.2	7.90	1670	717	314	315	1860	4520	—	1.06
	5/8/2012	ENER	10.00	6.40	18.1	1380	720	242	284	1730	4120	—	0.963
WF13	9/13/2012	ENER	—	—	—	—	—	—	401	2560	5960	* 7070	—
WF14	10/10/2012	ENER	—	—	—	—	—	—	259	1400	3280	* 3930	—
WF15	9/13/2012	ENER	—	—	—	—	—	—	253	1920	4610	* 6340	—
WM4	3/14/2012	ENER	113	25.4	10.7	778	539	< 5.00	208	1130	2590	—	1.09
WN1	10/15/2012	ENER	—	—	—	—	—	—	745	4350	8490	* 9030	—
WN2	10/15/2012	ENER	—	—	—	—	—	—	281	1920	5330	* 5940	—
WO10	10/16/2012	ENER	—	—	—	—	—	—	190	1530	4010	* 4700	—
WO21	10/15/2012	ENER	—	—	—	—	—	—	163	931	2230	* 2820	—
WP15	11/20/2012	ENER	—	—	—	—	—	—	152	942	2380	* 3660	—
WS2	10/15/2012	ENER	—	—	—	—	—	—	246	1690	3810	* 4400	—
WS3	10/15/2012	ENER	—	—	—	—	—	—	350	2070	4430	* 5110	—
WT6	2/1/2012	ENER	14.4	11.4	6.90	1510	781	68.0	321	1850	3960	—	1.08
	3/15/2012	ENER	9.80	9.90	7.00	1430	761	91.0	317	1850	3940	—	1.01
	5/8/2012	ENER	10.00	10.5	7.90	1730	893	114	374	2210	5390	—	1.02
WU2	10/10/2012	ENER	—	—	—	—	—	—	268	1770	3740	* 4570	—
WU3	2/1/2012	ENER	31.8	9.80	3.50	1250	749	23.0	275	1550	3190	—	1.07
	3/16/2012	ENER	25.6	10.5	3.50	1230	751	20.0	268	1510	3440	—	1.07
	5/9/2012	ENER	25.0	10.3	4.10	1030	709	28.0	264	1490	3300	—	0.921

* Signifies Specific Conductivity from HMC

TABLE B.1-1 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
WU4	10/16/2012	ENER	—	—	—	—	—	—	233	1320	3030	* 3520	—
WU6	2/2/2012	ENER	7.00	5.00	5.00	848	504	59.0	183	1010	2360	—	1.04
	3/16/2012	ENER	7.10	7.70	6.70	1130	587	109	210	1270	3060	—	1.10
	5/8/2012	ENER	6.80	4.30	6.40	852	515	91.0	190	1080	2690	—	0.964
WU7	10/16/2012	ENER	—	—	—	—	—	—	185	953	2150	* 2510	—
WU10	1/31/2012	ENER	51.0	—	—	—	549	20.0	209	1140	2460	—	—
	3/14/2012	ENER	49.8	18.0	7.20	845	515	48.0	199	1100	2580	—	1.06
WU11	1/31/2012	ENER	93.0	—	—	—	556	< 5.00	225	1180	2340	—	—
	3/14/2012	ENER	96.7	27.6	8.30	785	567	< 5.00	217	1160	2540	—	1.04
	11/7/2012	ENER	111	31.8	7.70	711	553	9.00	204	1080	2400	* 3447	1.04
WU12	1/31/2012	ENER	110	—	—	—	721	< 5.00	240	1510	3050	—	—
WW1	10/15/2012	ENER	—	—	—	—	—	—	779	4320	9860	* 10300	—

* Signifies Specific Conductivity from HMC

TABLE B.1-2 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
CN1	10/13/2012	ENER	---	58.3	87.1	1.58	---	---	---	---	---
CN2	11/16/2012	ENER	---	21.1	25.9	0.0300	---	---	---	---	---
CN3	10/16/2012	ENER	---	21.7	33.6	0.110	---	---	---	---	---
CN4	10/16/2012	ENER	---	2.51	7.54	0.0060	---	---	---	---	---
CN6	9/10/2012	ENER	---	14.7	27.2	0.0620	---	---	---	---	---
CS1	10/11/2012	ENER	---	21.9	27.5	0.0110	---	---	---	---	---
CS2	10/15/2012	ENER	---	2.92	14.3	0.0200	---	---	---	---	---
CS8	10/17/2012	ENER	---	11.1	16.3	0.189	---	---	---	---	---
EC4	10/16/2012	ENER	---	1.69	6.37	0.0610	---	---	---	---	---
EC8	9/13/2012	ENER	---	16.2	49.5	0.0940	---	---	---	---	---
	10/9/2012	ENER	---	16.4	51.5	0.158	---	---	---	---	---
ED3	7/31/2012	ENER	---	6.11	16.8	0.0650	---	---	---	---	---
EE2	10/15/2012	ENER	---	7.55	28.1	0.167	---	---	---	---	---
EF4	10/9/2012	ENER	---	19.6	24.4	0.192	---	---	---	---	---
EF8	7/30/2012	ENER	---	7.12	15.1	0.0410	---	---	---	---	---
EG7	10/9/2012	ENER	---	4.48	16.5	0.0430	---	---	---	---	---
EG9	10/18/2012	ENER	---	15.2	40.4	0.0570	---	---	---	---	---
EG12	7/30/2012	ENER	---	4.46	24.6	0.0800	---	---	---	---	---
EG13	10/9/2012	ENER	---	7.26	21.5	0.0820	---	---	---	---	---
EH1	7/30/2012	ENER	---	11.3	36.8	0.0660	---	---	---	---	---
EH2	7/30/2012	ENER	---	3.98	19.3	0.262	---	---	---	---	---
EH3	10/9/2012	ENER	---	10.9	27.1	0.0900	---	---	---	---	---
EH5	7/30/2012	ENER	---	4.77	15.3	0.0750	---	---	---	---	---

TABLE B.1-2 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
EH11	7/30/2012	ENER	—	7.77	28.7	0.0540	—	—	—	—	—
EH12	10/9/2012	ENER	—	9.29	28.7	0.0660	—	—	—	—	—
EH14	10/9/2012	ENER	—	9.04	23.2	0.103	—	—	—	—	—
EN1	10/11/2012	ENER	—	24.2	74.3	0.559	—	—	—	—	—
EN2	10/11/2012	ENER	—	2.16	9.18	0.0690	—	—	—	—	—
EN9	7/30/2012	ENER	—	11.1	38.4	0.0500	—	—	—	—	—
EN12	7/30/2012	ENER	—	6.55	19.8	0.0190	—	—	—	—	—
EN16	7/30/2012	ENER	—	11.7	37.5	0.101	—	—	—	—	—
EN18	7/31/2012	ENER	—	16.5	49.3	0.121	—	—	—	—	—
EO17	10/15/2012	ENER	—	0.762	3.96	< 0.0050	—	—	—	—	—
ES1	10/11/2012	ENER	—	2.04	6.47	0.185	—	—	—	—	—
ES2	10/15/2012	ENER	—	17.0	30.7	0.0310	—	—	—	—	—
ES3	10/15/2012	ENER	—	7.18	18.8	0.0400	—	—	—	—	—
ES10	10/15/2012	ENER	—	18.4	51.4	0.153	—	—	—	—	—
NE Tails	3/5/2012	ENER	—	13.0	39.7	0.104	—	—	—	—	—
	11/30/2012	ENER	9.94	0.836	32.0	0.0910	2.60	48.0	—	—	—
NE1	10/11/2012	ENER	—	1.04	4.81	0.0480	—	—	—	—	—
NE6	10/16/2012	ENER	—	1.26	3.61	0.0290	—	—	—	—	—
NW Tails	3/5/2012	ENER	—	6.59	19.8	0.738	—	—	—	—	—
	11/30/2012	ENER	9.22	7.39	24.6	0.186	1.10	157	—	—	—
SE Tails	3/5/2012	ENER	—	10.3	32.3	0.0860	—	—	—	—	—
	11/30/2012	ENER	9.89	9.27	27.2	0.0850	2.00	104	—	—	—
SE2	10/15/2012	ENER	—	0.571	25.7	0.0650	—	—	—	—	—

TABLE B.1-2 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
SW Tails	3/5/2012	ENER	—	5.66	20.3	0.140	—	—	—	—	—
	11/30/2012	ENER	9.68	6.00	15.5	0.590	0.600	193	—	—	—
SW1	10/15/2012	ENER	—	24.8	27.3	0.0720	—	—	—	—	—
SW2	10/15/2012	ENER	—	6.09	20.6	9.45	—	—	—	—	—
WA4	7/27/2012	ENER	—	2.19	10.8	0.171	—	—	—	—	—
WA5	7/26/2012	ENER	—	3.57	12.1	0.0580	—	—	—	—	—
WA8	7/26/2012	ENER	—	4.38	12.8	0.0560	—	—	—	—	—
WA10	10/9/2012	ENER	—	2.09	7.33	0.0610	—	—	—	—	—
WB2	7/26/2012	ENER	—	7.52	28.7	0.281	—	—	—	—	—
WB7	7/27/2012	ENER	—	4.00	17.0	0.292	—	—	—	—	—
WB10	7/27/2012	ENER	—	3.02	17.4	0.0520	—	—	—	—	—
WB16	7/27/2012	ENER	—	13.7	45.6	0.237	—	—	—	—	—
WC9	10/10/2012	ENER	—	4.61	13.3	0.109	—	—	—	—	—
WC14	7/31/2012	ENER	—	3.43	12.1	0.137	—	—	—	—	—
WC15	10/16/2012	ENER	—	0.680	2.00	0.0450	—	—	—	—	—
WC17	7/26/2012	ENER	—	8.51	29.3	0.168	—	—	—	—	—
WC19	7/31/2012	ENER	—	3.98	15.1	0.135	—	—	—	—	—
WD3	11/15/2012	ENER	—	9.10	16.3	0.122	—	—	—	—	—
WD4	9/10/2012	ENER	—	9.92	34.8	0.350	—	—	—	—	—
WD6	7/27/2012	ENER	—	6.31	23.7	0.158	—	—	—	—	—
WD8	7/26/2012	ENER	—	10.1	24.5	0.265	—	—	—	—	—
	9/10/2012	ENER	—	6.36	17.6	0.206	—	—	—	—	—
WD9	7/27/2012	ENER	—	5.94	22.5	0.156	—	—	—	—	—

TABLE B.1-2 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
WD10	7/26/2012	ENER	—	2.90	13.5	0.119	—	—	—	—	—
WE3	7/26/2012	ENER	—	4.56	15.5	0.0960	—	—	—	—	—
WE5	7/31/2012	ENER	—	4.36	17.3	0.0560	—	—	—	—	—
WE6	7/31/2012	ENER	—	6.78	23.8	0.0880	—	—	—	—	—
WE9	2/2/2012	ENER	9.63	0.835	4.19	0.132	—	—	—	—	—
	3/15/2012	ENER	9.52	0.876	4.53	0.101	—	—	—	—	—
	5/8/2012	ENER	8.09	0.474	2.09	0.0060	—	—	—	—	—
WE13	1/31/2012	ENER	8.54	0.581	2.60	0.0170	—	—	—	—	—
WE14	10/10/2012	ENER	—	2.14	8.45	0.0150	—	—	—	—	—
WE16	10/10/2012	ENER	—	12.2	40.6	0.301	—	—	—	—	—
WE18	7/26/2012	ENER	—	1.58	2.85	< 0.0050	—	—	—	—	—
WF1	7/26/2012	ENER	—	2.77	11.6	0.0800	—	—	—	—	—
WF2	2/1/2012	ENER	8.59	0.478	2.74	0.0090	—	—	—	—	—
	3/15/2012	ENER	8.49	0.654	2.19	0.0070	—	—	—	—	—
	5/8/2012	ENER	8.67	0.620	2.38	0.0110	—	—	—	—	—
WF5	7/26/2012	ENER	—	6.86	22.8	0.162	—	—	—	—	—
WF7	7/26/2012	ENER	—	1.97	8.38	0.0870	—	—	—	—	—
WF8	5/17/2012	ENER	—	1.28	5.22	0.0630	—	—	—	—	—
WF9	2/1/2012	ENER	8.01	0.466	1.95	< 0.0050	—	—	—	—	—
	3/16/2012	ENER	8.01	0.517	2.04	< 0.0050	—	—	—	—	—
	5/9/2012	ENER	9.63	0.708	3.78	0.173	—	—	—	—	—
WF10	2/1/2012	ENER	8.11	0.666	1.67	0.0250	—	—	—	—	—
	3/16/2012	ENER	8.23	0.694	1.32	0.0300	—	—	—	—	—
	5/9/2012	ENER	8.25	0.687	1.24	0.0290	—	—	—	—	—

TABLE B.1-2 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
WF11	2/2/2012	ENER	9.40	0.676	3.17	0.0200	—	—	—	—	—
	3/15/2012	ENER	9.32	0.700	3.43	0.0240	—	—	—	—	—
	5/8/2012	ENER	9.25	0.601	3.34	0.0230	—	—	—	—	—
WF12	2/2/2012	ENER	9.53	2.67	7.71	0.171	—	—	—	—	—
	3/15/2012	ENER	9.54	3.79	10.2	0.254	—	—	—	—	—
	5/8/2012	ENER	9.46	3.19	8.86	0.145	—	—	—	—	—
WF13	9/13/2012	ENER	—	8.47	18.0	1.43	—	—	—	—	—
WF14	10/10/2012	ENER	—	1.34	4.96	0.168	—	—	—	—	—
WF15	9/13/2012	ENER	—	4.52	16.9	0.156	—	—	—	—	—
WM4	3/14/2012	ENER	7.35	1.09	2.57	0.0410	—	—	—	—	—
WN1	10/15/2012	ENER	—	11.0	29.1	0.0100	—	—	—	—	—
WN2	10/15/2012	ENER	—	3.59	12.5	0.0490	—	—	—	—	—
WO10	10/16/2012	ENER	—	2.58	9.99	0.203	—	—	—	—	—
WO21	10/15/2012	ENER	—	0.192	1.51	0.0190	—	—	—	—	—
WP15	11/20/2012	ENER	—	0.274	1.75	0.107	—	—	—	—	—
WS2	10/15/2012	ENER	—	3.56	5.99	0.115	—	—	—	—	—
WS3	10/15/2012	ENER	—	3.04	9.49	0.0140	—	—	—	—	—
WT6	2/1/2012	ENER	8.85	2.15	9.48	0.0180	—	—	—	—	—
	3/15/2012	ENER	8.96	1.79	8.66	0.141	—	—	—	—	—
	5/8/2012	ENER	8.97	2.98	12.9	0.0500	—	—	—	—	—
WU2	10/10/2012	ENER	—	0.813	5.10	0.0360	—	—	—	—	—
WU3	2/1/2012	ENER	8.51	3.18	7.67	0.0990	—	—	—	—	—
	3/16/2012	ENER	8.42	3.32	7.67	0.107	—	—	—	—	—
	5/9/2012	ENER	8.56	2.79	6.48	0.126	—	—	—	—	—

TABLE B.1-2 WATER QUALITY ANALYSES FOR THE TAILINGS WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
WU4	10/16/2012	ENER	—	2.08	4.14	0.0920	—	—	—	—	—
WU6	2/2/2012	ENER	9.10	1.04	2.20	0.0110	—	—	—	—	—
	3/16/2012	ENER	9.17	1.55	5.51	0.0180	—	—	—	—	—
	5/8/2012	ENER	9.16	0.917	2.98	0.0130	—	—	—	—	—
WU7	10/16/2012	ENER	—	0.451	1.70	0.0370	—	—	—	—	—
WU10	1/31/2012	ENER	8.54	0.300	2.40	0.0120	—	—	—	—	—
	3/14/2012	ENER	8.61	0.406	2.31	0.0140	—	—	—	—	—
WU11	1/31/2012	ENER	7.81	0.721	2.30	0.0190	—	—	—	—	—
	3/14/2012	ENER	7.67	0.798	2.33	0.0140	—	—	—	—	—
	11/7/2012	ENER	7.70	0.850	1.81	0.0150	0.300	42.0	—	—	—
WU12	1/31/2012	ENER	8.24	1.19	6.30	0.0060	—	—	—	—	—
WW1	10/15/2012	ENER	—	13.0	27.9	3.40	—	—	—	—	—

TABLE B.2-1 WATER QUALITY ANALYSES FOR THE TOE DRAIN SUMPS

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
East 1 Sump	4/12/2012	ENER	—	—	—	—	—	—	—	9660	24300	* 26710	—
	11/30/2012	ENER	2.70	7.60	29.0	7960	3170	2640	649	9780	23100	* 26600	0.961
East 2 Sump	4/12/2012	ENER	—	—	—	—	—	—	—	9470	22000	* 25040	—
	12/3/2012	ENER	9.30	15.3	26.6	8140	2930	1740	1220	9050	19700	* 23580	1.08
East Reclaim	4/12/2012	ENER	—	—	—	—	—	—	—	5160	12100	* 15690	—
	11/30/2012	ENER	4.40	12.0	18.9	4350	2070	1100	734	5480	12400	* 15800	0.930
North 1 Sump	4/12/2012	ENER	—	—	—	—	—	—	—	7120	16100	* 19150	—
	12/3/2012	ENER	9.60	12.1	19.0	6170	2570	959	900	6950	16000	* 18450	1.11
South 1 Sump	4/12/2012	ENER	—	—	—	—	—	—	—	4520	8940	* 11630	—
	12/3/2012	ENER	94.1	60.0	22.4	3140	1370	53.0	588	4480	8600	* 11080	1.09
West 1 Sump	4/12/2012	ENER	—	—	—	—	—	—	—	5210	10500	* 13360	—
	12/3/2012	ENER	30.3	37.6	10.7	3420	1530	197	556	4460	9070	* 11530	1.10
West Reclaim	4/12/2012	ENER	—	—	—	—	—	—	—	2620	6410	* 9076	—
	12/3/2012	ENER	19.0	10.8	5.30	1670	1150	147	276	1830	4330	* 6146	1.07

* Signifies Specific Conductivity from HMC

TABLE B.2-2 WATER QUALITY ANALYSES FOR THE TOE DRAIN SUMPS

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
East 1 Sump	4/12/2012	ENER	--	0.438	0.940	< 0.0050	--	--	--	--	--
	11/30/2012	ENER	9.68	44.1	88.6	0.531	0.100	124	--	--	--
East 2 Sump	4/12/2012	ENER	--	51.7	71.8	0.200	--	--	--	--	--
	12/3/2012	ENER	9.52	52.8	71.7	0.137	0.500	15.0	--	--	--
East Reclaim	4/12/2012	ENER	--	16.4	37.8	0.370	--	--	--	--	--
	11/30/2012	ENER	9.65	19.8	42.5	0.499	0.400	69.0	--	--	--
North 1 Sump	4/12/2012	ENER	--	28.3	50.7	0.670	--	--	--	--	--
	12/3/2012	ENER	9.43	35.4	59.8	0.532	0.600	13.0	--	--	--
South 1 Sump	4/12/2012	ENER	--	13.4	13.1	< 0.0300	--	--	--	--	--
	12/3/2012	ENER	8.27	16.1	11.9	0.0540	0.900	63.0	--	--	--
West 1 Sump	4/12/2012	ENER	--	16.3	17.3	0.470	--	--	--	--	--
	12/3/2012	ENER	9.02	17.6	16.7	0.263	9.00	8.80	--	--	--
West Reclaim	4/12/2012	ENER	--	6.87	20.3	0.0900	--	--	--	--	--
	12/3/2012	ENER	9.06	5.14	10.7	0.0620	0.200	45.0	--	--	--

TABLE B.3-1 WATER QUALITY ANALYSES FOR THE LINED PONDS

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
E Coll Pond	3/5/2012	ENER	---	---	---	---	---	---	1100	9250	16400	* 20880	---
	4/2/2012	ENER	---	---	---	---	---	---	1190	10100	17700	* 20280	---
	8/13/2012	ENER	13.0	89.0	15.0	4250	858	360	877	6670	13300	* 15320	1.02
	10/1/2012	ENER	---	---	---	---	---	---	792	6110	10700	* 14370	---
Evap Pond 1	3/5/2012	ENER	---	---	---	---	---	---	3540	17900	36200	* 39960	---
	4/2/2012	ENER	---	---	---	---	---	---	11000	33800	89200	* 79390	---
	8/13/2012	ENER	16.0	233	77.0	16700	4140	3360	4110	20300	47100	* 45930	1.04
	10/1/2012	HMC	---	---	---	---	---	---	---	---	---	46080	---
	10/11/2012	ENER	---	---	---	---	---	---	4010	20600	45800	* 45250	---
Evap Pond 2	3/5/2012	ENER	---	---	---	---	---	---	875	7100	14400	* 17610	---
	4/2/2012	ENER	---	---	---	---	---	---	996	8120	16100	* 79390	---
	8/13/2012	ENER	21.6	123	28.0	7370	2140	952	1320	10300	21200	* 23590	1.04
	10/1/2012	ENER	---	---	---	---	---	---	1420	11100	20600	* 23370	---
Evap Pond 3A	3/5/2012	ENER	---	---	---	---	---	---	12900	27200	86000	* 81190	---
	4/2/2012	ENER	---	---	---	---	---	---	14900	32800	99000	* 85710	---
	4/2/2012	ENER	---	---	---	---	---	---	# 14200	# 31500	# 96600	---	---
	8/7/2012	ENER	16.0	410	231	30200	11500	11100	13100	36100	105000	* 85810	0.806
	10/1/2012	ENER	---	---	---	---	---	---	7890	28800	72800	* 64110	---
Evap Pond 3B	3/5/2012	ENER	---	---	---	---	---	---	21800	19100	101000	* 94850	---
	4/2/2012	ENER	---	---	---	---	---	---	26200	21700	118000	* 106000	---
	8/7/2012	ENER	16.0	462	319	38000	13500	14600	17700	39100	127000	* 101000	0.841
	10/1/2012	ENER	---	---	---	---	---	---	12400	34200	104000	* 85530	---
W Coll Pond	3/5/2012	ENER	---	---	---	---	---	---	1200	10500	18500	* 19140	---
	4/2/2012	ENER	---	---	---	---	---	---	868	7390	12700	* 15260	---
	8/13/2012	ENER	9.50	69.4	7.70	2220	273	121	463	3580	6860	* 8564	1.07
	10/1/2012	ENER	---	---	---	---	---	---	394	3230	5810	* 7679	---

Signifies Quality Control Sample

* Signifies Specific Conductivity from HMC

TABLE B.3-2 WATER QUALITY ANALYSES FOR THE LINED PONDS

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
E Coll Pond	3/5/2012	ENER	9.36	25.9	37.8	1.26	—	—	—	—	—
	4/2/2012	ENER	9.46	28.1	44.0	1.61	—	—	—	—	—
	8/13/2012	ENER	9.50	21.8	28.6	0.215	< 0.100	6.80	30.8	0.0200	1.000
	10/1/2012	ENER	9.39	20.9	32.4	0.167	< 0.100	—	—	—	—
Evap Pond 1	3/5/2012	ENER	9.62	90.0	149	0.800	—	—	—	—	—
	4/2/2012	ENER	9.47	339	498	0.220	—	—	—	—	—
	8/13/2012	ENER	9.58	112	169	0.960	0.100	42.0	5.10	0.100	133
	10/11/2012	ENER	9.61	70.2	159	0.608	—	—	—	—	—
Evap Pond 2	3/5/2012	ENER	9.72	26.0	50.8	0.739	—	—	—	—	—
	4/2/2012	ENER	9.76	25.9	44.6	0.800	—	—	—	—	—
	8/13/2012	ENER	9.45	33.5	63.2	0.900	1.60	63.0	7.40	0.0500	53.1
	10/1/2012	ENER	9.44	34.8	62.3	1.34	2.40	—	—	—	—
W Coll Pond	3/5/2012	ENER	9.25	26.4	48.6	1.45	—	—	—	—	—
	4/2/2012	ENER	9.51	20.8	33.6	1.15	—	—	—	—	—
	8/13/2012	ENER	9.57	11.0	17.5	0.608	5.00	0.230	- 0.0200	0.0100	0.200
	10/1/2012	ENER	9.61	9.46	16.1	0.572	5.30	—	—	—	—

TABLE B.4-1 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
0690	5/22/2012	ENER	—	—	—	—	—	—	102	314	950	* 1442	—
0691	5/22/2012	ENER	—	—	—	—	—	—	85.0	226	782	* 1273	—
0891	5/23/2012	ENER	—	—	—	—	—	—	55.0	156	943	* 1475	—
1A	4/16/2012	ENER	—	—	—	—	—	—	275	1050	2440	* 3458	—
1E	4/16/2012	ENER	—	—	—	—	—	—	216	33.0	1960	* 3477	—
1F	4/16/2012	ENER	—	—	—	—	—	—	261	1030	2530	* 3540	—
1G	11/14/2012	ENER	—	—	—	—	—	—	—	1190	2670	* 3735	—
1J	4/17/2012	ENER	743	159	7.10	758	2680	< 5.00	248	60.0	6790	* 5615	1.59
1K	11/14/2012	ENER	—	—	—	—	—	—	—	1120	2750	* 3855	—
1M	11/14/2012	ENER	—	—	—	—	—	—	109	331	995	* 1487	—
1N	5/29/2012	ENER	—	—	—	—	—	—	129	723	1780	* 2526	—
1P	4/17/2012	ENER	—	—	—	—	—	—	709	855	2820	* 4186	—
1Q	4/17/2012	ENER	100.0	22.3	3.20	366	532	< 5.00	287	389	1520	* 2783	0.910
1R	4/17/2012	ENER	242	48.2	3.80	675	1200	< 5.00	689	30.0	3100	* 4229	1.14
1S	4/17/2012	ENER	376	87.4	4.50	648	1790	< 5.00	270	< 2.00	4540	* 4336	1.46
1T	4/17/2012	ENER	78.6	15.7	2.60	345	653	< 5.00	291	124	1250	* 2152	0.937
1U	4/17/2012	ENER	98.0	23.2	3.10	407	480	< 5.00	285	491	1660	* 2598	0.935
1V	4/17/2012	ENER	82.8	23.6	3.10	423	472	< 5.00	307	480	1670	* 2602	0.925
B	10/20/2012	ENER	—	—	—	—	—	—	123	494	1290	* 1824	—
B2	7/18/2012	ENER	329	108	7.30	2960	1480	< 5.00	679	4960	9420	* 11320	1.05
B3	7/25/2012	ENER	309	112	8.10	3330	1650	< 5.00	787	5930	11200	* 13170	0.982
B4	7/25/2012	ENER	159	69.4	7.20	3570	1970	< 5.00	754	5630	11100	* 13430	0.989

