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2007 Annual Inspection Report for the Weldon Spring, Missouri, Site

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2007 Annual Inspection Report for the Weldon Spring, Missouri, Site

Summary

The Weldon Spring Site, located in St. Charles, Missouri, was inspected on October 24 through 26, 2007. The inspection was conducted in accordance with the *Long-Term Surveillance and Maintenance Plan for the Weldon Spring, Missouri, Site* (July 2005), and associated inspection checklist. Representatives from the U.S. Environmental Protection Agency (EPA) and Missouri Department of Natural Resources (MDNR) participated in the inspection. Representatives from the Weldon Spring Citizens Commission (WSCC) and St. Charles County participated in portions of the inspection. The Weldon Spring Site is a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site.

The main areas inspected at the site were the Quarry, the disposal cell, Leachate Collection and Removal System (LCRS), monitoring wells, assorted general features, and areas where future institutional controls will be established.

Institutional control areas were inspected to ensure that pending restrictions such as excavating soil, groundwater withdrawal, residential use, etc., were not being violated. Each area was inspected and no indication of violations of future restrictions was observed.

The disposal cell was inspected by walking ten transects over the cell and around the cell perimeter. Hand-held global positioning system (GPS) equipment was used to navigate the ten transects. Five areas of the cell which had been marked and located by GPS survey equipment during the 2003 annual inspection were located and observed for any signs of rock degradation. The LCRS was also inspected and found to be in good condition**.** Fifty-three of the 119 groundwater-monitoring wells were inspected and were in generally good condition. Other site features including the prairie, site markers, and roads also were inspected.

1.0 Introduction

The Weldon Spring Site is in southern St. Charles County, Missouri, approximately 30 miles west of St. Louis, as shown in Figure 1. The site consists of two main areas, the Weldon Spring Chemical Plant and the Weldon Spring Quarry, both located along Missouri State Route 94.

In 1941, the U.S. Government acquired 17,232 acres (6,974 hectares) of rural land in St. Charles County to establish the Weldon Spring Ordnance Works. From 1941 to 1945, the U.S. Department of the Army (Army) manufactured trinitrotoluene (TNT) and dinitrotoluene (DNT) at the site. These operations resulted in nitroaromatic contamination of soil at the plant site, sediments in drainages originating at the site (Frog Pond Outlet and the Southeast Drainage), groundwater near the site, and some off-site springs.

The former ordnance works property was transferred to the U.S. Atomic Energy Commission (AEC) in 1956 for construction of the Weldon Spring Uranium Feed Materials Plant now referred to as the Weldon Spring Chemical Plant. The plant converted processed uranium ore concentrates to pure uranium trioxide, intermediate compounds, and uranium metal. A small amount of thorium also was processed. Wastes generated during these operations were stored in

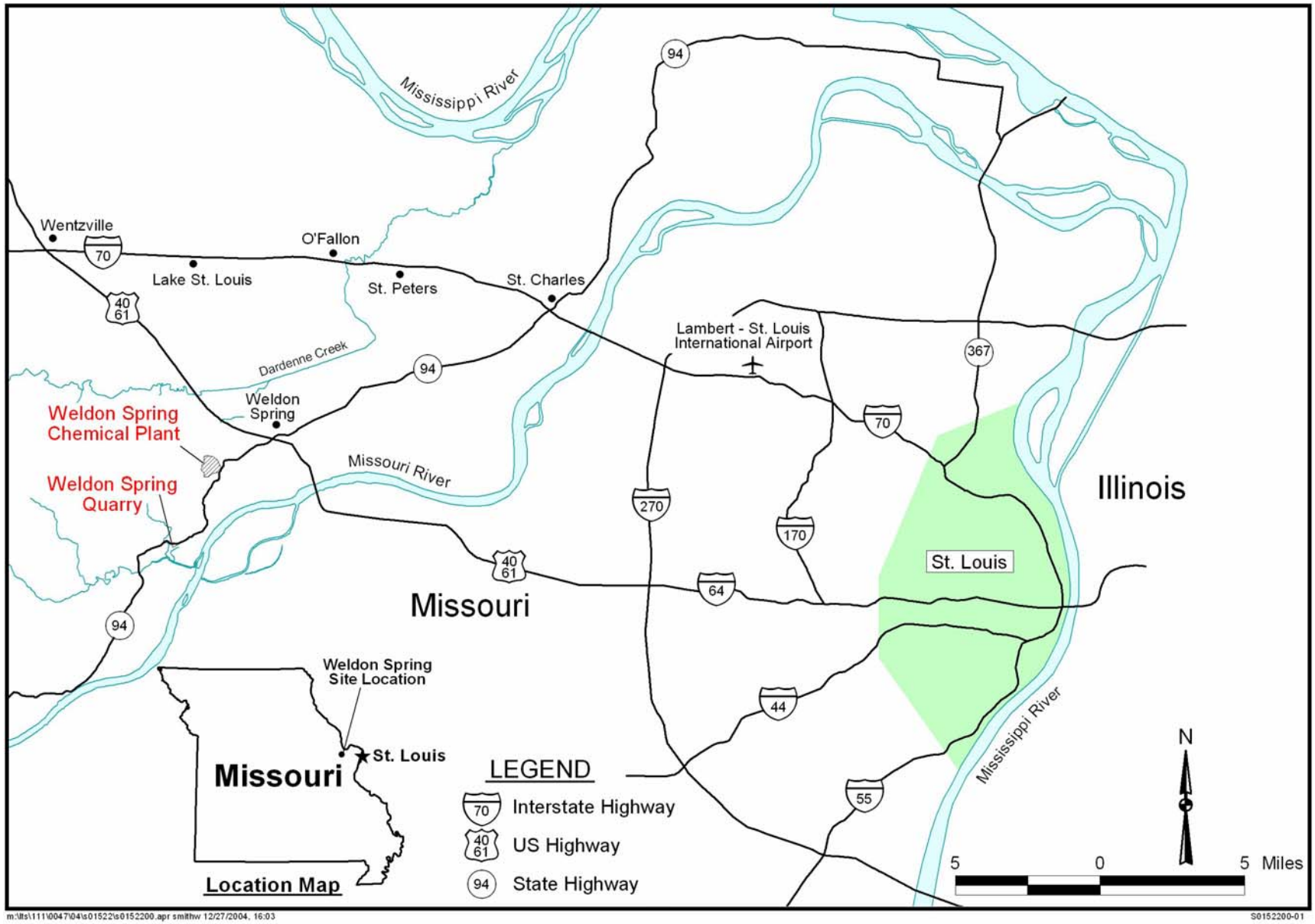

Figure 1. Location of the Weldon Spring, Missouri, Site

four raffinate pits located on the plant property. Uranium processing operations resulted in radiological contamination of the same locations previously contaminated by former Army operations.

The Weldon Spring Quarry was mined for limestone aggregate used in construction of the ordnance works. The Army used the Quarry for burning wastes from explosives manufacturing and disposal of TNT-contaminated rubble during the operation of the ordnance works. These activities resulted in nitroaromatic contamination of the soil and in rock fractures at the Quarry, in groundwater under the Quarry, and between the Quarry and Femme Osage Slough.

In 1960, the Army transferred the Quarry to the AEC, who used it from 1963 to 1969 as a disposal area for uranium and thorium residues from the Chemical Plant (both drummed and uncontained), contaminated building rubble, process equipment, and soils from demolition of a uranium processing facility in St. Louis. Radiological contamination occurred in the same locations as the nitroaromatic contamination.

Uranium processing operations ceased in 1966 and the Quarry and Chemical Plant areas were placed on the National Priorities List in 1987 and 1989, respectively. Remediation of the Weldon Spring site was administratively divided into four Operable Units (OUs): Quarry Bulk Waste OU, Chemical Plant OU, Quarry Residuals OU, and Groundwater OU. Records of Decision for each OU have been approved. The Southeast Drainage was remediated as an interim response action through a separate engineering evaluation/cost analysis.

The remedy for the Quarry Bulk Waste OU consisted of excavating and removing bulk waste from the Quarry and transporting it along a dedicated haul road to an engineered temporary storage area located at the Chemical Plant. The Chemical Plant OU remedy included removal of contaminated soils, sludge, and sediment, treatment of wastes as appropriate by chemical stabilization/solidification and disposal of the Chemical Plant and Quarry bulk wastes in an engineered on-site disposal facility. The Quarry Residuals OU addressed residual soil contamination in the Quarry proper, surface water and sediments in the Femme Osage Slough, and contaminated groundwater. The Groundwater OU addresses the groundwater at the Chemical Plant area. The Southeast Drainage was remediated by removal of selected sediment in accessible areas of the drainage.

The final site conditions from the above remedial actions include the following:

- An on-site disposal cell contains 1.48 million cubic yards of contaminated material.
- Residual groundwater contamination remains in the shallow aquifer beneath both the Chemical Plant and Quarry.
- Several springs near the Chemical Plant area discharge residually contaminated groundwater.
- Residual soil and sediment contamination remain in the Southeast Drainage.
- Contamination remains at two culverts, one along Missouri State Route 94 and one along Highway D.
- Residual soil contamination remains at inaccessible locations within the Quarry.

The purposes of the annual inspection were to confirm the integrity of the visible features (such as disposal cell, LCRS, and monitoring wells) at the site, document the site condition subsequent to remediation and restoration, identify changes in conditions that may affect site integrity, determine if institutional controls are adequately implemented, and determine the need, if any, for maintenance or additional inspections and monitoring.

At the time of the inspection eight personnel from S.M. Stoller Corporation (Stoller), the Technical Assistance Contractor at the U.S. Department of Energy (DOE) office in Grand Junction, Colorado, were employed full-time at the site. Some of these employees also support other Legacy Management sites around the nation. Also employed at the site were ten part-time contractor and subcontractor employees.

This report presents the results of the DOE annual inspection of the Weldon Spring Site. The following personnel from Stoller were the lead inspectors during the inspection:

Terri Uhlmeyer, Weldon Spring Site
Randy Thompson, Weldon Spring Site

Terri Uhlmeyer was one of the lead inspectors for the institutional control areas and for the disposal cell inspection. She also coordinated the inspection and preparation of this report. Terri worked for the U.S. Environmental Protection Agency for 4 years as a Resource Conservation and Recovery Act (RCRA) inspector and compliance officer, and conducted numerous inspections during that time and attended several inspection training courses. She has worked at the Weldon Spring Site for 17 years, and served as the Regulatory Compliance Manager for 11 years and was in charge of inspections at the site. She has also been involved in the CERCLA documentation, waste management, and safety aspects of the project and has prepared many reports and plans for the site. Terri Uhlmeyer has a B.S. degree in Petroleum Engineering.

Randy Thompson was one of the lead inspectors for the institutional control areas in the southeast drainage and quarry areas and for the disposal cell inspection. He has been supporting transition and long-term management activities for DOE low-level radioactive disposal sites for the last 4 years. Randy has worked at the Weldon Spring Site for the last 16 years and is currently the operations and facility lead for the Weldon Spring Site. He also manages the sampling and analytical programs for the Weldon Spring Site. During the past 16 years his responsibilities have included laboratory coordinator and contracting, quality assurance auditor, data administration manager, data verification and validation supervisor and LCRS operation manager. Randy Thompson has a B.A. degree in biology and is a Certified Quality Auditor and Certified Quality Engineer.

The following support personnel from Stoller participated in the inspection:

Tom Welton, Weldon Spring Site
Becky Cato, Weldon Spring Site

The following personnel observed the inspection and provided oversight:

Jane Powell – DOE
Bob Baney – DOE
Joe Desormeau – DOE
R. Joy Mroz – DOE

Jalena Maestas – DOE
Cory Flowers – DOE
Dan Wall – EPA, Region VII
Ben Moore – MDNR
Patrick Anderson – MDNR
Mike Duvall – St. Charles County
Tom Nelsen – WSCC member
Nancy Dickens – Technical Consultant to WSCC

The inspection was conducted in accordance with the *Long-Term Surveillance and Maintenance Plan for the Weldon Spring, Missouri, Site* (LTS&M Plan), dated July 2005.

2.0 Inspection Results

Prior to the inspection, the site inspection agenda (Appendix A) was reviewed with the inspection participants. A safety briefing was also held prior to the inspection and the corrective action report from the 2006 annual inspection was reviewed (Appendix B). Following is a summary of the inspection results. The inspection base map, which includes the locations of the photographs, is included as Figures 2 and 3. The checklist (from Appendix H of the LTS&M Plan) is included in this report as Appendix C.

2.1 Institutional Controls (ICs) Inspection

Section 2.3.4 of the LTS&M Plan states "DOE will conduct a formal annual inspection of the physical locations addressed by ICs. DOE also will evaluate whether the ICs remain effective in protecting human health and the environment and, in coordination with EPA and MDNR, will take appropriate action if evidence indicates the controls are not effective."

The majority of the instruments for institutional controls are still pending and not yet formally in place. The institutional controls that are in place include a Notation of Land Ownership on the Chemical Plant and Quarry Property which is filed with St. Charles County**;** the interpretive center; a license granting DOE permission to abandon or install and operate groundwater wells and perform sampling; and a license granting DOE continued operation and maintenance of the effluent discharge pipeline that runs from DOE property to the Missouri River and through the Katy Trail. The "Special Use Area" under the Missouri Well Code was finalized in the Missouri regulations in August 2007. This is a special regulation that designated the DOE and Army's groundwater restricted areas as special areas that require additional drilling protocols and construction specifications to be imposed by MDNR on any future domestic wells. The final LTS&M also lists the following additional ICs that DOE has been pursuing:

1) DOE will negotiate with the surrounding affected State agency property owners to acquire easements that implement the groundwater and land use restrictions contained in the Explanation of Significant Differences (ESD), and to further enhance DOE's access for the purpose of environmental monitoring and for surveillance of the restricted area.

2) DOE will coordinate with the Army to revise and reissue the Memorandum of Understanding to specify the groundwater use restrictions contained in the ESD and to further enhance DOE's access for the purpose of environmental monitoring and for surveillance of the restricted area.

During the inspection, the pending institutional control areas were inspected in accordance with the current information in the LTS&M Plan. Figures 4 and 5 are the institutional control location maps from the LTS&M Plan.

The institutional control areas are listed below as they are stated in the inspection checklist.

2.1.1 Land and Shallow Groundwater Use Within the Site Proper Boundary (Outside Disposal Cell Buffer Zone)

Inspect for indications of excavations into soil or bedrock and groundwater withdrawal or use in restricted areas. If any party has been granted use of portions of the Chemical Plant area, inspect to ensure that land use is in compliance with the terms of the restrictions within the notation.

Inspection Results: This area was inspected and no indications of excavations into soil or bedrock, groundwater withdrawal, or use were observed. Lindenwood University has been granted use of the Administration Building and its use is consistent with the agreement. Current land use remains consistent with the planned institutional controls.

2.1.2 Land and Shallow Groundwater Use at DOE Site Proper Disposal Cell and Buffer Zone

Inspect for indications of excavations into soils and bedrock, and for residential use of the shallow groundwater within the buffer zone. Inspect to ensure that the land use continues to be in compliance with the terms of the restrictions within the notation.

Inspection Results: This area was inspected and no indications of excavations into soils and bedrock, and no residential use of the shallow groundwater within the buffer zone were observed. Current land use remains consistent with planned institutional controls. The monument locations are shown in Figure 4. During the inspection, the following buffer zone survey monuments were located with the use of the GPS: WS23, WS28, and WS37.

2.1.3 Groundwater Use in Areas Surrounding the Chemical Plant

Groundwater use will be restricted in this area. Inspect affected areas for evidence of groundwater or spring water use (Burgermeister Spring and Spring 6303). Inspect to ensure that land use continues to be in compliance with the terms of the license, easement, or permit and the restrictions contained therein.

Inspection Results: The surrounding area where groundwater use will be restricted was inspected. This includes property owned by the Missouri Department of Conservation (MDC) and the Army. No evidence of groundwater use was observed and current land use remains consistent with planned institutional controls on both properties. Burgermeister Spring 6301 (Photo 1) and Spring 6303 on MDC property were inspected and there were no indications of spring water use. Spring 6303 was completely dry. On the Army property, survey monument WS46, noted as broken during the 2005 inspection and subsequently repaired was inspected. Also inspected was WS56P, a random survey pin chosen to locate during the inspection. The Chemical Plant groundwater restriction area boundary monuments are shown in Figure 4. The new well (MW–4042) (Photo 2) that was installed on the Army property in August was inspected. The well needs to be labeled with the well number. The well did have the metal plate with the identification number.

