



**U.S. Department of Energy**

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Grand Junction, CO 81503

JUN - 7 2004

WM-69

Gary Janosko, Chief  
U.S. Nuclear Regulatory Commission  
Fuel Cycle Facilities Branch  
Mail Stop T-8A33  
Washington, DC 20555-0001

Subject: Notice of Intent to Discontinue Monitoring at the Maybell, Colorado, UMTRCA Title I Disposal Site

Dear Mr. Janosko:

The U.S. Department of Energy (DOE) has been measuring water levels at the Maybell, Colorado, UMTRCA Title I disposal site as a best management practice since 1995 to assess the potential impact of transient drainage from the disposal cell on the ground water system. As specified in the site Long-Term Surveillance Plan (LTSP), water level measurements were required until 2004, at which time data would be evaluated to determine the need for continued monitoring. Four copies of the monitoring evaluation report are enclosed.

Based on results of monitoring through March 2004, DOE has demonstrated that there is no discernable difference in the change in trend in ground water levels between monitor wells adjacent to the disposal cell and the offsite, upgradient background well. These data indicate regional changes in ground water levels and do not provide evidence of interaction of transient drainage from the cell with the ground water system near the disposal cell. Consequently, DOE has fulfilled its commitment to monitor ground water levels in the vicinity of the Maybell disposal site and has met the criteria specified in the LTSP to discontinue monitoring.

This letter and enclosure serve as a Notice of Intent that DOE will discontinue ground water level monitoring at the Maybell disposal site. It will also serve as a modification to the LTSP, eliminating ground water level monitoring as a licensing requirement for long-term management of the Maybell, Colorado site.

If you have any questions, please contact me at (970) 248-6004.

Sincerely,

Michael K. Tucker  
Site Manager

Enclosure

NUM5508

cc w/enclosure:

J. Deckler, CDPHE

W. Naugle, CDPHE

P. Oliver, CDPHE

R. Johnson, Stoller

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# Notice of Intent to Discontinue Monitoring at the Maybell, Colorado, UMTRCA Title I Disposal Site

## 1.0 Monitoring Program

The U.S. Department of Energy (DOE) currently is measuring ground water levels in three monitor wells in the vicinity of the Maybell, Colorado, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site, as a best management practice, as required in Section 2.6.1 of the site Long-Term Surveillance Plan (LTSP) (DOE 1999). The purpose of the monitoring is to observe changes in ground water levels in the downgradient monitor well MW-0695 that may be related to transient drainage caused by disposal cell construction. As stated in the LTSP, the best management practice monitoring currently in place is not required under the regulations for the purpose of demonstrating compliance with the U.S. Environmental Protection Agency ground water protection standards (40 CFR 192.02) and will not trigger corrective action (40 CFR 192.04).

Ground water at the site is contaminated as a result of widespread, naturally occurring uranium mineralization and mining activities not related to on-site uranium milling operations. The ground water is of limited use and cannot be cleaned up by methods reasonably employed in public water systems. Currently, there are no human health or ecological risks associated with the use of contaminated ground water at the Maybell site (DOE 1996a). The U.S. Nuclear Regulatory Commission concurred with DOE's application for supplemental standards, and no ground water quality monitoring is required (DOE 1999).

Computer modeling performed in 1996 to predict an upper bound curve of water level versus time for MW-0695, triggered the decision to conduct water level monitoring. There was a concern that a temporary rise in ground water level observed in wells adjacent to the cell might mistakenly be interpreted as a cell performance problem or even cell failure (DOE 1999). Subsequent evaluation of the modeling assumptions indicated that the concept of determining the contribution of transient drainage from the cell may not be definitive because the potential water level increase resulting from transient drainage would be masked by the predicted water level decrease due to dissipation of a pre-existing ground water mound under the cell remaining from historical ore-processing activities (DOE 1996b). That water level interaction would, in turn, be affected by the natural fluctuation of ground water levels in the area and the natural infiltration flux through the cover of the disposal cell. Consequently, an increase in water level in MW-0695 would be dependent on several variables, which may or may not be directly related to transient drainage, and may not have any direct correlation to disposal cell performance.