* Signifies Specific Conductivity from HMC

TABLE B.4-1 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
B5	7/25/2012	ENER	287	124	7.90	3220	1700	< 5.00	763	5310	10400	* 12580	1.03
B6	7/25/2012	ENER	226	64.4	6.70	976	682	< 5.00	288	1840	3810	* 4951	1.02
B7	7/25/2012	ENER	241	77.4	6.80	1190	863	< 5.00	324	2210	4340	* 5806	1.01
B8	7/25/2012	ENER	524	191	6.20	2430	1690	< 5.00	537	4900	9670	* 11020	1.02
B9	7/25/2012	ENER	409	132	6.00	2130	1300	< 5.00	511	4080	8060	* 9540	1.03
B10	7/25/2012	ENER	283	150	8.10	3640	1670	< 5.00	823	6160	12100	* 14220	1.03
B11	7/25/2012	ENER	506	136	15.4	1940	922	< 5.00	557	4270	7910	* 7306	1.01
B12	11/14/2012	ENER	—	—	—	—	—	—	154	982	2240	* 3110	—
BC	11/14/2012	ENER	—	—	—	—	—	—	94.0	1550	2800	* 3418	—
BP	11/14/2012	ENER	—	—	—	—	—	—	135	737	1670	* 2321	—
C1	11/13/2012	ENER	—	—	—	—	—	—	84.0	358	933	* 1414	—
C5	11/14/2012	ENER	—	—	—	—	—	—	104	358	1080	* 1583	—
C6	6/25/2012	ENER	42.1	10.1	3.00	369	379	< 5.00	98.0	407	1140	* 1719	1.08
C7	6/25/2012	ENER	172	43.0	5.00	801	585	< 5.00	258	1330	2990	* 4006	1.05
C8	6/25/2012	ENER	433	107	7.40	1140	772	< 5.00	443	2660	5100	* 6397	0.994
C9	6/25/2012	ENER	219	50.8	5.00	871	586	< 5.00	295	1630	3400	* 4272	1.02
C10	6/25/2012	ENER	123	30.2	3.40	969	669	< 5.00	246	1430	3240	* 4318	1.06
C11	6/25/2012	ENER	97.9	27.4	3.60	737	468	< 5.00	152	1080	2440	* 3390	1.14
C12	6/25/2012	ENER	105	23.8	4.90	490	492	< 5.00	207	764	1940	* 2940	0.955
D1	3/26/2012	ENER	—	—	—	—	—	—	—	978	1980	* 2540	—
	7/2/2012	ENER	219	46.0	3.20	307	306	< 5.00	117	1040	2020	* 2621	0.934
DA3	7/18/2012	ENER	135	65.5	6.00	3720	1820	35.0	696	5190	10200	* 13320	1.10
DC	11/13/2012	ENER	—	—	—	—	—	—	245	992	2340	* 3076	—

* Signifies Specific Conductivity from HMC

TABLE B.4-1 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
DD	3/5/2012	ENER	—	—	—	—	—	—	62.0	1690	2950	* 3428	—
	5/3/2012	ENER	433	101	7.30	339	373	< 5.00	72.0	1750	3070	* 3491	1.00
	8/6/2012	ENER	—	—	—	—	—	—	72.0	1790	3050	* 3461	—
	10/1/2012	ENER	—	—	—	—	—	—	68.0	1820	3110	* 3509	—
DD2	3/5/2012	ENER	—	—	—	—	—	—	57.0	1270	2250	* 2811	—
	5/3/2012	ENER	323	76.1	6.10	288	361	< 5.00	64.0	1270	2380	* 2821	1.02
	8/7/2012	ENER	—	—	—	—	—	—	66.0	1340	2300	* 2817	—
	10/1/2012	ENER	—	—	—	—	—	—	64.0	1360	2350	* 2819	—
DQ	7/25/2012	ENER	418	125	7.80	2360	1250	< 5.00	568	4330	8390	* 9907	1.06
DZ	7/31/2012	ENER	—	—	—	—	—	—	113	301	923	* 1444	—
F	3/14/2012	ENER	—	—	—	—	—	—	—	668	1930	* 2598	—
	9/17/2012	ENER	—	—	—	—	—	—	196	689	1840	* 2527	—
FB	3/14/2012	ENER	—	—	—	—	—	—	—	642	1990	* 2680	—
	9/17/2012	ENER	—	—	—	—	—	—	217	735	1970	* 2668	—
GH	3/14/2012	ENER	—	—	—	—	—	—	—	670	1900	* 2564	—
	9/17/2012	ENER	—	—	—	—	—	—	209	690	1870	* 2561	—
	9/17/2012	ENER	—	—	—	—	—	—	# 212	# 701	# 1850	—	—
GN	4/16/2012	ENER	—	—	—	—	—	—	—	429	1240	* 1807	—
GV	11/27/2012	ENER	—	—	—	—	—	—	155	528	1440	* 2057	—
I	10/20/2012	ENER	—	—	—	—	—	—	130	416	1250	* 1809	—
K4	1/17/2012	ENER	—	—	—	—	—	—	104	372	1090	* 1688	—
	7/13/2012	ENER	88.9	30.5	3.40	214	419	< 5.00	105	382	1120	* 1689	0.910
K5	1/17/2012	ENER	—	—	—	—	—	—	97.0	519	1320	* 1862	—
	7/13/2012	ENER	100.0	30.9	3.30	239	424	< 5.00	105	383	1120	* 1693	0.998
K7	1/17/2012	ENER	—	—	—	—	—	—	114	424	1210	* 1817	—

Signifies Quality Control Sample

* Signifies Specific Conductivity from HMC

TABLE B.4-1 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
K7	7/13/2012	ENER	128	37.4	3.90	170	441	< 5.00	111	366	1120	* 1657	0.935
K8	1/17/2012	ENER	—	—	—	—	—	—	104	377	1110	* 1666	—
	7/13/2012	ENER	90.6	31.0	3.30	223	420	< 5.00	105	387	1120	* 1696	0.933
K9	1/17/2012	ENER	—	—	—	—	—	—	95.0	446	1170	* 1737	—
	7/13/2012	ENER	69.3	19.0	2.70	209	363	< 5.00	94.0	330	970	* 1477	0.907
K10	1/17/2012	ENER	—	—	—	—	—	—	94.0	449	1160	* 1776	—
	7/13/2012	ENER	82.4	21.1	3.60	231	369	< 5.00	95.0	349	1020	* 1510	0.989
K11	1/17/2012	ENER	—	—	—	—	—	—	102	399	1120	* 1757	—
	7/13/2012	ENER	75.3	18.6	3.40	276	412	< 5.00	104	368	1110	* 1645	0.992
KEB	7/13/2012	ENER	—	—	—	—	—	—	115	394	1120	* 1649	—
KF	11/14/2012	ENER	—	—	—	—	—	—	—	384	1150	* 1657	—
KZ	7/13/2012	ENER	—	—	—	—	—	—	132	428	1210	* 1758	—
L	4/13/2012	ENER	—	—	—	—	—	—	—	380	1080	* 1906	—
L5	4/13/2012	ENER	—	—	—	—	—	—	—	326	966	* 1458	—
L6	4/16/2012	ENER	—	—	—	—	—	—	—	212	679	* 1045	—
L7	4/13/2012	ENER	—	—	—	—	—	—	—	246	785	* 1216	—
L8	4/13/2012	ENER	—	—	—	—	—	—	—	331	988	* 1470	—
L9	4/13/2012	ENER	—	—	—	—	—	—	—	363	1060	* 1598	—
L10	4/13/2012	ENER	—	—	—	—	—	—	—	335	1000	* 1486	—
M3	7/18/2012	ENER	378	104	6.70	1280	889	< 5.00	325	2580	5130	* 6183	1.07
M5	12/6/2012	ENER	—	—	—	—	—	—	127	949	1900	* 2475	—
M6	11/19/2012	ENER	—	—	—	—	—	—	203	1070	2360	* 3159	—
M7	11/19/2012	ENER	—	—	—	—	—	—	198	723	1830	* 2564	—

* Signifies Specific Conductivity from HMC

TABLE B.4-1 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/)	Ion_B (ratio)
M9	5/17/2012	ENER	—	—	—	—	—	—	212	1240	2630	—	—
	7/30/2012	ENER	342	90.0	6.90	404	482	< 5.00	224	1380	2720	* 3431	0.979
M10	11/17/2012	ENER	—	—	—	—	—	—	225	1600	3010	* 3698	—
ML	11/19/2012	ENER	—	—	—	—	—	—	226	1930	3610	* 4200	—
MO	10/2/2012	ENER	—	—	—	—	—	—	219	986	2170	* 2850	—
	10/2/2012	ENER	—	—	—	—	—	—	# 216	# 966	# 2160	—	—
MQ	7/18/2012	ENER	378	93.0	8.50	382	464	< 5.00	209	1320	2770	* 3401	1.05
MS	4/12/2012	ENER	—	—	—	—	—	—	182	712	1810	* 2512	—
	8/27/2012	ENER	—	—	—	—	—	—	195	799	1940	* 2623	—
MU	11/19/2012	ENER	—	—	—	—	—	—	327	2040	3740	* 4281	—
MV	11/27/2012	ENER	—	—	—	—	—	—	199	1080	2370	* 3041	—
MW	11/20/2012	ENER	—	—	—	—	—	—	233	1850	3720	* 4145	—
MX	11/27/2012	ENER	—	—	—	—	—	—	181	639	1720	* 2393	—
MY	11/27/2012	ENER	—	—	—	—	—	—	190	709	1770	* 2482	—
MZ	11/19/2012	ENER	—	—	—	—	—	—	204	1510	2980	* 3594	—
N	11/20/2012	ENER	—	—	—	—	—	—	810	4720	8970	* 10780	—
NC	11/19/2012	ENER	—	—	—	—	—	—	56.0	636	1240	* 1716	—
ND	5/30/2012	ENER	45.9	11.9	1.000	447	381	< 5.00	79.0	743	1590	* 2536	0.943
O	11/20/2012	ENER	—	—	—	—	—	—	220	1160	2420	* 3206	—
P	5/3/2012	ENER	234	45.6	5.00	237	254	< 5.00	50.0	1010	1800	* 2302	0.966
	5/3/2012	ENER	# 232	# 45.6	# 5.00	# 238	# 261	# < 5.00	# 47.0	# 984	# 1820	—	# 0.983
	10/1/2012	ENER	—	—	—	—	—	—	—	1040	1820	* 2296	—
P2	5/7/2012	ENER	337	57.0	7.00	292	228	< 5.00	63.0	1300	2310	* 2765	1.05

Signifies Quality Control Sample

* Signifies Specific Conductivity from HMC

TABLE B.4-1 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
P3	5/7/2012	ENER	275	54.2	6.20	258	240	< 5.00	62.0	1100	1960	* 2448	1.03
P4	5/7/2012	ENER	220	37.5	3.80	239	187	< 5.00	51.0	939	1680	* 2137	1.01
Q	5/29/2012	ENER	366	67.4	7.00	297	236	< 5.00	62.0	1380	2460	* 2951	1.07
R	5/30/2012	ENER	321	53.6	4.10	277	159	< 5.00	53.0	1320	2360	* 2782	1.03
S2	1/16/2012	ENER	—	—	—	—	—	—	—	1160	2650	* 3696	—
	1/16/2012	ENER	—	—	—	—	—	—	—	# 1160	# 2600	—	—
	7/2/2012	ENER	—	—	—	—	—	—	222	1030	2570	* 3442	—
	7/2/2012	ENER	—	—	—	—	—	—	# 222	# 1030	# 2530	—	—
S3	12/11/2012	ENER	—	—	—	—	—	—	235	1010	2300	* 3131	—
S4	3/13/2012	ENER	—	—	—	—	—	—	—	769	2080	* 2788	—
	7/2/2012	ENER	251	65.7	4.70	296	551	< 5.00	235	806	2100	* 2811	0.948
	11/7/2012	ENER	256	66.5	5.00	317	522	< 5.00	232	790	2030	* 2725	1.01
S5R	7/18/2012	ENER	290	84.3	8.50	1630	1230	< 5.00	363	3050	6160	* 7780	0.984
S11	10/23/2012	ENER	—	—	—	—	—	—	219	735	1930	* 2688	—
S12	1/17/2012	ENER	261	70.1	5.90	424	620	< 5.00	231	980	2390	* 3210	1.00
SA	7/18/2012	ENER	162	81.3	7.90	3940	2280	< 5.00	554	5890	12100	* 13650	1.06
SM	12/10/2012	ENER	—	—	—	—	—	—	235	1050	2470	* 3437	—
SO	12/11/2012	ENER	—	—	—	—	—	—	237	1380	2880	* 3873	—
ST	1/16/2012	ENER	337	114	7.30	1340	1060	< 5.00	349	2750	5580	* 6798	1.00
	7/18/2012	ENER	415	168	15.5	3790	2200	< 5.00	627	6430	12700	* 14490	1.06
SUR	7/18/2012	ENER	394	113	8.60	2490	1580	< 5.00	378	4290	8580	* 10060	1.09
SV	7/18/2012	ENER	246	93.8	6.90	2730	1720	< 5.00	511	4110	8540	* 10230	1.08
SW	12/6/2012	ENER	—	—	—	—	—	—	416	2850	5280	* 6976	—
SZ	12/6/2012	ENER	14.0	73.7	9.50	7510	5730	540	1420	10500	23700	* 26680	0.900

Signifies Quality Control Sample

* Signifies Specific Conductivity from HMC

TABLE B.4-1 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
T	7/25/2012	ENER	149	33.6	7.20	676	519	< 5.00	307	1160	2540	* 3862	0.959
	12/10/2012	ENER	—	—	—	—	—	—	—	1350	2950	* 4248	—
T2	12/10/2012	ENER	175	63.5	6.80	1560	1440	< 5.00	264	2740	5460	* 7374	0.929
TA	7/25/2012	ENER	80.4	20.5	3.10	361	470	< 5.00	128	486	1350	* 2033	0.995
	10/15/2012	ENER	—	—	—	—	—	—	170	722	1730	* 2583	—
TB	10/18/2012	ENER	—	—	—	—	—	—	140	460	1280	* 1949	—
W	10/15/2012	ENER	—	—	—	—	—	—	189	605	1700	* 2374	—
X	3/5/2012	ENER	—	—	—	—	—	—	112	352	1050	* 1563	—
	3/5/2012	ENER	—	—	—	—	—	—	# 111	# 346	# 1060	—	—
	4/2/2012	ENER	—	—	—	—	—	—	113	370	1070	* 1554	—
	7/2/2012	ENER	179	39.7	4.80	156	399	< 5.00	152	415	1250	* 1821	0.973
	10/3/2012	ENER	—	—	—	—	—	—	104	366	1100	* 1613	—
X13	4/16/2012	ENER	—	—	—	—	—	—	271	1230	2540	* 3580	—
X16	4/16/2012	ENER	—	—	—	—	—	—	222	816	2700	* 2840	—
X18	4/16/2012	ENER	—	—	—	—	—	—	180	914	2170	* 2971	—
X20	4/16/2012	ENER	—	—	—	—	—	—	167	1070	2460	* 3423	—

Signifies Quality Control Sample

* Signifies Specific Conductivity from HMC

TABLE B.4-2 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
0690	5/22/2012	ENER	---	0.149	1.38	0.597	---	---	---	---	---
0691	5/22/2012	ENER	---	0.0153	0.280	0.134	---	---	---	---	---
0891	5/23/2012	ENER	---	0.0389	0.300	0.268	---	---	---	---	---
1A	4/16/2012	ENER	---	1.92	0.910	0.765	---	---	---	---	---
1E	4/16/2012	ENER	---	0.0374	0.0400	0.0130	---	---	---	---	---
1F	4/16/2012	ENER	---	2.94	< 0.0300	0.327	---	---	---	---	---
1G	11/14/2012	ENER	---	0.0944	---	0.294	8.10	---	---	---	---
1J	4/17/2012	ENER	6.18	0.0313	0.260	0.263	< 0.100	0.740	---	---	---
1K	11/14/2012	ENER	---	1.67	---	0.595	8.00	---	---	---	---
1M	11/14/2012	ENER	---	0.130	0.0500	0.0260	---	---	---	---	---
1N	5/29/2012	ENER	---	0.0604	< 0.0300	0.361	---	---	---	---	---
1P	4/17/2012	ENER	---	0.0770	< 0.0300	0.615	---	---	---	---	---
1Q	4/17/2012	ENER	7.76	0.899	0.290	0.0450	< 0.100	0.140	---	---	---
1R	4/17/2012	ENER	7.38	0.0161	< 0.0300	0.0640	< 0.100	3.60	---	---	---
1S	4/17/2012	ENER	6.46	0.0045	0.0600	0.0090	< 0.100	1.10	---	---	---
1T	4/17/2012	ENER	7.62	0.538	0.220	0.0410	< 0.100	0.370	---	---	---
1U	4/17/2012	ENER	7.66	1.44	1.99	0.0120	< 0.100	0.150	---	---	---
1V	4/17/2012	ENER	7.70	1.50	2.05	0.0140	< 0.100	0.180	---	---	---
B	10/20/2012	ENER	---	0.0720	< 0.0300	0.0220	---	---	---	---	---
B2	7/18/2012	ENER	7.68	21.1	11.8	0.508	3.50	0.200	---	---	---
B3	7/25/2012	ENER	7.67	29.9	33.2	0.857	7.90	0.190	---	---	---
B4	7/25/2012	ENER	7.96	27.9	33.8	0.883	6.70	0.100	---	---	---

TABLE B.4-2 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
B5	7/25/2012	ENER	7.50	30.2	34.4	0.783	7.60	0.200	—	—	—
B6	7/25/2012	ENER	7.52	8.54	10.1	0.942	9.60	0.200	—	—	—
B7	7/25/2012	ENER	7.56	11.2	17.0	0.847	9.40	0.240	—	—	—
B8	7/25/2012	ENER	7.19	31.3	22.1	0.562	7.10	0.0200	—	—	—
B9	7/25/2012	ENER	7.43	25.0	22.2	1.22	14.3	0.110	—	—	—
B10	7/25/2012	ENER	7.72	32.7	36.1	3.12	19.9	-0.0500	—	—	—
B11	7/25/2012	ENER	7.61	16.8	12.7	2.93	24.0	0.160	—	—	—
B12	11/14/2012	ENER	—	2.89	3.99	0.0820	—	—	—	—	—
BC	11/14/2012	ENER	—	0.967	0.140	0.115	—	—	—	—	—
BP	11/14/2012	ENER	—	1.46	0.650	0.132	—	—	—	—	—
C1	11/13/2012	ENER	—	0.209	0.210	0.0170	—	—	—	—	—
C5	11/14/2012	ENER	—	0.171	0.0500	0.0130	—	—	—	—	—
C6	6/25/2012	ENER	7.74	0.908	1.34	0.0850	1.50	0.0500	—	—	—
C7	6/25/2012	ENER	7.56	8.50	11.2	1.15	5.00	-0.0200	—	—	—
C8	6/25/2012	ENER	7.45	12.3	21.6	1.63	5.00	0.100	—	—	—
C9	6/25/2012	ENER	7.56	6.87	13.1	1.11	3.00	0.160	—	—	—
C10	6/25/2012	ENER	7.64	12.0	19.4	0.918	3.00	0.200	—	—	—
C11	6/25/2012	ENER	7.68	5.25	7.89	1.18	14.0	0.0800	—	—	—
C12	6/25/2012	ENER	7.70	6.86	7.98	1.07	4.40	0.0100	—	—	—
D1	3/26/2012	ENER	—	0.971	1.51	0.146	—	—	—	—	—
	7/2/2012	ENER	7.52	0.855	1.04	0.157	2.10	-0.100	-0.300	< 0.0100	0.0600
DA3	7/18/2012	ENER	8.17	22.2	16.2	1.13	4.90	0.310	—	—	—
DC	11/13/2012	ENER	—	0.105	< 0.0300	0.0460	7.00	—	—	—	—

TABLE B.4-2 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
DD	3/5/2012	ENER	7.20	0.173	< 0.0300	0.0420	—	—	—	—	—
	5/3/2012	ENER	7.25	0.149	< 0.0300	0.0410	4.20	0.0900	0.400	< 0.0100	0.0900
	8/6/2012	ENER	7.26	0.155	< 0.0300	0.0520	—	—	—	—	—
	10/1/2012	ENER	7.28	0.156	< 0.0300	0.0360	—	—	—	—	—
DD2	3/5/2012	ENER	7.13	0.257	< 0.0300	< 0.0050	—	—	—	—	—
	5/3/2012	ENER	7.19	0.226	< 0.0300	< 0.0050	< 0.100	0.360	0.300	< 0.0100	0.0600
	8/7/2012	ENER	—	0.247	< 0.0300	< 0.0050	—	—	—	—	—
	10/1/2012	ENER	7.24	0.254	< 0.0300	< 0.0050	—	—	—	—	—
DQ	7/25/2012	ENER	7.35	24.5	16.0	1.45	20.0	0.0200	—	—	—
DZ	7/31/2012	ENER	—	1.30	2.96	0.0270	—	—	—	—	—
F	3/14/2012	ENER	—	0.0574	< 0.0300	0.0120	—	—	—	—	—
	9/17/2012	ENER	—	0.0559	< 0.0300	0.0110	1.70	—	—	—	—
FB	3/14/2012	ENER	—	0.0662	< 0.0300	0.0080	—	—	—	—	—
	9/17/2012	ENER	—	0.0642	< 0.0300	0.0150	1.70	—	—	—	—
GH	3/14/2012	ENER	—	0.104	< 0.0300	0.0110	—	—	—	—	—
	9/17/2012	ENER	—	0.109	< 0.0300	0.0090	1.60	—	—	—	—
	9/17/2012	ENER	—	# 0.103	# < 0.0300	# 0.0100	# 1.50	—	—	—	—
GN	4/16/2012	ENER	—	0.0906	< 0.0300	0.0110	—	—	—	—	—
GV	11/27/2012	ENER	—	0.0775	< 0.0300	0.0230	—	—	—	—	—
I	10/20/2012	ENER	—	0.0684	< 0.0300	0.0080	1.20	—	—	—	—
K4	1/17/2012	ENER	—	0.637	1.18	0.236	—	—	—	—	—
	7/13/2012	ENER	7.66	0.648	1.01	0.205	1.60	0.140	—	—	—
K5	1/17/2012	ENER	—	0.359	1.42	0.0670	—	—	—	—	—
	7/13/2012	ENER	7.74	0.659	1.01	0.214	1.60	0.110	—	—	—
K7	1/17/2012	ENER	—	0.480	0.910	0.106	—	—	—	—	—

Signifies Quality Control Sample

TABLE B.4-2 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
K7	7/13/2012	ENER	7.67	0.193	0.190	0.0400	1.70	0.100	—	—	—
K8	1/17/2012	ENER	—	0.570	1.09	0.203	—	—	—	—	—
	7/13/2012	ENER	7.76	0.644	1.03	0.211	1.60	0.180	—	—	—
K9	1/17/2012	ENER	—	0.813	2.70	0.0690	—	—	—	—	—
	7/13/2012	ENER	7.86	0.651	1.33	0.0670	1.20	0.0600	—	—	—
K10	1/17/2012	ENER	—	1.07	2.87	0.132	—	—	—	—	—
	7/13/2012	ENER	7.79	0.636	0.860	0.0740	1.40	0.140	—	—	—
K11	1/17/2012	ENER	—	0.592	1.10	0.0440	—	—	—	—	—
	7/13/2012	ENER	7.73	0.506	0.650	0.0300	1.70	0.270	—	—	—
KEB	7/13/2012	ENER	—	0.0641	< 0.0300	0.0150	1.50	—	—	—	—
KF	11/14/2012	ENER	—	0.0885	—	0.0090	1.80	—	—	—	—
KZ	7/13/2012	ENER	—	0.0777	0.0600	0.0160	1.70	—	—	—	—
L	4/13/2012	ENER	—	0.396	—	0.0340	1.000	—	—	—	—
L5	4/13/2012	ENER	—	0.244	—	0.143	1.10	—	—	—	—
L6	4/16/2012	ENER	—	0.176	—	0.109	0.500	—	—	—	—
L7	4/13/2012	ENER	—	0.160	—	0.110	0.500	—	—	—	—
L8	4/13/2012	ENER	—	0.172	—	0.0890	1.000	—	—	—	—
L9	4/13/2012	ENER	—	0.353	—	0.0300	1.000	—	—	—	—
L10	4/13/2012	ENER	—	0.291	—	0.0230	1.000	—	—	—	—
M3	7/18/2012	ENER	7.55	8.22	4.18	0.642	5.70	0.0400	—	—	—
M5	12/6/2012	ENER	—	0.151	0.120	0.0280	1.50	—	—	—	—
M6	11/19/2012	ENER	—	2.40	1.70	0.155	—	—	—	—	—
M7	11/19/2012	ENER	—	1.52	1.05	0.0390	—	—	—	—	—