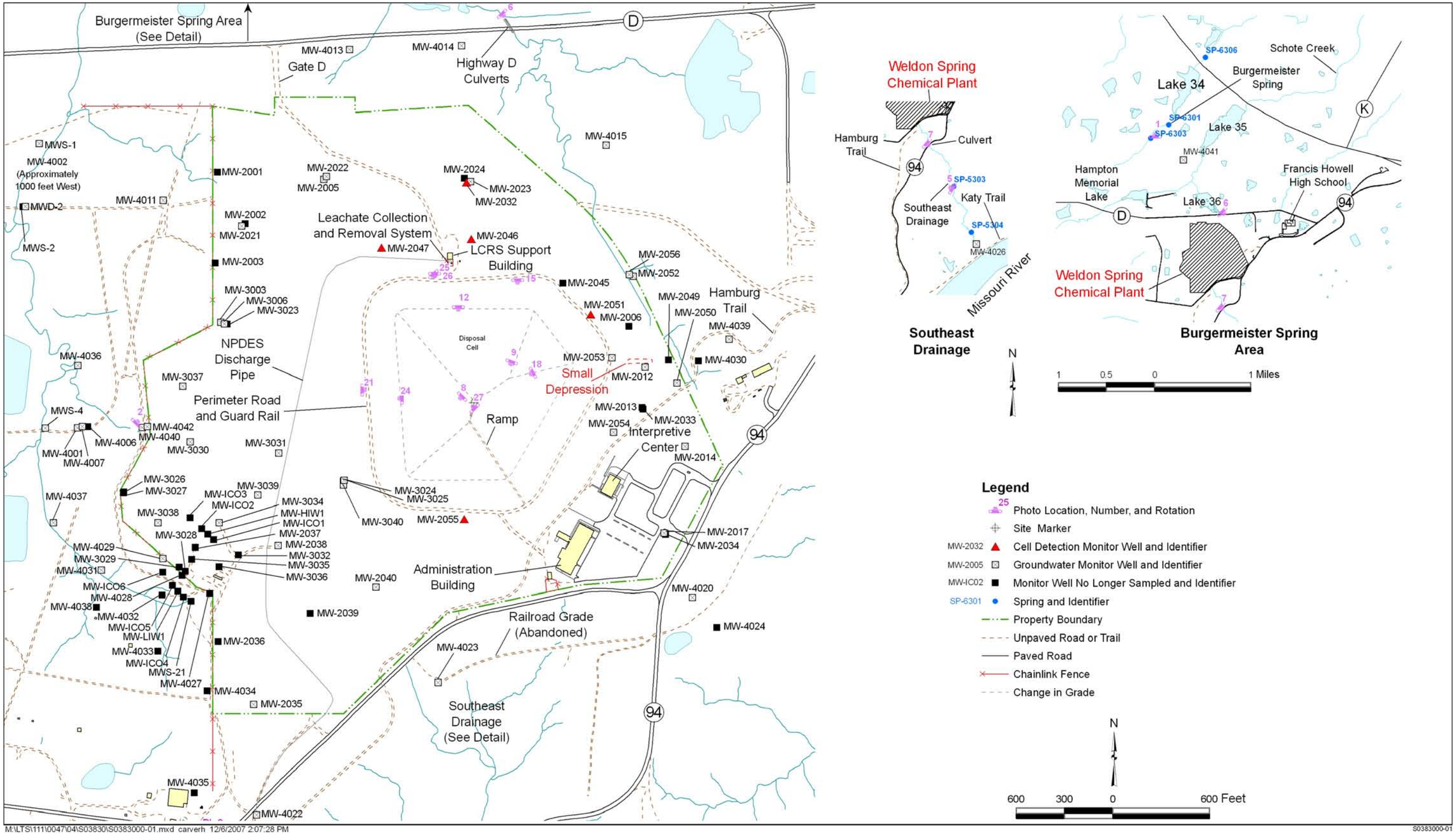

Figure 2. 2007 Inspection Map for the Chemical Plant Area of the Weldon Spring, Missouri, Site

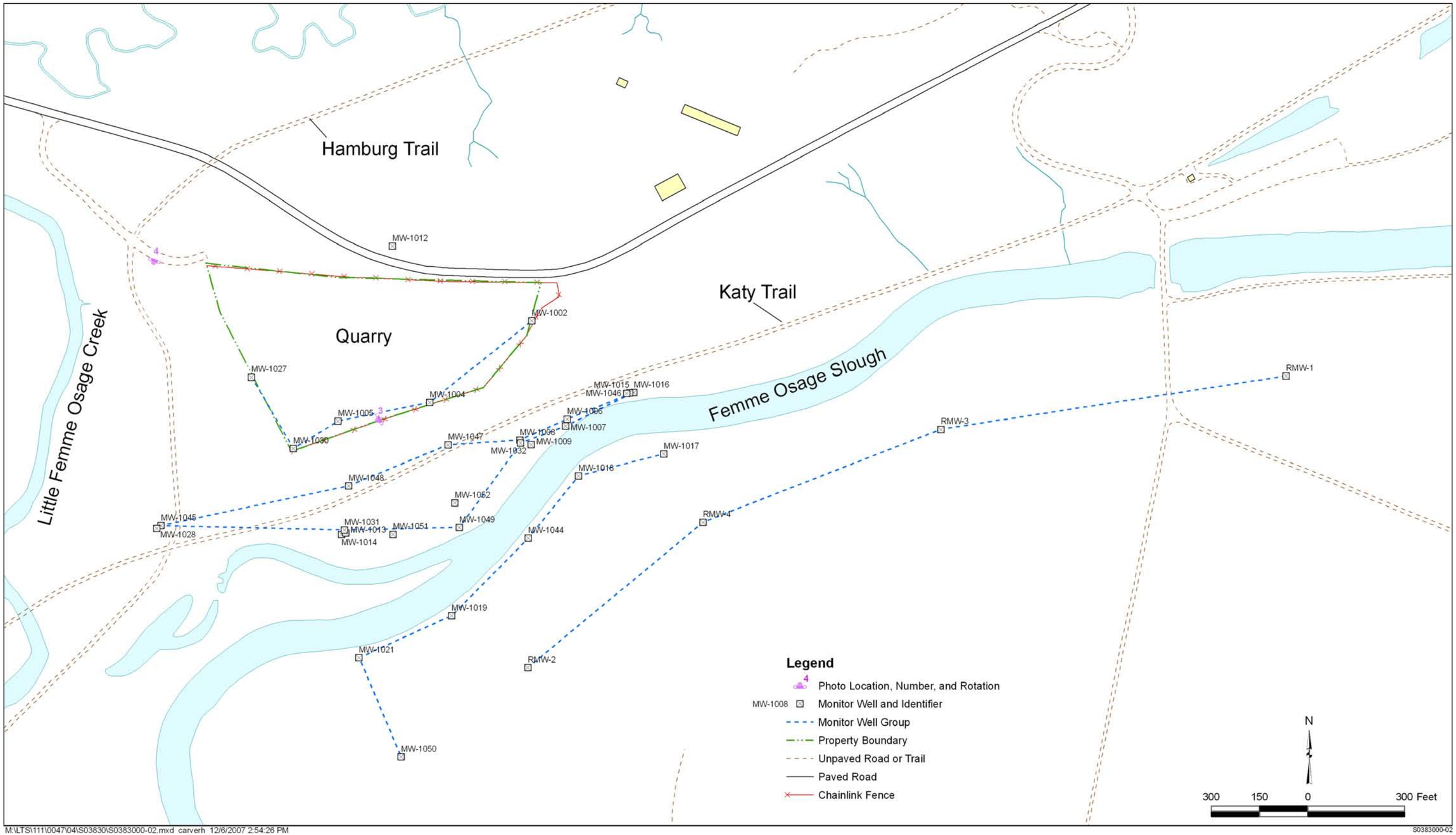

Figure 3. 2007 Inspection Map for the Quarry Area of the Weldon Spring, Missouri, Site

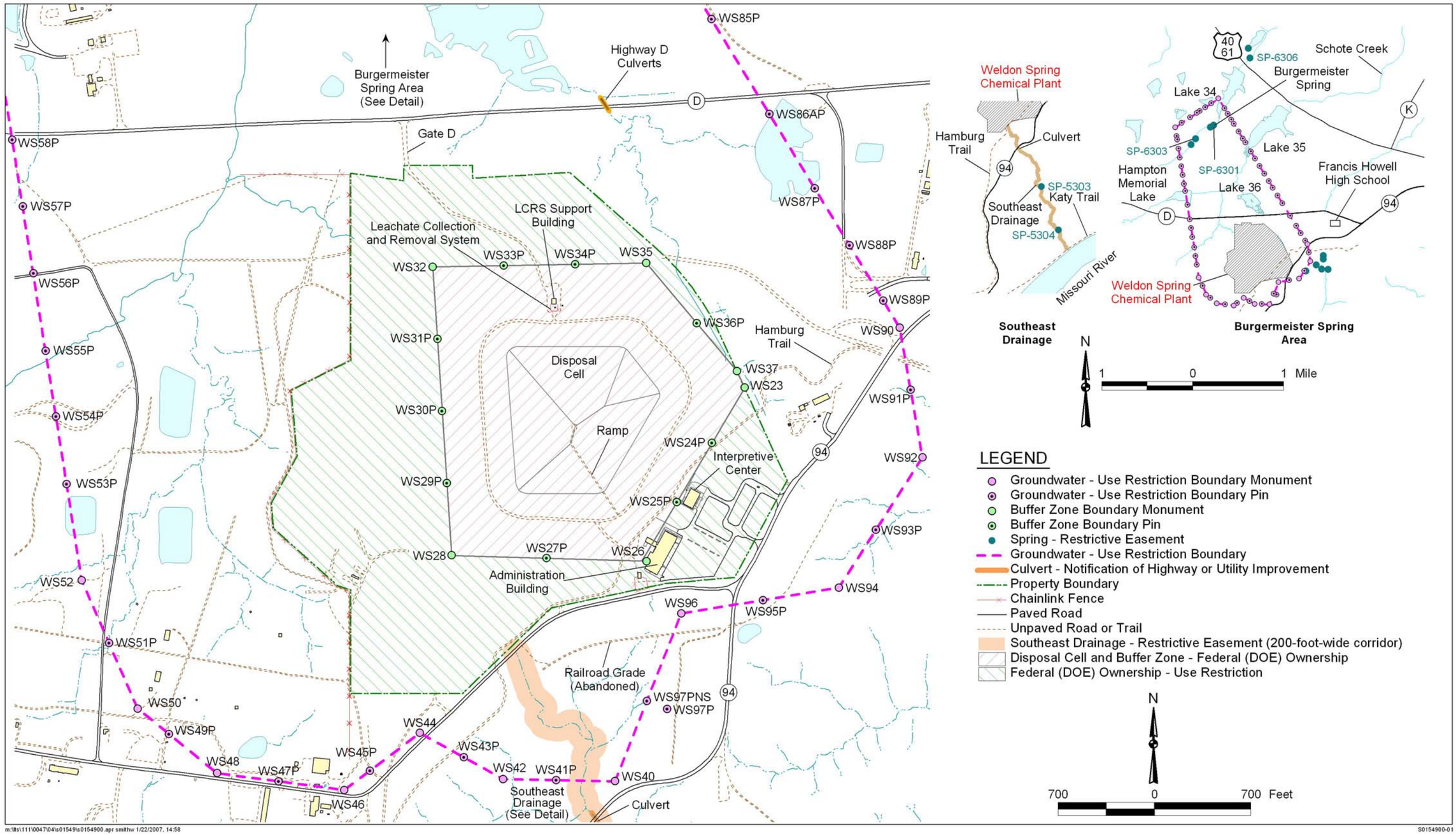

Figure 4. Institutional Controls Location Map for the Chemical Plant Area of the Weldon Spring, Missouri, Site

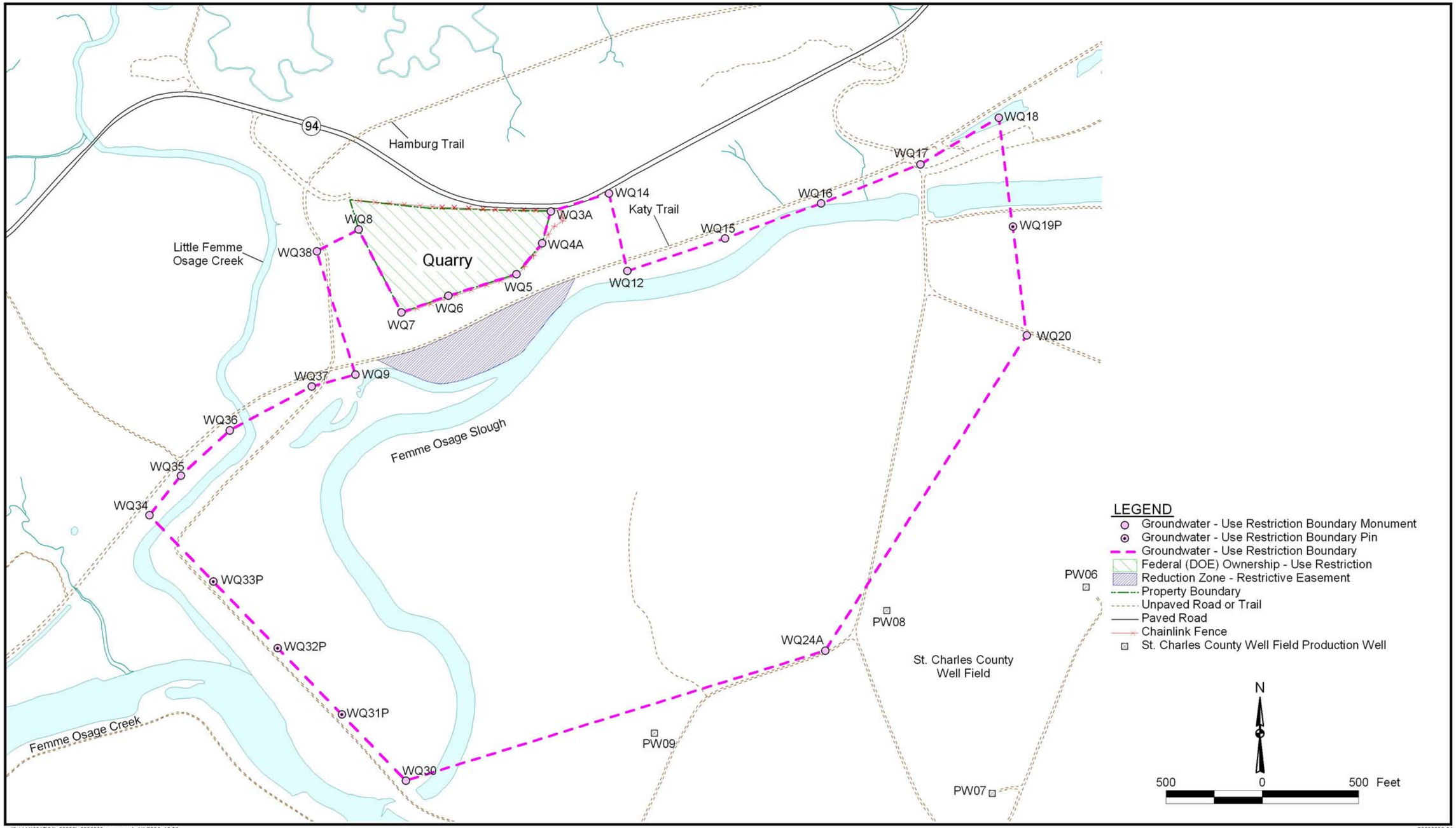

Figure 5. Institutional Controls Map for the Quarry Area of the Weldon Spring, Missouri, Site

2.1.4 Land and Shallow Groundwater Use on the DOE Quarry Property

Inspect for indications of excavations into soil or bedrock and groundwater withdrawal or use in restricted areas. If any party had been granted use of portions of the Quarry area, inspect to ensure that land use is in compliance with the terms of the restrictions within the notation.

Inspection Results: The Quarry Property was inspected and no indications of excavation into soil or bedrock, or groundwater withdrawal or use were observed. Also, no party has been granted use of portions of the Quarry area. Quarry backfill continues to provide positive drainage from the Quarry to the Little Femme Osage Creek and vegetative cover remains well established. Current land use remains consistent with planned institutional controls. It was noted that there were some trees down at the rim of the quarry (Photo 3) that could become a safety hazard when accessing groundwater wells for sampling.

2.1.5 Groundwater (Quarry)

Groundwater use is restricted in certain areas. Inspect affected areas for evidence of groundwater withdrawal or use in the area of impact. Inspect to ensure that land use continues to be in compliance with the terms of the license and the restrictions contained therein.

Inspection Results: The groundwater-restricted area was inspected and no evidence of groundwater withdrawal or use in the area was observed. The Quarry groundwater restriction area boundary survey monuments are shown in Figure 5. The following survey monuments were located during the inspection: WQ4A, WQ8, and WQ11. An abandoned water vault was discovered at the quarry (Photo 4) that was unlocked and could present a safety hazard. It was discussed and recommended that the party responsible for the vault be determined and that the vault be locked immediately to prevent an accident.

2.1.6 Land Use in Quarry Area Reduction Zone

A naturally occurring reduction zone exists in soil south of the Katy Trail and north of the Femme Osage Slough. Inspect for indications of excavations into soils and bedrock in the uranium reduction zone. Inspect to ensure that land use continues to be in compliance with the terms of the easement and the restrictions contained therein.

Inspection Results: The Quarry reduction zone area was inspected and no indications of excavation into soils and bedrock were observed. As required by the final LTS&M Plan, information signage and contact numbers were posted on monitoring wells at the Quarry Area reduction zone. The labels indicate no digging is allowed in this area and include contact numbers for DOE and MDC. The labels that had been recently applied were in good shape, but some were not adhering to the wells. It was decided to purchase a more permanent manufactured type label. Land use remains consistent with planned institutional controls.

2.1.7 Southeast Drainage

Check for indications of residential use or construction in the Southeast Drainage (200-foot-wide-corridor), or other activity that would indicate non-recreational use of the area. Check Springs 5303 and 5304 for residential, commercial, or agricultural use of spring water.

Inspection Results: The inspectors walked down the entire Southeast Drainage (Photo 5) and no indications of residential use, construction, or any other activity that would indicate non-recreational use of the area were observed. The springs also were inspected and no indications of residential, commercial, or agricultural use of the springs were observed. The springs were observed to be dry and not flowing. Current land use remains consistent with planned institutional controls.

2.1.8 Highway D Culvert

Check for signs of disturbance of the affected region where the Frog Pond outlet culverts pass beneath Highway D and in the utility rights-of-way in the affected area.

Inspection Results: The Highway D culverts were inspected (Photo 6). The gravel on top of the culverts that had been placed by MDOT last year to stabilize the erosion was still in place. It was discussed that some type of sign should be placed on or near the culverts to indicate the need for DOE to be contacted prior to any digging near the culvert or prior to replacement of the culvert.

2.1.9 State Route 94 Culvert

Check for signs of disturbance of the affected region where the culvert passes beneath State Route 94 and in the utility rights-of-way in the affected area.

Inspection Results: The State Route 94 culvert was inspected (Photo 7) and it was noted that the condition had not changed from previous years' inspections. It was discussed that some type of sign should be placed on or near the culverts to indicate the need for DOE to be contacted prior to any digging near the culvert or prior to replacement of the culvert.

2.1.10 Pipeline from LCRS to Missouri River

Inspect the entire length of the pipeline and outfall for any disturbance or maintenance needs.

Inspection Results: Tom Welton of Stoller and Ben Moore of MDNR inspected the pipeline area on November 8, 2007. GPS surveying equipment was used to find the locations of the manholes and cleanouts. A map of the pipeline, indicating the manhole locations, is shown in Figure 6. Manhole No. 1 could not be located during the inspection, although a clean-out pipe nearby was located. It is planned to locate Manhole No. 1 prior to the next inspection. It was noted that there were no on-site disturbances of the pipeline and there were no apparent disturbances in the area of the pipeline or manholes in the off-site areas.