To evaluate ground water conditions and changes, data loggers were installed in several monitor wells in the vicinity of the disposal cell and have been recording continuously since November 1995 (see monitor well locations on Figure 1). Monitor well MW-0695 is downgradient from the disposal cell and is the control well for monitoring and model correlation. Backup data are provided from monitor well MW-0676, which is crossgradient from the disposal cell. Monitor well MW-0601, located approximately 1 mile northeast (upgradient) from the disposal cell, measures background levels used to determine regional fluctuations and trends in the ground water flow pattern in the area.

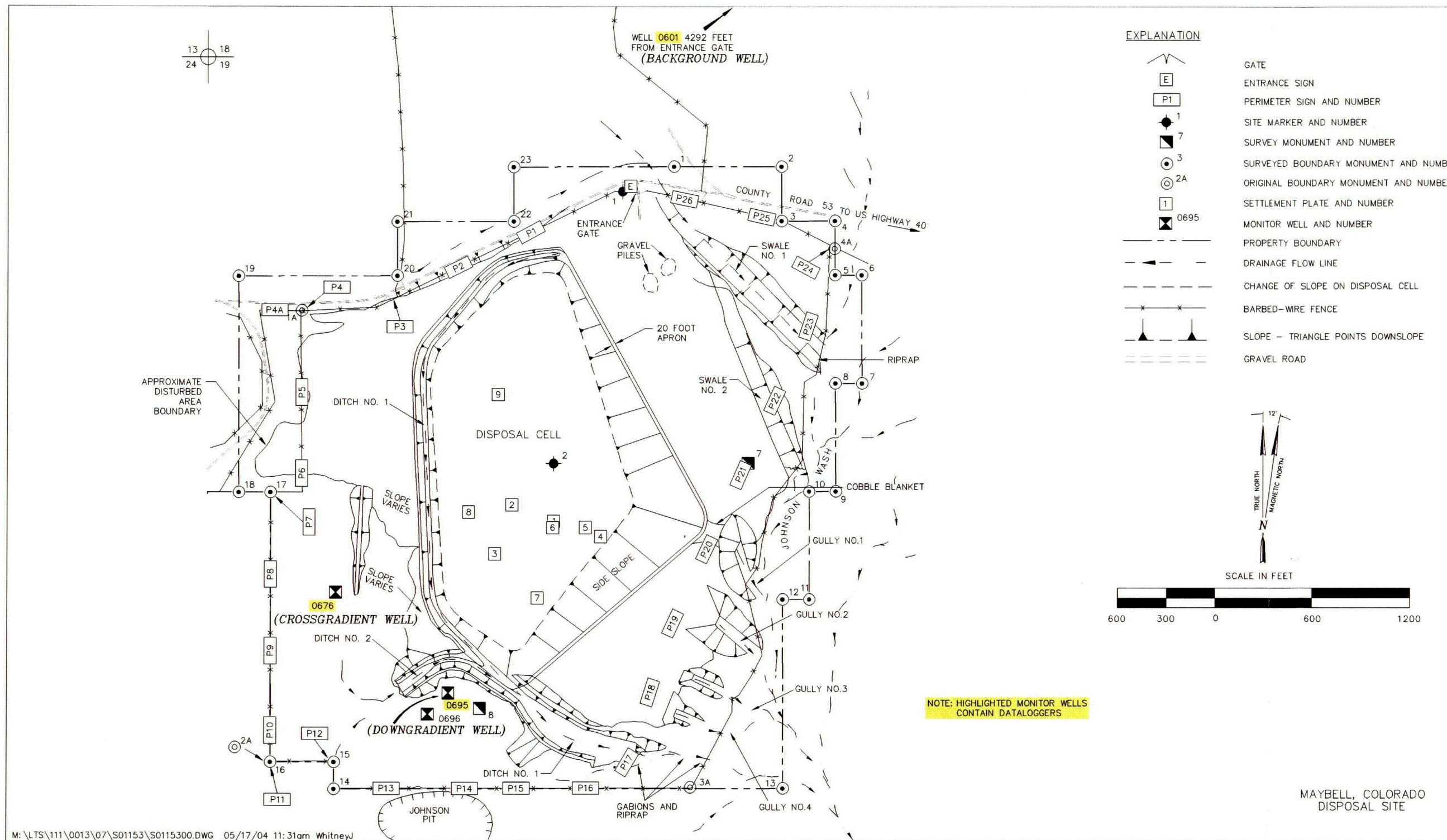


Figure 1. Monitor Well Locations at the Maybell, Colorado, Disposal Site

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As stipulated in the LTSP, the decision to discontinue water level monitoring in the vicinity of the Maybell site would be based on an evaluation of datalogger information collected for a 5-year period (until 2004). This evaluation would take into account the variables involved and the uncertainties of the predicted and natural trends of the data. Key factors in the decision to terminate the monitoring would be whether water levels in the downgradient and crossgradient wells continue to vary with water levels in the distant upgradient well, and if it is possible to identify the contribution to water level changes due to transient drainage, taking into account the predicted decrease in water level due to dissipation of the ground water mound under the cell, the natural infiltration flux through the cover of the cell, regional ground water level fluctuations, and atmospheric (barometric) effects. Water level monitoring can be terminated if the contribution from transient drainage is small or cannot be determined from water level measurements.

## **2.0 Monitoring Results**

Water level monitoring results for wells MW-0695, 0676, and 0601 from November 1995 through March 2004 (in excess of the required 5-year period) are shown on Figure 2. The results indicate consistent increases in all three wells in the ground water level trend starting in 1997 and gradually increasing to the present time. Gaps in the data are due to datalogger malfunction.