TABLE B.4-2 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
M9	5/17/2012	ENER	—	1.27	0.660	0.134	—	—	—	—	—
	7/30/2012	ENER	7.70	1.59	1.02	0.134	8.20	9.40	—	—	—
M10	11/17/2012	ENER	—	0.207	0.0500	0.0620	—	—	—	—	—
ML	11/19/2012	ENER	—	0.111	0.0500	0.0310	—	—	—	—	—
MO	10/2/2012	ENER	—	0.308	< 0.0300	0.0660	5.20	—	—	—	—
	10/2/2012	ENER	—	# 0.294	# < 0.0300	# 0.0680	# 5.30	—	—	—	—
MQ	7/18/2012	ENER	7.31	0.991	0.190	0.107	9.10	- 0.100	—	—	—
MS	4/12/2012	ENER	—	0.243	< 0.0300	0.0650	—	—	—	—	—
	8/27/2012	ENER	—	0.288	< 0.0300	0.0500	—	—	—	—	—
MU	11/19/2012	ENER	—	0.192	< 0.0300	0.0080	20.0	—	—	—	—
MV	11/27/2012	ENER	—	0.500	0.0600	0.0810	—	—	—	—	—
MW	11/20/2012	ENER	—	0.0909	< 0.0300	0.0320	—	—	—	—	—
MX	11/27/2012	ENER	—	0.0387	< 0.0300	0.0120	1.10	—	—	—	—
MY	11/27/2012	ENER	—	0.0300	< 0.0300	0.0640	1.70	—	—	—	—
MZ	11/19/2012	ENER	—	0.324	0.0300	0.0340	—	—	—	—	—
N	11/20/2012	ENER	—	14.2	0.0400	0.470	11.0	—	—	—	—
NC	11/19/2012	ENER	—	0.0695	0.0600	0.0820	4.30	—	—	—	—
ND	5/30/2012	ENER	7.75	0.0283	< 0.0300	0.0910	1.20	- 0.0200	—	—	—
O	11/20/2012	ENER	—	0.137	< 0.0300	0.328	16.0	—	—	—	—
P	5/3/2012	ENER	7.45	0.0311	< 0.0300	0.117	4.60	0.270	0.400	< 0.0100	- 0.0080
	5/3/2012	ENER	# 7.44	# 0.0312	# < 0.0300	# 0.127	# 4.40	# 0.500	# 0.300	# < 0.0100	# 0.0050
	10/1/2012	ENER	—	0.0340	< 0.0300	0.121	—	—	—	—	—
P2	5/7/2012	ENER	7.55	0.0311	< 0.0300	0.312	13.0	0.190	—	—	—

Signifies Quality Control Sample

TABLE B.4-2 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
P3	5/7/2012	ENER	7.54	0.0283	< 0.0300	0.190	8.90	0.180	—	—	—
P4	5/7/2012	ENER	7.48	0.0250	< 0.0300	0.176	6.40	0.0300	—	—	—
Q	5/29/2012	ENER	7.57	0.0490	< 0.0300	0.335	12.0	0.350	1.10	< 0.100	0.0200
R	5/30/2012	ENER	7.40	0.0190	< 0.0300	0.648	16.0	0.290	1.000	< 0.100	0.0080
S2	1/16/2012	ENER	—	6.59	8.20	1.61	—	—	—	—	—
	1/16/2012	ENER	—	# 6.93	# 8.37	# 1.59	—	—	—	—	—
	7/2/2012	ENER	—	4.81	6.82	1.42	2.30	—	—	—	—
	7/2/2012	ENER	—	# 4.81	# 6.78	# 1.38	# 2.30	—	—	—	—
S3	12/11/2012	ENER	—	2.15	1.62	0.0590	1.60	—	—	—	—
S4	3/13/2012	ENER	—	0.383	0.610	0.0190	—	—	—	—	—
	7/2/2012	ENER	7.46	0.373	0.530	0.0290	0.700	0.140	0.300	< 0.0100	0.0400
	11/7/2012	ENER	7.43	0.366	0.620	0.0140	0.600	4.50	—	—	—
S5R	7/18/2012	ENER	7.87	9.36	11.8	0.302	3.70	0.0700	—	—	—
S11	10/23/2012	ENER	—	0.0461	< 0.0300	0.0070	1.60	—	—	—	—
S12	1/17/2012	ENER	7.42	2.27	1.71	0.110	0.400	0.290	—	—	—
SA	7/18/2012	ENER	7.77	25.5	22.6	1.02	5.80	0.310	—	—	—
SM	12/10/2012	ENER	—	1.84	2.29	0.166	—	—	—	—	—
SO	12/11/2012	ENER	—	4.94	4.86	0.137	—	—	—	—	—
ST	1/16/2012	ENER	7.52	10.1	11.9	0.237	2.00	0.960	—	—	—
	7/18/2012	ENER	7.45	31.3	29.1	0.621	0.900	0.570	—	—	—
SUR	7/18/2012	ENER	7.50	18.0	16.4	0.333	2.70	0.260	—	—	—
SV	7/18/2012	ENER	7.95	17.0	16.8	1.20	3.10	0.130	—	—	—
SW	12/6/2012	ENER	—	10.5	13.1	0.800	—	—	—	—	—
SZ	12/6/2012	ENER	8.70	48.0	88.2	4.00	10.00	0.840	—	—	—

Signifies Quality Control Sample

TABLE B.4-2 WATER QUALITY ANALYSES FOR HOMESTAKE'S ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
T	7/25/2012	ENER	7.64	10.2	7.53	2.23	5.30	0.140	—	—	—
	12/10/2012	ENER	—	9.61	—	1.97	12.0	—	—	—	—
T2	12/10/2012	ENER	8.06	10.8	28.7	0.151	1.40	0.670	—	—	—
TA	7/25/2012	ENER	7.67	3.27	3.07	0.415	2.90	0.0600	—	—	—
	10/15/2012	ENER	—	4.10	4.63	0.688	—	—	—	—	—
TB	10/18/2012	ENER	—	1.20	0.470	0.415	—	—	—	—	—
W	10/15/2012	ENER	—	0.0808	< 0.0300	0.0160	—	—	—	—	—
X	3/5/2012	ENER	7.30	0.0506	0.0600	0.0170	—	—	—	—	—
	3/5/2012	ENER	# 7.34	# 0.0512	# 0.0600	# 0.0170	—	—	—	—	—
	4/2/2012	ENER	—	0.0553	0.0600	0.0130	—	—	—	—	—
	7/2/2012	ENER	7.49	0.0649	0.0400	0.0080	1.50	- 0.100	- 0.500	< 0.0100	0.0900
	10/3/2012	ENER	7.27	0.0755	0.0700	0.0080	—	—	—	—	—
X13	4/16/2012	ENER	—	9.00	1.48	0.783	—	—	—	—	—
X16	4/16/2012	ENER	—	5.25	0.590	0.0940	—	—	—	—	—
X18	4/16/2012	ENER	—	1.65	0.480	0.145	—	—	—	—	—
X20	4/16/2012	ENER	—	3.69	3.47	0.218	—	—	—	—	—

Signifies Quality Control Sample

TABLE B.4-3 WATER QUALITY ANALYSES FOR THE SUBDIVISION ALLUVIAL WELLS

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
0427	9/20/2012	ENER	153	44.0	6.50	213	422	< 5.00	143	496	1350	* 1933	0.965
0482	9/24/2012	ENER	—	—	—	—	—	—	196	720	1820	* 2508	—
0483	9/24/2012	ENER	—	—	—	—	—	—	202	772	1890	* 2595	—
0490	6/13/2012	ENER	231	61.7	5.80	271	501	< 5.00	181	683	1820	* 2451	1.03
	10/3/2012	ENER	—	—	—	—	—	—	—	846	1910	* 2674	—
0491	9/24/2012	ENER	—	—	—	—	—	—	156	526	1420	* 2037	—
0496	5/7/2012	ENER	—	—	—	—	—	—	170	652	1750	* 2436	—
	9/20/2012	ENER	—	—	—	—	—	—	170	650	1700	* 1853	—
0497	10/9/2012	ENER	—	—	—	—	—	—	169	693	1830	* 2505	—
	11/7/2012	ENER	216	57.9	6.10	322	550	< 5.00	171	723	1830	* 2523	1.02
0498	7/9/2012	ENER	—	—	—	—	—	—	166	639	1740	* 2426	—
0688	3/14/2012	ENER	—	—	—	—	—	—	—	684	1850	* 2505	—
	8/27/2012	ENER	240	54.6	5.50	277	524	< 5.00	181	690	1800	* 2515	1.02
0802	3/14/2012	ENER	—	—	—	—	—	—	—	620	1760	* 2456	—
	8/27/2012	ENER	230	58.9	4.80	251	538	< 5.00	199	655	1780	* 2490	0.969
0844	3/6/2012	ENER	—	—	—	—	—	—	300	1480	2990	* 3899	—
	7/27/2012	ENER	354	115	4.50	502	441	< 5.00	342	1670	3150	* 4017	0.947
	11/27/2012	ENER	356	130	4.50	554	437	< 5.00	332	1610	3260	* 4119	1.05
0845	3/6/2012	ENER	—	—	—	—	—	—	290	1270	2730	* 3380	—
	7/27/2012	ENER	362	100.0	5.30	455	431	< 5.00	352	1450	2860	* 3749	0.976
	11/27/2012	ENER	348	101	5.00	465	446	< 5.00	345	1400	3020	* 3796	0.993
AW	11/12/2012	ENER	—	—	—	—	—	—	—	655	1740	* 2406	—
CW44	10/9/2012	ENER	—	—	—	—	—	—	180	718	1850	* 2505	—
Sub1	5/2/2012	ENER	213	56.7	5.40	299	488	< 5.00	179	674	1760	* 2448	1.04

* Signifies Specific Conductivity from HMC

TABLE B.4-3 WATER QUALITY ANALYSES FOR THE SUBDIVISION ALLUVIAL WELLS (cont'd)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
Sub1	10/5/2012	ENER	—	—	—	—	—	—	—	807	1940	* 2646	—
Sub2	5/2/2012	ENER	159	44.4	4.20	244	409	< 5.00	134	496	1350	* 1942	1.06
	10/5/2012	ENER	—	—	—	—	—	—	—	519	1400	* 1961	—
Sub3	5/2/2012	ENER	194	63.8	9.50	278	506	< 5.00	180	614	1710	* 2387	1.04
	10/5/2012	ENER	—	—	—	—	—	—	—	659	1700	* 2386	—

* Signifies Specific Conductivity from HMC

TABLE B.4-4 WATER QUALITY ANALYSES FOR THE SUBDIVISION ALLUVIAL WELLS

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
0427	9/20/2012	ENER	7.47	0.0545	< 0.0300	0.0100	1.10	6.10	- 0.0300	< 0.0100	0.0100
0482	9/24/2012	ENER	—	0.129	0.0500	0.0240	2.40	—	—	—	—
0483	9/24/2012	ENER	—	0.134	0.0500	0.0270	2.70	—	—	—	—
0490	6/13/2012	ENER	7.52	0.220	0.0600	0.0340	2.30	- 0.0200	0.300	< 0.100	0.0500
	10/3/2012	ENER	—	0.209	0.0700	0.0560	—	—	—	—	—
0491	9/24/2012	ENER	—	0.269	0.0500	0.0200	1.70	—	—	—	—
0496	5/7/2012	ENER	—	0.128	< 0.0300	0.0460	—	—	—	—	—
	9/20/2012	ENER	—	0.168	< 0.0300	0.0380	2.10	—	—	—	—
0497	10/9/2012	ENER	—	0.773	< 0.0300	0.0390	2.30	—	—	—	—
	11/7/2012	ENER	7.73	0.750	0.0500	0.0380	2.40	0.240	—	—	—
0498	7/9/2012	ENER	—	0.392	< 0.0300	0.0370	2.00	—	—	—	—
0688	3/14/2012	ENER	—	0.0563	< 0.0300	0.0100	—	—	—	—	—
	8/27/2012	ENER	7.38	0.0568	< 0.0300	0.0080	1.60	0.0500	- 0.300	< 0.0100	0.0200
0802	3/14/2012	ENER	—	0.251	< 0.0300	0.0070	—	—	—	—	—
	8/27/2012	ENER	7.52	0.236	< 0.0300	0.0070	1.60	0.140	1.30	< 0.0100	- 0.0300
0844	3/6/2012	ENER	—	0.207	< 0.0300	0.0740	—	—	—	—	—
	7/27/2012	ENER	7.36	0.181	< 0.0300	0.0640	1.60	0.0900	- 0.200	0.0200	- 0.0400
	11/27/2012	ENER	7.53	0.156	< 0.0300	0.0660	9.00	3.10	—	—	—
0845	3/6/2012	ENER	—	0.0771	< 0.0300	0.0650	—	—	—	—	—
	7/27/2012	ENER	7.35	0.0662	< 0.0300	0.0660	1.50	0.200	1.30	0.0100	0.0100
	11/27/2012	ENER	7.39	0.0756	< 0.0300	0.0760	7.00	0.120	—	—	—
AW	11/12/2012	ENER	—	0.126	0.0700	0.0260	—	—	—	—	—
CW44	10/9/2012	ENER	—	0.360	< 0.0300	0.0340	3.20	—	—	—	—
Sub1	5/2/2012	ENER	7.31	0.0915	< 0.0300	0.0190	2.40	0.0900	0.300	< 0.0100	0.0090

TABLE B.4-4 WATER QUALITY ANALYSES FOR THE SUBDIVISION ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
Sub1	10/5/2012	ENER	—	0.0962	< 0.0300	0.0260	—	—	—	—	—
Sub2	5/2/2012	ENER	7.39	0.0289	< 0.0300	0.0170	1.90	0.0700	0.400	< 0.0100	0.0300
	10/5/2012	ENER	—	0.0291	< 0.0300	0.0180	—	—	—	—	—
Sub3	5/2/2012	ENER	7.41	0.0226	< 0.0300	< 0.0050	0.200	0.0300	1.30	< 0.0100	0.0060
	10/5/2012	ENER	—	0.0246	< 0.0300	0.0060	—	—	—	—	—

TABLE B.4-5 WATER QUALITY ANALYSES FOR THE REGIONAL ALLUVIAL WELLS

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
0520	10/16/2012	ENER	—	—	—	—	—	—	229	706	1760	* 2498	—
0521	10/15/2012	ENER	—	—	—	—	—	—	193	652	1540	* 2266	—
0522	5/7/2012	ENER	—	—	—	—	—	—	—	569	1450	* 2091	—
	10/16/2012	ENER	—	—	—	—	—	—	—	626	1550	* 2200	—
0531	10/19/2012	ENER	—	—	—	—	—	—	164	645	1590	* 2187	—
0532	5/9/2012	ENER	76.7	27.8	2.40	31.4	255	< 5.00	19.0	144	482	* 739	0.957
0538	5/9/2012	ENER	—	—	—	—	—	—	—	716	1830	* 2465	—
	9/20/2012	ENER	—	—	—	—	—	—	179	721	1830	* 1972	—
0540	9/20/2012	ENER	—	—	—	—	—	—	188	755	1880	* 1973	—
0541	9/20/2012	ENER	—	—	—	—	—	—	131	640	1500	* 1634	—
0551	3/9/2012	ENER	278	60.3	5.50	268	363	< 5.00	181	904	2010	* 2540	1.02
	8/1/2012	ENER	—	—	—	—	—	—	196	973	1920	* 2584	—
0553	3/9/2012	ENER	175	41.5	4.90	226	343	< 5.00	98.0	607	1440	* 1951	1.04
	8/1/2012	ENER	—	—	—	—	—	—	121	722	1550	* 2085	—
0554	3/9/2012	ENER	200	46.8	5.10	204	294	< 5.00	118	703	1490	* 1988	0.995
	8/1/2012	ENER	—	—	—	—	—	—	132	743	1450	* 2023	—
0555	3/6/2012	ENER	223	52.4	3.80	635	499	< 5.00	223	1250	2670	* 3583	1.06
	7/27/2012	ENER	219	56.8	4.40	603	495	< 5.00	271	1430	2710	* 3743	0.918
	11/27/2012	ENER	249	65.1	4.90	704	503	< 5.00	288	1390	3000	* 3967	1.07
0556	3/6/2012	ENER	259	63.7	4.20	548	402	< 5.00	181	1380	2710	* 3528	1.04
	7/27/2012	ENER	265	74.0	4.70	534	420	< 5.00	204	1480	2680	* 3541	0.978
	11/27/2012	ENER	237	69.0	4.20	481	417	< 5.00	195	1420	2790	* 3571	0.916
0557	3/6/2012	ENER	235	60.5	3.90	577	411	< 5.00	190	1320	2710	* 2473	1.05
	7/27/2012	ENER	245	63.0	4.60	500	421	< 5.00	199	1360	2570	* 3377	0.958
	11/27/2012	ENER	222	60.9	4.10	504	448	< 5.00	175	1190	2480	* 3233	1.02

* Signifies Specific Conductivity from HMC

TABLE B.4-5 WATER QUALITY ANALYSES FOR THE REGIONAL ALLUVIAL WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
0631	5/9/2012	ENER	—	—	—	—	—	—	—	779	1730	* 2415	—
	9/20/2012	ENER	—	—	—	—	—	—	166	792	1770	* 1878	—
	11/7/2012	ENER	172	40.7	6.30	343	324	< 5.00	163	778	1780	* 2414	1.03
0632	5/9/2012	ENER	—	—	—	—	—	—	141	749	1680	* 2296	—
	9/20/2012	ENER	—	—	—	—	—	—	140	747	1680	* 1806	—
0634	4/12/2012	ENER	—	—	—	—	—	—	212	962	2210	* 2934	—
	8/27/2012	ENER	—	—	—	—	—	—	234	1150	2490	* 3244	—
0636	10/17/2012	ENER	—	—	—	—	—	—	—	490	1170	* 1638	—
0637	10/17/2012	ENER	—	—	—	—	—	—	—	471	1190	* 1667	—
0638	10/15/2012	ENER	—	—	—	—	—	—	225	723	1900	* 2654	—
0639	10/18/2012	ENER	—	—	—	—	—	—	188	642	1560	* 2234	—
0640	7/9/2012	ENER	—	—	—	—	—	—	208	713	1890	* 2711	—
0644	9/20/2012	ENER	—	—	—	—	—	—	179	776	1830	* 1968	—
0646	10/22/2012	ENER	—	—	—	—	—	—	—	784	1860	* 2526	—
0647	9/20/2012	ENER	—	—	—	—	—	—	140	728	1700	* 1798	—
0649	3/13/2012	ENER	213	47.8	5.10	215	321	< 5.00	122	700	1560	* 2115	1.03
	5/9/2012	ENER	—	—	—	—	—	—	—	713	1610	* 2118	—
	7/9/2012	ENER	—	—	—	—	—	—	—	678	1540	* 2144	—
	8/1/2012	ENER	—	—	—	—	—	—	129	727	1570	* 2150	—
	9/20/2012	ENER	—	—	—	—	—	—	102	676	1440	* 1550	—
0650	3/13/2012	ENER	176	46.9	4.60	323	314	< 5.00	105	808	1720	* 2321	1.07
	8/27/2012	ENER	—	—	—	—	—	—	105	810	1680	* 2318	—
	10/19/2012	ENER	—	—	—	—	—	—	108	820	1700	* 2318	—
0653	10/22/2012	ENER	—	—	—	—	—	—	—	705	1790	* 2453	—

* Signifies Specific Conductivity from HMC

TABLE B.4-5 WATER QUALITY ANALYSES FOR THE REGIONAL ALLUVIAL WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
0654	10/19/2012	ENER	—	—	—	—	—	—	160	628	1610	* 2205	—
0657	5/9/2012	ENER	—	—	—	—	—	—	—	727	1740	* 2285	—
0658	3/13/2012	ENER	144	32.9	4.40	195	285	< 5.00	62.0	524	1190	* 1662	1.06
	7/9/2012	ENER	—	—	—	—	—	—	—	534	1190	* 1650	—
	8/1/2012	ENER	—	—	—	—	—	—	68.0	555	1180	* 1667	—
	8/1/2012	ENER	—	—	—	—	—	—	# 66.0	# 543	# 1190	—	—
	9/20/2012	ENER	—	—	—	—	—	—	71.0	573	1230	* 1329	—
	11/7/2012	ENER	169	39.6	4.80	215	306	< 5.00	79.0	616	1340	* 1825	1.05
0659	4/12/2012	ENER	—	—	—	—	—	—	208	896	2110	* 2922	—
	8/27/2012	ENER	—	—	—	—	—	—	195	796	2370	* 3170	—
0681	5/21/2012	ENER	—	—	—	—	—	—	159	735	1870	* 2428	—
0683	10/19/2012	ENER	—	—	—	—	—	—	—	565	1210	* 1594	—
0684	10/19/2012	ENER	—	—	—	—	—	—	—	707	1640	* 2257	—
0686	10/17/2012	ENER	—	—	—	—	—	—	94.0	522	1250	* 1730	—
0846	3/14/2012	ENER	—	—	—	—	—	—	199	2020	4090	* 4761	—
	8/27/2012	ENER	468	123	6.80	683	312	< 5.00	231	2370	4270	* 4969	1.04
0862	5/22/2012	ENER	—	—	—	—	—	—	177	736	1910	* 2557	—
0863	9/20/2012	ENER	—	—	—	—	—	—	179	674	1720	* 2120	—
0864	5/23/2012	ENER	—	—	—	—	—	—	159	676	1720	* 2320	—
0865	9/20/2012	ENER	—	—	—	—	—	—	164	737	1710	* 1818	—
0866	9/20/2012	ENER	—	—	—	—	—	—	182	718	1860	* 1960	—
0869	5/23/2012	ENER	—	—	—	—	—	—	164	689	1760	* 2425	—
	9/20/2012	ENER	—	—	—	—	—	—	179	752	1760	* 1874	—
0881	3/13/2012	ENER	—	—	—	—	—	—	204	969	2270	* 2950	—

Signifies Quality Control Sample

* Signifies Specific Conductivity from HMC

TABLE B.4-5 WATER QUALITY ANALYSES FOR THE REGIONAL ALLUVIAL WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
0881	7/27/2012	ENER	281	80.4	8.30	333	461	< 5.00	222	1070	2190	* 2935	0.974
	11/1/2012	ENER	307	89.4	9.60	392	478	< 5.00	276	1260	2740	* 3557	0.951
0882	3/6/2012	ENER	—	—	—	—	—	—	166	786	1630	* 2443	—
	7/27/2012	ENER	219	54.7	5.60	282	410	< 5.00	183	815	1770	* 2427	0.959
	11/1/2012	ENER	199	52.7	6.10	259	426	< 5.00	168	743	1790	* 2436	0.939
0883	10/23/2012	ENER	—	—	—	—	—	—	225	1070	2330	* 2996	—
0884	3/6/2012	ENER	—	—	—	—	—	—	261	1240	2480	* 3262	—
	7/27/2012	ENER	244	67.0	7.20	490	285	< 5.00	346	1240	2530	* 3446	0.970
	11/1/2012	ENER	157	46.6	5.90	399	275	< 5.00	197	996	2090	* 2850	0.942
	11/27/2012	HMC	—	—	—	—	—	—	—	—	—	4119	—
0885	10/23/2012	ENER	—	—	—	—	—	—	185	705	1820	* 2510	—
0886	3/13/2012	ENER	—	—	—	—	—	—	176	991	2230	* 2864	—
	7/27/2012	ENER	274	69.8	7.70	305	420	< 5.00	178	1020	2060	* 2745	0.987
	11/1/2012	ENER	277	77.4	8.20	321	431	< 5.00	229	1060	2410	* 3068	0.961
0887	5/29/2012	ENER	—	—	—	—	—	—	293	1240	2720	* 3438	—
0888	5/29/2012	ENER	—	—	—	—	—	—	151	794	1760	* 2310	—
0890	4/12/2012	ENER	—	—	—	—	—	—	214	969	2200	* 2973	—
	8/27/2012	ENER	—	—	—	—	—	—	238	1090	2420	* 3159	—
0893	3/6/2012	ENER	—	—	—	—	—	—	210	869	2030	* 2781	—
	7/27/2012	ENER	266	68.0	8.10	299	479	< 5.00	222	877	1950	* 2698	0.986
	11/1/2012	ENER	293	83.7	9.40	408	489	< 5.00	324	1220	2750	* 3613	0.924
0895	10/19/2012	ENER	—	—	—	—	—	—	103	613	1380	* 1928	—
0896	10/19/2012	ENER	—	—	—	—	—	—	—	573	1340	* 1890	—
0899	10/19/2012	ENER	—	—	—	—	—	—	—	429	1070	* 1538	—
0910	5/9/2012	ENER	—	—	—	—	—	—	39.0	401	1000	* 1329	—