2.2 Disposal Cell

The disposal cell was inspected in accordance with the LTS&M Plan (Photos 8 and 9) and the annual inspection checklist. The cell was divided into ten transects (Figure 7). The inspectors separated into two groups and walked five transects each. The inspectors looked for depressions, shifts of cell plane vertices, and other indications of settlement. Other items for inspection were vegetation, wet areas, apron drains, guardrail, and the stairs. A GPS unit was used during the 2003 inspection to map five areas chosen for rock degradation review (Figure 7). The inspectors took photographs of these and compared them to photographs from the previous inspection of the same areas and observed no rock degradation.

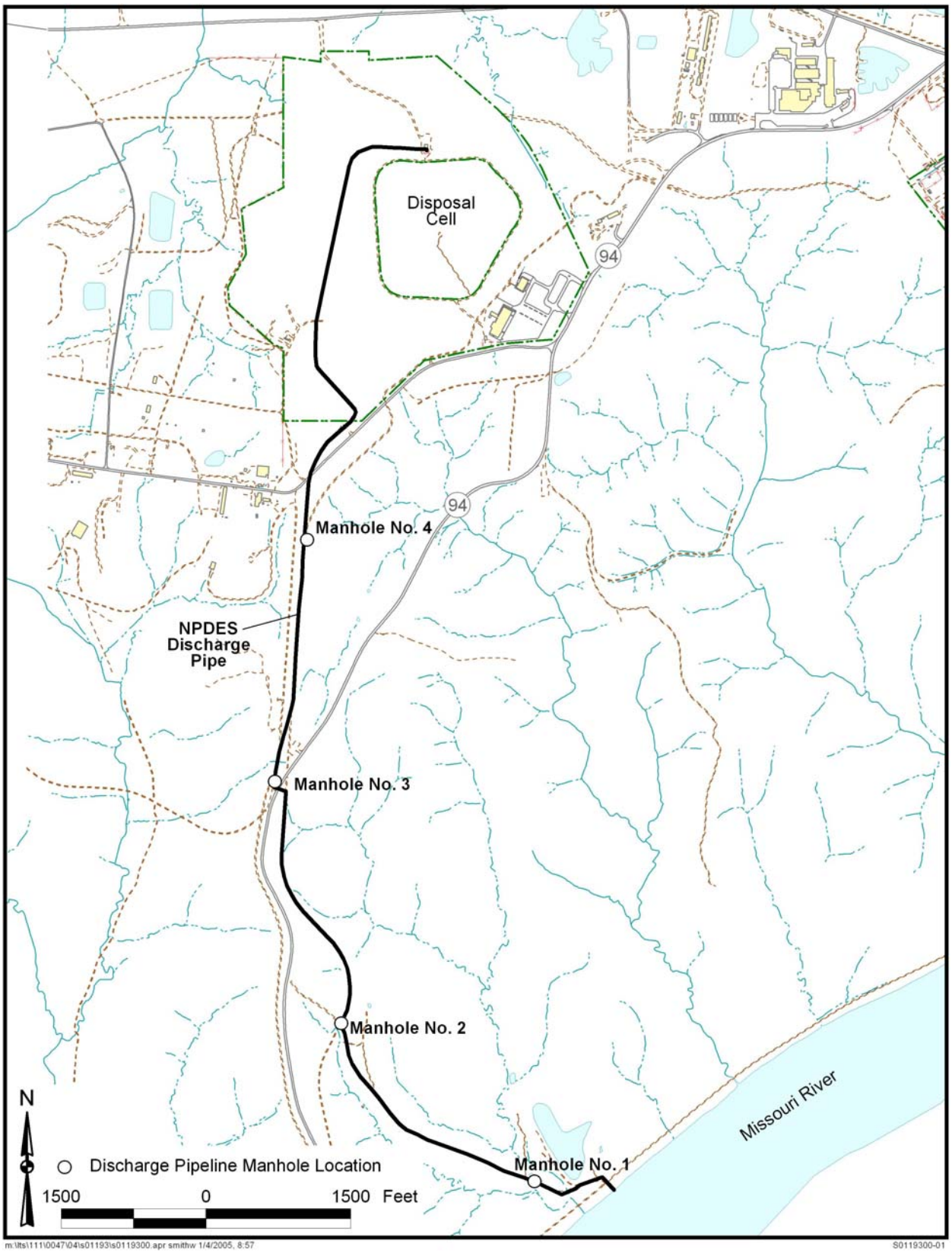

Figure 6. NPDES Discharge Pipeline Between the LCRS Support Building at the Missouri River, Weldon Spring, Missouri, Site

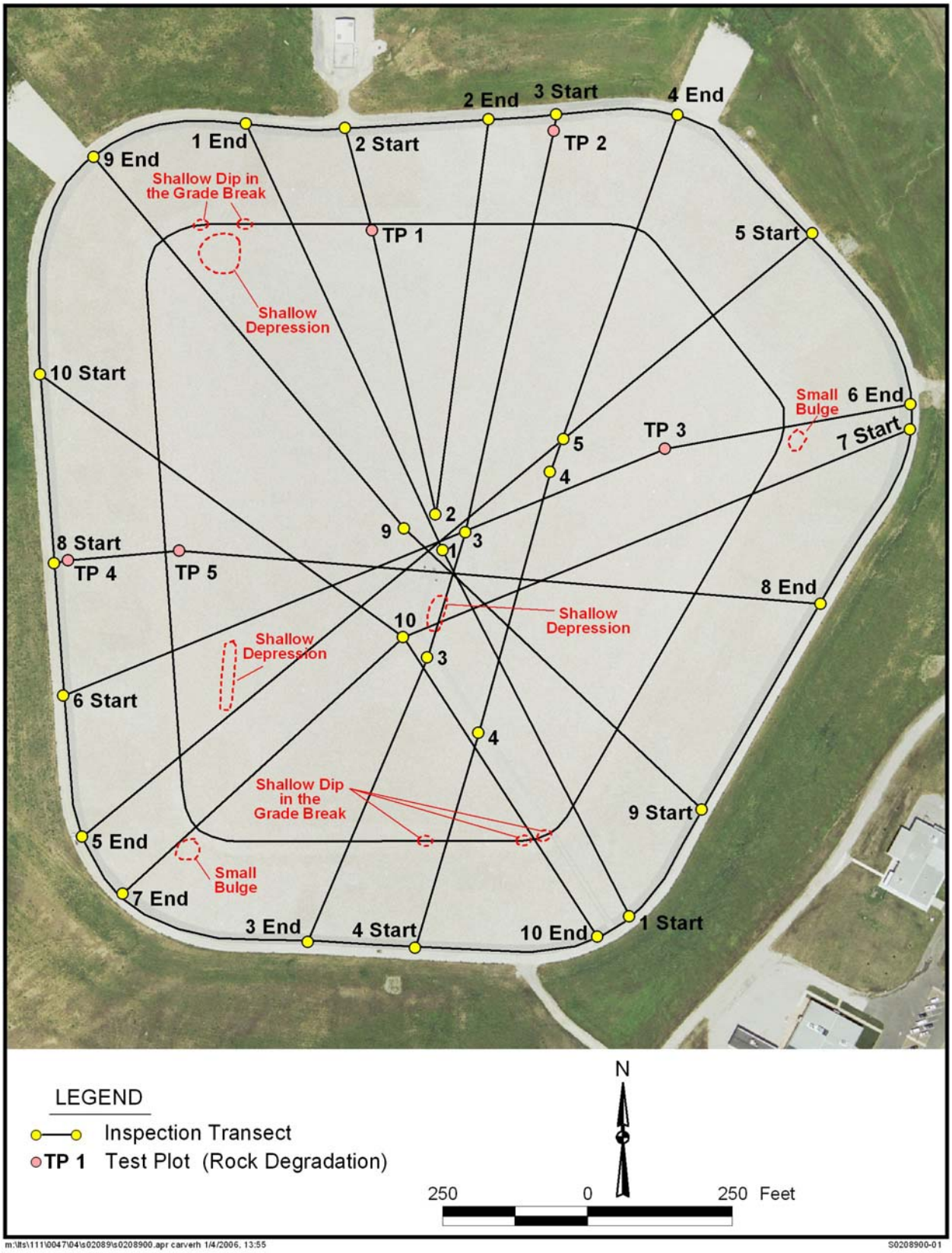

Figure 7. Disposal Cell Inspection Transects and Rock Test Plot Locations at the Weldon Spring, Missouri, Site

It was noted that the Test Plot 3 painted area is in the wrong location and this had been accounted for in previous years by using the photo for comparison, but it needs to be corrected and painted correctly. These areas are shown from the original inspection in 2003, last year and this year for comparison in Photos 10 through 24.

A few small shallow depressions on the cell cover were noted during the inspection. It appeared that the depressions ranged up to approximately 2 or 3 inches deep. The majority of these areas had been identified during the previous inspection(s). These slight depressions are not unexpected for a disposal cell of this type and are not a cause for concern. They will continue to be monitored.

In accordance with the checklist the inspectors also checked for wet areas or water drainage and observed that none were present. The toe and apron drains were inspected and found to be functioning as designed. The guardrail and stairs were in good condition. No vegetation was found on the disposal cell during the inspection.

2.3 Leachate Collection and Removal System (LCRS)

Operations of the LCRS were discussed with site personnel and the system was inspected (Photo 25). The fences and doors were locked and in good condition. The system was functioning as designed. The LCRS data and documentation were reviewed during the document review period of the inspection and the following information was checked and verified that it was available: sampling data, LCRS flow rates, action leakage rate information, "burrito" system flow rates, and leachate data. As required by the LTS&M Plan, the leachate production rates, analytical results, and disposal information are provided in Appendix D.

The DOE continues to exercise its pretreatment contingency process equipment by pretreating the leachate through a system of cartridge filters and ion exchange media that is selective for uranium. The leachate is sampled and continues to be well below the limit for uranium. The leachate will continue to be managed in this manner until the leachate is consistently below the 20 picoCuries per liter (pCi/L) level for uranium.

The ion exchange vessel has been labeled as "Potential Internal Contamination" (Photo 26) based on the potential for uranium to accumulate in the resin.

2.4 Erosion

2.4.1 Chemical Plant Area

Areas of erosion in the prairie were identified during the 2006 inspection and it was recommended that the prairie be inspected more thoroughly and the erosion areas be located and mapped by GPS, and that erosion areas be repaired. Erosion channels within the entire prairie were mapped with GPS during the week of August 6, 2007 (Figure 8). The resulting information will be used to track the nature and extent of erosion in the future.

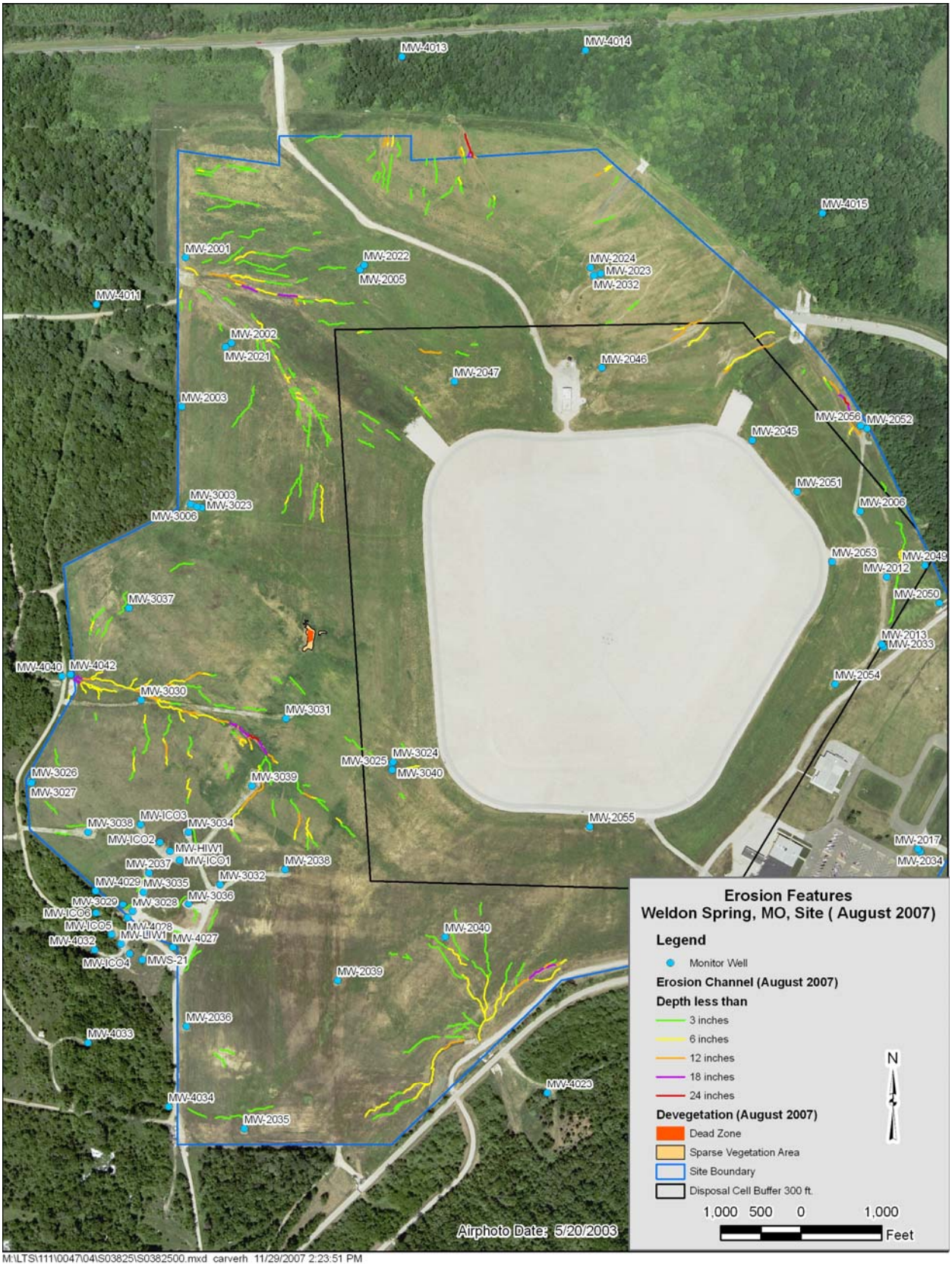

Figure 8. Erosion Channels Within the Prairie

A field survey to evaluate erosion issues in the prairie was performed on August 2, 2007. The following individuals participated in the survey: Yvonne Deyo (Stoller, Weldon Spring Project Manager), Marilyn Kastens (Stoller soil reclamation specialist), Ben Moore (MDNR), Raymond Franson (MDNR), Frank Oberle (Pure Air Native Seed), and Jon Wingo (DJM Ecological Services). It was determined that existing erosion was temporary, typical of a newly reclaimed site in the process of stabilizing. It was recommended to monitor erosion channels and evaluate the other possible soil amendment and/or vegetation management strategies. Soil disturbance of any kind was not recommended at this time. The report that was prepared to document this trip was reviewed by the inspection participants and is included as Appendix E.

2.4.2 Quarry Area

No erosion areas were noted during the inspection of the Quarry area.

2.5 General Site Conditions

General site conditions as listed in the checklist were inspected and are discussed below.

2.5.1 Roads

The roads consist of asphalt roads leading into the property and a gravel road that extends around the disposal cell and to Gate D. The roads were in good condition.

2.5.2 Vandalism

Although the site is publicly accessible, signs are clearly posted at the disposal cell that the viewing platform is open during daylight hours only. Increasing evidence of nighttime access of the viewing platform has been noted. Public use of the site continues to rise and littering occurs at various locations including the top of the disposal cell. At times, this littering has been relatively extensive and has required regular removal by site personnel. Minor moving of the rocks on top of the disposal cell is also continuing. Currently, site personnel move rocks back to their original position approximately once per year as part of site maintenance activities. On two occasions, drug paraphernalia was found on the cell-viewing platform. Law enforcement personnel were contacted to confiscate the items. No other vandalism has occurred. An upgraded security system was installed to allow more extensive monitoring of site activities after normal business hours.

2.5.3 Personal Injury Risks

No personal injury risks were observed.

2.5.4 Site Markers (Four Information Plaques on Top of Cell, Historical Markers, and Other Information Markers)

The four information plaques on top of the cell were generally in good condition. The pedestal on the south side of the viewing platform, under the southeast corner, was observed as eroded during the 2006 inspection after it had been repaired. It was repaired during 2007 and the repair was still in good condition during the inspection (Photo 27). Also, one of the bronze plaques had

loosened during the year, been removed, and then subsequently glued back on. The historical markers were inspected and found to be in good condition.

The plan also states that signs are posted on the LCRS fence to inform the public that trespassing is forbidden and that persons may call the DOE 24-hour security telephone number (970-248-6070 or 877-695-5322) for information. During the 2007 inspection, it was noted that these signs were posted on the LCRS fence.

2.6 Monitoring Wells

Monitoring wells in the Disposal Cell Monitoring Well Network, Chemical Plant Monitoring Well Network, and Quarry Monitoring Well Network were inspected. The inspection checklist required all the disposal cell wells to be inspected, and greater than 10 percent of the Chemical Plant and Quarry wells to be inspected. The checklist required the wells to be inspected to ensure they are properly secured and locked, in good condition, and to check if they need maintenance and have the proper ID number on the well. All of the wells that were inspected met these requirements. It should be noted that each well is inspected at least quarterly during the year when static water levels are recorded. The wells are listed below for identification purposes.

2.6.1 Disposal Cell Monitoring Well Network

Each well in the disposal cell network was inspected and is listed below:

MW–2032, 2046, 2047, 2051, 2055.