Assessment of the datalogger information indicates that there is no discernable difference in the trend in ground water levels between monitor wells adjacent to the disposal cell and the distant upgradient background well. The parallel trends provide evidence that variations in ground water levels in all areas are in response to regional phenomena. There is no evidence of any transient drainage interaction with the ground water system near the disposal cell. This observation confirms earlier qualitative suggestions that the potential water level increase resulting from transient drainage would be masked by the predicted water level decrease from dissipation of the ground water mound which, in turn, would be affected by the natural fluctuation of ground water levels in the area and the natural infiltration flux through the cover of the disposal cell.

Changes in atmospheric conditions account for the minor short-term variations (noise) in the datalogger traces; the variations are more pronounced during the winter months because of more intense pressure differentials during winter storms. This "noise" is consistent in all wells, and is not indicative of any activity related to transient drainage from the disposal cell.

Based on these observations, there is no evidence of transient drainage from the disposal cell affecting the ground water system downgradient from the cell. All changes in ground water levels apparently are related to regional affects, and any local impacts are not measurable even with the level of sophistication provided by the datalogger technology in use.

## **3.0 Conclusion**

DOE has fulfilled its commitment to monitor ground water levels in the vicinity of the Maybell disposal site and has met the criteria specified in the LTSP to discontinue monitoring. Therefore, DOE will discontinue water level monitoring at the Maybell site in 2004. DOE intends to decommission the monitor wells subsequent to consultation with the Colorado Department of Public Health and Environment. This Notice of Intent will serve as a modification to the LTSP eliminating ground water level monitoring as a licensing requirement for long-term management of the site.



