

MONTICELLO NPL SITES

Minutes and Action Items of the Federal Facilities Agreement Meeting September 16 and 17, 2008

Meeting Location

U.S. Department of Energy Site Office, Monticello, Utah

Meeting Attendees

Jalena Dayvault – U.S. Department of Energy

Tim Bartlett – S. M. Stoller

Todd Moon – S. M. Stoller

Linda Sheader – S. M. Stoller

Paul Wetherstein – S. M. Stoller

Brent Everett – Utah Department of Environmental Quality

Duane Mortensen – Utah Department of Environmental Quality

Paul Mushovic – U.S. Environmental Protection Agency

Rob Stites – U.S. Environmental Protection Agency (participated by phone)

Christina Wilson – U.S. Environmental Protection Agency (participated by phone)

Meeting topics and discussion points are summarized under the headings listed below. The agenda and copies of handouts presented during the meeting are attached to this report.

The meeting focused on reviewing the status of various documents and the status of various actions that are planned, ongoing, or have occurred since the last FFA meeting (March 2008). This report, in conjunction with the Monticello NPL Sites FFA Quarterly Report, fulfills the FFA quarterly reporting requirements for the Monticello NPL sites for the period of July through September 2008.

The meeting convened at the DOE Monticello office at 1:00 p.m. and adjourned at approximately 5:00 p.m., Tuesday, September 16, 2008. The meeting reconvened at 8:00 a.m., Wednesday, September 17, 2008, for approximately one hour to continue discussions from the previous day and to organize teams, assign responsibilities, and conduct a safety meeting in preparation for the annual site inspection, which took place during the remainder of Wednesday.

Document Status

1. LTSM Plan

- All parties agreed that LTSM Plan Section 2.1 Organizational Resources and Contact Information needs to be revised to update the identity and contact information for EPA, UDEQ, DOE, and Stoller resources that currently, or will soon, support the Monticello NPL Sites. It was also recommended that similar revisions be made to the Site Management Plan (SMP) as applicable.

2. SMP

- EPA's position is that, per the FFA, the SMP is a primary document because it replaced another primary document (the Remedial Design/Remedial Action [RD/RA] work plan).

DOE questioned this position but would further research the document status to resolve the matter.

- EPA stated that the current draft revisions to the FY 2008 update of SMP Section 5.0 Project Schedules and Milestones (FY 2009–2011) are unacceptable because EPA's review comments were not satisfactorily incorporated. DOE stated that EPA's review comments were considered. DOE indicated that comments were not accurately reflective of current site status due to fundamental disagreements about the ESD which will outline OU III objectives through the next 5-year review, which would be addressed by DOE, EPA and UDEQ management.
 - EPA stated that the PRB decommissioning schedule should be included in the FY2008 update of the SMP. DOE agreed the SMP eventually would document the PRB decommissioning schedule. However, because the details of the Explanation of Significant Difference (which the Ground Water Compliance Strategy (GWCS) is dependent on) are still undecided, it is DOE's position that documenting the PRB decommissioning schedule is inappropriate and premature at this time. EPA did not concur with this statement. DOE stated it will address the PRB decommissioning in a new RD/RA work plan and obtain EPA/UDEQ concurrence, as agreed upon at the March 2008 FFA meeting.
3. OU III Annual Ground Water Report
 - The OU III Annual Ground Water Report is in final production and will be issued by September 30, 2008.
 4. Annual Repository Cover Vegetation Monitoring Report
 - Stoller stated that the Annual Repository Cover Vegetation Monitoring Report is on schedule to be completed by December 31, 2008.
 5. Bird Survey Report
 - Stoller stated the draft results of the bird surveys conducted on the MMTS during FY 2008 will be available in October 2008. EPA stated it would prefer to see the bird survey report along with other biomonitoring data (see related attachments) in the Biomonitoring Report for 2008 by the end of December 2008.
 6. Biomonitoring Report for 2008
 - All parties agreed the Biomonitoring Report for 2008 is due for completion at the end of December 2008. The report will be forwarded to the Biological Technical Assistance Group (BTAG) in January 2009, and the biomonitoring results will be discussed further with the BTAG at the next FFA meeting in March 2009.
 7. Repository Temporary Features
 - DOE and EPA agreed that repository temporary features need to be documented, such as the lysimeter, raptor poles, and others. It was agreed the update will consist of creating a map and filing it in the Information Repository (IR).