2.6.2 Chemical Plant Area Monitoring Well Network

The inspection checklist requires at least 10 percent of the wells be inspected from the Chemical Plant monitoring well network. The monitoring well network consists of 88 wells. Only forty-eight wells are monitored for the groundwater remedy of monitored natural attenuation. The remaining wells are monitored quarterly for static water levels only. The wells that were inspected are listed below:

MW–2006, 2012, 2017, 2013, 2023, 2024, 2033, 2034, 2036, 2045, 2053, 2054, 3024, 3025, 3028, 3029, 3031, 3039, 3040, 4001, 4006, 4007, 4022, 4026, 4027, 4028, 4029, 4030, 4032, 4034, 4039, 4040, 4041, 4042, ICO4, ICO5, ICO6, LIWI .

2.6.3 Quarry Monitoring Well Network

The inspection checklist requires greater than 10 percent of the wells in the Quarry monitoring well network be inspected. The monitoring well network consists of 29 wells. The wells that were inspected are listed below:

MW–1002, 1004, 1005, 1006, 1007, 1008, 1009, 1027, 1030, 1032.

2.7 On-site Document and Record Verification

The following on-site documents and records were verified:

- Surveillance and Maintenance Plan: (*Long-Term Surveillance and Maintenance Plan for the Weldon Spring, Missouri, Site*, July 2005)
- As-Built Drawings: disposal cell
- Maintenance log
- Contingency Plan/Emergency Response Plan: (Office of Land and Site Management Project Safety Plan, June 2005)
- NPDES permit(s): (#MO-0107701, revised March 5, 2004). It was discussed that the expiration date for this permit was July 13, 2005. The DOE had sent in an application to MDNR for a renewed permit in January 2005, but has not received a renewed permit to date. The site currently operates under the existing permit until MDNR issues a renewed permit.
- Metropolitan St. Louis Sewer District (MSD) agreement and records
- Groundwater monitoring records
- Leachate records
- Interpretive Center sign-in logs
- Telecons and interview records

2.8 Contacts

Several stakeholders were notified prior to the inspection in accordance with the checklist. These included:

- St. Charles County Sheriff
- Cottleville Fire District
- Francis Howell High School
- Francis Howell School District
- Simplex-Grinnel Alarm System
- Weldon Spring Citizens Commission
- St. Charles County

The institutional control contacts were also notified in regard to the inspection and to maintain annual contact with the representatives relevant to institutional controls. In the future, when institutional controls are established, this annual contact will be used to verify cognizance of the institutional controls and the requirements and/or restrictions with each representative. The representatives contacted are listed below.

- John Vogel – Missouri Department of Conservation
- Joel Porath – Missouri Department of Conservation
- Cynthia Green – Missouri Department of Conservation
- Jennifer Frazier – Missouri Department of Natural Resources – Parks
- Nelson Jones – Army
- Barry McFarland – Army
- Tom Blair –Missouri Department of Transportation

The St. Charles Planning and Zoning Department also was contacted and they verified that no planning and zoning activities were currently taking place within one-quarter mile of the Chemical Plant and Quarry Property. The Notation of Land Ownership was verified to be filed and present at the St. Charles Recorder of Deeds office by checking the county website at www.saintcharlescounty.org.

The Stoller Project Manager, Yvonne Deyo, and Environmental Data Manager, Randy Thompson, were interviewed as required by the inspection checklist.

All conversations and interviews were recorded on an Interview Record form from the EPA *Comprehensive Five-Year Review Guidance.* The forms for each of these contacts and interviews are attached as Appendix F.

2.9 Operation and Maintenance (O&M) Costs

The fiscal year (FY) 2007 long-term surveillance and maintenance costs for the Weldon Spring Site were budgeted at $1,665,857. The actual costs were $1,344,987.

2.10 Environmental Monitoring Data

The environmental data from the Weldon Spring Site are available on the following DOE website: www.wssrap.com under the Geospatial Environmental Mapping System (GEMS) link. A quarterly internal report is issued which includes validated environmental data results for each quarter. The report includes site summary, data trending, chain-of-custody information, adequacy of quality control sample results, data assessment summaries, information on data that are outside the range of historical concentrations, and data that merit explanation or follow-up action, sampling and analytical schedules, trip reports, and sampling location maps.

Results of all environmental monitoring data are summarized and included in the Annual Site Environmental Report. The report includes data trending information and also reports on other aspects of the project including status and regulatory information. The Annual Site Environmental Report for 2007 will be available in August 2008. The 2006 Annual Site Environmental Report is available on the Weldon Spring Website at www.wssrap.com.

2.11 Prairie Maintenance

Section 2.6 of the Final LTS&M Plan states that routine maintenance of the prairie completed during the previous 12 months will be summarized in the annual inspection report. This summary is as follows:

Relatively few prairie maintenance activities were required to be performed throughout the previous 12 months. Due to a significant insect population and heavy drought during the previous summer, fuel load was not sufficient to support a prescribed burn in 2007.

In August, spot-spraying individual *Sericea lespedeza* and *Robinia pseudoacacia* plants with herbicide was performed as part of on-going efforts to reduce numbers and control encroachment of invasive weed species throughout the prairie area. The map of infested areas that was developed during FY 2005 was utilized during this spot-spraying effort in order to streamline

fieldwork and to track the effectiveness of the eradication program. Significantly reduced numbers of plants were observed during this season's eradication efforts.

A field survey to evaluate erosion issues in the prairie was also performed in August. Results of the field survey are presented in section 2.4.1 and Appendix E of this document.

A garden of plants native to the state of Missouri was designed and constructed to surround the Interpretive Center and build awareness about the Weldon Spring Site. Garden maintenance consisting of manual weeding and occasional irrigation was performed throughout the growing season. Corn gluten, a cereal industry by-product with pre-emergent herbicide qualities was broadcast on garden beds throughout the spring season to assist in weed control efforts. Dried seed heads from forbs were harvested and were utilized for hand overseeding on the prairie area of the site in October 2007. Volunteers continued to perform garden maintenance activities throughout this period. A total of six large garden beds have been adopted by volunteers who are responsible for their maintenance.

3.0 Findings and Recommendations

1. **Finding:** The new groundwater monitoring well MW–4042 did not have the black numbers identifying the well number.

   Corrective Action: Place numbers on the well.

   Target Date: December 2007

2. **Recommendation:** Have "No Dig" labels manufactured for the quarry reduction zone wells.

   Corrective Action: Order labels made and apply.

   Target Date: May 2008

3. **Recommendation:** Revise checklist and update to current conditions annually.

   Corrective Action: Revise checklist and update to current conditions annually

   Target Date: September 2008

4. **Recommendation:** Cut trees at the quarry and remove enough so they are not a hazard during sampling.

   Corrective Action: Cut trees at the quarry and remove enough so they are not a hazard during sampling.

   Target Date: July 2008

5. **Recommendation:** An unlocked, abandoned water vault was found at the Quarry. Need to determine who is responsible for this vault and also lock it for safety reasons.

   Corrective Action: Need to determine who is responsible for this vault and also lock it for safety reasons.

   Target Date: January 2008

6. **Recommendation:** Rock degradation plot 3 needs to be painted in the correct location.

   Corrective Action: Paint square in correct location.

   Target Date: May 2008

7. **Recommendation:** Manhole No. 1 of the pipeline could not be located during the inspection.

   Corrective Action: Locate Manhole No. 1 of the pipeline.

   Target Date: August 2008

4.0 Photographs

Photo 1. Burgermeister Spring

Photo 2. Recently installed monitoring well MW–4042 on the Army property.

Photo 3. Quarry rim – fallen tree on Fence.

Photo 4. Water vault on MDOC property (unlocked).

Photo 5. Inspectors walking the Southeast Drainage.

Photo 6. Highway D culverts.

Photo 7. Highway 94 culvert inlet in the Southeast Drainage.

Photo 8. Inspectors from Group 2 on the disposal cell.

Photo 9. Disposal Cell inspection looking southwest.

Photo 10. Cell cover rock test plot TP1; north edge north facet (2003 Inspection).

Photo 11. Cell cover rock test plot TP1; north edge of north facet (2006 Inspection).

Photo 12. Cell cover rock test plot TP1; north edge of north facet (2007 Inspection).

Photo 13. Cell cover rock test plot TP2; bottom of north side slope (2003 Inspection).

Photo 14. Cell cover rock test plot TP2; bottom of north side slope (2006 Inspection).

Photo 15. Cell cover rock test plot TP2; bottom of north side slope (2007 Inspection).

Photo 16. Cell cover rock test plot TP3; northeast ridgeline (2003 Inspection).

Photo 17. Cell cover rock test plot TP3; northeast ridgeline (2006 Inspection).

Photo 18. Cell cover rock test plot TP3; northeast ridgeline (2007 Inspection).

Photo 19. Cell cover rock test plot TP4; located on upper west side (2003 Inspection).

Photo 20. Cell cover rock test plot TP4; located on upper west side (2006 Inspection).

Photo 21. Cell cover rock test plot TP4; located on upper west side (2007 Inspection).

Photo 22. Cell cover rock test plot TP5; located on lower west side (2003 Inspection).

Photo 23. Cell cover rock test plot TP5; located on lower west side (2006 Inspection).

Photo 24. Cell cover rock test plot TP5; located on lower west side (2007 Inspection).

Photo 25. LCRS sump area.

Photo 26. Ion Exchange vessel.

Photo 27.Repair of erosion under the monument on the disposal cell

End of current text

Appendix A
Inspection Agenda

WSSRAP ANNUAL INSPECTION
AGENDA

Wednesday, October 24, 2007

12:00 noon – 12:30 pm

Planning meeting to be held in the laboratory area. Review agenda, inspection teams, and safe work issues. Review inspection report and findings on last year's inspection. Inspectors/observers divide into 2 separate groups to cover 5 transects each on the disposal cell. The Team Leaders will be Terri Uhlmeyer and Randy Thompson.

12:30 – 4:00 pm

Disposal Cell Inspection – Potential settlement, rock degradation, vegetation
Team 1: Walk 5 Transects
Team 2: Walk 5 Transects

4:00 – 4:30 pm

Meeting in Room 3A: discuss Day 1 inspection results

Thursday, October 25, 2007

8:30 – 9:00 am

Meeting in Room 3A to review upcoming inspection objectives. Inspectors/observers will divide into 2 separate groups. Team 1 (Team Leader - Terri Uhlmeyer) will cover the Chemical Plant Area. Team 2 (Team Leader – Randy Thompson) will cover the Southeast Drainage and the Quarry Area.

9:00 – 11:30 am

Team 1: Inspect land & shallow groundwater use on Army property and DOE property:

- Monitoring wells along Army property roads
- Drive all Army roads in proposed IC area and note any land disturbance
- Disposal Cell buffer zone
- Monitoring wells on DOE Chemical Plant property

Team 2: Inspect land & shallow groundwater use on Missouri Department of Conservation property, Weldon Spring Conservation Area:

- Southeast Drainage from Army Road to Hwy 94
- Hwy 94 culvert
- Southeast Drainage from Hwy 94 to Missouri River, including Springs 5303 & 5304

11:30 am – 12:30 pm

Lunch

12:30 – 4:00 pm

Team 1: Inspect land & shallow groundwater use on Missouri Department of Conservation property, August A. Busch Conservation Area:

- Burgermeister Spring
- Spring 6303
- Monitoring wells along MDC roads
- Hwy D Culvert

Team 2: Inspect land & shallow groundwater use on Missouri Department of Conservation property, Weldon Spring Conservation Area and DOE property:

- DOE Quarry Property (Quarry rim wells)
- DOE Quarry Property (Quarry proper)
- Reduction zone area
- Public Water District #2 well field area

4:00 – 4:30 pm
Meet in Room 3A: Discuss Day 2 Inspection Results

Friday, October 26, 2007

8:00 am – 8:30 am

Meet in Room 3A for a discussion of the LCRS and erosion.

8:30– 10:30 am

Inspection of LCRS (No confined space entry planned).
Walk areas of prairie and disposal cell buffer zone inspecting for erosion issues.

10:30 – 11:30 am

Document and paperwork review

11:30 am-12:00 noon

Discussion of preliminary inspection findings.

Appendix B
2006 Corrective Action Report

Completed Findings, Recommendations and Corrective Actions from 2006 Weldon Spring LTSM Annual Inspection

1. **Finding:** Erosion areas were identified on the Chemical Plant Property.

Corrective Action: Identify and locate by GPS all areas of erosion in the prairie. Repair erosion areas

Target Date: September 2007

Response: Erosion channels within the entire prairie were mapped with GPS during the week of August 6th, 2007. The resulting information will be used to track the nature and extent of erosion in the future.

A field survey to evaluate erosion issues in the prairie was performed on August 2, 2007. The following individuals participated in the survey: Yvonne Deyo (Stoller, Weldon Spring Project Manager), Marilyn Kastens (Stoller soil reclamation specialist), Ben Moore (MDNR), Raymond Franson (MDNR), Frank Oberle (Pure Air Native Seed), and Jon Wingo (DJM Ecological Services). It was determined that existing erosion was temporary, typical of newly reclaimed site, and in the process of stabilizing. It was recommended to monitor erosion channels and evaluate other possible soil amendment and/or vegetation management strategies. Soil disturbance of any kind was not recommended at this time.

2. **Finding:** The red ink on the "No Dig" labels on the wells in the quarry reduction zone was badly faded.

Corrective Action: Make new labels with only black ink and reapply.

Target Date: March 2007

Response: New labels with black ink were applied in March 2007. Newer laminated labels were applied the week of October 15, 2007.

3. **Finding:** A tree was growing near manhole number 3 of the LCRS pipeline.

Corrective Action: Remove tree.

Response: The tree was removed in April 2007.

Target Date: May 2007

4. **Finding:** Increased vandalism is occurring in the area of rock moving on the disposal cell.

Corrective Action: Develop a plan to attempt to curtail this activity and implement.

Target Date: June 2007

Response: A security system was ordered and installed.

5. **Finding:** The pedestal on the south side of the viewing platform was eroded under the southeast corner after being repaired in 2006.

Corrective Action: Determine a more permanent repair and apply.

Target Date: June 2007

Response: The area was repaired in April 2007 by placing a concrete curb beneath the corner.

6. **Recommendation:** The documents in the library need to be assessed, rebound and indexed.

Corrective Action: Remove items from library, assess what it in the collection, and rebound the comb bound documents for easier access. Return revised collection to the library and include an index of what it returned.

Target Date: July 2007

Response: In July 2007, the documents were removed from the library, the collection was assessed and unnecessary items were removed. The items to be returned were rebound and labeled and an index was provided to the library of what was removed and what was returned. The items that were removed will be kept at the Interpretive Center.

7. **Recommendation**: Communicate with MDNR-Parks regarding any safety concerns that they have.

Corrective Action: Contact the MDNR-Parks contact and attempt to set up a meeting with their representative.

Target Date: July 2007

Response: A meeting was held with MDNR-Parks on October 22, 2007, to discuss their concerns.

Appendix C
Inspection Checklist

Annual Site Inspection Checklist

Purpose of the Checklist

This checklist has been developed from the EPA guidance document *Comprehensive Five Year Review Guidance* dated June 2001 (OSWER No. 9355.7-03B-P) and from Section 2.3 of the *Long-Term Surveillance and Maintenance Plan for the Weldon Spring, Missouri, Site*. The checklist was modified to site-specific conditions as recommended by the guidance document. The checklist will be completed annually during the Weldon Spring Site annual surveillance and maintenance inspection. The checklist will also be used to assist in compiling information for the five-year review.

I. SITE INFORMATION	
Site name: DOE Weldon Spring Site	**Date(s) of inspection:** Oct 24-26, 2007
Location: St. Charles, MO	**EPA ID: MO6210022830**
Agencies accompanying DOE for portions of the annual inspection: ☑ EPA, Region 7 ☑ MDNR ☑ Other (list) WSCC, St. Charles County	**Weather:** Cool and Cloudy
Remedy Includes: Disposal Cell Institutional controls Monitored Natural Attenuation Long Term Monitoring Other _____	
Inspectors Terri Uhlmeyer, Randy Thompson **Participants** See attached	
Attachments: ☑ Inspection team roster attached	☑ Site map attached (attached in report)

II. INTERVIEWS (Check all that apply)

1. **Local Site Manager** Yvonne Deyo (Name) — Project Manager, SM Stoller (Title) — 10/18/07 (Date)
   Interviewed ☑ at site ☑ at office ☐ by phone Phone no. 636-300-0012
   Problems, suggestions; ☑ Report attached App F of Report

2. **Environmental Data Manager** Randy Thompson (Name) — Data Mgr, SM Stoller (Title) — 10/9/07 (Date)
   Interviewed ☑ at site ☑ at office ☐ by phone Phone no. 636-926-7040
   Check to ensure that environmental data is reviewed and trended.
   Problems, suggestions; ☑ Report attached App F of Report

3. **Other Staff (as applicable)** N/A (Name) — _____ (Title) — _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

4. **Local response agencies:** Contact to notify of annual inspection and to determine if there are any concerns or issues.

Agency: St. Charles County Sheriff
Contact Jim Hudson (Name) — Captain (Title) — 10/9/07 (Date) — 636-949-3005 (Phone no.) 7325
Problems; suggestions; ☑ Report attached App F of Report

Agency: Cottleville Fire Department
Contact Mark Boehle (Name) — Asst. Fire Chief (Title) — 10/11/07 (Date) — 636-447-6655 (Phone no.) x 8703
Problems; suggestions; ☑ Report attached App F of Report

Agency: SimplexGrinnel (LCRS and Interpretive Center Alarm Company)
Contact Charlotte (Name) — _____ (Title) — 10/8/07 (Date) — 888-746-7539 (Phone no.)
Problems; suggestions; ☑ Report attached App F of Report

Agency: _____
Contact _____ (Name) — _____ (Title) — _____ (Date) — _____ (Phone no.)
Problems; suggestions; ☐ Report attached _____

5. **Stakeholders:** Contact to notify of annual inspection and to determine if there are any concerns or issues.