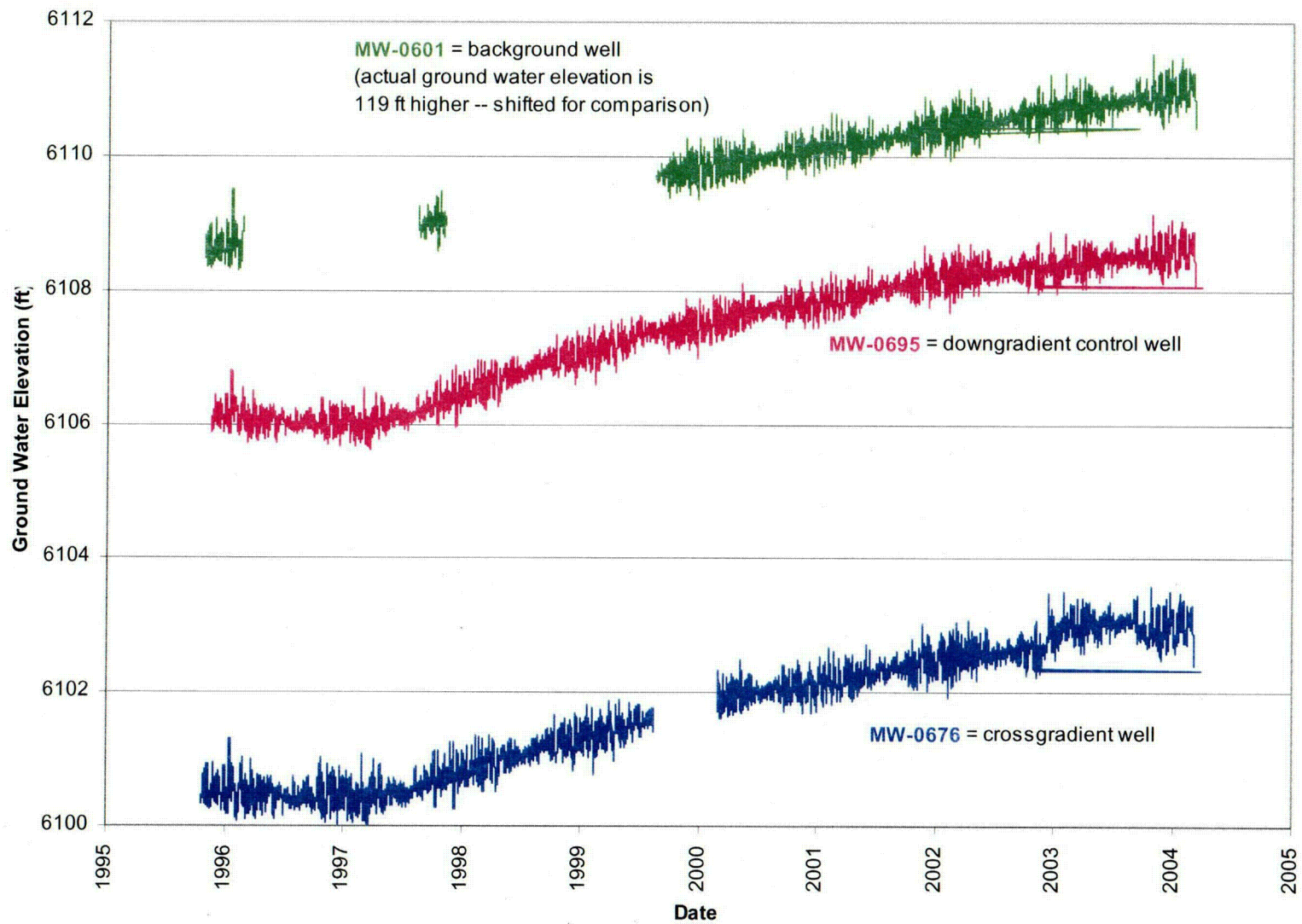


Figure 2. Datalogger Ground Water Elevations at the Maybell, Colorado, Disposal Site

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## 4.0 References

U.S. Department of Energy (DOE), 1996a. *Baseline Risk Assessment of Ground Water Contamination at the Uranium Mill Tailings Site Near Maybell, Colorado*, DOE/AL62350-209, Rev. 1, March.

\_\_\_\_\_, 1996b. *Remedial Action Plan and Site Design for Stabilization of the Inactive Uranium Mill Tailings Site, Maybell, Colorado*, DOE/AL/62350-24F, Rev. 1, December.

\_\_\_\_\_, 1999. *Long-Term Surveillance Plan for the Maybell, Colorado Disposal Site*, DDOE/AL/62350-247, Rev. 2, July.