8. Annual Site Inspection Report

- EPA requested that EPA and UDEQ review the draft FY 2008 report, with the review to occur by early December and the final report to be complete by the end of December. DOE agreed to this review request and schedule. However, DOE clarified that the inspection report will contain only facts about site conditions that DOE is responsible for in accordance with the LTSM.
- EPA's position is that the Annual Site Inspection Report is a secondary document, regulatory review is required, per the FFA. DOE disagrees with this position. This matter was not resolved.

9. Information Repository/Administrative Record (IR/AR)

- Stoller has compiled the necessary documents to do the semi-annual update of the IR, which is scheduled to occur in November 2008. Stoller recommended that the IR updates be changed from semi-annual to annual after current OU III issues are resolved. DOE agreed the frequency of updates should be dependent on activity.
- The IR/AR at DOE's Grand Junction CO office was relocated from the technical library to Building 938, Room 247. EPA requested that this move be documented.
- Plans were announced to scan the OU III AR and make it available online. The necessity of retaining two AR copies after scanning is complete was discussed. EPA recommended delaying a decision on this matter until updates to the AR related to the ground water remedy are complete.

Community Actions

- DOE indicated that they and ATSDR have responded to letters received from Monticello citizens. There is no further activity to document.

Property Certification Letters

- Letters certifying that soil contamination had been remediated in accordance with the selected remedy at properties transferred from DOE to the City of Monticello were sent to the City on May 7, 2008. EPA stated that DOE must submit additional certification letters for these properties to the City when water quality cleanup standards are achieved.

Institutional Controls (ICs)

- ICs regarding land use, ground water use, and well drilling have remained in place and effective. No well permits were issued for or drilling occurred in the OU III restrictive easement area. There were no changes in land ownership in IC areas.

City Streets and Utilities

- City streets and utility upgrades, which have been ongoing during FY2008, will likely continue for the next five years. Gas line upgrades will recommence during fall 2008.
- Stoller expects to encounter radioactive material mixed with petroleum products (e.g., gasoline) at some point during city streets and utility upgrades. DOE described its plans to store and aerate such materials in a segregated radioactive materials area at DOE's Monticello office before disposal at DOE's Grand Junction Disposal Site (GJDS).

Temporary Storage Facility (TSF)

- DOE reported that the TSF is currently storing approximately 85 cubic yards of radioactive material. Shipments to dispose of this material at the GJDS are scheduled to occur before the end of September 2008. EPA indicated that the Monticello LTSM Plan requires DOE to make a courtesy call to the Utah Division of Radiation Control (UDRC) about any shipments of radioactive material from DOE's Monticello office to the GJDS. DOE agreed that the UDRC would receive a call informing them of the shipment.

Repository Cover

- Stoller summarized the performance of the repository vegetative cover based on the results of the FY 2008 cover monitoring, which was performed in August 2008. Vegetative cover performance was measured against repository cover design success criteria established by DOE, with EPA and UDEQ concurrence, as a requirement to gauge sub-contractor performance. Stoller provided graphs that illustrate performance versus various aspects of success criteria (see related attachments). The most notable area of success is the variety of desirable grass and forb species established; the area of least success is shrub density. Of particular note was the lack of success for the fall 2007 shrub planting with excess of 90% mortality rate, which was partly attributed to the severe 2007/2008 winter and planting error. DOE and Stoller acknowledged there is room for improvement in determining vegetation success criteria. It was also noted that since 2000, the vegetative success criteria have not been met
- EPA stated that DOE must have a long-term monitoring program for the cover performance (see attached). DOE stated it would not commit to additional long-term monitoring of the repository cover until further review of the issue. This matter was not resolved.
- EPA recommended that monitoring of forbs in Zone A2 will continue in 2009 is significant and should be assessed next year. DOE agreed to do this.