Agency: Francis Howell School District **Contact Name:** ~~Mr. Pat Houlahan, Exec. Dir. of Admin. Services~~
Contact Name Current ☐ yes ☑ no
Phone Number Current ☐ yes ☑ no 636-851-6172 (new phone no. if applicable)

Contact Rick Pavia (Name (if different than above)) Project Mgr (Title) 10/11/07 (Date) 636-851-4046 (Phone no.)
Problems; suggestions; ☑ Report attached Also contacted asst. principal, Randy Carter, of Francis Howell High School, on 10/8/07 (636-851-4080 x 4745)

Agency: Weldon Spring Citizens Commission **Contact Name:** Helene Diller, Admin. Assistant
Contact Name Current ☑ yes ☐ no
Phone Number Current ☐ yes ☑ no 636-300-0037 (new phone no. if applicable)

Contact ↳ same (Name (if different than above)) (Title) 10/4/07 (Date) ~~636-926-7061~~ (Phone no.)
Problems; suggestions; ☑ Report attached App F of Report

Agency: St. Charles County **Contact Name:** Mike Duvall, Dir. of Env. Service
Contact Name Current ☑ yes ☐ no
Phone Number Current ☑ yes ☐ no (new phone no. if applicable)

Contact same (Name (if different than above)) (Title) 10/2/07 (Date) 636-949-7583 (Phone no.)
Problems; suggestions; ☑ Report attached App F of Report

6. **Other interviews** (Prior to inspection, determine if any citizens or groups have expressed any concerns or interests in the site. Check site email and Grand Junction contact phone logs) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **Documents**

☑ Surveillance and Maintenance Plan	☑ Readily available	☐ Up to date	☐ N/A
☑ As-built drawings	☑ Readily available	☑ Up to date	☐ N/A
☑ Maintenance logs	☑ Readily available	☑ Up to date	☐ N/A

Remarks

2. **Site-Specific Health and Safety Plan**

	☑ Readily available	☑ Up to date	☐ N/A
☑ Contingency plan/emergency response plan	☑ Readily available	☑ Up to date	☐ N/A

Remarks

3. **Permits and Service Agreements**

☑ NPDES Permits	☑ Readily available	☐ Up to date *	☐ N/A
☐ MSD agreement and records	☑ Readily available	☑ Up to date	☐ N/A
☐ Other permits	☐ Readily available	☐ Up to date	☐ N/A

Remarks * The permit expired July 13, 2005. The DOE submitted an application to MDNR to renew on Jan 2005, but has not received a renewed permit to date.

4. **Groundwater Monitoring Records** ☑ Readily available ☑ Up to date ☐ N/A
Remarks The site operates under the existing permit.

5. **Leachate Records** ☑ Readily available ☑ Up to date ☐ N/A
Remarks

6. **Interpretative Center Sign-In Logs** ☐ Readily available ☑ Up to date ☐ N/A
Remarks

IV. O&M COSTS

1. **Organization**
☐ DOE ☐ Contractor for DOE
☐ Other participants (list organizations)

2. **O&M Cost Records** (This information may be reviewed and completed prior to the inspection)

Original O&M cost estimate $1,665,857 ☐ Breakdown attached

Total annual cost for prior federal fiscal year: $1,344,987

From 10/2/06 (Date) To 9/30/07 (Date) ✓ (Total cost) ☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: N/A

V. INSTITUTIONAL CONTROLS

Institutional Control (IC) Inspections

1. **Land and Shallow Groundwater Use within the Chemical Plant Site and Quarry Property**

Inspect for indications of excavations into soil or bedrock and groundwater withdrawal or use in restricted areas. If any party has been granted use of portions of the Chemical Plant or Quarry area, inspect to ensure that land use is in compliance with the terms of the restrictions within the notation.
Note any observations: No indications of excavations or groundwater withdrawal or use.

2. **Groundwater Use in Areas Surrounding the Chemical Plant**

Groundwater use is restricted in areas. Inspect affected areas for evidence of groundwater or spring water use (Burgermeister Spring and Spring 6303). Inspect to ensure that land use continues to be in compliance with the terms of the license, easement, or permit and the restrictions contained therein.
Note any observations: Inspected relevant areas on Army - MDC property. No evidence of GW or springwater use. No land use changes. Spring 6303 was dry

3. **Groundwater (Quarry)**

Groundwater use is restricted in areas. Inspect affected areas for evidence of groundwater withdrawal or use in the area of impact. Inspect to ensure that land use continues to be in compliance with the terms of the license and the restrictions contained therein.
Note any observations: No evidence of groundwater withdrawal or use. No land use changes. Open backflow preventer vault needs to be investigated. Fallen trees need to be removed.

4. **Land Use in Quarry Area Reduction Zone**

A naturally occurring reduction zone exists in soil south of the Katy Trail and north of the Femme Osage Slough. Inspect for indications of excavations into soils and bedrock in the uranium reduction zone. Inspect to ensure that land use continues to be in compliance with the terms of the easement and the restrictions contained therein.
Note any observations: No indications of excavations into soils or bedrock. No land use changes. The "No Digging" labels need to be improved.

5. **Southeast Drainage**

Check for indications of residential use or construction in the Southeast Drainage (200-foot-wide corridor), or other activity that would indicate nonrecreational use of the area. Check Springs 5303 and 5304 for residential, commercial, or agricultural use of spring water.
Note any observations: No indications of residential use or construction in the SE Drainage or other activity that would indicate nonrecreational use. No indications of use of springwater. Both springs were dry.

6. **Highway D Culvert**

Check for signs of disturbance of the affected region where the Frog Pong outlet culverts pass beneath Highway D and in the utility rights-of-way in the affected area.

Note any observations: The top of the culverts which had been exposed were still covered by riprap.

7. **State Route 94 Culvert**

Check for signs of disturbance of the affected region where the culvert passes beneath State Route 94 and in the utility rights-of-way in the affected area.

Note any observations: No changes 11/8/07

8. **Pipeline from LCRS to Missouri River**

Inspect the entire length of the pipeline and outfall for any disturbances or maintenance needs.

Note any observations: Inspected

C. Institutional Control Annual Contact Log

In accordance with the LTS&M Plan, the following will be contacted to verify cognizance of institutional controls and real estate agreements. Fill in all that apply.

1. **Agency:** Missouri Department of Conservation **Contact Name:** Joel Porath, Wildlife Regional Supv.
Address: August A. Busch Memorial Conservation Area, 2360 Highway D, St. Charles, MO 63304
Institutional Control and Real Estate Licenses to Verify: Chemical Plant Groundwater Use Restriction, Quarry Area Groundwater Use Restriction, Quarry Reduction Zone Land Use Restriction, Southeast Drainage Residential Use Restriction, North Gate Access, Well Sampling Access Agreement, Effluent Discharge Pipeline, Hamburg Trail Use Agreement.
Contact Name Current ☑ yes ☐ no
Phone Number Current ☐ yes ☐ no same (new phone no. if applicable)

Contact same (Name (if different than above)) same (Title) 10/2/07 (Date) 636-441-4554 (Phone no.)

Problems; suggestions; ☑ Report attached Also contacted John Vogel, Area Mgr. at Busch Conservation on 10/2/07 at 636-300-1953 x318

2. **Agency:** Missouri Department of Conservation **Contact Name:** Cynthia Green, Realty Spec.
Address: P.O. Box 180, Jefferson City, MO 65102
Institutional Control and Real Estate Licenses to Verify: See No. 1
Contact Name Current ☑ yes ☐ no
Phone Number Current ☑ yes ☐ no same (new phone no. if applicable)

Contact same (Name (if different than above)) same (Title) 10/4/07 (Date) 573-751-4115 (Phone no.)

Problems; suggestions; ☑ Report attached App. F of Report

3. **Agency:** Missouri Department of Natural Resources **Contact Name:** Jennifer Frazier, Parks Operation Off.
Address: P.O. Box 176, Jefferson City, MO 65102
Institutional Controls and Real Estate Licenses to Verify: Quarry Area Groundwater Use Restriction, Southeast Drainage Residential Use Restriction, Well Sampling Access Agreement, Effluent Discharge Pipeline
Contact Name Current ☑ yes ☐ no
Phone Number Current ☑ yes ☐ no same (new phone no. if applicable)

Contact same (Name (if different than above) same (Title) 10/9/07 (Date) 573-751-7987 (Phone no.)

Problems; suggestions; ☑ Report attached App. F of Report

4. **Agency:** Missouri Department of Transportation **Contact Name:** ~~Don Wichern, Asst. District Engineer~~
Address: 1590 Woodlake Dr., Chesterfield, MO 63017
Institutional Controls to and Real Estate Licenses to Verify: Chemical Plant Groundwater Use Restriction, and question MoDOT regarding Missouri State Highway 94 Culvert and Highway D culverts about plans for repairs/replacements.
Contact Name Current ☐ yes ☑ no
Phone Number Current ☐ yes ☑ no 314-340-4203 (new phone no. if applicable)

Contact Tom Blair (Name (if different than above)) Asst. Dist. Engr. (Title) 10/8/07 (Date) 314-340-4203 ~~314-340-4202~~ (Phone no.)
Problems; suggestions; ☑ Report attached App E of Report

5. **Agency:** U.S. Dept. of Army **Contact Name:** Roy Stevenson, Facility Manager
Address: Weldon Spring Training Area, 7301 Hwy 94 S. St. Charles, MO 63304
Institutional Controls to and Real Estate Licenses to Verify: Chemical Plant Groundwater Use Restriction, Effluent Discharge Pipeline, Well Sampling Access Agreement
Contact Name Current ☐ yes ☑ no
Phone Number Current ☑ yes ☐ no _____ (new phone no. if applicable)

Contact Nelson Jones or Marsha Mills (Name (if different than above)) Facility Mgr. (Title) 10/5/07 (Date) 636-329-1200 (Phone no.)
Problems; suggestions; ☑ Report attached App F of Report

6. **Agency:** St. Charles County Recorder of Deeds
Address: 201 N 2nd, St. Charles, MO 63301
Institutional Controls to and Real Estate Licenses to Verify: Recorded real estate restrictions at the Recorder of Deeds Office or on the Internet at www.saintcharlescounty.org

Contact N/A (Name) N/A (Title) 10/7/07 (Date) _____ (Phone no.)
Problems; suggestions; ☐ Report attached Verified on the website: www.saintcharlescounty.org that the Notation of land ownership was filed in Book 3754 Page 419. This is the only document that has been recorded there for. App F of Report

7. **Agency:** St. Charles County Planning and Zoning Department **Contact Name:** Wayne Anthony
Address: 201 N 2nd, St. Charles, MO 63301
Institutional Controls to and Real Estate Licenses to Verify: Awareness of Restrictions
Contact Name Current ☑ yes ☐ no
Phone Number Current ☑ yes ☐ no same (new phone no. if applicable)

Contact Same (Name) Same (Title) 10/9/07 (Date) 636-949-7900x7221 (Phone no.)
Problems; suggestions; ☑ Report attached App F Mr. Anthony verified that there were no planning and zoning activities in the quarter mile surrounding the chemical plant property properties.

General

1. **Land Use Changes On Site** ☐ Yes ☑ No
Remarks Lindenwood has constructed 8 classrooms in the admin bldg and has begun some classes. There is consideration of other tenants in the bldg.

2. **Land Use Changes Off Site** ☐ Yes ☑ No
Remarks

VI. GENERAL SITE CONDITIONS

1. **Roads** ☑ Location shown on site map ☑ Roads adequate
Remarks

2. **Vandalism** ☐ Location shown on site map ☐ No vandalism noted
Remarks Minor rock moving on top of the all.

3. **Personal Injury Risks** ☑ Housekeeping maintained
Remarks

4. **Site Markers (Four Information Plaques on Top of Cell, Historical Markers, and Other Information Markers)**
☑ Location shown on site map ☑ Legible and Secure
Remarks One of the bronze plaques had to be put back on during past year.

5. **Guard Rail Around Cell** ☐ Location shown on site map
☑ Secure
Remarks

6. **Stairs to Top of Cell** ☑ Location shown on site map
☑ Stairs in good condition ☑ Handrail stable and in good condition
Remarks

7. **Other Site Conditions:**
Remarks

VII. EROSION

1. **Chemical Plant Areas** ☑ Location shown on site map ☐ Erosion not evident
Areal extent Depth
Remarks ☑ Erosion had been mapped in Aug. A figure is included in Inspection Report.
A field survey to evaluate the erosion also took place in August. The report is included in the report (App E)

2. **Quarry Area** ☐ Location shown on site map ☑ Erosion not evident
Areal extent Depth
Remarks

VIII. CHEMICAL PLANT DISPOSAL CELL

1. **Settlement/Bulges** ☒ Location shown on site map ☐ Settlement not evident
Areal extent _____ Depth _____

A. Annually: Walk along the grade break at the top of the side slopes, around the cell perimeter, and along 10 random transects across the cell surface. Inspect for local depressions, regional departures from planar surfaces, and shifts in intersections (vertices) of cell surface planes. Inspect for vertical shear of the cover layers indicated by sudden, abrupt steps that exceed an approximately 6-inch change of surface level over no more than 10 feet distance.

B. During 5-Year Review Inspections (Beginning 2005 and at 5-year Intervals): Conduct an aerial mapping survey with a vertical resolution not less precise than 0.5 feet. Produce and record maps and survey data for the cell surface represented by 1.0 foot contour intervals. Evaluate the data for indications of settlement. Consider the position and spacing of contour lines as indications of elevation change and possible settlement.

Remarks Inspectors walked the ten transects and observed minor depression areas from previous inspections and did not observe changes from past inspections.

2. **Rock Cover** ☐ Signs of degradation No ☐ Signs of intrusion No

A. Annually: During settlement monitoring inspection also visually inspect for departures from original rock conditions or from the previous inspection. Note observable discoloration on areas larger than 2,500 square feet, presence of finer materials at surface and apparent rock gradation changes. Document rock conditions annually with photographs.

B. During 5-Year Review Inspections (Beginning 2005 and at 5-year Intervals): Inspect cell cover for gradation changes by walking 10 randomly spaced transects across the cell. Concentrations of degraded, split, or weathered pieces of limestone will be mapped, photodocumented and visually assessed as a percentage of rock exposed within each mapped area. If degraded rock is evenly distributed, inspectors will estimate the overall percentage of degraded rock. If the amount of degraded rock appears to be increasing, based on a review of previous annual rock quality assessments, additional monitoring or gradation testing will be performed. If rock does not appear degraded, photodocumentation of several GPS located areas will establish rock conditions for future reference.

Remarks The 5 Rock Test Plots were photographed and inspected and compared w/ previous years photos. The rocks in the test plots had not degraded or changed from previous years.

3. **Vegetative Growth** ☐ Weeds ☐ Plants ☐ Trees/Shrubs
Remarks No vegetation was observed on the disposal cell.

4. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident
☐ Wet areas ☐ Location shown on site map Areal extent
☐ Ponding ☐ Location shown on site map Areal extent
☐ Seeps ☐ Location shown on site map Areal extent
Remarks No wet areas or water damage.

5. **Toe/Apron Drains** ☒ Proper drainage ☐ Silting ☐ Evidence of erosion
Remarks The toe/apron drains appeared in good condition.

6. **Slope Instability** ☐ Slides ☐ Location shown on site map ☒ No evidence of slope instability
Areal extent
Remarks

7. **Leachate Collection and Removal System** ☒ Fence/Gates/Locks in good condition
☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
☒ LCRS flow rates ☒ Flow rate none ☒ Review data trending and Action Leakage Rate review
☒ Sump Containment System (Burrito) flow rates ☐ Burrito flow rate issues none
~~☐ Alarm system functioning~~ N/A ☐ ~~Methane Detection System functioning~~ N/A
☒ Compliance with MSD Agreement ☒ Review shipping records
~~☐ Check alarm records (note any issues)~~ N/A
Remarks The ion exchange vessel has been labeled as "Potential Internal Contamination" based on potential for uranium to accumulate. New heaters installed

8. **Condition of 300 Ft. Buffer Zone** ☒ Evidence of erosion (shown on map) slight erosion in buffer zone
☐ Vegetative growth of woody species (show location)
Remarks

9. **Condition of Prairie** ☒ Evidence of erosion (shown on map)
☐ Vegetative growth of woody species (show location)
Remarks See trip report in App E of report

IX. GROUNDWATER MONITORING

1. **Disposal Cell Monitor Well Network**
☒ Properly secured/locked ☒ Functioning ☒ Sampled in accordance with LTS&M Plan
☒ Good condition No ☐ Evidence of surface water infiltration at casing No ☐ Needs maintenance
☒ Proper ID on each well ☒ Acceptable quality of data
☐ Any issues with data trends (See Section II.2)
Remarks MW-2032, 2046, 2047, 2051, 2055

2. **Chemical Plant Groundwater Monitor Well Network**

☒ Properly secured/locked ☒ Functioning ☒ Sampled in accordance with LTS&M Plan
☒ Good condition ☒ ☐ Evidence of surface water infiltration at casing ☐ Needs maintenance
☒ Acceptable quality of data ☒ ☐ Any issues with data trends (see Section II.2)
List wells checked by number (> 10% of wells) MW-2006, 2012, 2017, 2013, 2023, 2024, 2033, 2034, 2036, 2045, 2053, 2054, 3024, 3025, 3028, 3029, 3031, 3039, 3040, 4001, 4006, 4007, 4022, 4026, 4027, 4028, 4029, 4030, 4032, 4034, 4039, 4040, 4041, 4042, 1004, 1005, 1006, 1007, 1008, 1009, 1027, 1030, 1037
Remarks New well MW-4042 needs to be labelled

3. **Quarry Monitor Well Network**

☒ Properly secured/locked ☒ Functioning ☒ Sampled in accordance with LTS&M Plan
☒ Good condition ☒ ☐ Evidence of surface water infiltration at casing ☒ Needs maintenance
☒ Acceptable quality of data ☒ ☐ Any issues with data trends (see Section II.2)
List wells checked by number (> 10% of wells) MW-1002, 1004, 1005, 1006, 1007, 1008, 1009, 1027, 1030, 1037

Remarks

X. OVERALL OBSERVATIONS

A. Implementation of the Remedies

Describe issues and observations relating to whether the remedies are effective and functioning as designed.

N/A

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedies.