* Signifies Specific Conductivity from HMC

TABLE B.4-5 WATER QUALITY ANALYSES FOR THE REGIONAL ALLUVIAL WELLS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
0920	8/30/2012	ENER	—	—	—	—	—	—	60.0	476	1040	* 1780	—
0921	10/17/2012	ENER	411	74.0	8.50	309	264	< 5.00	67.0	1660	2830	* 3269	0.983
0922	10/17/2012	ENER	5.50	2.00	1.10	314	224	< 5.00	87.0	381	891	* 1456	0.993
0935	10/19/2012	ENER	—	—	—	—	—	—	135	653	1580	* 2130	—
0947	10/20/2012	ENER	—	—	—	—	—	—	162	556	1580	* 2181	—
0994	4/2/2012	ENER	190	46.0	4.20	121	—	—	85.0	500	1200	* 1644	—
	10/1/2012	ENER	—	—	—	—	—	—	87.0	498	1190	* 1629	—
0996	9/20/2012	ENER	—	—	—	—	—	—	120	655	1550	* 1670	—
0999	5/9/2012	ENER	92.4	28.0	2.80	41.5	259	< 5.00	18.0	189	559	* 823	0.993

* Signifies Specific Conductivity from HMC

TABLE B.4-6 WATER QUALITY ANALYSES FOR THE REGIONAL ALLUVIAL WELLS

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
0520	10/16/2012	ENER	---	0.0777	0.0800	0.0450	1.60	---	---	---	---
0521	10/15/2012	ENER	---	0.696	2.22	0.422	---	---	---	---	---
0522	5/7/2012	ENER	---	0.400	1.27	0.305	---	---	---	---	---
	10/16/2012	ENER	---	0.748	---	0.294	1.80	---	---	---	---
0531	10/19/2012	ENER	---	0.0633	< 0.0300	0.0200	3.80	---	---	---	---
0532	5/9/2012	ENER	7.54	0.0044	< 0.0300	0.0080	2.80	-0.0400	---	---	---
0538	5/9/2012	ENER	---	0.187	---	0.0390	3.90	---	---	---	---
	9/20/2012	ENER	---	0.188	< 0.0300	0.0330	---	---	---	---	---
0540	9/20/2012	ENER	---	0.504	< 0.0300	0.0340	3.10	---	---	---	---
0541	9/20/2012	ENER	---	0.116	< 0.0300	0.0300	4.70	---	---	---	---
0551	3/9/2012	ENER	7.50	0.0454	< 0.0300	0.0400	2.70	0.130	---	---	---
	8/1/2012	ENER	---	0.0420	< 0.0300	0.0390	---	---	---	---	---
0553	3/9/2012	ENER	7.63	0.0223	< 0.0300	0.0260	3.70	0.110	---	---	---
	8/1/2012	ENER	---	0.0228	< 0.0300	0.0270	---	---	---	---	---
0554	3/9/2012	ENER	7.56	0.0176	< 0.0300	0.0300	1.30	0.290	---	---	---
	8/1/2012	ENER	---	0.0189	< 0.0300	0.0330	---	---	---	---	---
0555	3/6/2012	ENER	7.70	0.0558	< 0.0300	0.0480	4.10	0.570	---	---	---
	7/27/2012	ENER	7.50	0.0663	< 0.0300	0.0510	5.20	0.100	0.200	< 0.0100	0.0400
	11/27/2012	ENER	7.48	0.0830	< 0.0300	0.0650	9.00	0.400	---	---	---
0556	3/6/2012	ENER	7.40	0.0481	< 0.0300	0.0610	7.30	0.340	---	---	---
	7/27/2012	ENER	7.43	0.0588	< 0.0300	0.0670	7.00	0.0500	- 0.0900	0.0200	0.0050
	11/27/2012	ENER	7.56	0.0630	< 0.0300	0.0680	6.40	0.130	---	---	---
0557	3/6/2012	ENER	7.51	0.0425	< 0.0300	0.0440	7.70	0.130	---	---	---
	7/27/2012	ENER	7.41	0.0497	< 0.0300	0.0490	6.00	0.0030	0.0400	0.0100	- 0.0100
	11/27/2012	ENER	7.48	0.0548	< 0.0300	0.0580	5.00	0.340	---	---	---

TABLE B.4-6 WATER QUALITY ANALYSES FOR THE REGIONAL ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
0631	5/9/2012	ENER	—	0.0875	< 0.0300	0.0780	—	—	—	—	—
	9/20/2012	ENER	—	0.101	< 0.0300	0.0860	4.10	—	—	—	—
	11/7/2012	ENER	7.69	0.104	< 0.0300	0.0850	3.70	0.0300	—	—	—
0632	5/9/2012	ENER	—	0.0757	< 0.0300	0.124	3.50	—	—	—	—
	9/20/2012	ENER	—	0.0800	< 0.0300	0.139	—	—	—	—	—
0634	4/12/2012	ENER	—	0.305	0.0300	0.0940	—	—	—	—	—
	8/27/2012	ENER	—	0.339	0.0400	0.0740	—	—	—	—	—
0636	10/17/2012	ENER	—	0.0490	—	0.0460	6.00	—	—	—	—
0637	10/17/2012	ENER	—	0.0859	—	0.0410	7.00	—	—	—	—
0638	10/15/2012	ENER	—	0.0309	< 0.0300	0.0680	—	—	—	—	—
0639	10/18/2012	ENER	—	0.660	1.56	0.380	—	—	—	—	—
0640	7/9/2012	ENER	—	0.0104	< 0.0300	0.0060	—	—	—	—	—
0644	9/20/2012	ENER	—	0.0686	< 0.0300	0.0360	—	—	—	—	—
0646	10/22/2012	ENER	—	0.0737	—	0.0340	3.90	—	—	—	—
0647	9/20/2012	ENER	—	0.0466	< 0.0300	0.0440	—	—	—	—	—
0649	3/13/2012	ENER	7.45	0.0331	0.0400	0.0370	1.60	-0.0400	—	—	—
	5/9/2012	ENER	—	0.0233	< 0.0300	0.0300	—	—	—	—	—
	7/9/2012	ENER	—	0.0210	—	0.0350	—	—	—	—	—
	8/1/2012	ENER	—	0.0225	< 0.0300	0.0400	—	—	—	—	—
	9/20/2012	ENER	—	0.0230	< 0.0300	0.0330	—	—	—	—	—
0650	3/13/2012	ENER	7.54	0.0278	< 0.0300	0.0430	5.50	0.0900	—	—	—
	8/27/2012	ENER	—	0.0292	< 0.0300	0.0410	—	—	—	—	—
	10/19/2012	ENER	—	0.0267	< 0.0300	0.0410	5.50	—	—	—	—
0653	10/22/2012	ENER	—	0.291	—	0.0310	3.80	—	—	—	—

TABLE B.4-6 WATER QUALITY ANALYSES FOR THE REGIONAL ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
0654	10/19/2012	ENER	—	0.0823	< 0.0300	0.0220	—	—	—	—	—
0657	5/9/2012	ENER	—	0.0592	< 0.0300	0.0350	—	—	—	—	—
0658	3/13/2012	ENER	7.46	0.0113	< 0.0300	0.0380	2.00	0.0900	—	—	—
	7/9/2012	ENER	—	0.0119	—	0.0350	—	—	—	—	—
	8/1/2012	ENER	—	0.0101	< 0.0300	0.0400	—	—	—	—	—
	8/1/2012	ENER	—	# 0.0103	# < 0.0300	# 0.0420	—	—	—	—	—
	9/20/2012	ENER	—	0.0104	< 0.0300	0.0390	—	—	—	—	—
	11/7/2012	ENER	7.65	0.0120	< 0.0300	0.0400	1.90	0.230	—	—	—
0659	4/12/2012	ENER	—	0.202	< 0.0300	0.0800	—	—	—	—	—
	8/27/2012	ENER	—	0.319	0.0300	0.0720	—	—	—	—	—
0681	5/21/2012	ENER	—	0.0373	< 0.0300	0.0150	—	—	—	—	—
0683	10/19/2012	ENER	—	0.0049	—	0.0080	1.20	—	—	—	—
0684	10/19/2012	ENER	—	0.0748	—	0.0350	3.00	—	—	—	—
0686	10/17/2012	ENER	—	0.0562	0.0400	0.0530	7.00	—	—	—	—
0846	3/14/2012	ENER	—	0.0610	< 0.0300	0.164	—	—	—	—	—
	8/27/2012	ENER	7.52	0.0629	< 0.0300	0.196	36.0	0.360	0.200	< 0.0100	0.0100
0862	5/22/2012	ENER	—	0.286	< 0.0300	0.0370	—	—	—	—	—
0863	9/20/2012	ENER	—	0.0350	< 0.0300	0.0220	—	—	—	—	—
0864	5/23/2012	ENER	—	0.211	< 0.0300	0.0600	—	—	—	—	—
0865	9/20/2012	ENER	—	0.200	< 0.0300	0.0930	2.50	—	—	—	—
0866	9/20/2012	ENER	—	0.684	< 0.0300	0.0370	2.10	—	—	—	—
0869	5/23/2012	ENER	—	0.254	< 0.0300	0.0470	—	—	—	—	—
	9/20/2012	ENER	—	0.322	< 0.0300	0.0410	4.30	—	—	—	—
0881	3/13/2012	ENER	—	0.403	0.0500	0.0790	—	—	—	—	—

Signifies Quality Control Sample

TABLE B.4-6 WATER QUALITY ANALYSES FOR THE REGIONAL ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
0881	7/27/2012	ENER	7.40	0.373	0.0400	0.0820	6.00	0.0500	0.900	0.0100	0
	11/1/2012	ENER	7.35	0.320	0.0400	0.0920	7.00	- 0.100	1.10	< 0.0100	0.0090
0882	3/6/2012	ENER	—	0.0674	< 0.0300	< 0.0050	—	—	—	—	—
	7/27/2012	ENER	7.58	0.0491	< 0.0300	< 0.0050	< 0.100	0.240	0.300	0.0100	0.0400
	11/1/2012	ENER	7.46	0.0537	< 0.0300	< 0.0050	0.100	0.0800	0.400	< 0.0100	0.0200
0883	10/23/2012	ENER	—	0.0950	< 0.0300	0.128	—	—	—	—	—
0884	3/6/2012	ENER	—	0.0475	< 0.0300	0.102	—	—	—	—	—
	7/27/2012	ENER	7.43	0.0306	< 0.0300	0.105	7.30	0.0400	0.400	0.0100	0.100
	11/1/2012	ENER	7.41	0.0272	< 0.0300	0.0880	6.00	- 0.200	2.30	< 0.0100	- 0.0300
0885	10/23/2012	ENER	—	0.0880	< 0.0300	0.0340	—	—	—	—	—
0886	3/13/2012	ENER	—	0.433	0.0600	0.0750	—	—	—	—	—
	7/27/2012	ENER	7.45	0.324	0.0300	0.0680	5.00	- 0.100	0.0100	< 0.0100	0.0100
	11/1/2012	ENER	7.33	0.352	0.0400	0.0890	7.00	0.110	1.80	< 0.0100	0.0600
0887	5/29/2012	ENER	—	0.0187	< 0.0300	0.100	—	—	—	—	—
0888	5/29/2012	ENER	—	0.170	< 0.0300	0.0600	—	—	—	—	—
0890	4/12/2012	ENER	—	0.296	< 0.0300	0.0920	—	—	—	—	—
	8/27/2012	ENER	—	0.213	< 0.0300	0.0590	—	—	—	—	—
0893	3/6/2012	ENER	—	0.122	< 0.0300	0.0480	—	—	—	—	—
	7/27/2012	ENER	7.51	0.176	< 0.0300	0.0550	3.10	- 0.100	0.600	0.0200	0.0500
	11/1/2012	ENER	7.28	0.104	< 0.0300	—	5.70	- 0.100	0.600	< 0.0100	0.0100
0895	10/19/2012	ENER	—	0.0322	< 0.0300	0.0060	—	—	—	—	—
0896	10/19/2012	ENER	—	0.0699	—	0.0560	1.60	—	—	—	—
0899	10/19/2012	ENER	—	0.0602	—	0.0200	4.10	—	—	—	—
0910	5/9/2012	ENER	—	0.0111	< 0.0300	0.0250	3.40	—	—	—	—

TABLE B.4-6 WATER QUALITY ANALYSES FOR THE REGIONAL ALLUVIAL WELLS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
0920	8/30/2012	ENER	—	0.0316	< 0.0300	0.0330	0.400	—	—	—	—
0921	10/17/2012	ENER	7.45	0.224	< 0.0300	0.849	18.0	0.790	—	—	—
0922	10/17/2012	ENER	8.08	0.0020	< 0.0300	< 0.0050	0.100	0.370	—	—	—
0935	10/19/2012	ENER	—	0.125	< 0.0300	0.0330	4.20	—	—	—	—
0947	10/20/2012	ENER	—	0.0387	< 0.0300	0.0250	1.60	—	—	—	—
0994	4/2/2012	ENER	7.36	0.0058	< 0.0300	0.0240	5.20	-0.0600	—	—	—
	10/1/2012	ENER	—	0.0065	< 0.0300	0.0230	—	—	—	—	—
0996	9/20/2012	ENER	—	0.0627	< 0.0300	0.0390	—	—	—	—	—
0999	5/9/2012	ENER	7.54	0.0044	< 0.0300	0.0100	3.10	1.30	—	—	—

TABLE B.5-1 WATER QUALITY ANALYSES FOR THE CHINLE AQUIFERS

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
0482	9/24/2012	ENER	—	—	—	—	—	—	196	720	1820	* 2508	—
0483	9/24/2012	ENER	—	—	—	—	—	—	202	772	1890	* 2595	—
0493	3/6/2012	ENER	—	—	—	—	—	—	—	640	1720	* 2479	—
	6/13/2012	ENER	16.6	3.10	1.90	590	407	< 5.00	132	707	1670	* 2537	1.06
	9/20/2012	ENER	—	—	—	—	—	—	138	701	1630	* 1919	—
0494	3/6/2012	ENER	—	—	—	—	—	—	—	680	1610	* 2422	—
	6/13/2012	ENER	216	59.8	5.70	263	497	< 5.00	176	646	1750	* 2441	1.02
0498	7/9/2012	ENER	—	—	—	—	—	—	166	639	1740	* 2426	—
0538	5/9/2012	ENER	—	—	—	—	—	—	—	716	1830	* 2465	—
	9/20/2012	ENER	—	—	—	—	—	—	179	721	1830	* 1972	—
0653	10/22/2012	ENER	—	—	—	—	—	—	—	705	1790	* 2453	—
0853	11/13/2012	ENER	—	—	—	—	—	—	96.0	642	1380	* 1924	—
0859	11/12/2012	ENER	—	—	—	—	—	—	172	830	2020	* 2903	—
0929	5/22/2012	ENER	—	—	—	—	—	—	152	665	1830	* 2826	—
	10/20/2012	ENER	12.5	1.40	1.10	682	553	8.00	206	715	1860	* 2903	1.01
0930	10/20/2012	ENER	—	—	—	—	—	—	43.0	388	931	* 1508	—
0931	10/24/2012	ENER	—	—	—	—	—	—	326	469	1370	* 2350	—
0934	5/23/2012	ENER	—	—	—	—	—	—	179	674	2090	* 3082	—
ACW	11/12/2012	ENER	—	—	—	—	—	—	261	665	1800	* 2846	—
AW	11/12/2012	ENER	—	—	—	—	—	—	—	655	1740	* 2406	—
CE1	11/13/2012	ENER	—	—	—	—	—	—	227	1270	2590	* 3809	—
CE2	7/13/2012	ENER	150	40.4	3.40	323	402	< 5.00	133	677	1610	* 2199	1.01
	11/7/2012	ENER	172	45.0	3.30	346	429	< 5.00	143	746	1730	* 2396	1.02
CE5	7/13/2012	ENER	242	67.7	5.50	360	522	< 5.00	197	896	2100	* 2812	1.02

* Signifies Specific Conductivity from HMC

TABLE B.5-1 WATER QUALITY ANALYSES FOR THE CHINLE AQUIFERS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
CE6	11/7/2012	ENER	286	72.8	4.30	436	532	< 5.00	205	1160	2560	* 3272	1.01
	11/13/2012	ENER	286	67.2	4.20	386	524	< 5.00	212	1120	2530	* 3260	0.964
CE7	7/25/2012	ENER	160	79.6	7.90	3800	2120	< 5.00	836	5940	11600	* 14340	0.988
	10/20/2012	ENER	122	77.3	7.00	4360	2220	15.0	882	6150	12500	* 14780	1.07
CE8	11/13/2012	ENER	10.3	1.20	1.10	498	391	< 5.00	68.0	778	1650	* 2453	0.903
CE9	5/2/2012	ENER	—	—	—	—	—	—	—	738	1820	* 2512	—
	10/5/2012	ENER	202	55.6	5.50	351	553	< 5.00	191	699	1870	* 2577	1.03
CE10	11/13/2012	ENER	167	43.2	3.90	605	398	< 5.00	155	1200	2360	* 3126	1.06
CE11	11/13/2012	ENER	311	75.2	4.50	330	528	< 5.00	200	1090	2470	* 3146	0.974
CE12	7/13/2012	ENER	177	43.3	3.70	357	409	< 5.00	145	846	1830	* 2524	0.981
CE13	11/13/2012	ENER	492	164	9.00	2940	1790	< 5.00	788	5780	11400	* 13250	0.966
CE14	7/30/2012	ENER	243	59.9	4.40	322	576	< 5.00	190	668	1870	* 2568	1.08
CE15	7/30/2012	ENER	212	55.8	4.30	277	494	< 5.00	183	803	1870	* 2543	0.907
CF1	7/9/2012	ENER	—	—	—	—	—	—	186	1570	2840	* 3743	—
CF2	7/2/2012	ENER	—	—	—	—	—	—	95.0	391	2010	* 6947	—
CW1	8/6/2012	ENER	11.1	2.10	1.40	568	388	< 5.00	85.0	718	1530	* 2331	1.07
CW2	3/14/2012	ENER	—	—	—	—	—	—	83.0	545	1290	* 2039	—
	8/6/2012	ENER	6.80	1.10	1.20	490	362	< 5.00	93.0	569	1320	* 2047	1.06
CW3	8/6/2012	ENER	47.8	11.2	1.90	542	333	< 5.00	66.0	845	1620	* 2383	1.07
CW15	10/22/2012	ENER	—	—	—	—	—	—	42.0	890	1720	* 2490	—
CW17	9/14/2012	ENER	—	—	—	—	—	—	218	1340	2700	* 2143	—
CW18	5/23/2012	ENER	—	—	—	—	—	—	201	690	2040	* 3015	—
CW24	10/23/2012	ENER	—	—	—	—	—	—	71.0	1780	3110	* 3576	—

* Signifies Specific Conductivity from HMC

TABLE B.5-1 WATER QUALITY ANALYSES FOR THE CHINLE AQUIFERS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
CW28	5/23/2012	ENER	—	—	—	—	—	—	124	481	2000	* 2130	—
CW29	5/22/2012	ENER	—	—	—	—	—	—	167	681	1800	* 2323	—
CW31	10/23/2012	ENER	—	—	—	—	—	—	59.0	914	1630	* 2234	—
CW32	10/23/2012	ENER	—	—	—	—	—	—	487	1490	3500	* 4797	—
CW33	10/23/2012	ENER	—	—	—	—	—	—	339	2080	3740	* 5264	—
CW35	8/7/2012	ENER	—	—	—	—	—	—	84.0	1310	2540	* 2919	—
CW36	10/23/2012	ENER	—	—	—	—	—	—	60.0	984	1770	* 2440	—
CW37	8/27/2012	ENER	—	—	—	—	—	—	74.0	982	1860	* 2433	—
CW41	10/22/2012	ENER	—	—	—	—	—	—	103	281	949	* 1518	—
CW42	5/22/2012	ENER	—	—	—	—	—	—	—	638	1690	* 2483	—
CW43	10/19/2012	ENER	—	—	—	—	—	—	159	1070	2150	* 2810	—
CW44	10/9/2012	ENER	—	—	—	—	—	—	180	718	1850	* 2505	—
CW45	5/7/2012	ENER	—	—	—	—	—	—	—	670	1770	* 2492	—
	11/7/2012	ENER	187	49.1	5.00	358	548	< 5.00	183	681	1780	* 2516	1.02
CW50	10/24/2012	ENER	196	50.8	4.10	305	337	< 5.00	71.0	923	1750	* 2304	1.02
CW52	10/24/2012	ENER	29.2	4.80	1.60	503	365	< 5.00	40.0	714	1410	* 2165	1.07
CW53	9/20/2012	ENER	—	—	—	—	—	—	185	716	1910	* 2185	—
CW55	10/5/2012	ENER	52.6	11.4	3.90	627	580	< 5.00	182	690	1820	* 2723	1.06
CW56	10/14/2012	ENER	—	—	—	—	—	—	130	815	3260	* 3130	—
CW57	10/12/2012	ENER	—	—	—	—	—	—	72.0	1370	2550	* 2691	—
CW60	9/18/2012	ENER	—	—	—	—	—	—	88.0	1790	3130	* 3013	—
CW61	10/13/2012	ENER	—	—	—	—	—	—	239	1780	3220	* 3269	—
CW62	9/19/2012	ENER	—	—	—	—	—	—	226	2150	3800	* 3410	—

* Signifies Specific Conductivity from HMC

TABLE B.5-1 WATER QUALITY ANALYSES FOR THE CHINLE AQUIFERS (cont'd.)

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
WCW	11/12/2012	ENER	—	—	—	—	—	—	94.0	811	1610	* 2482	—
WR25	10/24/2012	ENER	541	130	10.2	395	428	< 5.00	141	2080	3630	* 4057	1.01

* Signifies Specific Conductivity from HMC

TABLE B.5-2 WATER QUALITY ANALYSES FOR THE CHINLE AQUIFERS

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
0482	9/24/2012	ENER	---	0.129	0.0500	0.0240	2.40	---	---	---	---
0483	9/24/2012	ENER	---	0.134	0.0500	0.0270	2.70	---	---	---	---
0493	3/6/2012	ENER	---	0.171	0.0500	0.0310	---	---	---	---	---
	6/13/2012	ENER	7.95	0.330	< 0.0300	0.104	2.10	0.0300	- 0.100	< 0.100	- 0.0040
	9/20/2012	ENER	---	0.290	< 0.0300	0.121	---	---	---	---	---
0494	3/6/2012	ENER	---	0.348	< 0.0300	0.110	---	---	---	---	---
	6/13/2012	ENER	7.52	0.142	0.0500	0.0250	2.00	0.0700	0.200	< 0.100	0.0700
0498	7/9/2012	ENER	---	0.392	< 0.0300	0.0370	2.00	---	---	---	---
0538	5/9/2012	ENER	---	0.187	---	0.0390	3.90	---	---	---	---
	9/20/2012	ENER	---	0.188	< 0.0300	0.0330	---	---	---	---	---
0653	10/22/2012	ENER	---	0.291	---	0.0310	3.80	---	---	---	---
0853	11/13/2012	ENER	---	0.0522	< 0.0300	0.119	8.00	---	---	---	---
0859	11/12/2012	ENER	---	0.0551	< 0.0300	0.0270	6.00	---	---	---	---
0929	5/22/2012	ENER	---	0.0304	< 0.0300	0.0250	---	---	---	---	---
	10/20/2012	ENER	8.15	0.0485	0.0800	0.0140	0.800	0.650	---	---	---
0930	10/20/2012	ENER	---	0.0121	< 0.0300	< 0.0050	< 0.100	---	---	---	---
0931	10/24/2012	ENER	---	0.0005	< 0.0300	< 0.0050	< 0.100	---	---	---	---
0934	5/23/2012	ENER	---	0.0355	< 0.0300	0.0090	---	---	---	---	---
ACW	11/12/2012	ENER	---	0.0448	< 0.0300	0.0520	---	---	---	---	---
AW	11/12/2012	ENER	---	0.126	0.0700	0.0260	---	---	---	---	---
CE1	11/13/2012	ENER	---	3.76	7.09	0.0570	< 0.100	---	---	---	---
CE2	7/13/2012	ENER	7.58	1.79	1.26	0.150	2.40	0.0600	- 0.400	0.0300	0.0300
	11/7/2012	ENER	7.67	2.04	1.65	0.179	2.40	0.360	---	---	---
CE5	7/13/2012	ENER	7.64	1.14	0.510	0.0830	2.10	0.120	---	---	---

TABLE B.5-2 WATER QUALITY ANALYSES FOR THE CHINLE AQUIFERS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
CE6	11/7/2012	ENER	7.60	3.38	2.09	0.173	3.00	0.190	—	—	—
	11/13/2012	ENER	7.38	3.40	2.00	0.177	3.20	0.250	—	—	—
CE7	7/25/2012	ENER	7.88	31.1	31.6	0.980	5.50	0.110	—	—	—
	10/20/2012	ENER	7.92	31.5	25.5	0.876	4.90	6.00	- 0.500	0.0200	0.700
CE8	11/13/2012	ENER	8.07	0.0459	0.0500	< 0.0050	< 0.100	0.220	0.600	< 0.0100	0.0400
CE9	5/2/2012	ENER	—	0.267	0.130	0.0330	—	—	—	—	—
	10/5/2012	ENER	7.30	0.230	0.0700	0.0200	0.400	0.190	—	—	—
CE10	11/13/2012	ENER	7.49	2.41	1.25	0.0240	< 0.100	0.720	—	—	—
CE11	11/13/2012	ENER	7.38	2.35	1.35	0.118	2.20	0.290	—	—	—
CE12	7/13/2012	ENER	7.52	1.82	2.04	0.116	1.70	0.170	—	—	—
CE13	11/13/2012	ENER	7.45	38.4	25.7	0.694	6.50	2.10	1.000	0.0100	0.200
CE14	7/30/2012	ENER	7.60	0.0817	< 0.0300	0.0140	3.20	1.20	—	—	—
CE15	7/30/2012	ENER	7.87	0.345	0.220	0.0880	1.90	3.70	—	—	—
CF1	7/9/2012	ENER	—	0.125	2.16	0.0950	—	—	—	—	—
CF2	7/2/2012	ENER	—	0.0108	1.04	0.0100	—	—	—	—	—
CW1	8/6/2012	ENER	8.00	0.144	0.0500	0.0550	1.90	12.0	—	—	—
CW2	3/14/2012	ENER	—	0.0423	< 0.0300	0.0640	1.20	—	—	—	—
	8/6/2012	ENER	8.11	0.0361	< 0.0300	0.0720	1.50	4.50	—	—	—
CW3	8/6/2012	ENER	8.00	0.317	0.270	< 0.0050	< 0.100	5.70	- 1.000	< 0.100	0.0500
CW15	10/22/2012	ENER	—	0.0300	< 0.0300	0.0210	1.60	—	—	—	—
CW17	9/14/2012	ENER	—	0.774	0.800	0.204	—	—	—	—	—
CW18	5/23/2012	ENER	—	0.0316	< 0.0300	0.0150	—	—	—	—	—
CW24	10/23/2012	ENER	—	0.148	< 0.0300	0.0520	11.0	—	—	—	—