Biomonitoring

- As previously stated, the results of biomonitoring during FY 2008, including bird surveys, will be reported in the Biomonitoring Report for 2008, which will be shared with the BTAG. Based on the FY 2008 biomonitoring results, DOE, EPA, and the BTAG will confer at the next FFA meeting in March 2009 to determine whether future biomonitoring is justified and the scope of any such biomonitoring.
- DOE indicated that the sediment pond may no longer be a biological pathway for contaminants. This determination was made as a result of the lack of macroinvertebrates found in the sediment pond Hester-Dendies.

Permeable Reactive Barrier (PRB) and Ex-situ Treatment System

- DOE stated removal of the PRB would likely occur in 2010. EPA stated that DOE must not remove the PRB until DOE, EPA, and UDEQ concur on the RD/RA for the removal. DOE refused to discuss this matter further because the OU III ESD had been elevated to higher level DOE and EPA staff for resolution. EPA (Rob Stites) agreed that further

discussion of this topic at the FFA meeting would not be productive, at which point the meeting proceeded to a different topic.

Water Quality Monitoring

- Stoller described the current extent of surface water and ground water contamination with the aid of maps and graphs (see related attachments). Many site COCs are decreasing. Uranium remains the primary COC. The progress of water quality restoration with respect to uranium was discussed using concentration vs. time graphs. Stoller indicated that the current rate of uranium cleanup continues to be less than predicted by the site ground water model and will not meet the performance criteria in the ROD. Some areas of the aquifer are showing good progress for uranium cleanup; R1 and R2 are showing decreasing uranium concentrations. There was additional discussion regarding the uranium concentration trends and it was postulated that concentrations may be asymptotic in several regions of the alluvial aquifer.
- Stoller discussed the status of the ex situ treatment system. Plumbing problems currently limit the treatment rate to about 5 gpm. Major repairs are scheduled for early November 2008 to bring the system to a maximum treatment capacity of about 13 gpm, of which a maximum of 10 gpm can be discharged to Montezuma Creek in accordance with discharge allowances set by the Utah Division of Water Quality during spring 2008. The treatment system is meeting pH and iron discharge allowances. DOE expressed a desire to increase the 10 gpm discharge allowance, suggesting they may consider applying to UDEQ for an increase in this allowance and consider discharging excess effluent to the infiltration trench.
- Stoller informed EPA and UDEQ that water samples collected during the April 2008 semiannual monitoring event were not filtered prior to laboratory analysis, which is contrary to protocol established in the MMTS OU III Post-ROD Monitoring Plan (2004). DOE and Stoller indicated that the OU III plan will be followed in future.
- DOE must submit proof of beneficial use for the ground water used from DOE monitoring well number 83-70 as a procedural matter associated with DOE's water right (Utah Division of Water Rights). DOE will interface with Mr. Kedric Somerville, the land owner that uses ground water from the well, to complete the required documentation.
- EPA noted that Mr. L. Adams is diverting water from Montezuma Creek for agricultural purposes. This indicates a change in anticipated use and may also be a violation of water rights. Additionally discussed was the possibility of changing one of the Montezuma Creek sampling stations to this diversion point, to be discussed again at the next FFA meeting.

Site Inspection Items

- Stoller described the general LTSM activities and site conditions for FY 2008, including normal operating conditions for the leachate collection and recovery systems and leak detection systems at the disposal cell and Pond 4. The most noteworthy site condition of concern is extensive fence damage and erosion that has occurred along a significant section of the southern property boundary in the vicinity of perimeter signs P27 through P29. The damage is attributed to severe snowfall and drifting during the 2007/2008 winter

and subsequent intrusion by cattle from adjacent properties. This area will be thoroughly inspected during the annual site inspection to assess damage and evaluate necessary repairs. Note: Arrangements to repair and re-contour the fence have already been scheduled to occur during the week of October 13, 2008.

- EPA suggested that Sediment Ponds A through C should be considered for decommissioning. They have become unnecessary and overgrown with vegetation, and rarely, if ever, collect any sediment. DOE and UDEQ were amenable to this suggestion and agreed it should be further evaluated.