N/A

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of one or more of the remedies may be compromised in the future. N/A
D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedies. N/A

LTS&M ANNUAL INSPECTION
WELDON SPRING SITE
OCTOBER 24-26, 2007

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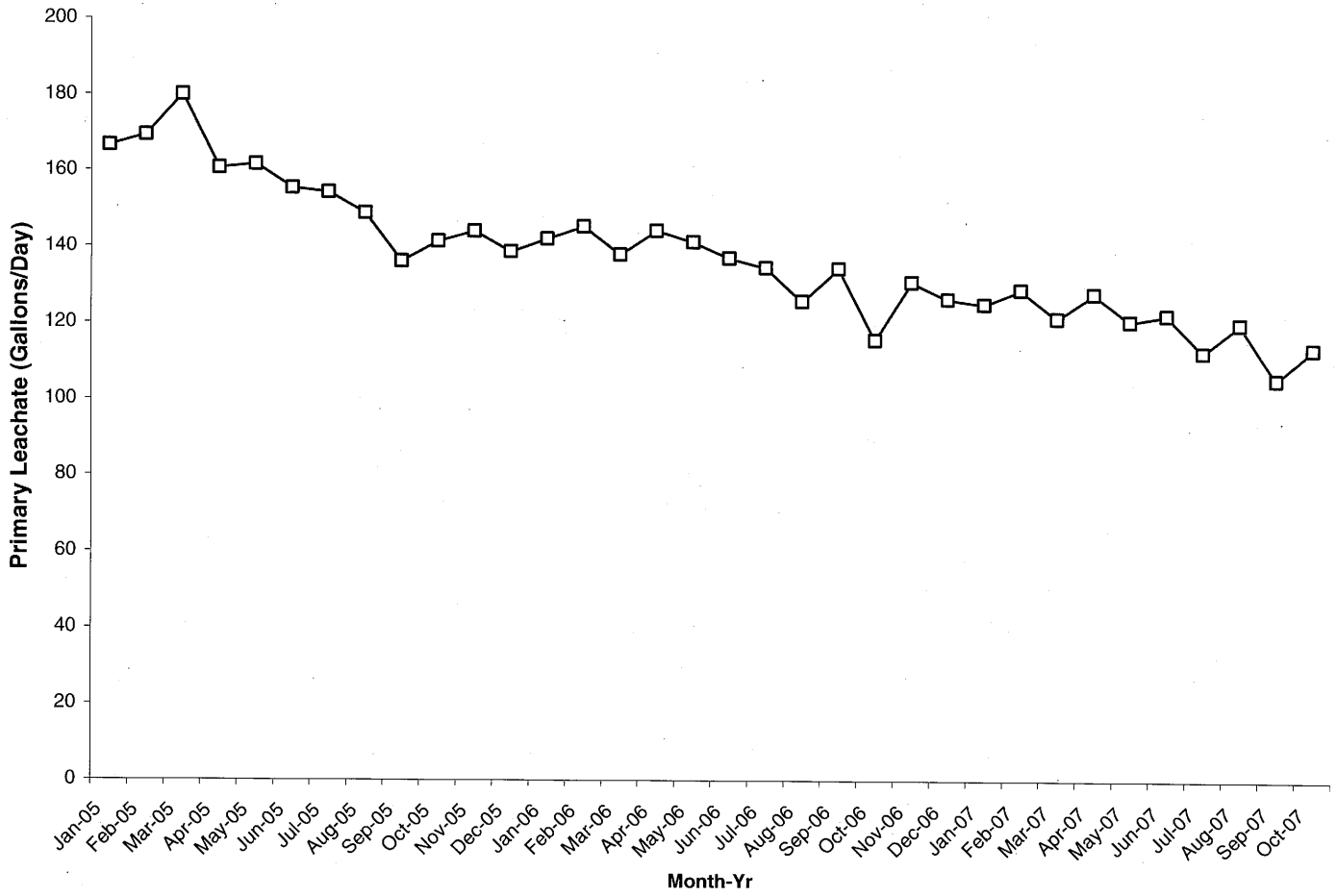
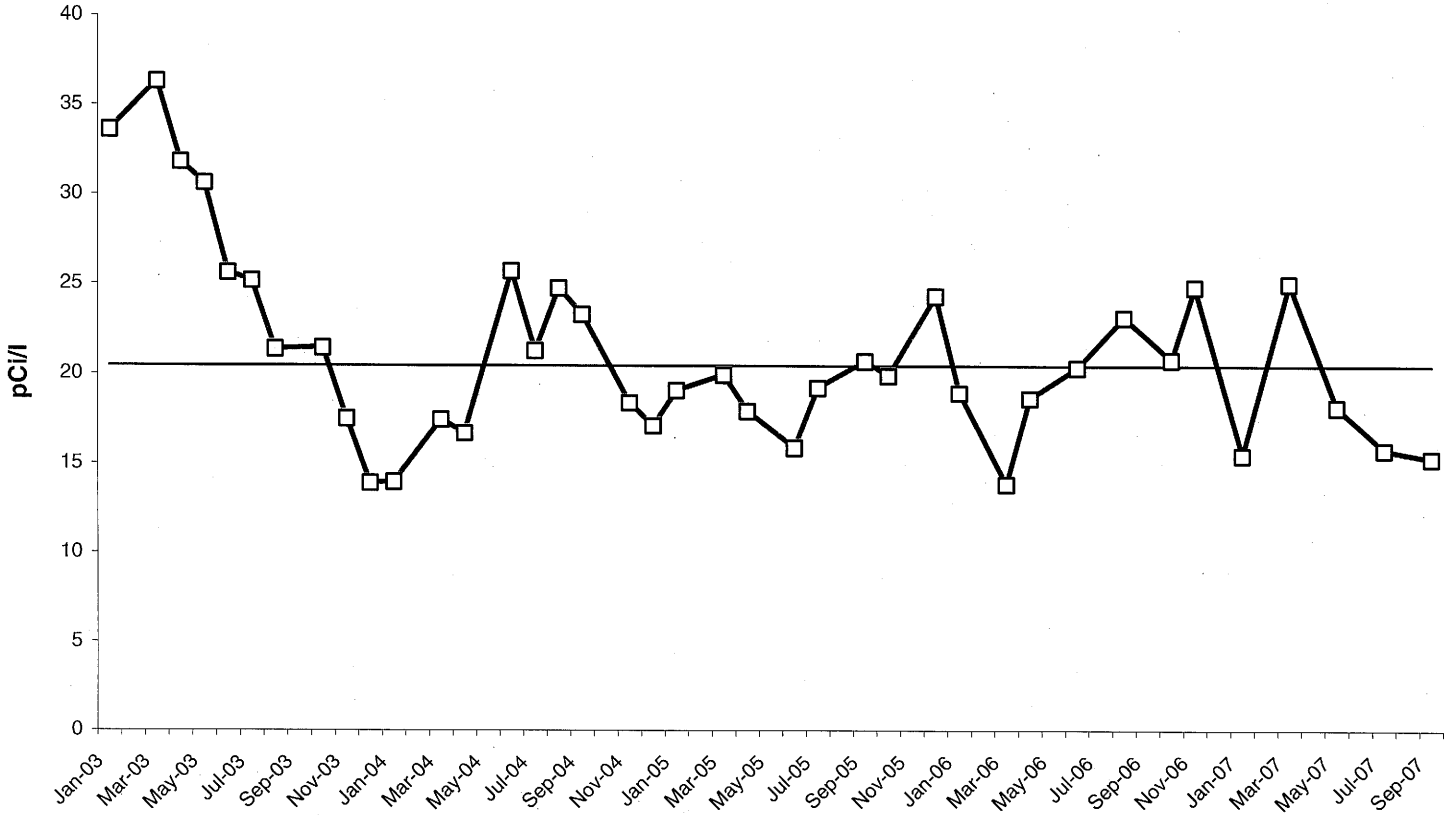
Appendix D
LCRS Data

PRIMARY LEACHATE FLOW
Daily Averages



Total Uranium Levels in the Primary Leachate



SUMMARY OF HAULED LEACHATE TO ST. LOUIS MSD
FEBRUARY 2002 THROUGH SEPTEMBER 2007

		Batch #	L001	L002	L003	L004	L005	L006	L007	L008	L009	L010	L011	L012	L013	L014
		Date Hauled	4-Feb-02	8-Mar-02	5-Apr-02	8-May-02	17-Jun-02	16-Jul-02	6-Aug-02	6-Sep-02	3-Oct-02	31-Oct-02	14-Nov-02	13-Dec-02	21-Jan-03	3-Mar-03
Parameter	Units	MSD Limit														
Leachate Volume	gallons	25,000 gal/mo Combined Total****	10,000	11,168	8,557	10,981	11,387	8388	5601	9291	8524	7370	3004	9016	9,683	8,802
Purge Water Volume	gallons		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	0
COD	mg/l	Monitor	27	34	26	24	15	26	36	36	28	25	25	33	21	31
TSS	mg/l	Monitor	45	28	16	12	45	53	47	68	48	50	47	12	16	38.8
Arsenic	mg/l	Monitor	0.0015	ND (0.0012)	ND (0.0024)	ND (0.010)	0.004	0.0032	0.0067	0.0086	0.0084	ND (0.0100)	ND (0.010)	ND (0.010)	ND (0.010)	0.0043
Barium	mg/l	Monitor	0.592	0.509	0.554	0.511	0.815	0.844	0.407	1.09	1.03	1.03	1.07	0.743	0.803	0.975
Copper	mg/l	Monitor	ND (0.0054)	ND (0.0014)	ND (0.0019)	0.0074	0.0033	0.0048	ND (0.0077)	ND (0.0077)	ND (0.0077)	ND (0.0250)	ND (0.025	ND (0.025)	ND (0.025)	0.0019
Iron	mg/l	Monitor	14.1	10.1	5.68	5.01	19.4	13.2	17.3	27.9	21.7	23.8	21	4.54	6.51	18.4
Lead	mg/l	Monitor	ND (0.00099)	ND (0.00099)	ND (0.0021)	ND (0.003)	ND (0.0021)	ND (0.003)	ND (0.0016)	ND (0.0016)	ND (0.0016)	ND (0.0030)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.000111)
Chromium	mg/l	Monitor	ND (0.00073)	ND (0.00073)	ND(0.0013)	ND (0.010)	ND (0.013)	ND (0.010)	ND (0.0020)	ND (0.0020)	ND (0.002)	ND (0.0100)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.000889)
Mercury	mg/l	Monitor	ND (0.00010)	ND (0.000.10)	ND (0.00010)	ND (0.0002)	ND (0.00010)	0.00046	0.00018	ND (0.00010)	ND (0.0001)	ND (0.0020)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0002)
Nickel	mg/l	Monitor	0.0107	0.0104	0.0069	0.0087	0.0109	0.0094	ND (0.0120)	ND (0.0120)	ND (0.0120)	ND (0.0400)	ND (0.040)	ND (0.040)	ND (0.040)	0.0082
Selenium	mg/l	Monitor	ND (0.0012)	ND (0.0012)	ND (0.0022)	ND (0.005)	ND (0.0022)	ND (0.005)	ND (0.0012)	ND (1.0012)	ND (0.0012)	ND (0.0050)	ND (0.005)	ND (0.0005)	ND (0.005)	0.00055
Silver	mg/l	Monitor	ND (0.0070)	ND (0.0017)	ND (0.001)	ND (0.010)	ND (0.0010)	ND (0.0010)	ND (0.0060)	ND (0.0060)	ND (0.0060)	ND (1.0100)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.000111)
Zinc	mg/l	Monitor	0.0277	0.0193	0.0126	0.0103	0.0109	0.0197	0.0054	0.0088	0.022	ND (0.0200)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.00111)
VOA's	ug/l	Monitor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gross Alpha	pCi/l	Monitor	57.2 ± 10.0	55.8 ± 5.50	66.7 ± 5.84	64.9 ± 7.69	34.6 ± 4.70	37.7 ± 4.75	62.3 ± 11.2	28.1 ± 3.46	25.8 ± 2.91	16.8 ± 2.16	30.0 ± 3.17	39.9 ± 3.7	31 ± 3.5	11.1 ± 6.93
Uranium, Total	pCi/l	3000	46.8 ± 0.515	55.7 ± 0.076	57.3	34.0 ± 0.393	40.3 ± 0.745	33.4 ± 0.472	33.9 ± 0.839	31.1 ± 0.765	27.8 ± 0.684	16.0 ± 0.179	40.2 ± 0.567	32.09 ± 0.437	33.6 ± 0.373	36.3
Uranium, Total Filtered	pCi/l	Monitor	47.5 ± 0.525	53.5 ± 0.562	56.3	38.9 ± 4.5	40.9 ± 0.751	35.5 ± 0.435	34.3 ± 0.846	31.0 ± 0.765	29 ± 0.724	18.4 ± 0.203	41.0 ± 0.578	30.3 ± 0.391	34.9 ± 0.397	*
Thorium - 228	pCi/l	2000	0.336 ± 0.153	ND(0.291)	0.009 ± 0.102	ND(0.263)	0.040 ± 0.064	0.123 ± 0.133	ND (0.178)	ND (0.146)	ND (0.202)	ND (0.425)	ND (0.132)	ND (0.203)	0.112 ± 0.061	ND (0.16)
Thorium - 230	pCi/l	1000	ND(0.620)	0.081 ± 0.113	0.326 ± 0.183	0.269 ± 0.150	ND(0.412)	0.148 ± 0.186	ND (0.318)	ND (0.360)	ND (0.511)	ND (0.780)	ND (0.392)	ND (0.268)	ND(0.309)	0.205 ± 0.075
Thorium - 232	pCi/l	250	0.246 ± 0.122	0.051 ± 0.087	0.068 ± 0.085	ND(0.148)	0.060 ± 0.067	0.170 ± 0.129	ND (0.087)	ND (0.143)	ND (0.206)	ND (0.384)	ND (0.132)	ND (0.186)	ND (0.161)	ND (0.056)
Radium - 226	pCi/l	10	0.073 ± 0.286	0.162 ± 0.150	0.329 ± 0.265	0.315 ± 0.131	0.195 ± 0127	0.112 ± 0.095	0.454 ± 0.138	0.497 ± 0.201	0.511 ± 0.169	0.506 ± 0.136	0.430 ± 0.198	0.248 ± 0.132	0.359 ± 0.148	0.59 ± 0.11
Radium - 228	pCi/l	30	0.455 ± 0.043	0.635 ± 0.068	0.809 ± 0.046	1.37 ± 0.050	1.31 ± 0.045	0.77 ± 0.047	ND (0.469)	ND (0.469)	ND (0.469)	ND (0.133)	ND (0.133)	1.81 ± 0.050	ND (0.133)	1.28 ± 0.54
Americium - 241	pCi/l	150	ND (0.245)	ND(0.749)	ND(0.378)	0.223 ± 0.123	0.063 ± 0.166	0.105 ± 0.093	0.231 ± 0.152	ND (0.233)	ND (0.0879)	ND (0.259)	ND (0.389)	ND (0.332)	ND (0.544)	**
Neptunium - 237	pCi/l	150	0.035 ± 0.109	0.755 ± 0.246	0.131 ± 0.098	ND(0.083)	0.157 ± 0.083	0.007 ± 0.075	ND (0.271)	1.01 ± 0.285	ND (0.146)	ND (0.175)	0.882 ± 0.321	0.728 ± 0.202	ND (0.248)	**
Plutonium - 238	pCi/l	200	0.077 ± 0.163	ND (0.171)	0.064 ± 0.062	0.058 ± 0.065	0.050 ± 0.084	0.007 ± 0.075	ND (0.343)	ND (0.213)	ND (0.273)	ND (0.645)	ND (0.232)	ND (0.445)	0.330 ± 0.196	**
Plutonium - 239/240	pCi/l	150	0.086 ± 0.101	0.975 ± 0.454	0.157 ± 0.073	0.058 ± 0.053	0.054 ± 0.050	0.029 ± 0.054	ND (0.137)	ND (0.246)	ND (0.315)	ND (0.645)	ND (0.307)	ND (0.225)	ND (0.219)	**
Technetium - 99	pCi/l	6000	0.770 ± 0.461	0.169 ± 0.240	ND(0.626)	0.523 ± 0.642	0.411 ± 0.487	0.122 ± 0.546	ND (1.42)	ND (1.83)	1.18 ± 0.717	1.33 ± 0.739	ND (1.66)	ND (1.77)	2.23 ± 0.943	**
Sum of the Ratios		<1.0	0.020	0.031	0.024	0.017	0.018	0.017	0.016	0.019	0.013	0.010	0.021	0.020	0.016	0.016

ND = Not Detected
( ) = Detection Limit
* = Batch monitoring revised to Annual Monitoring by MSD
** = No longer Required by MSD
*** = collected on 5/2/05
**** = revised to 25,000 gallons per month on 9/13/04