TABLE B.5-2 WATER QUALITY ANALYSES FOR THE CHINLE AQUIFERS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
CW28	5/23/2012	ENER	—	0.0238	< 0.0300	0.0730	—	—	—	—	—
CW29	5/22/2012	ENER	—	0.298	< 0.0300	0.0370	—	—	—	—	—
CW31	10/23/2012	ENER	—	0.0111	< 0.0300	< 0.0050	< 0.100	—	—	—	—
CW32	10/23/2012	ENER	—	0.0026	< 0.0300	< 0.0050	< 0.100	—	—	—	—
CW33	10/23/2012	ENER	—	0.0068	0.0700	< 0.0050	0.100	—	—	—	—
CW35	8/7/2012	ENER	—	0.182	0.0500	0.0570	4.20	—	—	—	—
CW36	10/23/2012	ENER	—	0.0041	< 0.0300	< 0.0050	< 0.100	—	—	—	—
CW37	8/27/2012	ENER	—	0.0312	< 0.0300	0.0740	5.80	—	—	—	—
CW41	10/22/2012	ENER	—	0.0614	< 0.0300	0.0310	4.30	—	—	—	—
CW42	5/22/2012	ENER	—	0.221	< 0.0300	0.0620	—	—	—	—	—
CW43	10/19/2012	ENER	—	0.0437	< 0.0300	0.0370	6.60	—	—	—	—
CW44	10/9/2012	ENER	—	0.360	< 0.0300	0.0340	3.20	—	—	—	—
CW45	5/7/2012	ENER	—	0.469	< 0.0300	0.0280	—	—	—	—	—
	11/7/2012	ENER	7.64	0.509	< 0.0300	0.0180	0.700	0.260	—	—	—
CW50	10/24/2012	ENER	7.57	0.304	< 0.0300	< 0.0050	< 0.100	1.000	0.0400	< 0.0100	0.0700
CW52	10/24/2012	ENER	8.02	0.0080	< 0.0300	< 0.0050	< 0.100	0.280	0.900	< 0.0100	0.0500
CW53	9/20/2012	ENER	—	0.119	< 0.0300	0.0270	—	—	—	—	—
CW55	10/5/2012	ENER	7.63	0.0810	< 0.0300	0.0100	0.400	0.220	—	—	—
CW56	10/14/2012	ENER	—	3.96	3.72	0.403	—	—	—	—	—
CW57	10/12/2012	ENER	—	0.119	< 0.0300	0.0980	—	—	—	—	—
CW60	9/18/2012	ENER	—	0.135	0.0900	0.100	—	—	—	—	—
CW61	10/13/2012	ENER	—	3.19	2.95	0.467	—	—	—	—	—
CW62	9/19/2012	ENER	—	3.06	2.45	0.409	—	—	—	—	—

TABLE B.5-2 WATER QUALITY ANALYSES FOR THE CHINLE AQUIFERS (cont'd.)

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
WCW	11/12/2012	ENER	—	0.0074	< 0.0300	< 0.0050	< 0.100	—	—	—	—
WR25	10/24/2012	ENER	7.65	0.292	< 0.0300	0.0680	8.00	0.210	- 0.100	< 0.0100	0.0500

TABLE B.6-1 WATER QUALITY ANALYSES FOR THE SAN ANDRES AQUIFER

Ca THROUGH ION_BAL

Sample Point Name	Date	Lab	Ca (mg/l)	Mg (mg/l)	K (mg/l)	Na (mg/l)	HCO3 (mg/l)	CO3 (mg/l)	Cl (mg/l)	SO4 (mg/l)	TDS (mg/l)	Cond(calc.) (micromhos/	Ion_B (ratio)
#1 Deepwell	5/7/2012	ENER	237	74.4	12.8	284	—	—	226	744	1970	* 2762	—
	10/2/2012	ENER	—	—	—	—	—	—	—	777	2030	* 2769	—
#2 Deepwell	5/7/2012	ENER	224	71.6	11.3	265	—	—	198	712	1840	* 2528	—
	10/2/2012	ENER	—	—	—	—	—	—	—	709	1840	* 2538	—
0943	8/16/2012	ENER	133	42.3	7.60	371	403	< 5.00	176	818	1850	* 2564	0.919
	11/30/2012	ENER	—	—	—	—	—	—	182	784	1810	* 2480	—
0951	3/9/2012	ENER	146	43.3	5.40	87.4	346	< 5.00	61.0	348	960	* 1400	0.999
0951R	4/24/2012	ENER	—	—	—	—	—	—	147	536	1410	—	—
	6/11/2012	ENER	—	—	—	—	—	—	139	520	1380	* 1973	—
	8/16/2012	ENER	182	61.3	9.20	167	438	< 5.00	156	548	1490	* 2027	0.934
	8/27/2012	ENER	—	—	—	—	—	—	156	555	1420	* 2045	—

* Signifies Specific Conductivity from HMC

TABLE B.6-2 WATER QUALITY ANALYSES FOR THE SAN ANDRES AQUIFER

pH THROUGH Th-230

Sample Point Name	Date	Lab	pH (std. units)	Unat (mg/l)	Mo (mg/l)	Se (mg/l)	NO3 (mg/l)	Ra226 (pCi/l)	Ra228 (pCi/l)	V (mg/l)	Th230 (pCi/l)
#1 Deepwell	5/7/2012	ENER	7.34	0.0075	< 0.0300	< 0.0050	1.10	0.460	—	—	—
	10/2/2012	ENER	—	0.0090	< 0.0300	0.0050	—	—	—	—	—
#2 Deepwell	5/7/2012	ENER	7.68	0.0276	< 0.0300	0.0060	1.50	0.0600	—	—	—
	10/2/2012	ENER	—	0.0115	< 0.0300	0.0080	—	—	—	—	—
0943	8/16/2012	ENER	7.39	0.0484	< 0.0300	0.0470	4.30	0.560	- 0.400	< 0.0100	0.0200
	11/30/2012	ENER	—	0.0402	< 0.0300	0.0340	—	—	—	—	—
0951	3/9/2012	ENER	7.47	0.0351	< 0.0300	0.0060	4.50	0.480	—	—	—
0951R	4/24/2012	ENER	—	0.0317	< 0.0300	0.0090	—	—	—	—	—
	6/11/2012	ENER	—	0.0228	< 0.0300	0.0090	—	—	—	—	—
	8/16/2012	ENER	7.45	0.0302	< 0.0300	0.0090	4.00	0.950	0.600	< 0.0100	0.100
	8/27/2012	ENER	—	0.0286	< 0.0300	0.0070	3.20	—	—	—	—

APPENDIX C
ANNUAL ALARA AUDIT

Annual ALARA Audit

December 2012

**Grants Operations
Homestake Mining Company
P. O. Box 98
Grants, New Mexico 87020**

Prepared by:

**Environmental Restoration Group, Inc.
8809 Washington NE, Suite 150
Albuquerque, NM 87113**

1.0 Introduction

On December 4-5, 2012, Ken Baker and Mike Schierman conducted the 2012 Annual ALARA Audit for the Grants Uranium Mill site. The audit was conducted in accordance with the United States Nuclear Regulatory Commission (NRC) Regulatory Guide 8.31, "Information Relevant to Ensuring That Occupational Exposure at Uranium Mills Will Be As Low As Reasonably Achievable". Other applicable references included USNRC Materials License Number SUA-1471 issued to Homestake Mining Company, and USNRC Regulatory Guides 8.10, 8.22, and 8.30.

The following topics were covered in the audit:

- Follow up on prior ALARA audit
- ALARA policy
- Radiation exposures
- Bioassay results
- Environmental monitoring
- Self audits
- ALARA planning activities
- Worker training
- Radiation safety meetings
- Radiation surveys
- Overexposures
- Health physics staff
- Procedures, Data Collection, and Management

All mill buildings have been removed and the off-pile tailings cleanup was completed in 1995. The side slopes of the main tailings pile and the mill yard area have a permanent radon barrier and an erosion protection cover. An interim cover is being maintained on the top of the large tailings pile and that portion of the small tailings pile that is not covered by the evaporation pond.

Continuing activities at the site during 2012 include the operation of a reverse osmosis (RO) unit that supports the groundwater restoration program, drilling additional wells and replacing wells on the Large Tailing Pile, operating and maintaining the dewatering system for the large tailings pile, and maintaining the groundwater restoration system. Work continues with flushing the large tailings pile which involves injecting water into wells and removing water from nearby collection wells. The groundwater restoration consists of pumping the groundwater collection wells, operating the evaporation ponds, injecting clean water into the contaminated aquifer, and operating the RO plant.

New site activities during the year include the construction of three new zeolite water treatment cells on top of the interim cover of the large tailings pile. These cells are currently being constructed next to the pilot plant cell near the east end of the pile. The cells will be used to treat large quantities of water pumped from off-site wells. The

planning for upgrading the RO plant is also underway. Additional soil was placed on top of the large tailing pile for radon attenuation. In addition, additives to the interim cover have been applied to study their effectiveness in stabilizing the cover against wind and water erosion. Worker radiation exposure from these new activities is considered minimal.

The primary potential radiation exposure results from maintaining the pumps, valves, and piping associated with the tailings dewatering, evaporation ponds, and groundwater collection systems, operating the RO plant, drilling new wells on the tailings pile, and maintaining the spray system on the evaporation ponds.

2. 0 Discussion

The audit process involved scoping the audit, gathering relevant information, review of information, interviewing appropriate personnel, and writing the report. The reviews are briefly summarized below.

2.1 Follow-up on Previous Audit Recommendations

The last scheduled NRC audit occurred on August 21-22, 2012. The report indicated no findings or recommendations. The last ALARA Audit occurred on November 30-December 1, 2011. The report included suggestions for improvement. They were 1) request that the vendor lab for air particulate analyses provide the reporting limit for uranium 2)conduct a general house cleaning in the laboratory and areas frequented by non-radiation workers.

Energy Laboratories now provides the reporting limit for all radionuclides. In addition, the laboratory has been cleaned and remodeled by replacing the old lab benches with new stainless steel benches. While non-authorized entry into the laboratory has not been a problem, discussions with the Radiation Safety Administrator (RSA) regarding limiting access to the laboratory occurred such as a sign or rope barrier. Responses to the 2011 recommendations are considered complete.

2.2 ALARA Policy

The corporate ALARA policy statement is included in Standard Operating Procedure HP-6, revised October 14, 2003. This policy statement commits management and personnel to be continually vigilant for means to reduce exposures. This policy has been implemented as evidenced by discussions with HMC management and staff, and by the incorporation of ALARA principles in worker training and preparation of radiation work permits.

2.3 Radiation Exposures

2.3.1 External Exposures

Dosimeter data for 2011 showed that seven HMC personnel and 49 contractor personnel were monitored with the maximum individual receiving 59 mrem/y. As discussed in the 2011 audit report, this value is likely bias high due to inadvertent storage of the control badge in a lead pig during the first quarter of 2011.

Data were available for the first three quarters of 2012. The doses in 2012 are low, with a maximum quarterly deep dose equivalent of 14 mrem. The shallow and lens dose equivalents were similar to the deep dose equivalent values.

It appears that Landauer was sending two controls for occupational dosimeters. To prevent confusion and mishandling of control dosimeters at the site, Landauer was

contacted by the auditors and RPA to instruct them to send just one control dosimeter in future shipments.

Environmental OSL dosimeters were placed at each of the high volume air monitoring stations and exchanged semiannually. The results for the first half of 2012 were in the normal range of 120-150 mrem/year.

The low personnel exposures and exposures at the monitoring stations reflect the effort that management and the workers have expended in maintaining exposures ALARA as well as the low radiation work environment.

2.3.2 Internal Exposures from Long-Lived Particulate Sources

HMC does not routinely require airborne particulate monitoring since there are no dry exposed tailings. Invasive activities normally involve the use of water to suppress any dust that may be generated.

HMC has a "spot check program" where the most exposed individual working under an RWP will be monitored for a day, normally one per month. RWP1-2012, RWP2-2012, and RWP3-2012 were issued to ARCADIS and Coyote Drilling Company personnel for well drilling or cone penetration studies into the tailings. "Spot checks" were performed for surface contamination with all values being below detection limits. No personal air sampler data were collected during these "spot checks". Routine maintenance of piping and pumps by HMC employees is covered under the spot check program.

A high volume air particulate sampler was located on top of the large tailings pile (Location HMC- 8) for several years and continuous samples were taken. Since these samples indicated near background concentrations of uranium, Ra-226, and Th-230, this sampler was moved to a new location(HMC-1A) downwind of the new evaporation pond (EP-3). Net concentrations above background were less than 1 percent of the respective derived air concentration (DAC). This supports the assumption that the average airborne particulate concentrations during work activities on top of the pile are less than 10 percent of the DAC and pursuant to 10 CFR 20.1502, worker monitoring for airborne particulate is unnecessary.

A review of the perimeter high volume sample results for 2011 and the first half of 2012 indicate normal radioactive particulate concentrations in air with above background quarterly average concentrations less than 5 percent of the 10 CFR 20 Table 2 Effluent Concentration values. Currently the analytical laboratory reports air monitoring results for natural uranium, radium-226, and thorium-230.

2.3.3 Internal Exposure from Radon

The radon concentrations are measured at eight locations and one background location by a semi-annual exchange of track-etch detectors. The monitoring frequency was increased to quarterly starting in 2010 and three detectors were deployed at each location rather than a single detector. The highest concentration at the perimeter locations for the first

half of 2012 was 1.5 pCi/l at HMC-4, which is within the range of previous measurements.

HMC has been aware that the RO building presents a potential source of concern for radon exposure. Water from collection wells is exposed to the atmosphere in the RO building and dissolved radon will emanate into the building atmosphere. Ventilation fans in the building are operated twice daily prior to shift entry to exhaust this radiation source, and an additional exhaust fan operating continuously was added to the building sump in 2003 to reduce radon concentrations further. Two track-etch detectors were placed in the work areas and read monthly during 2003, where monthly averages ranged from 4.5 to 14.5 pCi/l. This was a significant decrease from the levels measured in 2001 and 2002 prior to full installation of the existing building exhaust system. Detectors are changed out quarterly at this time. The readings for the first three quarters of 2012 were 8.0 and 7.7 pCi/l for the first quarter, 4.9 and 4.8 pCi/l for the second quarter, and 5.0 and 5.0 pCi/l for the third quarter. These concentrations are generally below the 2003 values and significantly less than that measured during the first half of 2002 (21 pCi/l) and in the year 2001 (47 pCi/l). This reduction in concentration is likely due to the aforementioned increased ventilation in the RO building.

HMC records the occupancy time employees are in the RO building. WL measurements from prior years showed very low radon daughter concentrations compared to the radon concentrations. In addition, occupancy times for workers are normally a few hours per week. Thus radiation exposures under these occupancy periods are very low.

HMC has made a considerable effort in reducing radiation exposure to workers in the RO building. The current concentrations are consistent with those made over the last few years. It is this auditor's opinion that no additional engineering and/or administration controls are necessary.

A track-etch detector was placed in the office of the administration building during the second and third quarters of 2012 in the area proximal to the desks of the two non-radiation workers. The results were 1.5 and 1.4 pCi/l. These concentrations are also representative of what one would expect of the entire office area since the doors are kept open between the areas. The detectors were deployed primarily to assure that the non-radiation workers were not receiving a radiation exposure above normal background levels. The detectors will be deployed for a full calendar year and a decision made as to whether the monitoring will be continued.

2.4 Bioassay Results

Procedures call for a semi-annual routine urine-sampling schedule for HMC employees. Contractor employees are sampled at the beginning and end of short-term projects. Semiannual samples for regular employees are taken around December and June of each year. Semiannual samples for regular employees were taken on November 30 1, 2011 and June 26, 2012.

The data for the 4th quarter of 2011 were reviewed with 38 samples submitted, including 5 blanks and 5 spike samples. All personnel data were below the 5 µg/l reporting limit. Year to date (2012), 166 individual samples have been submitted. A minimum of one spike and one blank sample were submitted with each shipment which accounted for 61 of the 166 samples. The vendor laboratory is required to have a lower limit of detection (LLD) of 5 µg/l for uranium. Any measured value of 15 µg/l must be investigated and appropriate mitigation measures taken. Persons with urine samples exceeding 35 µg/l must be placed on work restrictions to limit further intakes of uranium.

One sample result for personnel exceeded the LLD of 5 µg/l of uranium. This sample taken on August 3, 2012 was reported at 62.2 µg/l. This level requires an investigation which HMC performed adequately. The laboratory was requested to reanalyze the sample which they did, confirming the result on August 16. A new sample the individual in question was submitted on August 17 and was reported below 5 µg/l. Spiked samples for both submittals were reported within acceptable limits. An intake assessment was performed as a result of this audit and concluded that the most likely reason for the high bioassay result was sample contamination either during collection, sampler preparation at the site, or at the laboratory. Instruction emphasizing proper sample collection and preparation at the site level should be given to preclude the contamination of future samples.

HMC obtained a uranium solution from the vendor laboratory and spikes one blank urine sample in each shipment with either 15 or 30 pCi/l. The laboratory estimates for all but one of the spiked samples were within 30% of the known amount, which is the allowable tolerance. A second analysis of the sample was within the tolerance limit. The results for the bioassay program support the conclusion that the worker uptake of uranium is low.

2.5 Self Audits

The Radiation Protection Administrator (RPA) requires that the technicians (Venable/Vigil) prepare a monthly ALARA report. The report is intended to present data reflective of the operations as well as an accounting of the major activities for the month. In actuality, it contains most of the data forms that were generated for the month with little summary or interpretation. Any problems encountered are also to be presented although no problems were noted in those reviewed. The reports provide the RPA with adequate information to assure that exposures are being maintained ALARA. The auditor is comfortable that the RPA is aware of site operations, and because of limited activity at the site, would be made aware of any ALARA-related problems.

2.6 ALARA Planning Activities

HMC conducts all invasive work (involving tailings) by contractors under a radiation work permit (RWP). The three RWPs related to work on top of the large tailings pile were written to satisfy that requirement. HMC employees doing routine maintenance on pumps, piping, and valves are covered under the spot check program. No other known work involves tailings. Spot checks are conducted to assure that HMC employees and the requirements of the RWPs are appropriate and being followed. These spot checks

include frisking working personnel and equipment to determine the levels of contamination, and performing exposure rate measurements in the work area. Spot check records of personnel were maintained.

2.7 Worker Training

All radiation workers receive formal classroom radiation safety training. Workers must pass a written examination. Annual refresher training is required and generally is a repeat of the course material given initially. Mike Schierman conducted annual training on December 4, 2011 for HMC personnel. The Radiation Protection Administrator (RPA) or Adrian Venable normally gives the contractor training. Use of videotapes and an examination developed for HMC by a consultant is incorporated into the contractor employee training. Records of contractor training and re-training were reviewed, including tests results. Based on this review, it appears contractor initial and refresher training is being conducted appropriately.

Al Cox, the RPA, had the required refresher radiation safety officer training in March 12-13, 2011.

2.8 Instrumentation and Area Radiation Surveys

A review of the instrument maintenance and calibration records was made. All instruments in use are calibrated and are being recalibrated annually by an approved vendor. A calibration schedule is prepared for use in tracking calibrations. The records were found in good order.

The available release surveys were reviewed by the auditor. No items other than drilling rigs and other contractor work trucks were reported as being surveyed for release from the site. One drilling rig had been on the site for several years and was purchased by HMC rather than attempt to render it suitable for release. Incomplete data on this rig indicated that it had measureable levels of contamination but probably within the release criteria. HMC decided that the value of the rig was small relative to the liability potential if released.

2.9 Health Physics Staff

The current health physics staff consists of:

Alan D. Cox, Radiation Protection Administrator
Adrian Venable, Senior Health Physics Technician
Joe Vigil, Site Supervisor and Senior Environmental Technician

A review of the education and experience of the staff indicated that all meet or exceed the requirements of NRC Regulatory Guide 8.31 for working in uranium mills.

2.10 Overexposures

No personnel were likely overexposed to date during this audit period.

2.11 Procedures, Data Collection, and Management

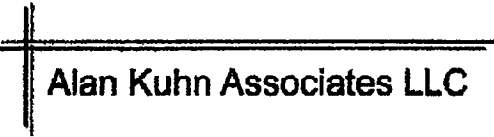
The HMC Environmental Procedures Manual was briefly reviewed. There is a requirement for these procedures be reviewed annually and revised if necessary. The RPA met the requirement for 2012.. No procedures are currently under revision or preparation. Radiation dosimetry, bioassay, environmental monitoring, worker training, instrument maintenance, and other related radiation safety files maintained by Mr. Venable appeared to be complete.

3.0 Recommendations

The radiation protection program is effective in reducing exposures to very low levels and possibly as low as reasonably achievable. Results from external and internal dosimetry monitoring programs demonstrate that the doses received by the HMC staff and contractors are very low and well within the limits allowed by regulations. Additional engineering and administrative controls taken by the staff demonstrate adherence to the ALARA policy.

This audit did not result in any further suggestions for improving the radiation protection program.

APPENDIX D
INSPECTION OF TAILINGS PILES AND PONDS


Alan Kuhn Associates LLC

January 29, 2013

File No.: HMC2012

Mr. Al Cox
Homestake Mining Company of California
P.O. Box 98
Grants, NM 87020

**SUBJECT: REPORT OF 2012 ANNUAL INSPECTION OF TAILING IMPOUNDMENTS
AND PONDS, HOMESTAKE GRANTS PROJECT, GRANTS, NEW MEXICO**

Dear Mr. Cox:

On October 16, 2012 the undersigned performed the annual visual inspection of the tailing impoundments and evaporation ponds at the Homestake Grants Project located at Grants, New Mexico. As the Responsible Engineer for these impoundments, I am required to annually inspect the stability and functionality of the impoundments.

Subsequent to my visual inspection, I reviewed additional information including:

- Impoundment piezometer readings taken by Homestake personnel during 2012 and tabulated 1/22/2013,
- Summary of tailing collection well and tailing drainage sump collection rates through 2012,
- Map of tailing impoundment phreatic levels most recently measured in 2012, provided by Hydro Engineering 1/22/2013,
- The settlement monument survey performed by Souder Miller dated 11/27/2012,
- Sump discharges and large impoundment reinjection rates recorded by Homestake,
- Leak detection monitoring records for evaporation ponds #2 and #3.
- Pond level measurements by Homestake through 2012

This report addresses the observations and findings of my site inspection as well as assessment of the additional information listed above.

OBSERVATIONS

The undersigned performed visual observations of the tops and outslopes of both tailing impoundments and of the dikes, slopes, and liners of the evaporation ponds. The weather was sunny and warm with calm winds and temperatures in the lower 70's.

Large Tailing Impoundment

The surface of the large impoundment was in good condition. As part of routine maintenance, additional interim soil has been placed in locations on the top of the impoundment as needed to meet radon flux limits.

Repairs to the outslopes riprap, performed in 2010, remain in good condition. Concrete inlet structures and the new HDPE drainage pipes, installed in 2010 to replace the old CMPs that had deteriorated and broken in several places, are functioning as intended to direct runoff from the top cover into the pipes. However, one relic of the old CMP drainage pipes, a shallow washout apparently at the location of a CMP joint, was found by HMC crew that was servicing water pipes when walking the riprap on the south outslope below piezometer CS2. The concentrated flow of water from the old CMP probably washed the soil fines from below the riprap along a path about two feet wide and long by up to two feet deep, then deposited the fines downslope. There is no visible evidence that this washout is still active.

The riprap cover on the other outslopes is also intact and in good condition.

A new zeolite cell system for ground water treatment was under construction near the south central part of the top cover at the time of this inspection. This activity has had no evident impact on impoundment.

In an area north of the zeolite cell system, Homestake has applied several lignon-based erosion control products. Each product has been applied over a test section to be observed over time to determine which product is most effective in limiting wind erosion of the interim cover surface. At the time of this site visit, the differences in performance of these products was not yet apparent.

monsoon season in 2012. Blading, typically performed after the end of monsoon season around late September-October, had not yet been completed for the season at the time of my inspection.

The HDPE pipes that collect runoff from south corner of the small impoundment surface and discharge it off the toe of the small pile are preventing ponding of water on the pile surface and reducing outslope rilling.