Action Items

- 1) DOE and EPA to review status of LTSM plan, SMP and RD/RA workplans to determine if they are primary documents, per the FFA.
- 2) DOE to review status of Annual Inspection Reports to determine if they are secondary documents requiring review of regulatory agencies.
- 3) DOE will create repository map to identify new features, i.e., tipping buckets, TDR stations and remote facilities, raptor poles, etc for insertion to the IR.
- 4) DOE plans to document the location change for the IR/AR and inform the public of the change.
- 5) DOE, EPA and UDEQ to review vegetative success and repository cover performance criteria.
- 6) UDEQ to review the requirements for recertification/decommissioning of the Sediment Ponds. UDEQ to provide an update of findings at spring 2009 FFA meeting.
- 7) UDEQ to inquire with the Division of Water Rights to determine if Mr. Adam's Montezuma Creek diversion is an approved use. UDEQ to complete inquiry no later than 1/30/09.

**MONTICELLO NPL SITES
FFA MEETING AGENDA and DOE ANNUAL INSPECTION SCHEDULE
SEPTEMBER 16 - 18, 2008
MONTICELLO, UTAH**

I. FFA MEETING, Tuesday, 9/16/08, 1:00 pm to 5:00 pm

Document Status

DOE LTSM Plan: Revision 0 distributed June 20, 2007. Recipients: DOE, UDEQ, DOE, Stoller management, Stoller on-site LM representatives, information repositories, UDOT Monticello station, City of Monticello. No major errors or omissions noted to date.

Site Management Plan update of Section 5.0 for FYs 2009, 2010, and 2011: draft submitted to EPA and UDEQ by 9/1/08, final due to EPA and UDEQ 9/30/08 (resolve EPA and UDEQ review comments following the site inspection). Milestone deliverables specified in the SMP for those years are the annual site inspection reports and the SMP Section 5 updates.

FY 2008 OU III Annual Ground Water Report: on schedule for 9/30/08 target submittal to EPA and UDEQ, no regulatory review.

Annual Cover Vegetation Monitoring Report: fieldwork completed week of 8/18/08; on schedule for 12/31/08 target submittal date. Vegetation monitoring scope will be reevaluated after FY 2009 monitoring/reporting.

FY 2008 Annual Site Inspection Report: fieldwork to be completed week of 9/15/08. Target submittal date to EPA and UDEQ is 12/31/08, no regulatory review.

FY 2007 Biomonitoring Report: submitted to BTAG in February 2008.

FY 2008 Biomonitoring Report: Winter 2008 target date.

Community Actions

Review status of VMTE activity, citizen letters of petition to federal agencies and congressionals, news releases, information requests.

Certification Letters for City Properties

Letters were sent to the City of Monticello on May 7, 2008, to formally certify that remediation of properties transferred to the City from DOE was completed in accordance with the selected remedy. The letters were not submitted earlier pending resolution of post-remediation site restoration issues.

Institutional Controls/Land Use Issues

No outstanding issues; ICs remain effective.

City Streets and Utilities

Scope and schedule of utility upgrades by City and UDOT repaving. Additional information will be provided by on site staff during the site inspection (September 17, 2008).

Mixed waste management strategy.

TSF

Nearing capacity with radiologically contaminated soil.

Status of procurement to haul material to Cheney. Additional information will be provided by on site staff during the site inspection.

Repository Cover

Review FY 2008 monitoring results as presented by L. Sheader. Review future scope of vegetation monitoring.

Status of shrubs planted in fall 2007.

Vole status.

Winter grazing status.

Status of repository as-builts to include ACAP components and locations of backfilled test pits from the soil development study conducted on the cover in July 2007.

Biomonitoring

Review biomonitoring data and scope—refer to time series plots and location maps. The field and laboratory scope for FY 08 biomonitoring has been completed: a bird survey in spring-summer 2008 with emphasis on presence/absence of threatened or endangered species, aquatic insect sampling in spring 2008, and wetland and pond sediment and surface water sampling in spring 2008.

Biomonitoring outlook: FY 2008 report in progress for BTAG review in winter 2008 and subsequent concurrence on future scope (no further scope is currently identified).

PRB & Ex Situ Treatment System

Review status of ground water treatment systems—flow rates, effluent quality, effluent disposition. Media exchange tentatively planned for fall/winter 2008.

Review discharge allowances to Montezuma Creek.

Water Quality Monitoring

Well 83-70 water right.

Review ground water and surface water monitoring data and scope—refer to OU III contaminant time series plots and contaminant distribution maps.