SUMMARY OF HAULED LEACHATE TO ST. LOUIS MSD
FEBRUARY 2002 THROUGH SEPTEMBER 2007

		Batch #	L015	L016	L017	L018	L019	L020	L021	L022	L023	L024	L025	L026	L027	L028
		Date Hauled	1-Apr-03	5-May-03	11-Jun-03	16-Jul-03	26-Aug-03	6-Oct-03	13-Nov-03	18-Dec-03	29-Jan-04	10-Mar-04	22-Apr-04	7-Jun-04	19-Jul-04	15-Sep-04
Parameter	Units	MSD Limit														
Leachate Volume	gallons	25,000 gal/mo Combined Total****	8,887	8,656	8,617	8897	9895	9000	8878	7757	9,076	8,828	8,940	8,736	8,760	11,630
Purge Water Volume	gallons		0	0	101	0	107	0	88.6	0	0	0	0	206	75	41.8
COD	mg/l	Monitor	29	28	20	23	20	33	30	44	35	26	32	31	22	15
TSS	mg/l	Monitor	22	21.2	15.7	32.8	25.5	39.5	42.5	34	22	12	30	4	23	14
Arsenic	mg/l	Monitor	0.0018	0.0024	0.0015	0.0038	0.0036	0.0075	0.004	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	0.004
Barium	mg/l	Monitor	0.829	0.811	0.784	0.996	1	1.15	1.16	1.03	1.01	0.883	0.991	0.859	1.1	0.812
Copper	mg/l	Monitor	0.0373	0.0148	0.0013	0.0013	0.001	0..17	ND (0.000556)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)
Iron	mg/l	Monitor	10	10.7	6.14	15.2	12.6	20.5	21.6	14.2	11.7	6.9	10.6	2.82	12.9	4.8
Lead	mg/l	Monitor	ND (0.000111)	0.00019	ND (0.000111)	0.00087	0.00013	0..0019	0.00048	ND (0.003)	ND (0.003)	ND (0.003)	ND(0.003)	ND (0.003)	ND (0.003)	ND (0.002)
Chromium	mg/l	Monitor	ND (0.000889)	ND (0.00089)	ND (0.00089)	ND (000889)	ND (0.000889)	ND (0.556)	ND (0.000556)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)
Mercury	mg/l	Monitor	ND (0.0002)	ND (0.002)	ND (0.0002)	ND (0.001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0002)	ND (0.002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0002)	ND (0.0001)
Nickel	mg/l	Monitor	0.0074	0.0063	0.0055	0.0082	0.0057	0.0059	0.0072	ND (0.010)	0.0101	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)
Selenium	mg/l	Monitor	0.00067	0.00051	0.00057	0.00057	0.00042	0.00047	0.00056	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Silver	mg/l	Monitor	0.00052	0.00011	ND (0.00011)	0.0002	0.0003	ND (0.00011)	ND (0.000111)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.010)
Zinc	mg/l	Monitor	0.0032	ND (0.00089)	ND (0.00089)	ND (0.000889)	0.0017	ND (0.00178)	ND (0.00178)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.020)	ND (0.02)	ND (0.020)
VOA's	ug/l	Monitor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**
Gross Alpha	pCi/l	Monitor	14.7 ± 6.68	22.6 ± 6.89	9.48 ± 6.08	18.7 ± 9.38	11.5 ± 6.49	9.67 ± 3.69	7.76 ± 3.58	10.8 ± 5.7	11.5 ± 5.3	16.8 ± 8.1	23.3 ± 9.8	22 ± 10	22 ± 12	ND (5.7)
Uranium, Total	pCi/l	3000	31.8	30.6	25.6	25.2	21.4	21.4	17.5	13.9	13.94	17.41	16.66	25.704	22.9	ND (6.8)
Uranium, Total Filtered	pCi/l	Monitor	*	*	*	*	*	*	*	*	13.06	*	*	*	*	*
Thorium - 228	pCi/l	2000	ND ((0.176)	ND (0.083)	ND (0.102)	ND (0.041)	ND (0.013)	ND (0.177)	ND (0.133)	ND (0.41)	ND (0.29)	ND (0.30)	ND (0.19)	ND (0.067)	ND (0.30)	ND (0.13)
Thorium - 230	pCi/l	1000	0.199 ± 0.077	0.148 ± 0.054	0.144 ± 0.054	0.181 ± 0.07	0.13 ± 0.059	0.161 ± 0.072	0.294 ± 0.083	ND (0.26)	0.38 ± 0.22	0.29 ± 0.19	0.22 ± 0.16	0.34 ± 0.19	0.36 ± 0.2	0.17 ± 0.13
Thorium - 232	pCi/l	250	ND (0.042)	ND (0.024)	ND (0.037)	ND (0.041)	ND (0.058)	ND (0.048)	ND (0.039)	ND (0.30)	ND (0.14)	ND (0.2)	ND (0.12)	ND (0.1)	0.11 ± 0.12	ND (0.090)
Radium - 226	pCi/l	10	0.47 ± 0.11	0.39 ± 0.09	0.42 ± 0.1	0.26 ± 0.11	0.59 ± 0.12	0.75 ± 0.12	0.63 ± 0.11	0.60 ± 0.19	0.52 ± 0.25	043 ± 0.18	0.69 ± 0.23	0.44 ± 0.16	0.42 ± 0.15	0.32 ± 0.19
Radium - 228	pCi/l	30	0.99 ± 0.5	ND (0.89)	ND (0.87)	ND (0.84)	ND (0.92)	0.97 ± 0.49	ND (0.78)	ND (0.98)	ND (0.84)	0.96 ± 0.46	ND (0.48)	ND (0.92)	0.87 ± 0.45	1.26 ± 0.45
Americium - 241	pCi/l	150	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Neptunium - 237	pCi/l	150	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Plutonium - 238	pCi/l	200	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Plutonium - 239/240	pCi/l	150	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Technetium - 99	pCi/l	6000	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Sum of the Ratios		<1.0	0.013	0.012	0.011	0.010	0.009	0.0103	0.0079	0.0072	0.0069	0.0088	0.0076	0.0106	0.0106	0.0041

ND = Not Detected
( ) = Detection Limit
* = Batch monitoring revised to Annual Monitoring by MSD
** = No longer Required by MSD
*** = collected on 5/2/05
**** = revised to 25,000 gallons per month on 9/13/04

SUMMARY OF HAULED LEACHATE TO ST. LOUIS MSD
FEBRUARY 2002 THROUGH SEPTEMBER 2007

		Batch #	L029	L030	L031	L032	L033	L034	L035	L036	L037	L038	L039
		Date Hauled	8-Dec-05	7-Mar-05	6-Jun-05	12-Sep-05	12-Dec-06	8-Mar-06	15-Jun-06	2-Oct-06	22-Jan-07	17-May-07	13-Sep-07
Parameter	Units	MSD Limit											
Leachate Volume	gallons	25,000 gal/mo Combined Total****	16,070	17,738	16,325	15,630	16,043	13,807	15,793	15,643	16,960	16,773	16,530
Purge Water Volume	gallons		0	57	151	103	37	104	55	15	86	329	47.3
COD	mg/l	Monitor	16	22	21	21	19	21	34	42	26	58	29
TSS	mg/l	Monitor	6	<1.0	6	2	4	4	13	9	1	1	7
Arsenic	mg/l	Monitor	0.002	0.0026	0.032	ND (0.001)	ND (0.002)	ND (0.002)	0.0036	0.0023	0.0028	ND (0.01)	0.0016
Barium	mg/l	Monitor	0.75	0.681	0.975	0.782	0.681	0.709	0.741	0.843	0.735	0.648	0.749
Copper	mg/l	Monitor	0.006	0.007	ND (0.001)	ND (0.001)	0.004	0.0008	ND (0.003)	0.0009	0.00097	0.0009	0.0008
Iron	mg/l	Monitor	3.25	0.078	2.45	0.319	ND (0.007)	0.399	0.278	2	0.496	0.065	0.875
Lead	mg/l	Monitor	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.002)	ND (0.005)	ND (0.0005)	ND (0.003)	ND (0.003)
Chromium	mg/l	Monitor	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.004)	ND (0.001)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.01)	ND (0.01)
Mercury	mg/l	Monitor	ND (0.0001)	ND (0.00005)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0002)	ND (0.0002)
Nickel	mg/l	Monitor	ND (0.007)	0.006	0.0067	0.005	0.006	0.0065	ND (0.008)	0.006	0.005	0.006	0.006
Selenium	mg/l	Monitor	ND (0.002)	0.002	ND (0.002)	ND (0.002)	0.002	0.0023	ND (0.003)	0.0012	ND (0.005)	ND (0.005)	ND (0.005)
Silver	mg/l	Monitor	ND (0.001)	ND (0.001)	ND (0.0026)	ND (0.0026)	ND (0.002)	ND (0.0002)	ND (0.005)	ND (0.0002)	ND (0.0002)	ND (0.01)	ND (0.01)
Zinc	mg/l	Monitor	ND (0.009)	ND (0.011)	0.0327	0.005	ND (0.007)	0.012	0.012	0.0047	0.0079	ND (0.1)	ND (0.04)
VOA's	ug/l	Monitor	**	**	**	**	**	**	**	**	**	**	**
Gross Alpha	pCi/l	Monitor	ND (3.4)	ND (6.4)	ND (5.9)	ND (3.8)	ND (2.8)	ND (2.0)	ND (3.8)	ND (7.3)	ND (5.1)	ND (5.8)	ND (3.0)
Uranium, Total	pCi/l	3000	ND (0.41)	0.68	0.286	1	1.97	0.884	1.156	2.24	2.24	1.9	1.84
Uranium, Total Filtered	pCi/l	Monitor	*	*	1.0***	*	*	0.884	*	*	2.31	*	*
Thorium - 228	pCi/l	2000	ND (0.16)	ND (0.05)	ND (0.13)	ND (0.021)	ND (0.21)	ND (0.03)	ND (0.07)	ND (0.48)	ND (0.54)	ND (0.37)	ND (0.18)
Thorium - 230	pCi/l	1000	0.25 ± 0.16	0.35 ± 0.26	0.14 ± 0.13	0.24 ± 0.15	ND (0.18)	0.5 ± 0.3	0.17 ± 0.13	ND (0.17)	0.25 ± 0.2	0.19 ± 0.26	0.4± 0.22
Thorium - 232	pCi/l	250	ND (0.024)	ND (0.00)	ND (0.002)	ND (0.018)	ND (0.001)	ND (0.001)	ND (0.06)	ND (0.14)	ND (0.17)	ND (0.31)	ND (0.12)
Radium - 226	pCi/l	10	0.58 ± 0.21	ND(0.22)	0.58 ± 0.22	0.32 ± 0.14	0.34 ± 0.16	0.41 ± 0.2	0.26 ± 0.14	0.5 ± 0.2	0.26 ± 0.15	0.41 ± 0.18	0.39 ± 0.17
Radium - 228	pCi/l	30	0.52 ± 0.6	1.23 ± 0.69	0.82 ± 0.47	1.07 ± 0.57	0.66 ± 0.41	0.93 ± 0.6	0.54 ± 0.39	0.95 ± 0.42	ND (0.59)	0.55 ± 0.29	0.51 ± 0.33
Americium - 241	pCi/l	150	**	**	**	**	**	**	**	**	**	**	**
Neptunium - 237	pCi/l	150	**	**	**	**	**	**	**	**	**	**	**
Plutonium - 238	pCi/l	200	**	**	**	**	**	**	**	**	**	**	**
Plutonium - 239/240	pCi/l	150	**	**	**	**	**	**	**	**	**	**	**
Technetium - 99	pCi/l	6000	**	**	**	**	**	**	**	**	**	**	**
Sum of the Ratios		<1.0	0.0022	0.0031	0.0026	0.0030	0.0026	0.0030	0.0021	0.0040	0.0033	0.0036	0.0030

ND = Not Detected
( ) = Detection Limit
* = Batch monitoring revised to Annual Monitoring by MSD
** = No longer Required by MSD
*** = collected on 5/2/05
**** = revised to 25,000 gallons per month on 9/13/04

Appendix E
Erosion Trip Report

Weldon Spring Prairie Site Erosion Issues
August 2, 2007 Trip Report

Following is a summary of the field meeting at the Weldon Spring prairie site on August 2, 2007, concerning erosion issues. The meeting was attended by:

- Yvonne Deyo, Stoller Site Lead, Weldon Spring Site
- Marilyn Kastens, Stoller Reclamation Specialist, Grand Junction, CO Office
- Terri Uhlmeyer, Stoller Environmental Compliance, Weldon Spring Site (attended safety meeting but not field tour)
- Ben Moore, Project Manager, Missouri Dept. of Natural Resources, Florissant, MO
- Raymond Franson, Project Manager and Reclamation Specialist, Missouri Dept. of Natural Resources, Lee's Summit, MO
- Frank Oberle, Prairie Restoration Specialist/Native Plant Grower
- Jon Wingo, DJM Ecological Services, Stoller's Prairie Maintenance Subcontractor

The 150-acre Weldon Spring prairie site was backfilled with a silty clay (USDA soil classification) subsoil material, likely of glacial till origin, from a nearby borrow pit in 2000. Approximately 80 species of native prairie forbs and grasses were seeded at the site in June 2002, January 2003, and January 2004. Limited spot-seeding was performed in 2005, 2006, and 2007. At the time of the August 2007 field tour, Frank Oberle, a prairie restoration specialist, remarked that the overall vegetation establishment on the site was excellent, considering that it had been seeded as recently as 5 years ago. Out of a possible restoration success rating of "10," Frank ranked the site as a "7." Yvonne Deyo mentioned that some people were concerned with the amount of bare ground between the plants. She said that people in Missouri were used to seeing the ground completely covered with vegetation. No vegetation monitoring has been conducted at this site; however, vegetative cover, plant density, and plant diversity have obviously increased over time.

From a soils perspective, this site contains young, undeveloped soils, which typically have low organic matter and poor soil structure[1]. The lack of organic matter and soil structure combined with the clayey texture of the soil result in very slow water infiltration rates. When precipitation events have occurred in the past, water was more likely to run off than infiltrate into the soil. Water runoff caused soil to erode because vegetation or mulch was not present in sufficient densities to anchor it in place. As revegetation of this site proceeds, organic matter will build up in the soil, soil structure will develop, and soil infiltration rates will gradually increase. Increases in vegetative cover and root mass over time also will allow more precipitation to be absorbed by plants, decreasing runoff amounts as well.

The soil erosion that has occurred at the Weldon Spring prairie site is typical of any site that recently has been backfilled and seeded. Accelerated soil erosion occurs during the first 3 to 5 years and gradually decreases as soils and the plant community develop. We toured the existing gullies in and near Areas #1, #2, #3, and #5 (see Yvonne's map). At the time of the field tour,

[1] "Soil Structure is the arrangement of soil particles into secondary units known as "peds" (or, in laymen's terms, "clods"). These secondary units are characterized and classified on the basis of size, shape, and degree of distinctness. Common soil structure shapes consist of "angular blocky," "subangular blocky," "granular," "prismatic," "columnar," and "platy."

numerous plants were establishing along the bottom and sides of all the gullies we observed, indicating a lack of recent erosion and a trend towards stabilization (Photos 1 and 2). Several plant species that prefer moist soils, such as *Carex frankii* (Frank's sedge) and *Verbena hastata* (blue vervain), were found along the gullied areas. Most of the gullies we observed, including the largest ones in Area #2, were discontinuous; i.e., they did not extend to the lowest part of the landscape (Photo 3). At the "bottom ends" of the gullies, slight, natural slope breaks occurred. Surface soil features indicated that runoff water would reach the slight slope break and spread out over the surface as "sheet flow."

Many of the gullies repaired with riprap near Area #3 were effectively controlling erosion, as the repaired areas were still in the bottom of the drainage and collecting runoff waters (Photos 4 and 5). Other repaired gullies were no longer in the lowest part of the landscape (i.e., the riprap now made these areas higher than the adjacent land surface), and runoff waters flowed in the lower, unprotected area adjacent to the riprap (Photos 6 and 7). If the original gully had been excavated more deeply and then filled with riprap to an elevation lower than the adjacent land surface, it would now be effectively conveying runoff waters. Despite this problem, we found no significant rilling or gullying occurring near Area #3.

None of the gullies presently pose a physical hazard to areas above or below their locations. If gully erosion were to increase, a few gullies potentially could headcut into the 300-foot buffer zone around the disposal cell. Given the stabilizing trend and the generally mild slopes (1-5 percent) at the site, the potential for future erosion is expected to decrease significantly. Less runoff will occur as the developing plant community and soil absorb more of the water falling or melting on the site.

Neither Marilyn Kastens nor Ray Franson, both specialists in land reclamation, thought there was a need for action[2]. Both considered the gullies a temporary erosional phenomenon typical of newly reclaimed sites. Both scientists recommended that the extent of the gullies be monitored over time, particularly the "top end" of the gullies, where headcutting could occur.

During our tour, we also visited a barren area in the northeast portion of Area #2 (Photo 8). Abundant hoof tracks, bird feathers, and deer and bird scat indicated that this area was used heavily by deer and birds. It was unknown why plants had not established here. Ray Franson theorized that it was an area of high salts. He recommended that the soil be sampled for metals, either through traditional collection of samples or through an XRF (X-ray florescence) sensor, which is a hand-held "point-and-shoot" instrument that identifies a spectra of more than 12 metals and micronutrients in soil. Yvonne thought the size of the barren area had been shrinking from year to year. Several of us thought it would be advantageous to GPS the boundary of the area for monitoring purposes.

We completed the field tour at 12:00 and reconvened in the air-conditioned Interpretive Center, where we talked about "next steps." Many ideas were voiced:

[2] Both Marilyn and Ray provided recommendations to Yvonne if erosion at Area #2 were to worsen in the future. Marilyn recommended the installation of coir logs (straw-filled tubes) along the contour of the slopes; Ray recommended the construction of a shallow pond or terrace in the lower portion of Area #2. Either "fix" would be appropriate.

- The gully locations will be mapped next week with a GPS unit. This data can be overlain on a new topographic map that is being made for the site. This information will help us monitor the extent of gullying over time.
- DOE's regulatory commitment at this site is to actively manage erosion in the 300-foot buffer zone. Nothing specifies *what* DOE must do, only that they need to do something. Active erosion is *not* occurring in the 300-foot buffer zone.
- Ben Moore thought it would be a good idea to monitor gullies with photography from GPS'd locations.
- Ray recommended that vegetation be sampled annually in transects or quads; plant density, diversity, and cover could be quantified. Annual monitoring would document and quantify progress in prairie revegetation. Ray volunteered to design a sampling scheme. The optimal time of year to conduct sampling would be late May or early June.
- Yvonne asked if we needed to reseed. Ray recommended that we not reseed; we should address the soil fertility issues first (lack of organic matter, high pH, low potassium and phosphorus). Many of us agreed with this opinion.
- Someone then suggested we experiment with different soil amendments in test plots.
- Jon suggested that we mow the prairie in the fall, run a no-till drill through the site and then add a sulfur amendment (to lower pH) in the fall and add potassium in the spring.
- Ray agreed that an organic amendment would be helpful. He suggested using a municipal sludge, processed sewage sludge, chicken waste, or a commercial product known as "Malorganite," although this last product may be more of a nitrogen amendment than an organic amendment.
- Other ideas for an organic amendment were (1) mow the site and leave the plant matter on the ground, or (2) burn more often.
- Marilyn suggested the possible use of Biosol or Menefee humate, both commercial amendments. With all these choices available, we'd almost need a graduate student to help design the test plots.
- Jon stated that the site had not been mowed since 2006 because he was trying to get enough fuel buildup to conduct a controlled burn.
- Someone stated that most of the erosion at this site occurs in January and February, when the prairie soils are frozen underneath and thawed on the surface. When it rains, the surface soil easily washes away.
- As "Next Steps," Yvonne considered implementing or planning for the following activities:
    1. Test soil amendments this fall
    2. Mow this fall
    3. Control *Sericea lespideza* before Sep. 30
    4. GPS locations of gullies next week
    5. Look at the barren area; test for metals with the XRF sensor
    6. Design a vegetation sampling scheme

Photo 1: View upslope of stabilizing gully in Area #1 (note robust vegetation in gully)

Photo 2: View downslope of stabilizing gully in Area #2. Some runoff waters are going around the straw bales, but the gully is becoming overgrown with vegetation, indicating a stabilizing trend.