Evaporation pond #2 (EP2)

EP2 liner and outslopes are in good condition. The north and south outslopes are free of major rills. The south outslope gravel blanket is functioning well to provide additional erosion protection. On 10/15/12, the pond water depth was 18.2 feet, 4.8 feet below maximum pond level. Evaporation sprays were operating normally.

Evaporation pond #3 (EP3)

EP3, constructed in 2010 and placed into operation in 2011, is functioning in accordance with design and operating plan. On 10/15/12, the pond water depth in cell A was 7.35 feet, 3.65 feet below maximum pool level. Cell B pond water depth was 5.05 feet, 5.95 feet below maximum pool level.

The pond outslopes are well groomed and in good condition, with only minor (1-2 inch) rills. There is no visible indication of slope deformation or leakage through the lining system.

RECORDS REVIEW

Large Impoundment Drainage

HMC's records injection and drainage/ withdrawal data for the large impoundment on a weekly basis. The report for October 15, 2012 indicates that the toe drains and sumps of the large impoundment were collecting at an average rate of 22.7 gpm. This discharge rate is well within the capacity of this system. The dewatering well system average pumping rate for 2012 was 105 gpm.

EP2 and EP3 Leak Detection Systems

Throughout 2012, Homestake continued to obtain weekly measurements of leakage through the primary liners collected in sumps of the leak detection and recovery system (LDRS) in Evaporation Pond #2 (EP2) and Evaporation Pond #3 (EP3) in accordance with DP 725, permit condition 18. Gallons of water removed through the collection sumps each week are recorded, and these records are maintained on site. These records show that leakage in the EP2 primary liner was highest for zone 2 for most of Feb-April and for the last week of December and for zones 3, 4, and 5 intermittently during Feb-April. Leakage rates did not reach levels requiring investigation and development of an action plan per DP 725. Leakage rates in the primary liner of EP2 correlate with pond level.

In EP3, zone B-3 leakage has been observed for most of Nov.-Dec. and in zones B-2 and B-4 for part of November. No correlation with pond water level is apparent. Although leakage rates are within collection capabilities of the LDRS (DP 725 condition 31c) and have not triggered investigation and action plan development under DP 725, Homestake is investigating possible causes.

In all cases of LDRS leakage, Homestake is taking the appropriate action by removing the water collected in the sumps until pump suction is broken. This limits the amount of hydrostatic head that can build up on the secondary liner, minimizing the potential for seepage of water through the secondary liner.

Piezometer and Settlement Monitoring

The large tailing impoundment flushing program continued during 2012. According to HydroEngineering (pers. comm., 1/24/2013), injection activity has been concentrated on the slimes in both cells of the impoundment. Large year-to-year fluctuations in piezometer (phreatic surface) levels, up to several tens of feet up or down, have accompanied either injection or withdrawal, respectively. None of these large fluctuations affected the impoundment out slopes.

The water levels in piezometers CN1 and CS1, on the north and south out slopes, respectively, of the impoundment have been declining over the past year. CN1 is down 1.04 feet and CS1 is

down 2.2 feet since November, 2011. At the end of 2012, water level in piezometer CN1 was about 4.1 ft below the top of cover, and in CS1 the water level was about 7.2 ft below top of cover. Restraints on injection in wells located in the vicinity of the center dike and the adjacent north and south out slopes are succeeding in reducing phreatic levels in these areas.

The settlement-point survey was performed in October 2012 by Souder Miller Associates and submitted to HMC on 11/27/2012. In the inspection report for 2011, the undersigned incorrectly reported that three settlement points had been damaged, leaving 44 points remaining. In fact, 45 points remained at that time. In the 2012 survey, all 48 points were surveyed again. Of those, 23 points experienced slight (up to +0.09 ft) elevation increase, 21 points showed slight (up to -0.09 ft) decrease, and four points displayed no change. In contrast to last year, no distinct patterns of apparent heave or settlement are evident in the 2012 settlement data. All of the changes in settlement point elevations are small, +0.09 to -0.09 ft, most within the expected range of survey accuracy band of +/- 0.05 feet. The only discernible pattern is slight settlement in the north half of the impoundment and slight apparent heave in the south half. Otherwise, the survey data display no trends in settlement indicative of gradual consolidation and dewatering of the tailings.

CONCLUSIONS AND RECOMMENDATIONS

The tailing impoundments and the three evaporation ponds are in good condition and are being maintained within the operating limits of the NRC license and NMED permits and the respective facility designs.

The cause(s) of primary liner leakage in EP3 cell B is being evaluated by Homestake, and this evaluation should continue through location and repair of the cause(s), the success of which will be evident in the weekly LDRS records.

The piezometers in the slopes of the large impoundment should continue to be measured on a quarterly basis until the cessation of the injection program. Near any piezometer in which the local phreatic surface is within 10 feet of the collar elevation, injection should be limited to prevent further rise of the saturated zone. Injection activity should remain suspended near piezometers CN1 and CS1 until water levels there drop below 10 feet from top of cover.

The small washout on the south slope poses no immediate concern for the erosional stability of the cover. Repair of the washout involves minor work that can be scheduled with other work that would justify the mobilization of equipment needed for the repair.

While the large tailing impoundment flushing program continues and water levels in the impoundment slopes are less than five feet below the top of cover on the slopes, these outcrops should be observed by site staff at least weekly for signs of water emerging from the slope, especially near the toe, and for visible evidence of slumps or other displacements in the slope surface. The undersigned should be notified immediately if seepage from the slopes or if surface slumps or other deformations in the slopes are observed.

LIMITATIONS

The recommendations contained in this report are based on the undersigned's field visit, evaluation of information generated by others and obtained from Homestake, and his understanding of the inspected facilities. If any conditions are encountered at this site which are significantly different than those described in this report, the undersigned should be immediately notified so that he may make any necessary revisions to findings or recommendations contained in this report.

This report was prepared in accordance with generally accepted standards of practice at the time the report was written. No warranty, express or implied, is made. It is the Client's responsibility to see that all parties to the project are made aware of this report in its entirety. The information contained in this report should be used at the Owner's and Contractor's option and risk.

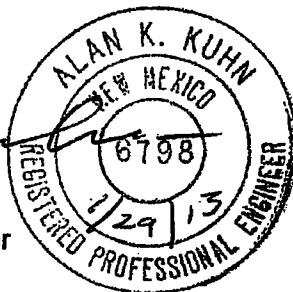
If you have any questions or need additional information, please contact me.

Respectfully submitted,



Alan K. Kuhn, Ph.D., P.E., R.G.

Consultant and Responsible Engineer



APPENDIX E
GRANTS RECLAMATION PROJECT
LAND USE REVIEW / SURVEY

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GRANTS RECLAMATION PROJECT
LAND USE REVIEW / SURVEY

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Grants Reclamation Project

Land Use Review / Survey ***Annual Report No. 11 - CY2012***

1.0 Background

As part of Amendment 34 to the Grants Reclamation Project Radioactive Materials License – SUA-1471-Docket 40-8903 (approved June 19, 2002), License Condition (LC) 42 was amended to require submittal of a land use survey with the License annual report to NRC. This report is the eleventh annual land use review / survey pursuant to LC 42.

The general focus of the land use survey is to document and summarize the current land uses and any identified changes to land use in proximity to the Grants Reclamation Project. In particular, land use activities for those areas proximal to the tailings pile areas undergoing reclamation and closure and immediate surrounding areas where ongoing ground-water restoration continues to be reviewed.

2.0 2012 – Land Use – Homestake Properties

Homestake Mining Company of California (HMC) owns and controls a sizeable land area in and around the Grants Reclamation project. Over the last number of years, additional lands have been acquired as opportunity has arisen and acquisition of such lands are deemed appropriate in relation to ongoing ground-water remediation and restoration activities and final reclamation / closure of the site.

Much of the HMC lands held in the area that are not in immediate proximity to the tailings pile complex have been, and are continuing to be, utilized for livestock grazing on a lessor/lessee tenant arrangement. Much of the current land area within the immediate Site Boundary area containing the evaporation ponds, RO plant and both tailings pile areas and office / shop compound have been excluded from livestock grazing and other land use except those directly related to the ongoing ground-water restoration activities. These areas have been livestock fenced to exclude grazing; certain small areas in the southern and western portions of land within the Site Boundary are, however, seasonally utilized for livestock grazing.

Several small lot / small acreage parcels [e.g. residential lot(s)] held by HMC in the general area of the reclamation site are idle and are essentially not in use

except in certain instances where fresh water injection and water collection is underway as part of the ongoing groundwater restoration program or are under agricultural use on selected lot(s). For example, Block 1 Lot 5 and Block 2 Lot 2 in Murray Acres were irrigated in 2008 through 2012 for hay production or livestock pasture grazing.

The other significant land use activity situated on HMC-held lands in the area includes land treatment / crop irrigation utilized for crop production or livestock grazing. Water used for irrigation is an integral part of the ongoing groundwater restoration and cleanup program for the project. Prior to 2002, HMC had 270 acres of land under irrigation consisting of flood irrigation area comprising 120 acres and a center pivot spray irrigation area comprising 150 acres. During 2002, an additional center pivot irrigation system was commissioned that comprises 60 acres. In 2003, an additional 24 acres of flood irrigation was added to the irrigation system in Section 33. In 2005, the 60 acre center pivot irrigation system was expanded by 40 acres to a total of 100 acres.

For 2012, HMC lands that were under crop irrigation totaled 220 acres in two fields situated in Sections 28 and 34 (see project location Figure 2.1-1 in report Section 2.1 of this annual report for location of the four areas available for irrigation activity). The remaining 174 acres in the other two farm fields were not irrigated during 2012.

3.0 2012 – Land Use – Pleasant Valley Estates, Murray Acres, Broadview Acres, Felice Acres and Valle Verde Residential Subdivisions

Aside from the land uses on HMC land in the Grants Reclamation Project area described in the previous section above, the other major land use immediately proximal to the Site consists of residential development located in the Pleasant Valley Estates, Murray Acres, Broadview Acres and Felice Acres Residential subdivisions. By way of background, HMC provided these subdivision areas with a potable water supply system as an extension of the Village of Milan water supply in the mid-1980's. The Village of Milan water supply extension to these areas was provided at that time to address a concern over the quality of groundwater used for domestic purposes in these adjacent subdivision areas.

An assessment of current land use in these four subdivision areas was undertaken in early 2013 to provide an annual review of the present uses, occupancy and status for the various lots within these subdivisions. Over the years, permanent residential homes, modular homes and mobile homes have been established in the subdivision areas, and immediate adjacent areas, as would typify a rural residential neighborhood. A number of lots remain vacant, or are utilized for uses such as horse barns, corrals, equipment storage, etc. In

some cases, dwellings are present on several lots throughout the subdivisions but are currently vacant or have been permanently abandoned and in various states of disrepair.

This year, the annual review also included an assessment of the residential areas adjacent to Felice Acres, Pleasant Valley Estates and the Valle Verde residential areas and adjacent lots as was done during 2006 through 2011.

The primary issue of concern in the subdivision areas is to determine whether current occupied dwellings are utilizing water service from the Village of Milan system for potable water consumption and not private wells, particularly private domestic wells that are completed into the underlying shallow alluvial aquifer.

The survey conducted in early 2013 consisted of first obtaining the records and customer database from the Village of Milan water district. This information was reviewed to prepare a separate residential customer database for the subdivisions that would reflect the lot number, customer, water meter customer ID number and whether the customer utilized Milan water during 2012. See Tables E-1 through E-5 for 2012 database information.

A lot-by-lot reconnaissance was made in each of the subdivisions to determine whether each lot was occupied or vacant, contained a residence(s), and which residences are currently occupied. This information was then checked against the database to determine whether each occupied residence is supplied and metered through the Village of Milan water supply system. Results of this reconnaissance effort are summarized on the subdivision plat maps; see attached Figures E-1 through E-5.

Field review of the subdivisions areas, along with follow-up inquiries as required to confirm the status of water use at each property, indicates that occupied residential sites in, or immediately adjacent to the Felice Acres, Broadview Acres, Murray Acres, and Pleasant Valley subdivisions are on metered water service with the Village of Milan; exceptions to this overall status are discussed below.

In the Valle Verde residential area and immediately adjacent to the subdivision, one residence was identified that is not on the Village of Milan water supply system and is therefore obtaining domestic-use water from a private well or other supply. This residence is currently on a domestic well supply and this property owner has stated that he does not want to be hooked up to the Village water supply system; it is assumed, but not verified that the resident is utilizing bottled water for consumptive potable use.

4.0 New Milan Water Hook-Ups

Homestake (HMC) and the New Mexico Environment Department - Superfund Oversight Section entered into and executed a Memorandum of Agreement (MOA) in January 2009 regarding private well supplies utilized for domestic household use in the area. The MOA established an Area of Concern (AOC) wherein those residences within the area that are not on the Village of Milan water supply for domestic potable water use should be contacted and given the opportunity to be hooked up to that supply with HMC covering the cost of the hookup. Additionally, those residents in the AOC area that arranged for Village hookup after January 2004 would be reimbursed for the related costs if cost records are supplied to HMC. Eight (8) residents in the AOC were identified as eligible for reimbursement of Village potable water supply hookup costs pursuant to terms of the MOA. The current status is as follows:

• Number of residents reimbursed	5
• Number of residents not interested in reimbursement	1
• Number of residents not providing necessary cost detail	<u>2</u>
TOTAL	8

The last significant facet of the MOA addresses the concern with regard to an offer by HMC to residential property owners in the AOC to arrange for and pay for plugging and abandonment of private wells in the area. In 2010, HMC mailed notice letters and offers to property owners in the MOA that extends the opportunity to have their well(s) plugged and abandoned. The time period for well owners to respond, as specified in the AOC, was reached during 2010. Six property owners have indicated a desire to have their well(s) plugged; HMC will be advancing discussions with these property owners to get the subject wells plugged and abandoned. Communications are underway with the New Mexico State Engineers Office (OSE) regarding preparation of plug and abandon permits for these six wells; the permits are currently being drafted with the necessary information to secure the permits. Permit filings related to plugging and abandoning these wells were transmitted to the OSE during the second quarter 2012.

As of December 2012, no residences within the MOA Area of Concern (AOC) are pending with respect to a domestic water supply hook-up to the Village of Milan municipal water supply; all other known and identified residences are currently on the Village municipal supply, except for the one residence in Valle Verde which has stated that he is not interested in being hooked up to the Milan water system. This residential hookup in the Valle Verde area is discussed above in Sec 3.0 of this report. Three residential hook-ups were made in 2012 east of Highway 605. As such, by year end 2012, all remaining identified residences

requiring residential water supply hookups in the AOC area were completed.

5.0 Conclusion

The review of land use for HMC properties and the five residential subdivision areas to the south and west of the Grants Reclamation Project site indicates that present land uses in the area have not changed significantly. As a result of the annual survey of the residential areas within the Memorandum of Agreement (MOA) Area of Concern (AOC) during early 2013, no residential properties remain to be addressed in terms of providing a domestic water supply hookup. Survey results indicate that all other water users in the AOC area are supplied by the Village of Milan water supply, except the one Valle Verde residence that has stated he is not interested in being hooked up to the Milan water system.

This land use survey / review is completed on an annual basis to meet annual license condition reporting requirements under the NRC License. This will help in assuring that land use activities in the immediate area surrounding the Grants project are regularly reviewed and assist in determining that those uses do not present a new concern with local ground-water usage until project ground-water restoration activities are completed.

FIGURE E-1. BROADVIEW ACRES-LAND USE STATUS AND WATER USE
E-6

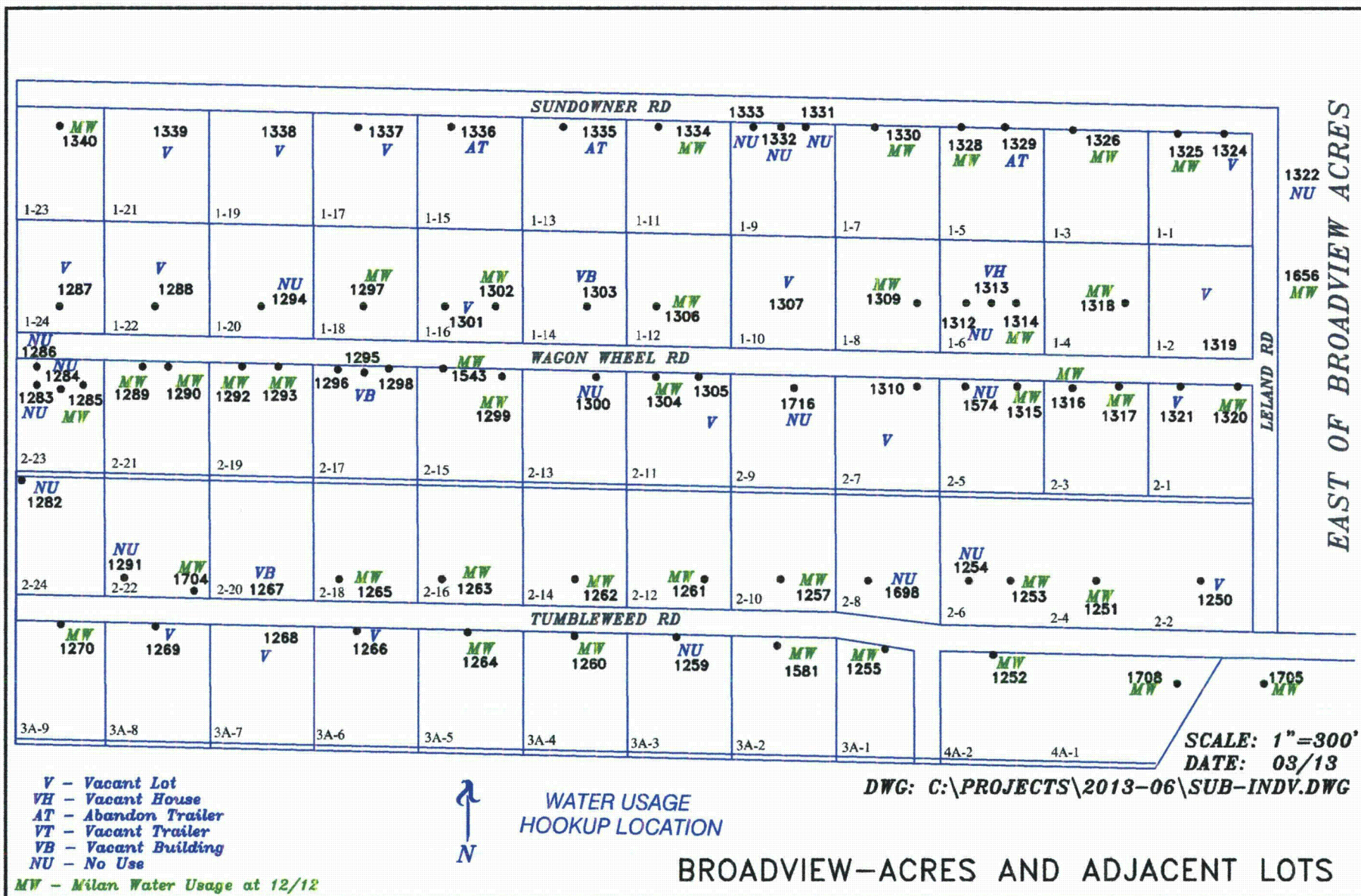
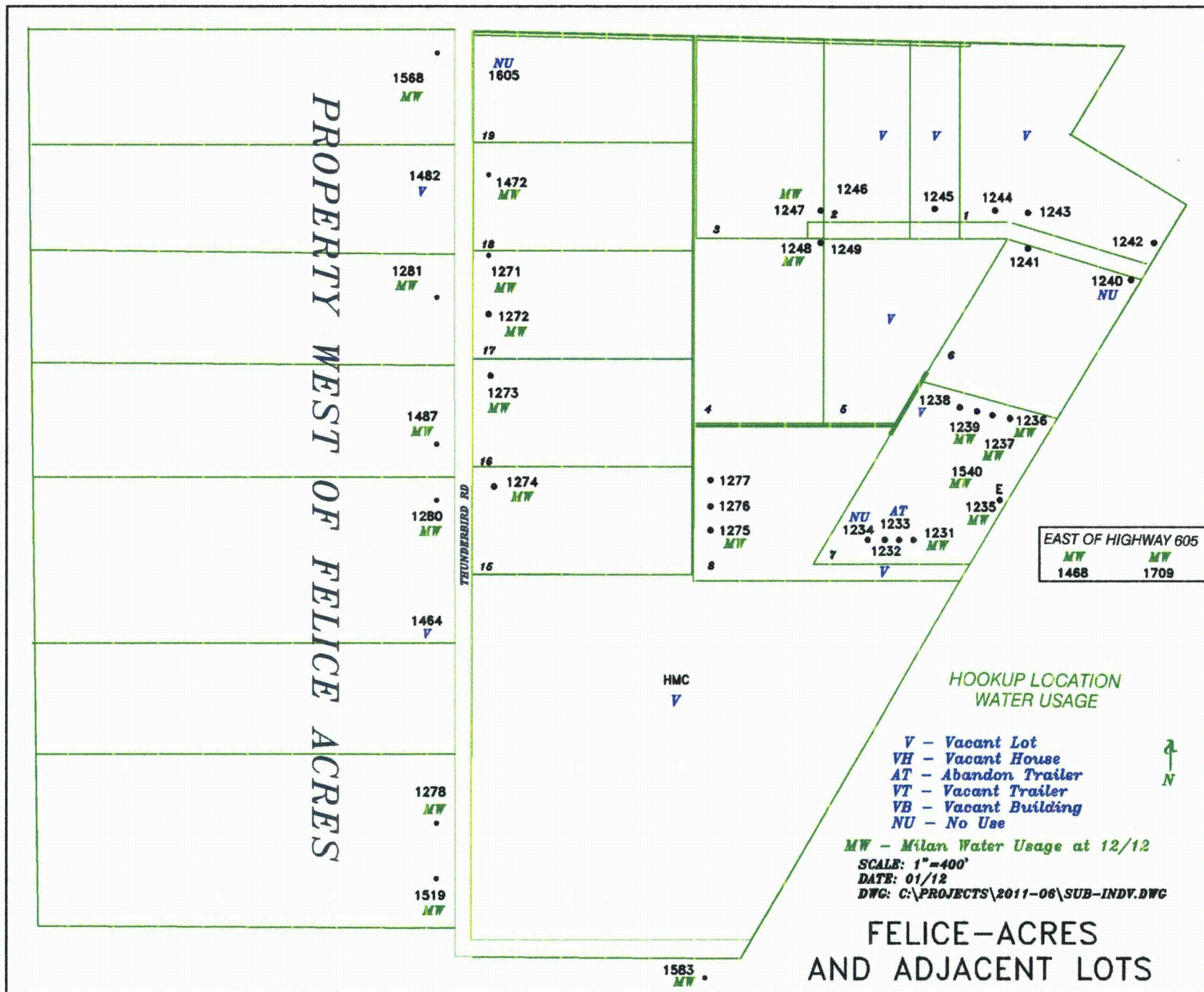