Review ground water restoration progress by ROD-specified comparison to model forecasts per aquifer region—refer to summary graphs.

Ground water and surface water sampling protocol: filtered v. unfiltered samples.

II. ANNUAL SITE INSPECTION

Wednesday 9/17/08, 8:00 a.m. – 6 p.m.

8:00 a.m.: Meet at field office.

Pre-entry site briefing by Todd Moon, Site Safety Supervisor.

Summary of LTS&M activities and general site conditions by Todd Moon, LTS&M Site Supervisor:

TSF/city streets and utilities; LCRS & LDS operational summary; landowner/City concerns; site conditions (erosion, vandalism, vegetation damage, land use violations, etc).

Summary of IR/AR by Linda Sheader, curator of on-site IR/AR documents.

9:00 a.m. – 6:00 p.m.: Field Inspections

Organize into two inspection teams and select team leads. Distribute inspection checklists and maps and review scope and objectives.

Team 1 inspection items:

- Administrative Documents (coordinate with Linda Sheader; several checklist items in this category may be done in advance or following the field inspection; MMTS and MVP checklists item V)
- Repository, Pond 4, and TSF (MMTS checklist item VI)
- City-owned properties transferred from DOE (supplemental standards properties and former millsite) and property MP-0021-VL (MMTS checklist item VIII)

Team 2 inspection items:

- City Streets and Utilities (coordinate with Todd Moon; MVP inspection item VI)
- UDOT Rights of Way (MVP inspection item VI)
- Property MS-00176-VL (MVP inspection item VI)
- Soil and Sediment Properties (properties are within the Ground Water Restricted Area; MMTS checklist item VIII)

- Monitoring Wells and Water Treatment System (most wells and the water treatment systems are within the Ground Water Management Area; MMTS checklist item X)
- Ground Water Management Area (rendezvous with Team 1 on former millsite in completing the inspection of the GWMA; MMTS checklist item IX)

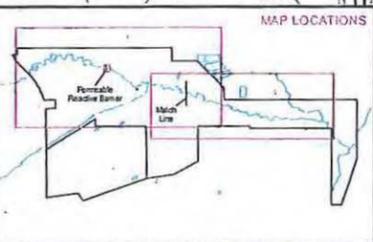
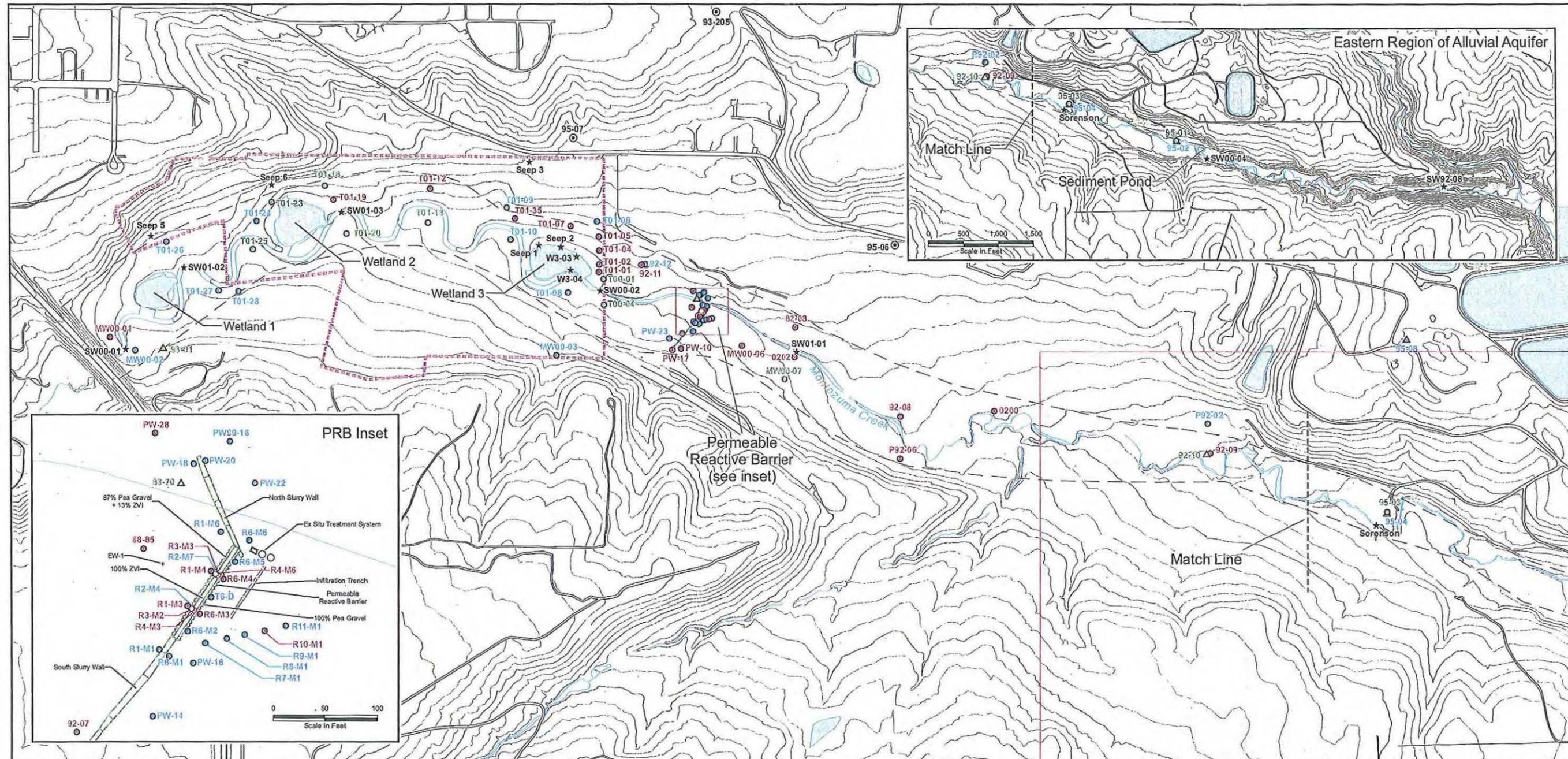
III. MEETING AND INSPECTION SUMMARY