Photo 3: View upslope of active rills in basin area of Area #2. These rills do not continue to the lowest elevation of the landscape.

Photo 4: View downslope of repaired gully near Area #3; note vegetation encroaching on edges of repair. This repair is effectively controlling erosion.

Photo 5: View upslope of repaired gully in Area #5; this repair is effectively controlling erosion.

Photo 6: View downslope of repaired gully near Area #3 and newer rill forming to the right of the repair; note vegetation in bottom of rill.

Photo 7: View upslope of repaired gully near Area #3 and newer rill forming to the left of the repair; note stabilizing vegetation in newer rill.

Photo 8: View SSE of barren area in NE portion of Area #2.

Appendix F
Interviews and Contacts

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 1:00** **Date: 10/5/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Barry McFarland	**Title: Regional Environmental Program Coordinator**	**Organization: Army**
Telephone No: 316-681-1759 ext. 1419 **Fax No:** **E-Mail Address:**		**Street Address: 3130 George Washington Blvd.** **City, State, Zip: Wichita, KS 67219-1598**

Summary Of Conversation

I contacted Barry McFarland of the 89th Regional Readiness Command for the Army and notified him that DOE would be conducting the Weldon Spring Site annual LTS&M inspection on October 24-26, 2007. I had explained to him two years ago that this was more of a courtesy notification and we would be conducting this inspection every year and would use this call in the future to keep in contact with the 89th and to find out if they have any concerns or issues and to check on the status of institutional controls. I told him that I had contacted Nelson Jones at the Weldon Spring Army Site and we would contact him when we arrived at the Army site. I discussed the pending institutional controls that DOE is working on with the Corps, such as the revised Memorandum of Understanding (MOU).

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 3:30 pm** **Date: 10/4/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Cynthia Green	**Title: Realty Specialist**	**Organization: Missouri Department of Conservation**
Telephone No: 573-522-4115 ext. 3263 **Fax No:** **E-Mail Address:**	**Street Address: PO Box 180** **City, State, Zip: Jefferson City, MO 65102**	

Summary Of Conversation

I contacted Cynthia Green and notified her of the Weldon Spring Site's LTS&M annual inspection on October 24-26, 2007. I reminded her that we would be contacting all of the DOE institutional control contacts each year to discuss the ICs and inquire if there are any concerns or issues. I briefly discussed the pending institutional controls that DOE is working on with the MDC, and that we had sent MDC a letter with a proposed easement and settlement offer in May 2006 and again approximately 30 days ago. I also told her that I had contacted John Vogel and Joel Porath about the inspection.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 3:15** **Date: 10/04/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Helene Diller	**Title: Administrative Asst.**	**Organization: WSCC**
Telephone No: 636-300-0037 **Fax No:** **E-Mail Address:**		**Street Address: 7295 Hwy. 94 South** **City, State, Zip: St. Charles, MO 63304**

Summary Of Conversation

I contacted Helene Diller, the administrative assistant for the Weldon Spring Citizens Commission, to officially notify her of the annual inspection to take place on October 24-26, 2007. Helene and the commission had been notified by copy of the 30-day notice letter that was sent to the EPA and MDNR on September 17, 2007.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 9:00 pm** **Date: 10/9/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Jennifer Frazier	**Title: Real Estate Manager**	**Organization: MDNR-Parks**
Telephone No: 573-751-7987 **Fax No:** **E-Mail Address:**	**Street Address: PO Box 176** **City, State, Zip: Jefferson City, MO 65102**	

Summary Of Conversation

I contacted Jennifer Frazier, MDNR-Parks and notified her of the LTS&M annual inspection at the Weldon Spring site on October 24-26, 2007. I reminded her that we would be contacting all of the DOE institutional control contacts each year to discuss the ICs and inquire if there are any concerns or issues. We discussed the pending institutional control negotiations and the meeting that MDNR-Parks will be attending with DOE on October 22 to discuss the proposed easement language, the comments that Parks has and the worker exposure issues. Jennifer stated that she would like the new Parks superintendent to accompany our inspection and I told her that part of the inspection would be on October 25. I told her that I would send her a copy of an agenda for the inspection.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 3:30 pm** **Date: 10/02/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Joel Porath	**Title: Wildlife Regional Supv.**	**Organization: August A. Busch Memorial Conservation Area, Missouri Department of Conservation**
Telephone No: 636-441-4554 **Fax No:** **E-Mail Address:**		**Street Address: 2360 Hwy D** **City, State, Zip: St. Charles, MO 63304**

Summary Of Conversation

I contacted Joel Porath and notified him of the Weldon Spring Site's LTS&M annual inspection on October 24-26, 2007. I discussed the pending institutional controls that DOE is working on with the MDC, and informed him that DOE had sent the MDC Realty Office a letter with a proposed easement and settlement offer last year and followed up last month with an additional letter, but had not received any response and that DOE would continue to follow up on this. I informed him that we would be on MDC property inspecting the Southeast Drainage, Burgermeister Spring, Spring 6303 and MW -4041. I told him that we had been keeping John Vogel informed of the inspection. Joel said that he might be able to participate in the inspection and I told him I would send him a copy of the agenda.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 3:00 pm** **Date: 10/02/07**
Type: _X_ Telephone ___ Visit ___ Other **Location of Visit: Weldon Spring Site**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: John Vogel	**Title: Area Manager**	**Organization: August A. Busch Memorial Conservation Area, Missouri Dept. of Conservation**
Telephone No: 636-300-1953 ext. 318 **Fax No:** **E-Mail Address:**		**Street Address: 2360 Hwy D** **City, State, Zip: St. Charles, MO 63304**

Summary Of Conversation

I contacted John Vogel, to notify him of the annual inspection that was going to take place on October 24-26, 2007. I had previously sent John a copy of the agenda for the inspection. He said he would not be able to participate in the inspection of the Southeast Drainage as he has a previous commitment for that day. He said that there would be a managed bow hunt going on at the Conservation Property on October 25 and 26, but it would be okay for us to conduct the inspection. I discussed the status of our pending institutional controls with MDC. I asked John if he knew of any land or groundwater use in the planned groundwater restriction area that had taken place that would affect the future institutional controls in that area and he stated that there had not been any of this activity. He informed me that the Hwy Patrol would be conducting soil borings near the old borrow area shop as they plan on constructing a communication tower in that area, but that would not affect our groundwater restriction. He said he did not have any concerns at this time.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 1:30** **Date: 10/11/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Mark Boehle	**Title: Assistant Fire Chief**	**Organization: Cottleville Fire Dept**
Telephone No: 636-447-6655 ext. 8703 **Fax No:** **E-Mail Address:**		**Street Address: PO Box 385** **City, State, Zip: Cottleville, MO 63338**

Summary Of Conversation

I contacted Mark Boehle of the Cottleville Fire Department and informed him that DOE would be conducting the Long-Term Surveillance and Maintenance annual inspection at the Weldon Spring Site on October 24-26, 2007. I told him that as we discussed last year, DOE would be conducting this inspection every year and would use this call in the future to keep in contact with the Cottleville Fire Department and to find out if they have any concerns or issues. He asked about the status of the site and I discussed our current status and what has been going on at the site. I told him Lindenwood was occupying the majority of the building and that other agencies or organizations may be moving in. He said he would talk to his fire chief about possibly visiting the site

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 1:40** **Date: 10/02/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Mike Duvall	**Title: Director, Env. Services**	**Organization: St. Charles County**
Telephone No: 636-949-7583 **Fax No:** **E-Mail Address:**		**Street Address: 201 North Second Street, Suite 537** **City, State, Zip: St. Charles, MO 63301**

Summary Of Conversation

I contacted Mike Duvall, Director of Environmental Services for St. Charles County to notify him of the annual inspection that was going to take place on October 24-26, 2007. Mr. Duvall stated that he would like to attend a portion of the inspection and I told him I would send him an agenda. I asked Mr. Duvall if he had any concerns or issued with the site and he said he did not and that St. Charles County would like to continue their involvement with the site.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 10:00** **Date: 10/5/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Nelson Jones	**Title: Facility Manager**	**Organization: Army**
Telephone No: 636-329-1200 x255 **Fax No:** **E-Mail Address:**	**Street Address: 7301 Hwy. 94 South** **City, State, Zip: St. Charles, MO 63304**	

Summary Of Conversation

I contacted Nelson Jones of the 89th Regional Readiness Command at the Weldon Spring Army site and notified him that DOE would be conducting the annual LTS&M inspection at the Weldon Spring Site on October 24-26. I reminded Mr. Jones, that as I had discussed with him last year, DOE conducts an annual Long-Term Surveillance and Maintenance inspection each year and as part of the inspection we contact certain stakeholders to maintain contact with them and to determine if they had any concerns or issues about the site. I told him we would be driving around on the Army site and inspecting our wells and survey monuments and pins. He said we should check in at the gate and he would put us on their calendar. I asked if there was anything going on at the Army during that time that would preclude our inspection and he said there was not. I also asked him if the Army planned to do any road construction or changes or any other construction in the area. He said that there were still plans to build a Naval Reserve Building and that the building had been staked, but construction had not yet been started.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 9:45 am** **Date: 10/9/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Wayne Anthony	**Title:**	**Organization: St. Charles Planning and Zoning Department**
Telephone No: 636-949-7900 x7221 **Fax No:** **E-Mail Address:**	**Street Address:** **City, State, Zip:**	

Summary Of Conversation

I contacted Wayne Anthony of the St. Charles Planning and Zoning Department on October 9, 2007. Mr. Anthony had been the project's previous contact in this department in regards to the county's master plan. I informed Mr. Anthony that DOE would be conducting their annual LTS&M inspection on October 24-26 and I asked him if there were any planning and zoning activities currently in the one-quarter mile surrounding the chemical plant and quarry properties. Mr. Anthony said he was pretty sure there were not, but he would check and get back to be. He contacted me the next morning and verified that there were not any such activities in this area at this time.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**	
Subject: Annual Inspection		**Time: 10:00**	**Date: 10/08/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing	
Contact Made By:			
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**	
Individual Contacted:			
Name: Randy Carter	**Title: Principal**	**Organization: Francis Howell High School**	
Telephone No: 636-851-4080 x4745 **Fax No:** **E-Mail Address:**		**Street Address: 7001 Hwy 94 South** **City, State, Zip: St. Charles, MO 63304**	

Summary Of Conversation

I contacted Randy Carter, the assistant principal of Francis Howell High School, as Chris Griener the main principal was out for a couple weeks, and explained that DOE would be conducting an annual Long-Term Surveillance and Maintenance inspection each year and as part of the inspection we contact certain stakeholders, such as the Francis Howell High School to maintain contact with them and to determine if they had any concerns or issues about the site. I informed Mr. Carter that this year our inspection would be October 24-26. He stated that they did not have any concerns at this time. I informed him that we did have a few high school students using our parking lot during school hours and that sometimes when they leave the parking lot they speed excessively. Mr. Carter stated that they did not really have any control over these students, but if we did find out the names of the students they may able to do something. I told him we might put warning notices on their vehicles if we identified which one was speeding. I discussed our educational programs with Mr. Greiner and told him we had many field trips and tours from schools at the site. I gave him my phone number and told him to call me with any concerns or questions he might have. I also informed him about our interpretive center and that he could come over any time to tour it. I emailed Mr. Carter a copy of the Interpretive Center brochure with the educational programs offered at his request.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 3:00 pm** **Date: 10/19/07**
Type: __ Telephone __x__ Visit ___ Other **Location of Visit:** Weldon Spring Site		__ Incoming __ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Randy Thompson	**Title: Data Manager**	**Organization: SM Stoller, Corp.**
Telephone No: 636-926-7040 **Fax No: 636-447-0803** **E-Mail Address: randy.thompson@gjo.doe.gov**	**Street Address: Weldon Spring Site** **City, State, Zip:**	

Summary Of Conversation

I interviewed Randy Thompson, Data Manager at the Weldon Spring Site. The interviewing of the data manager is a requirement included in the Annual Inspection Checklist.

1. **What is the current status of data validation/reporting?** Data validation and review is completed for data through June 2007. The data validation and review is being worked for samples collected during July through September 2007. The 2007 reports are in various stages of the review process.
2. **How is the data reported?** After data validation and review, the qualification flags are applied and the data is then available on the LM/Weldon Spring website the next day. We continue to prepare data validation reports and the yearly data are summarized in the annual environmental report.
3. **What is the current status of the data on the website? Are we meeting our 90-day commitment as stated in the LTSM?** Yes, we are meeting our 90-day commitment. The data are reviewed and validated through June 2007 and are available online. The July through September 2007 data is being validated and will be released shortly.
4. **Are there any trends that show contaminants increasing or decreasing?** Trend analysis is performed and summarized for the Annual Site Environmental Report.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 1:45 pm** **Date: 10/11/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Rick Pavia	**Title: Project Manager**	**Organization: Francis Howell School District**
Telephone No: 636-851-6172 **Fax No:** **E-Mail Address:**		**Street Address: 7055 Hwy 94 South** **City, State, Zip: St. Charles, MO 63304**

Summary Of Conversation

I contacted Rick Pavia of the Francis Howell School District. I noted that I had contacted Mr. Pavia the last two years and explained that DOE would be conducting an annual Long-Term Surveillance and Maintenance inspection at the Weldon Spring Site each year and as part of the inspection we would be contacting certain stakeholders, such as the school district to maintain contact with them and to determine if they had any concerns or issues about the site. I informed Mr. Pavia that this year's inspection would be October 24-26, 2007. Mr. Pavia stated that he did not have any concerns or issues at this time and I told him to call me with any concerns or questions he might have.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.:MO6210022830**
Subject: Annual Inspection		**Time: 10:30** **Date: 10/8/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Charlotte	**Title:**	**Organization: Simplex/Grinnell**
Telephone No: 888-746-7539 **Fax No:** **E-Mail Address: csdataentry@tycoint.com**	**Street Address:** **City, State, Zip:**	

Summary Of Conversation

I contacted Simplex/Grinnell, the alarm company for the project, and talked to Charlotte. I verified that they had the correct three people as contacts and that they also had the correct work, home and cell number for each person.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 9:30** **Date: 10/9/07**
Type: _x_ Telephone ___ Visit ___ Other **Location of Visit:**		__ Incoming _x_ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: SM Stoller, Corp.**
Individual Contacted:		
Name: Jim Hudson	**Title: Captain**	**Organization: St. Charles County Sheriff Office**
Telephone No: 636-949-7325 **Fax No: 636-949-7525** **E-Mail Address:**	**Street Address:** **City, State, Zip:**	

Summary Of Conversation

I contacted Captain Jim Hudson of the St. Charles County Sheriff's Office and informed him that the annual LTS&M inspection would be taking place on October 24-26, 2007. I had talked to Captain Hudson the last couple years and reminded him that we would be contacting the Sheriff's office annually to keep in contact with them and check to see if they had any issues or concerns. Captain Hudson said he did not know of any concerns at this time. I informed him that we had vandalism issues this year with fireworks and other items on the disposal cell. I told him we had installed the signs that said the cell was closed at night and that we had installed a new security camera system which should help with the vandalism issues.

INTERVIEW RECORD

Site Name: Weldon Spring Site		**EPA ID No.: MO6210022830**
Subject: Annual Inspection		**Time: 11:30** **Date: 10/18/07**
Type: __ Telephone __x__ Visit ___ Other **Location of Visit: Interpretive Center**		__ Incoming __ Outgoing
Contact Made By:		
Name: Terri Uhlmeyer	**Title: Compliance Manager**	**Organization: S.M. Stoller, Corp.**
Individual Contacted:		
Name: Yvonne Deyo	**Title: Project Manager**	**Organization: S.M. Stoller, Corp.**
Telephone No: 636-300-0012 **Fax No: 636-300-0068** **E-Mail Address: yvonne.deyo@gjo.doe.gov**		**Street Address: 7295 Hwy. 94 South** **City, State, Zip: St. Charles, MO 63304**

Summary Of Conversation

I interviewed Yvonne Deyo, the S.M. Stoller Project Manager at the Weldon Spring Site. The interviewing of the Project Manager is a requirement included in the Annual Inspection Checklist. Most of the interview questions were from the CERCLA Five-year Review Guidance.

1. **Current Status of the Project:** Long-term surveillance and maintenance.
2. **Any problems encountered with the remedies?** None at this time.
3. **Are the remedies functioning as expected?** Yes.
4. **Any vandalism or trespassing issues?** Although the site is completely publicly accessible, signs are clearly posted at the disposal cell that the viewing platform is open during daylight hours only. Increasing evidence of nighttime access of the viewing platform has been noted. Public use of the site continues to rise and littering occurs at various locations including at the top of the disposal cell. At times, this littering has been relatively extensive and has required regular removal by site personnel. Minor moving of the rocks on top of the disposal cell is also continuing. Currently, site personnel move rocks back to their original position approximately once per year as part of site maintenance activities. On two occasions, drug paraphernalia was found on the cell viewing platform. Law enforcement personnel were contacted to confiscate the items. No other vandalism has occurred. An upgraded security system was installed to allow more extensive monitoring of site activities after normal business hours.
5. **What is the current on-site presence? Describe staff and activities.** There are 8 full-time contractor employees and 10 part-time contractor and subcontractor employees. Activities include long-term surveillance and maintenance operations, project management, data evaluation, operation of the interpretive center, preparation of site-related regulatory documents, support in development of institutional controls, and general administrative support. On-site staff also provide support on other DOE sites such as Mound, Fernald, and Pinellas and to other projects such as Reuse and Property Management.
6. **Are there any issues associated with the site at this time?** The high degree of public use has resulted in littering and nighttime access of the disposal cell viewing platform. Although none of these activities are considered to be serious in nature, the site has taken a proactive approach to discouraging this type of behavior through the installation of an upgraded security system.
7. **Any suggestions or comments regarding annual inspection?** None