FIGURE E-2. FELICE ACRES – LAND USE STATUS AND WATER USE
E-7



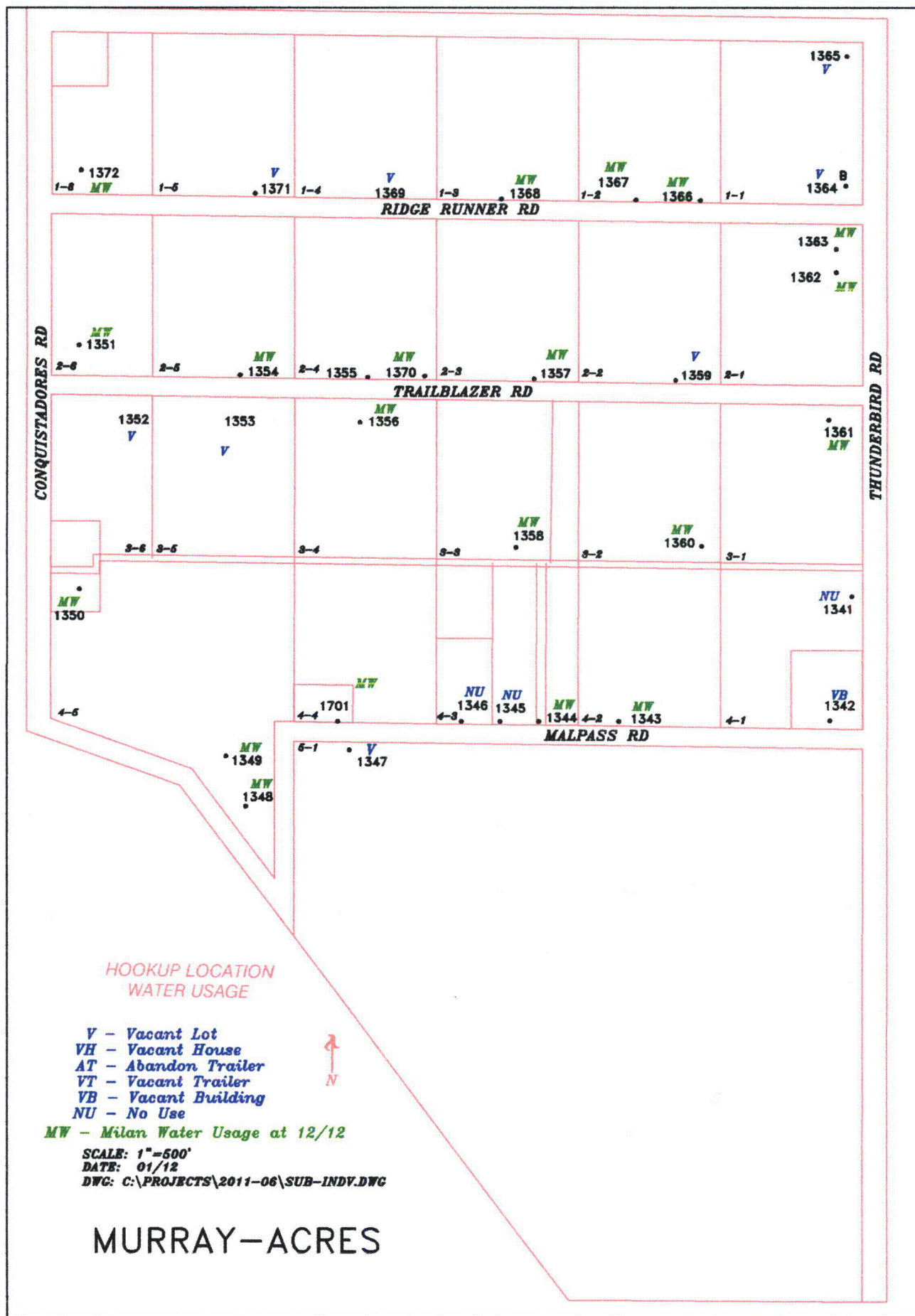


FIGURE E-3. MURRAY ACRES—LAND USE STATUS AND WATER USE
 E-8

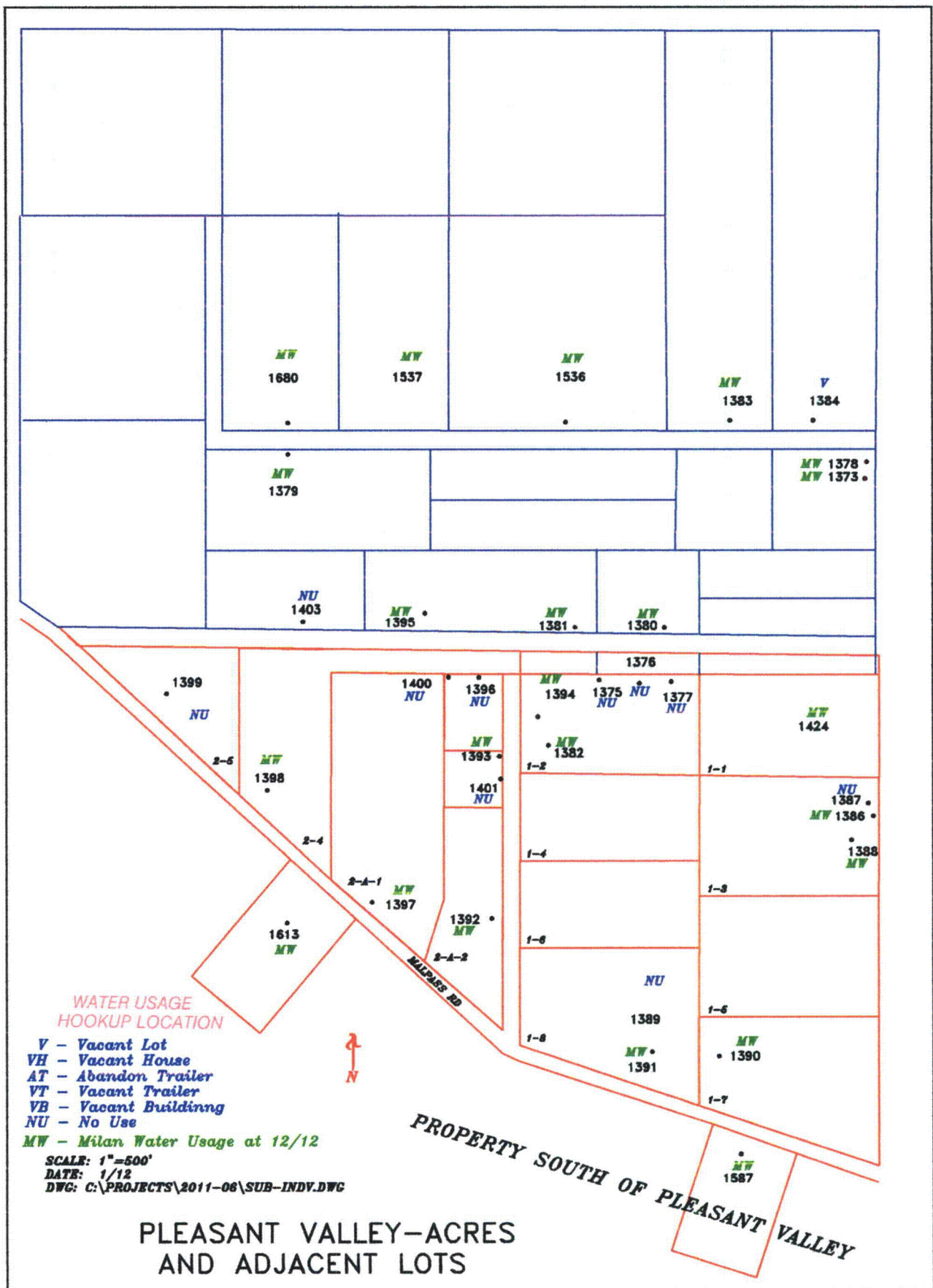


FIGURE E-4. PLEASANT VALLEY ESTATES-
 LAND USE STATUS AND WATER USE
 E-9

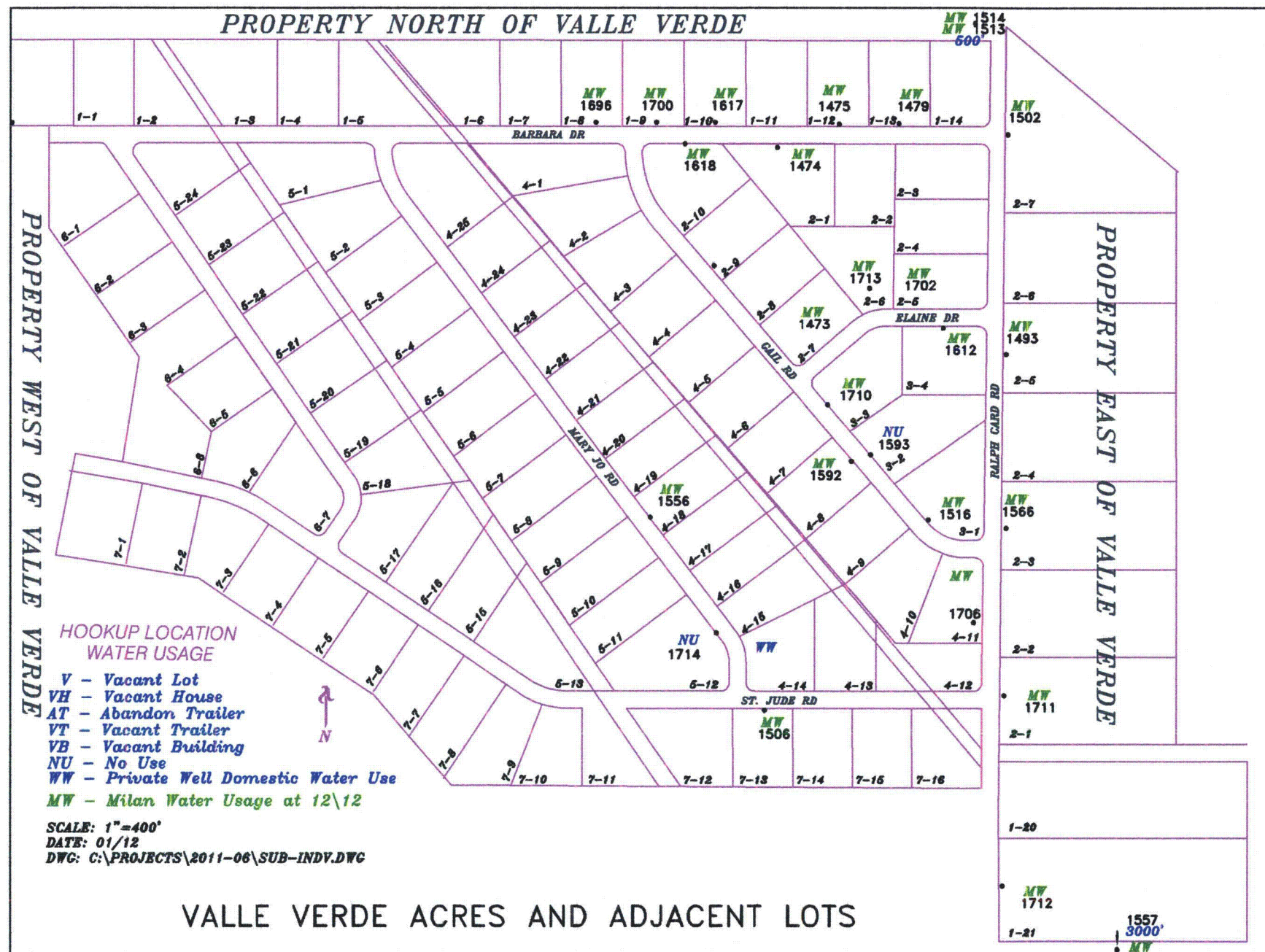


FIGURE E-5. VALLE VERDE ACRES—LAND USE STATUS AND WATER USE

**TABLE E-1 WATER USE OF MILAN WATER IN BROADVIEW ACRES AND
ADJACENT LOTS**

SUBDIVISION BLOCK / LOT	CUSTOMER NUMBER SITE ID	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2011 WATER USAGE	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2012 WATER USAGE
1 / 1	1324		
1 / 1	1325	X	X
1 / 2	1319		
1 / 3	1326	X	X
1 / 4	1318	X	X
1 / 5	1328	X	X
1 / 5	1329		
1 / 6	1312		
1 / 6	1313		
1 / 6	1314	X	X
1 / 7	1330	X	X
1 / 8	1309	X	X
1 / 9	1331		
1 / 9	1332		
1 / 9	1333		
1 / 10	1307		
1 / 11	1334	X	X
1 / 12	1306	X	X
1 / 13	1335		
1 / 14	1303		
1 / 15	1336		
1 / 16	1301		
1 / 16	1302	X	X
1 / 17	1337		
1 / 18	1297	X	X
1 / 19	1338		
1 / 20	1294	X	
1 / 21	1339		
1 / 22	1288		
1 / 23	1340	X	X
1 / 24	1287		
2 / 1	1320	X	X
2 / 1	1321		
2 / 2	1250		
2 / 3	1316	X	X
2 / 3	1317	X	X
2 / 4	1251	X	X

**TABLE E-1 WATER USE OF MILAN WATER IN BROADVIEW ACRES AND
ADJACENT LOTS**

SUBDIVISION BLOCK / LOT	CUSTOMER NUMBER SITE ID	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2011 WATER USAGE	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2012 WATER USAGE
2 / 5	1315	X	X
2 / 5	1574		
2 / 6	1253	X	X
2 / 6	1254		
2 / 7	1310		
2 / 8	1698		
2 / 9	1308		
2 / 10	1257	X	X
2 / 11	1304	X	X
2 / 11	1305		
2/12	1261	X	X
2 / 13	1300		
2 / 14	1262	X	X
2 / 15	1299	X	X
2 / 15	1543	X	X
2 / 16	1263		X
2 / 17	1295		
2 / 17	1296		
2 / 17	1298		
2 / 18	1265	X	X
2 / 19	1292	X	X
2 / 19	1293	X	X
2 / 20	1267		
2 / 21	1717		X
2 / 21	1290	X	X
2 / 22	1291	X	
2 / 22	1704	X	X
2 / 23	1283		
2 / 23	1284		
2 / 23	1285	X	X
2 / 23	1286		
2 / 24	1282	X	
3A / 1	1255	X	X
3A / 2	1581	X	X
3A / 3	1259		
3A / 4	1260	X	X
3A / 5	1264	X	X
3A / 6	1266		

**TABLE E-1 WATER USE OF MILAN WATER IN BROADVIEW ACRES AND
ADJACENT LOTS**

SUBDIVISION BLOCK / LOT	CUSTOMER NUMBER SITE ID	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2011 WATER USAGE	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2012 WATER USAGE
3A / 7	1268		
3A / 8	1269		
3A / 9	1270	X	X
4A / 1	1708	X	X
4A / 2	1252	X	X
	1705	X	X
	1716	X	

EAST OF BROADVIEW ACRES			
	1322		
	1656	X	X

**TABLE E-2 WATER USE OF MILAN WATER IN FELICE ACRES AND
ADJACENT LOTS**

SUBDIVISION BLOCK / LOT	CUSTOMER NUMBER SITE ID	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2011 WATER USAGE	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2012 WATER USAGE
1	1242		
1	1243		
1	1244		
2	1245		
2	1246		
3	1247	X	X
4	1248	X	X
5	1249		
6	1240	X	
6	1241		
7	1231	X	X
7	1232		
7	1233		
7	1234	X	
7	1235	X	X
7	1236	X	X
7	1237	X	X
7	1238		
7	1239	X	X
7	1540	X	X
8	1275	X	X
8	1276		
8	1277		
9			
10			
11			
12			
13			
14			
15	1274	X	X
16	1273	X	X
17	1271	X	X
17	1272	X	X
18	1472	X	X
19	1605		

PROPERTY WEST OF FELICE ACRES			
	1519	X	X
	1278	X	X

**TABLE E-2 WATER USE OF MILAN WATER IN FELICE ACRES AND
ADJACENT LOTS**

SUBDIVISION BLOCK / LOT	CUSTOMER NUMBER SITE ID	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2011 WATER USAGE	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2012 WATER USAGE
	1279		
	1280	X	X
	1464		
	1487	X	X
	1281	X	X
	1482		
	1568	X	X

PROPERTY SOUTH OF FELICE ACRES			
	1583	X	X

PROPERTY EAST OF FELICE ACRES			
	1468	X	
	1709	X	

PROPERTY EAST OF HIGHWAY 605			
	1709	X	X
	1468	X	X
			X
			X
			X

TABLE E-3 WATER USE OF MILAN WATER IN MURRAY ACRES

SUBDIVISION BLOCK / LOT	CUSTOMER NUMBER SITE ID	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2011 WATER USAGE	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2012 WATER USAGE
1 / 1	1364		
1 / 1	1365		
1 / 2	1366	X	X
1 / 2	1367	X	X
1 / 3	1368	X	X
1 / 4	1369		
1 / 5	1371		
1 / 6	1372	X	X
2 / 1	1362	X	X
2 / 1	1363	X	X
2 / 2	1359		
2 / 3	1357	X	X
2 / 4	1355		
2 / 4	1370	X	X
2 / 5	1354	X	X
2 / 6	1351	X	X
3 / 1	1361	X	X
3 / 2	1360	X	X
3 / 3	1358	X	X
3 / 4	1356	X	X
3 / 5	1353		
3 / 6	1352		
4 / 1	1341	X	
4 / 1	1342		
4 / 2	1343	X	X
4 / 3	1344	X	X
4 / 3	1345	X	
4 / 3	1346	X	
4 / 4	1701	X	X
4 / 5	1349	X	X
4 / 5	1350	X	X
5 / 1	1347		
	1348	X	X

**TABLE E-4 WATER USE OF MILAN WATER IN PLEASANT VALLEY ESTATES
AND ADJACENT LOTS**

SUBDIVISION BLOCK / LOT	CUSTOMER NUMBER SITE ID	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2011 WATER USAGE	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2012 WATER USAGE
1 / 1	1424	X	X
1 / 2	1375		
1 / 2	1376		
1 / 2	1377		
1 / 2	1382	X	X
1 / 2	1394	X	X
1 / 3	1386	X	X
1 / 3	1387		
1 / 3	1388	X	X
1 / 7	1390	X	X
1 / 8	1389		
1 / 8	1391	X	X
2 / 4	1398	X	X
2 / 5	1399		
2 / A1	1397	X	X
2 / A2	1392	X	X
2 / A2	1393	X	X
2 / A2	1396		
2 / A2	1400		
2 / A2	1401		
	1373	X	X
	1378	X	X
	1379	X	X
	1380		X
	1381		X
	1383	X	X
	1384		
	1395	X	X
	1403		
	1536	X	X
	1537		X
	1680	X	X

PROPERTY SOUTH OF PLEASANT VALLEY ESTATES			
17 - 2	1587	X	X
11 - 2	1613	X	X

**TABLE E-5 WATER USE IN VALLE VERDE AND
ADJACENT LOTS**

SUBDIVISION BLOCK / LOT	CUSTOMER NUMBER SITE ID	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2011 WATER USAGE	PRIVATE RESIDENTIAL WELL WATER 2011	VILLAGE OF MILAN WATER SUPPLY SYSTEM 2012 WATER USAGE	PRIVATE RESIDENTIAL WELL WATER 2012
1 / 8	1696	X		X	
1 / 9	1700	X		X	
1 / 10	1617	X		X	
1 / 12	1475			X	
1 / 13	1479	X		X	
2 / 1	1474	X		X	
2 / 5	1702	X		X	
2 / 6	1713	X		X	
2 / 7	1473	X		X	
2 / 9					
2 / 10	1618	X		X	
3 / 1	1516	X		X	
3 / 2	1593	X			
3 / 3	1710	X		X	
3 / 4	1612	X		X	
4 / 11	1706	X		X	
4 / 8	1592	X		X	
4 / 14			X		X
4 / 18	1556	X		X	
5 / 12	1714	X			
7 / 13	1506	X		X	

PROPERTY NORTH OF VALLE VERDE					
	1513	X		X	
	1514	X		X	

PROPERTY EAST OF VALLE VERDE					
1 / 21	1712	X		X	
2 / 1	1711	X		X	
2 / 5	1493	X		X	
2 / 7	1502	X		X	
2 / 3	1566	X		X	

PROPERTY SOUTH OF VALLE VERDE					
	1557	X		X	

APPENDIX F
TAILINGS PILES RADON
FLUX SURVEY / REPORT

Radon Flux Measurements for the HMC Tailings Piles

October 2012

Prepared for:

**Homestake Mining Company of California
P. O. Box 98
Grants, New Mexico 87020**

Prepared by:



**Environmental Restoration Group, Inc.
8809 Washington St. NE, Suite 150
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Radon Flux Measurements for the HMC Tailings Piles

1. Introduction

Reclamation activities associated with the Large Tailings Pile (LTP) at the Grants Uranium Mill, owned by Homestake Mining Company of California (HMC), were completed in phases. The pile was contoured in 1994 at which time an interim cover was placed on the top of the pile to control the dispersal of tailings by wind and water erosion. Radon barrier was applied to the north, west, and south side slopes, with completion of the work in 1994. Radon flux measurements were made on these side slopes on October 24-25, 1994. Completion of the placement of radon barrier on the east side slope and aprons occurred just prior to making the radon flux measurements on July 24-25, 1995. An evaporation pond was constructed on the Small Tailings Pile (STP) and an interim cover placed on the remainder of the pile. Radon flux measurements were made on the top of the LTP and the interim cover of the Small Tailings Pile (STP) on August 18-19, 1995.

As part of a request for a license amendment extending the milestones in the NRC License, radon flux measurements were repeated in the areas with interim cover on October 21-22, 2003. This license amendment required HMC to repeat these measurements annually.

The Year 2012 annual measurements were made on September 19 - 20, 2012. The measurements for the LTP resulted in an average flux of 15.67 pCi/m²•s, below the desired 20 pCi/m²•s goal. This report presents the data for the Year 2012 flux measurements.

2. Radon Flux Results

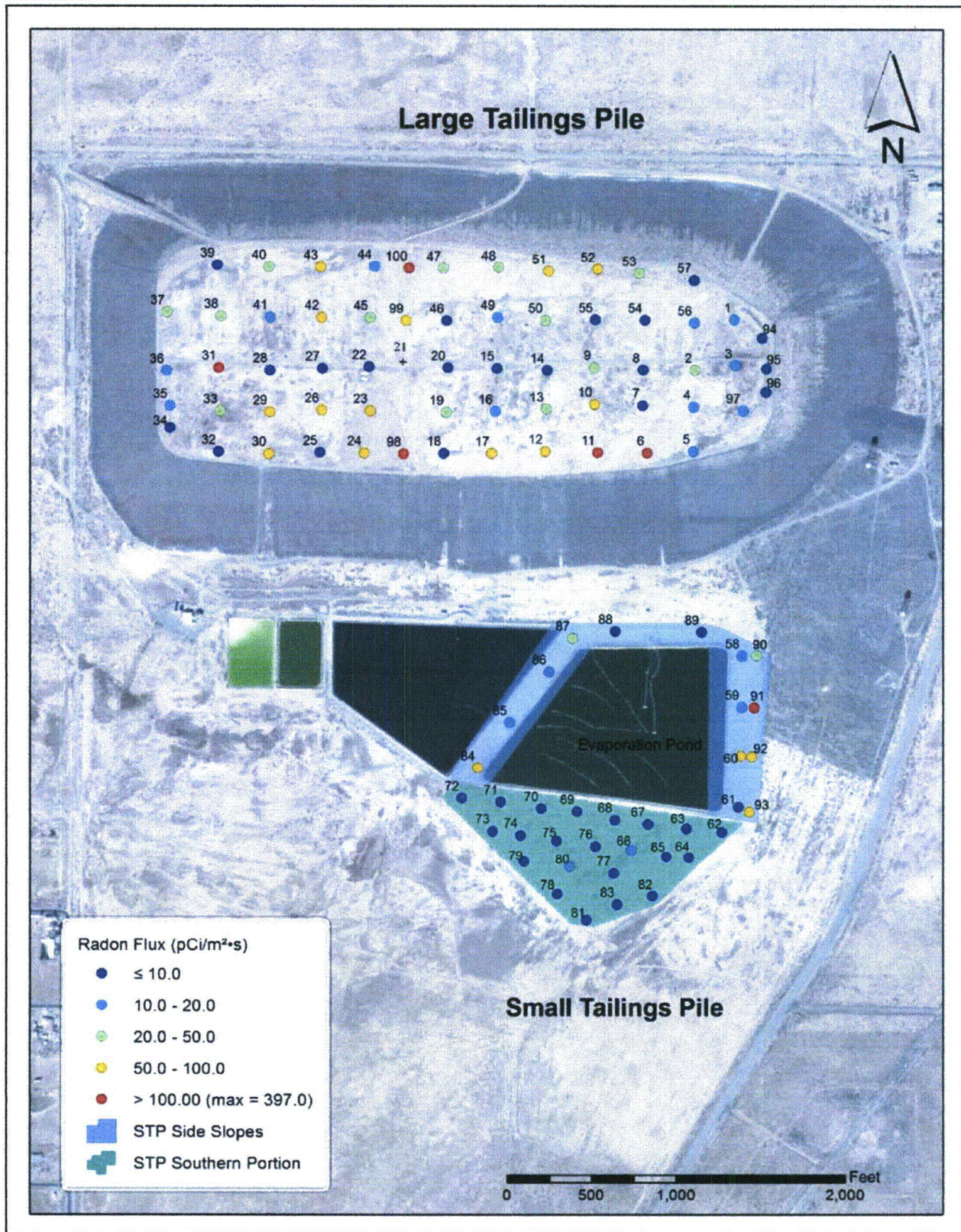
The results of the flux measurements on the LTP and STP are presented in the Appendix as Table A-1 and Table A-2, respectively. One-hundred sample locations were established on the piles as shown in Figure 2-1. At flux measurement location 21 on the LTP the data was void due to the canister getting wet, as a result of nearby construction. One duplicate field measurement was made on the STP at location 72. The two results were within 3.0 percent of each other.

The distribution of canisters was allocated so that each canister represented an equal area of the total pile surface. Measurements are reported for 63 locations on the LTP and 36 locations on the STP. The average measured flux was 15.67 pCi/m²•s and 4.12 pCi/m²•s for the LTP and STP, respectively. When calculating average measured flux for analysis duplicates (same canister analyzed twice), the results were averaged.

3. Average Pile Flux

Since all but the top of the LTP has rock cover, canisters were placed on the top of the pile only. The September 2012 average measured flux on the top of the pile was 38.71 pCi/m²•s. This compares to 42.1 pCi/m²•s measured in 1995. In the earlier data, the average flux on the sides of the pile was 3.27 pCi/m²•s, which constitutes 65 percent of the area. If one assumes that the flux on the side slopes remains constant, the average flux for the pile in September 2012 was 15.67 pCi/m²•s ($0.35 \times 38.71 + 0.65 \times 3.27$).

Figure 2-1 Radon Flux Canister Locations



An evaporation pond is located on top of the STP and therefore that portion of the pile has 0 pCi/m²•s flux. The areas for the side slopes, southern portion, and evaporation pond are 137,000, 874,000, and 1,331,000 square feet, respectively. These areas equate to a percent of total area for the side slopes, southern portion, and evaporation pond of 5.85 percent, 37.32 percent, and 56.83 percent, respectively. The corresponding average fluxes for these areas were 40.23, 4.74 and 0 pCi/m²•s, respectively. Using Equation 3-1 below, the flux rate averages for the three portions of the STP were multiplied by their corresponding area ratios to obtain an area-weighted-average flux of 4.12 pCi/m²•s.

$$Flux_w = 0.0585 * Flux_{side} + 0.3732 * Flux_{south} + 0.5683 * Flux_{pond} \quad \text{Eq. 3-1}$$

where w is the = weighted average.

The data show that the STP average flux of 4.12 pCi/m²•s is below the 20 pCi/m²•s standard in 10 CFR 40 Appendix A. The average flux of 15.67 pCi/m²•s for the LTP is also below the 20 pCi/m²•s standard.

4. Quality Assurance

The EPA Method 115 requirements were met for the measurements. For the September canister deployment there was no rainfall reported during the 24 hours prior to the measurements, nor did the temperature fall below 35 degrees Fahrenheit during deployment.

Two independent sources were used to calibrate the spectrometer, using identical geometry conditions to that of the canisters. Agreement between calibration factors was within 5.0 percent of the mean the analyses. The results of these measurements are included in Table 4-1.

The comparative analysis of every 13th canister analyzed is shown in Table 4-2. Agreements between measurements were within 5 percent and consistent with state-of-the art gamma spectroscopy results.

One trip blank was included in the batch and was counted without exposing it to radon. The measured flux of 0.19 pCi/m²•s is near the expected 0 pCi/m²•s value. This result indicates that the canisters had not been exposed while sealed in the plastic bags, confirming the integrity of the bags during deployment.

Table 4.1 Quality Assurance Results of Standard Analysis

Standard	Date	Count Time (seconds)	Standard (nCi)	Counts	Average Background Counts	Efficiency (pCi/m ² •s)	Error (1.00 SD)
STD 1	7/13/11	1200	80	48273	3397.5	0.01263	0.000064
STD 3	7/13/11	1200	78.83	43074	3397.5	0.01134	0.000062
STD 1	7/13/11	1200	80	48802	3397.5	0.01278	0.000064
STD 3	7/13/11	1200	78.83	44402	3397.5	0.01172	0.000062
Mean						0.01189	

Table 4.2 Comparison Data of Every Tenth Sample Analyzed

Canister	First Analysis (A) (pCi/m ² •s)	Second Analysis (B) (pCi/m ² •s)	Average Flux (pCi/m ² •s)	Difference (%)
29	1.2	1.2	1.2	3.4
86	8.4	8.3	8.3	1.7
84	43.4	44.0	43.7	-1.4
312	81.7	83.6	82.6	-2.3
31	60.0	60.2	60.1	-0.3
304	27.8	28.2	28.0	-1.4
30	5.1	5.0	5.0	2.2
108	13.4	13.5	13.4	-0.9

Radon Flux Measurements for HMC Grants Site



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Location Number	Duplicate Type	Canister Number	Lab Date (mm/dd/yy)	Start Count Time (24:00)	Deploy Date (mm/dd/yy)	Deploy Time (24:00)	Retrieve Date (mm/dd/yy)	Retrieve Time (24:00)	Deployment Duration (sec)	Count Duration (sec)	Sample Counts	BKG Counts	Detector Efficiency (cps/dps)	Canister Activity (pCi)	Flux (pCi/m ² s)	Flux Error (1.00 SD)	LLD (pCi/m ² s)	Remarks
55		314	9/20/2012	19:06	9/19/2012	10:43	9/20/2012	10:52	86940	1028	5226	3075.5	1.19E-02	5.73E+03	1.52	0.05	0.1	OK
50		254	9/20/2012	19:28	9/19/2012	10:41	9/20/2012	10:51	87000	147	7966	3075.5	1.19E-02	1.17E+05	31.08	0.37	0.4	OK
80		105	9/20/2012	19:32	9/19/2012	11:35	9/20/2012	11:29	86040	264	5583	3075.5	1.19E-02	4.22E+04	11.25	0.18	0.3	OK
19		104	9/20/2012	19:39	9/19/2012	9:42	9/20/2012	9:49	86820	177	7950	3075.5	1.19E-02	9.63E+04	25.78	0.32	0.4	OK
42		300	9/20/2012	19:44	9/19/2012	10:23	9/20/2012	10:35	87120	59	5164	3075.5	1.19E-02	1.93E+05	51.28	0.75	0.6	OK
44		255	9/20/2012	19:46	9/19/2012	10:26	9/20/2012	10:37	87060	234	6307	3075.5	1.19E-02	5.54E+04	14.73	0.21	0.3	OK
51		22	9/20/2012	19:51	9/19/2012	10:38	9/20/2012	10:49	87060	45	6048	3075.5	1.19E-02	3.00E+05	79.56	1.05	0.7	OK
43		307	9/20/2012	19:53	9/19/2012	10:21	9/20/2012	10:34	87180	53	6718	3075.5	1.19E-02	2.82E+05	75.01	0.94	0.7	OK
82		41	9/20/2012	19:56	9/19/2012	11:16	9/20/2012	11:12	86160	531	5133	3075.5	1.19E-02	1.61E+04	4.32	0.09	0.2	OK
81		29	9/20/2012	20:07	9/19/2012	11:19	9/20/2012	11:14	86100	1193	5389	3075.5	1.19E-02	4.44E+03	1.19	0.05	0.1	OK
81	CD	29B	9/20/2012	20:28	9/19/2012	11:19	9/20/2012	11:14	86100	1149	5110	3075.5	1.19E-02	4.28E+03	1.15	0.05	0.1	OK
69		27	9/20/2012	20:50	9/19/2012	11:47	9/20/2012	11:26	85140	1200	5208	3075.5	1.19E-02	4.04E+03	1.10	0.05	0.1	OK
66		18	9/20/2012	21:15	9/19/2012	11:25	9/20/2012	11:23	86280	270	5961	3075.5	1.19E-02	4.44E+04	11.95	0.19	0.3	OK
96		54	9/20/2012	21:21	9/19/2012	9:12	9/20/2012	9:10	86280	475	5219	3075.5	1.19E-02	1.91E+04	5.25	0.11	0.2	OK
94		89	9/20/2012	21:30	9/19/2012	9:09	9/20/2012	9:04	86100	678	6234	3075.5	1.19E-02	1.51E+04	4.15	0.08	0.2	OK
37		53	9/20/2012	21:43	9/19/2012	10:11	9/20/2012	10:26	87300	80	5161	3075.5	1.19E-02	1.41E+05	37.93	0.56	0.5	OK
38		7	9/20/2012	21:49	9/19/2012	10:15	9/20/2012	10:28	87180	137	5034	3075.5	1.19E-02	7.77E+04	20.97	0.33	0.4	OK
46		49	9/20/2012	21:52	9/19/2012	10:33	9/20/2012	10:42	86940	860	5236	3075.5	1.19E-02	8.01E+03	2.17	0.06	0.2	OK
62		103	9/20/2012	22:08	9/19/2012	11:12	9/20/2012	11:06	86040	322	5064	3075.5	1.19E-02	2.99E+04	8.15	0.15	0.3	OK
47		200	9/20/2012	22:15	9/19/2012	10:35	9/20/2012	10:41	86760	183	8321	3075.5	1.19E-02	9.75E+04	26.48	0.32	0.4	OK
39		85	9/20/2012	22:19	9/19/2012	10:13	9/20/2012	10:27	87240	310	5024	3075.5	1.19E-02	3.10E+04	8.40	0.15	0.3	OK
39	CD	86B	9/20/2012	22:24	9/19/2012	10:13	9/20/2012	10:27	87240	315	5029	3075.5	1.19E-02	3.05E+04	8.25	0.15	0.3	OK
49		23	9/20/2012	22:33	9/19/2012	10:40	9/20/2012	10:44	86640	150	5071	3075.5	1.19E-02	7.10E+04	19.34	0.30	0.4	OK
71		67	9/20/2012	22:36	9/19/2012	11:45	9/20/2012	11:29	85440	647	5419	3075.5	1.19E-02	1.32E+04	3.63	0.08	0.2	OK
28		17	9/20/2012	22:47	9/19/2012	10:00	9/20/2012	10:13	87180	733	5015	3075.5	1.19E-02	9.72E+03	2.65	0.07	0.2	OK
78		2	9/20/2012	23:00	9/19/2012	11:37	9/20/2012	11:16	85140	885	5001	3075.5	1.19E-02	7.02E+03	1.94	0.06	0.2	OK

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Location Number	Duplicate Type	Canister Number	Lab Date (mm/dd/yy)	Start Count Time (24:00)	Deploy Date (mm/dd/yy)	Deploy Time (24:00)	Retrieve Date (mm/dd/yy)	Retrieve Time (24:00)	Deployment Duration (sec)	Count Duration (sec)	Sample Counts	BKG Counts	Detector Efficiency (cps/dps)	Canister Activity (pCi)	Flux (pCi/m ² s)	Flux Error (1.00 SD)	LLD (pCi/m ² s)	Remarks
99		85	9/20/2012	23:16	9/19/2012	10:32	9/20/2012	10:42	87000	62	5211	3075.5	1.19E-02	1.85E+05	50.53	0.73	0.6	OK
91		74	9/20/2012	23:18	9/19/2012	11:03	9/20/2012	11:02	86340	51	8418	3075.5	1.19E-02	3.69E+05	101.25	1.13	0.7	OK
16		202	9/20/2012	23:20	9/19/2012	9:39	9/20/2012	9:44	86700	255	5653	3075.5	1.19E-02	4.46E+04	12.30	0.20	0.3	OK
22		19	9/20/2012	23:25	9/19/2012	9:48	9/20/2012	10:02	87240	356	6610	3075.5	1.19E-02	3.64E+04	9.96	0.15	0.3	OK
33		310	9/20/2012	23:32	9/19/2012	10:04	9/20/2012	10:18	87240	100	5143	3075.5	1.19E-02	1.11E+05	30.38	0.46	0.5	OK
11		203	9/20/2012	23:35	9/19/2012	9:31	9/20/2012	9:35	86640	32	6191	3075.5	1.19E-02	4.34E+05	120.13	1.56	0.9	OK
31		56	9/20/2012	23:36	9/19/2012	10:05	9/20/2012	10:16	87060	26	16626	3075.5	1.19E-02	1.45E+06	397.01	3.10	1.0	OK
95		110	9/20/2012	23:38	9/19/2012	9:11	9/20/2012	9:09	86280	1200	4919	3075.5	1.19E-02	3.49E+03	0.98	0.05	0.1	OK
5		263	9/20/2012	23:58	9/19/2012	9:22	9/20/2012	9:24	86520	347	7774	3075.5	1.19E-02	4.51E+04	12.56	0.17	0.3	OK
20		65	9/21/2012	0:06	9/19/2012	9:43	9/20/2012	9:50	86820	770	4031	3075.5	1.19E-02	6.07E+03	1.68	0.06	0.2	OK
27		361	9/21/2012	0:20	9/19/2012	9:56	9/20/2012	10:06	87000	1200	5806	3075.5	1.19E-02	5.17E+03	1.43	0.05	0.1	OK
87		84	9/21/2012	5:00	9/19/2012	12:01	9/20/2012	11:48	85620	80	5528	3075.5	1.19E-02	1.51E+05	43.36	0.62	0.6	OK
87	CD	84B	9/21/2012	5:01	9/19/2012	12:01	9/20/2012	11:48	85620	77	5394	3075.5	1.19E-02	1.53E+05	43.99	0.63	0.6	OK
14		47	9/21/2012	5:03	9/19/2012	9:35	9/20/2012	9:39	86640	483	5760	3075.5	1.19E-02	2.13E+04	6.14	0.11	0.2	OK
25		57	9/21/2012	5:13	9/19/2012	9:54	9/20/2012	10:08	87240	648	5913	3075.5	1.19E-02	1.49E+04	4.27	0.09	0.2	OK
6		11	9/21/2012	5:30	9/19/2012	9:23	9/20/2012	9:25	86520	39	6383	3075.5	1.19E-02	3.66E+05	106.28	1.36	0.8	OK
4		10	9/21/2012	5:31	9/19/2012	9:21	9/20/2012	9:22	86460	366	8232	3075.5	1.19E-02	4.67E+04	13.58	0.18	0.3	OK
17		34	9/21/2012	5:38	9/19/2012	9:40	9/20/2012	9:46	86760	49	5960	3075.5	1.19E-02	2.77E+05	80.16	1.07	0.7	OK
29		312	9/21/2012	5:39	9/19/2012	10:01	9/20/2012	10:11	87000	43	5486	3075.5	1.19E-02	2.84E+05	81.68	1.14	0.8	OK
29	CD	312B	9/21/2012	5:40	9/19/2012	10:01	9/20/2012	10:11	87000	53	6917	3075.5	1.19E-02	2.91E+05	83.69	1.04	0.7	OK
8		256	9/21/2012	5:43	9/19/2012	9:26	9/20/2012	9:29	86580	599	4749	3075.5	1.19E-02	1.22E+04	3.54	0.09	0.2	OK
3		81	9/21/2012	5:58	9/19/2012	9:14	9/20/2012	9:15	86460	430	12201	3075.5	1.19E-02	5.87E+04	17.13	0.18	0.2	OK
97		58	9/21/2012	6:07	9/19/2012	9:13	9/20/2012	9:11	86280	211	5062	3075.5	1.19E-02	4.87E+04	14.26	0.24	0.4	OK
2		36	9/21/2012	6:12	9/19/2012	9:20	9/20/2012	9:21	86460	145	7380	3075.5	1.19E-02	1.10E+05	32.09	0.40	0.4	OK
92		31	9/21/2012	6:21	9/19/2012	11:04	9/20/2012	11:03	86340	69	6475	3075.5	1.19E-02	2.07E+05	59.97	0.78	0.6	OK
42	CD	31B	9/21/2012	6:23	9/19/2012	11:04	9/20/2012	11:03	86340	70	6586	3075.5	1.19E-02	2.08E+05	60.15	0.77	0.6	OK

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Location Number	Duplicate Type	Canister Number	Lab Date (mm/dd/yy)	Start Count Time (24:00)	Deploy Date (mm/dd/yy)	Deploy Time (24:00)	Retrieve Date (mm/dd/yy)	Retrieve Time (24:00)	Deployment Duration (sec)	Count Duration (sec)	Sample Counts	BKG Counts	Detector Efficiency (cps/dps)	Canister Activity (pCi)	Flux (pCi/m ² s)	Flux Error (1.00 SD)	LLD (pCi/m ² s)	Remarks
63		70	9/21/2012	6:24	9/19/2012	11:28	9/20/2012	11:18	85800	828	6632	3075.5	1.19E-02	1.24E+04	3.60	0.07	0.2	OK
59		90	9/21/2012	6:40	9/19/2012	11:02	9/20/2012	11:02	86400	662	14347	3075.5	1.19E-02	4.34E+04	12.59	0.13	0.2	OK
77		1	9/21/2012	6:51	9/19/2012	11:21	9/20/2012	11:14	85980	496	5893	3075.5	1.19E-02	2.12E+04	6.16	0.11	0.2	OK
23		109	9/21/2012	7:00	9/19/2012	9:50	9/20/2012	10:00	87000	49	5487	3075.5	1.19E-02	2.49E+05	72.32	1.01	0.7	OK
30		5	9/21/2012	7:02	9/19/2012	10:02	9/20/2012	10:10	86880	58	5763	3075.5	1.19E-02	2.20E+05	63.99	0.88	0.7	OK
24		40	9/21/2012	7:04	9/19/2012	9:52	9/20/2012	9:59	86820	51	7398	3075.5	1.19E-02	3.24E+05	94.42	1.13	0.7	OK
13		35	9/21/2012	7:05	9/19/2012	9:33	9/20/2012	9:38	86700	138	5221	3075.5	1.19E-02	8.02E+04	23.47	0.36	0.4	OK
67		75	9/21/2012	7:08	9/19/2012	11:26	9/20/2012	11:20	86040	578	5208	3075.5	1.19E-02	1.47E+04	4.27	0.09	0.2	OK
93		52	9/21/2012	7:19	9/19/2012	11:08	9/20/2012	11:05	86220	42	5515	3075.5	1.19E-02	2.93E+05	85.30	1.18	0.8	OK
41		77	9/21/2012	7:21	9/19/2012	10:16	9/20/2012	10:29	87180	264	5545	3075.5	1.19E-02	4.19E+04	12.16	0.20	0.3	OK
75		6	9/21/2012	7:26	9/19/2012	11:40	9/20/2012	11:28	85680	526	4182	3075.5	1.19E-02	1.22E+04	3.56	0.09	0.2	OK
83		251	9/21/2012	7:28	9/19/2012	11:17	9/20/2012	11:13	86160	1125	5172	3075.5	1.19E-02	4.62E+03	1.35	0.05	0.1	OK
79		48	9/21/2012	7:56	9/19/2012	11:38	9/20/2012	11:39	86460	725	4011	3075.5	1.19E-02	6.75E+03	1.96	0.07	0.2	OK
56		102	9/21/2012	8:08	9/19/2012	10:50	9/20/2012	10:52	86520	286	7523	3075.5	1.19E-02	5.40E+04	15.81	0.21	0.3	OK
90		304	9/21/2012	8:13	9/19/2012	10:59	9/20/2012	11:00	86460	136	6035	3075.5	1.19E-02	9.50E+04	27.84	0.39	0.4	OK
90	CD	304B	9/21/2012	8:15	9/19/2012	10:59	9/20/2012	11:00	86460	123	5531	3075.5	1.19E-02	9.64E+04	28.24	0.41	0.5	OK
48		80	9/21/2012	8:20	9/19/2012	10:37	9/20/2012	10:45	86880	322	18426	3075.5	1.19E-02	1.24E+05	36.34	0.29	0.3	OK
73		94	9/21/2012	8:27	9/19/2012	11:43	9/20/2012	11:41	86280	858	7148	3075.5	1.19E-02	1.31E+04	3.84	0.07	0.2	OK
100		60	9/21/2012	8:42	9/19/2012	10:29	9/20/2012	10:44	87300	46	7642	3075.5	1.19E-02	3.72E+05	108.56	1.27	0.8	OK
53		252	9/21/2012	8:44	9/19/2012	10:46	9/20/2012	10:49	86580	165	6091	3075.5	1.19E-02	7.81E+04	22.97	0.33	0.4	OK
58		15	9/21/2012	8:48	9/19/2012	11:00	9/20/2012	11:00	86400	208	6040	3075.5	1.19E-02	6.02E+04	17.72	0.26	0.4	OK
54		100	9/21/2012	8:52	9/19/2012	10:48	9/20/2012	10:51	86580	1189	5269	3075.5	1.19E-02	4.25E+03	1.25	0.05	0.1	OK
61		25	9/21/2012	9:14	9/19/2012	11:07	9/20/2012	11:05	86280	475	6998	3075.5	1.19E-02	2.77E+04	8.18	0.13	0.2	OK
60		107	9/21/2012	9:22	9/19/2012	11:05	9/20/2012	11:03	86280	61	7170	3075.5	1.19E-02	2.61E+05	77.34	0.94	0.7	OK
57		253	9/21/2012	9:23	9/19/2012	10:52	9/20/2012	10:53	86460	311	5419	3075.5	1.19E-02	3.38E+04	9.99	0.17	0.3	OK
76		87	9/21/2012	9:30	9/19/2012	11:34	9/20/2012	11:22	85680	701	8636	3075.5	1.19E-02	2.22E+04	6.60	0.10	0.2	OK

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Radon Flux Measurements for HMC Grants Site



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Albuquerque, NM 87113

Location Number	Duplicate Type	Canister Number	Lab Date (mm/dd/yy)	Start Count Time (24:00)	Deploy Date (mm/dd/yy)	Deploy Time (24:00)	Retrieve Date (mm/dd/yy)	Retrieve Time (24:00)	Deployment Duration (sec)	Count Duration (sec)	Sample Counts	BKG Counts	Detector Efficiency (cps/dps)	Canister Activity (pCi)	Flux (pCi/m ² s)	Flux Error (1.00 SD)	LLD (pCi/m ² s)	Remarks
52		43	9/21/2012	9:43	9/19/2012	10:45	9/20/2012	10:53	86980	74	6368	3075.5	1.19E-02	1.90E+05	56.02	0.73	0.6	OK
74		64	9/21/2012	9:45	9/19/2012	11:42	9/20/2012	11:27	85500	660	4509	3075.5	1.19E-02	9.70E+03	2.90	0.08	0.2	OK
64		59	9/21/2012	9:51	9/19/2012	11:13	9/20/2012	11:09	86160	469	7740	3075.5	1.19E-02	3.17E+04	9.42	0.14	0.2	OK
65		79	9/21/2012	10:54	9/19/2012	11:23	9/20/2012	11:10	85620	588	6628	3075.5	1.19E-02	1.98E+04	5.97	0.11	0.2	OK
40		24	9/21/2012	11:07	9/19/2012	10:17	9/20/2012	10:29	87120	71	5180	3075.5	1.19E-02	1.60E+05	47.76	0.70	0.6	OK
26		92	9/21/2012	11:09	9/19/2012	9:55	9/20/2012	10:07	87120	44	5760	3075.5	1.19E-02	2.92E+05	87.34	1.19	0.8	OK
10		50	9/21/2012	11:13	9/19/2012	9:30	9/20/2012	9:33	86580	49	5315	3075.5	1.19E-02	2.41E+05	72.83	1.04	0.8	OK
98		16	9/21/2012	11:15	9/19/2012	9:52	9/20/2012	9:57	86700	34	5624	3075.5	1.19E-02	3.70E+05	111.53	1.52	0.9	OK
68		97	9/21/2012	11:17	9/19/2012	11:32	9/20/2012	11:21	85740	729	5129	3075.5	1.19E-02	1.02E+04	3.06	0.08	0.2	OK
9		63	9/21/2012	11:31	9/19/2012	9:29	9/20/2012	9:32	86580	119	5526	3075.5	1.19E-02	9.97E+04	30.24	0.44	0.5	OK
36		88	9/21/2012	11:35	9/19/2012	10:08	9/20/2012	10:24	87360	200	5058	3075.5	1.19E-02	5.17E+04	15.45	0.25	0.4	OK
2D		45	9/21/2012	11:40	9/19/2012	9:20	9/20/2012	9:21	86460	121	5189	3075.5	1.19E-02	9.16E+04	27.90	0.42	0.5	OK
72		8	9/21/2012	11:43	9/19/2012	11:55	9/20/2012	11:43	85680	498	5045	3075.5	1.19E-02	1.72E+04	5.19	0.11	0.2	OK
35		61	9/21/2012	11:53	9/19/2012	10:07	9/20/2012	10:22	87300	263	5090	3075.5	1.19E-02	3.82E+04	11.45	0.20	0.3	OK
7		38	9/21/2012	11:58	9/19/2012	9:25	9/20/2012	9:27	86520	1057	5004	3075.5	1.19E-02	4.93E+03	1.51	0.06	0.2	OK
84		3	9/21/2012	12:17	9/19/2012	11:56	9/20/2012	11:45	85740	40	5089	3075.5	1.19E-02	2.83E+05	85.75	1.24	0.9	OK
72		30	9/21/2012	12:18	9/19/2012	11:55	9/20/2012	11:43	85680	1200	11907	3075.5	1.19E-02	1.67E+04	5.07	0.07	0.2	OK
1		33	9/21/2012	13:24	9/19/2012	9:07	9/20/2012	9:01	86040	197	5373	3075.5	1.19E-02	5.62E+04	17.45	0.27	0.4	OK
86		108	9/21/2012	13:31	9/19/2012	12:00	9/20/2012	11:47	85620	242	5278	3075.5	1.19E-02	4.37E+04	13.38	0.22	0.3	OK
72	CD	308	9/21/2012	13:37	9/19/2012	11:55	9/20/2012	11:43	85680	526	5101	3075.5	1.19E-02	1.62E+04	4.96	0.11	0.2	OK
86	CD	108B	9/21/2012	13:48	9/19/2012	12:00	9/20/2012	11:47	85620	233	5114	3075.5	1.19E-02	4.41E+04	13.50	0.23	0.3	OK
88		66	9/21/2012	13:53	9/19/2012	12:03	9/20/2012	11:50	85620	1038	9598	3075.5	1.19E-02	1.52E+04	4.66	0.07	0.2	OK
89		82	9/21/2012	14:11	9/19/2012	12:06	9/20/2012	11:52	85560	397	5004	3075.5	1.19E-02	2.28E+04	7.02	0.14	0.3	OK
85		44	9/21/2012	14:19	9/19/2012	11:59	9/20/2012	11:46	85680	178	5078	3075.5	1.19E-02	5.90E+04	18.15	0.29	0.4	OK
45		258	9/21/2012	14:23	9/19/2012	10:24	9/20/2012	10:36	87120	136	5011	3075.5	1.19E-02	7.79E+04	23.82	0.37	0.5	OK
32		72	9/21/2012	14:26	9/19/2012	10:03	9/20/2012	10:19	87360	544	5001	3075.5	1.19E-02	1.51E+04	4.61	0.10	0.2	OK

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34		303	9/21/2012	14:37	9/19/2012	10:06	9/20/2012	10:21	87300	345	5007	3075.5	1.19E-02	2.72E+04	8.32	0.15	0.3	OK
12		20	9/21/2012	14:44	9/19/2012	9:33	9/20/2012	9:36	86580	49	5131	3075.5	1.19E-02	2.32E+05	72.11	1.04	0.8	OK
70		78	9/21/2012	14:46	9/19/2012	11:46	9/20/2012	11:28	85320	726	5019	3075.5	1.19E-02	9.89E+03	3.07	0.08	0.2	OK
18		98	9/21/2012	14:59	9/19/2012	9:41	9/20/2012	9:47	86760	349	5005	3075.5	1.19E-02	2.68E+04	8.30	0.16	0.5	OK
TE		71	9/21/2012	15:05	9/19/2012	9:00	9/20/2012	9:00	86400	1200	3390	3075.5	1.19E-02	5.96E+02	0.19	0.05	0.2	OK
15		21	9/21/2012	15:34	9/19/2012	9:37	9/20/2012	9:43	86760	531	5012	3075.5	1.19E-02	1.56E+04	4.87	0.11	0.2	OK

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[Signature]