Thursday 9/18/08, 8:00 a.m. – 11:00 a.m. (firm)

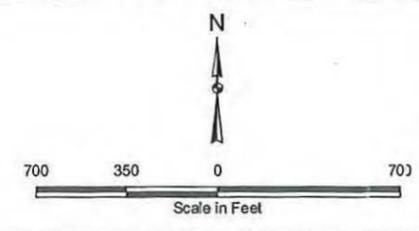
Meet at field office or other predetermined location to discuss remaining field inspection items to be completed.

Complete field inspections and meet at field office to:

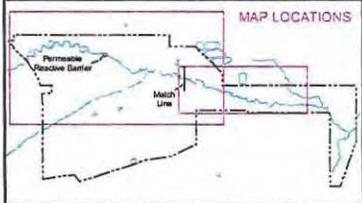
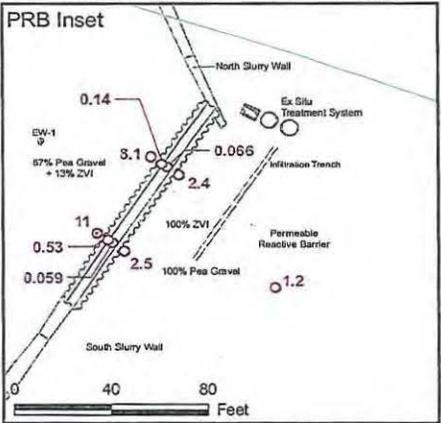
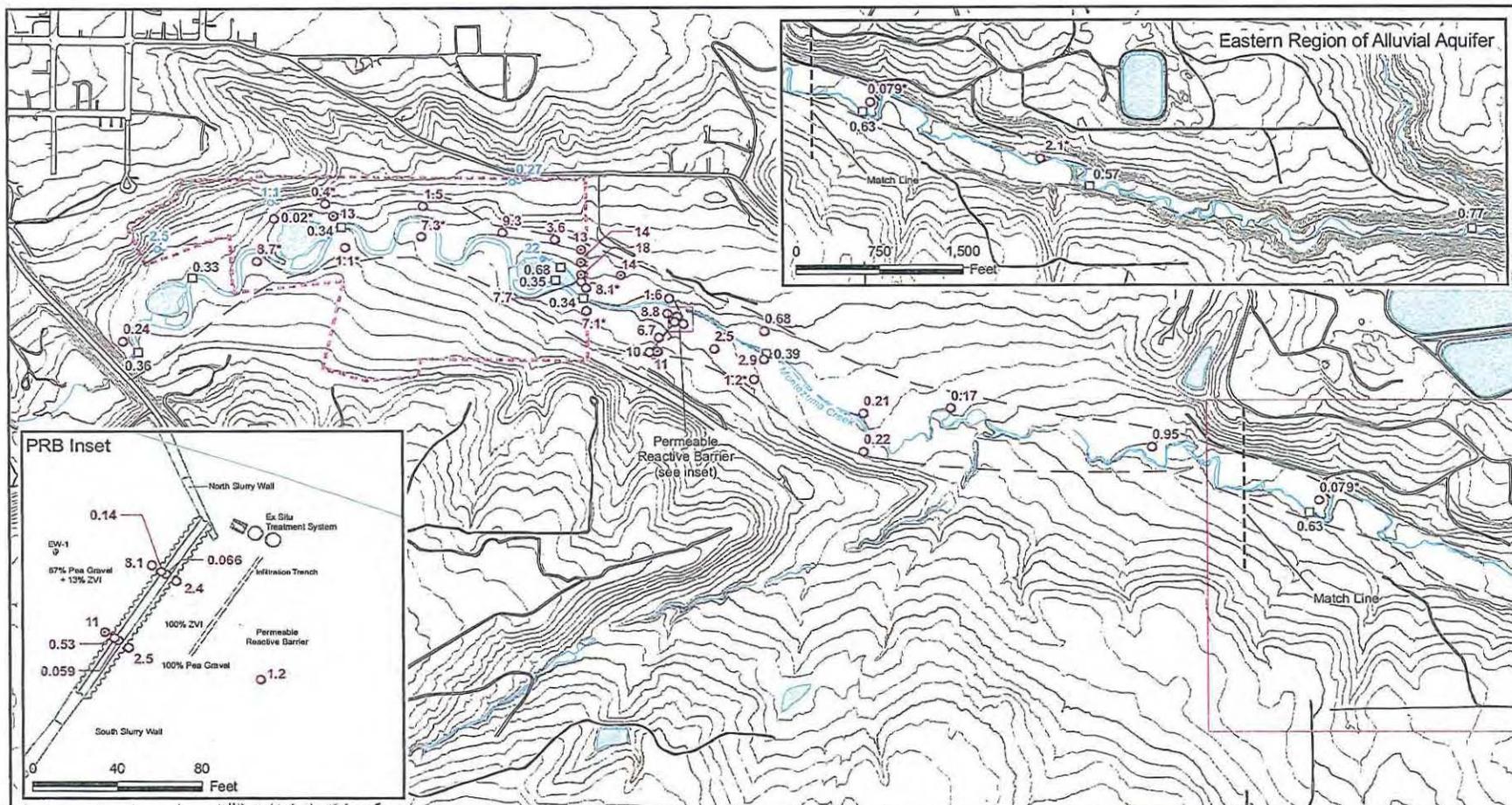
- Review and compile inspection findings.
- Determine inspection follow-up actions.
- Review and summarize FFA achievements, issues, and action items.
- Resolve EPA and UDEQ comments to finalize SMP update.



- ★ Surface Water Chemistry Location
- ⊙ 5-Year Sampling Frequency - Starting October 2006
- Water Level Only - October 2007 and April 2008
- ⊙ Alluvial Aquifer Monitor Well
- ⊙ Dakota Sandstone Monitor Well
- ⊙ Burro Canyon Sandstone Aquifer Monitor Well
- ⊙ PRB Reactive Media Monitor Well
- Alluvial Aquifer Monitor Well
- ⊙ Dakota Sandstone Monitor Well
- △ Burro Canyon Sandstone Aquifer Monitor Well
- Analyte Sampling - October 2007 and April 2008
- Analyte Sampling - October 2007
- Approximate Extent of Alluvial Aquifer
- Road
- Former Millsite
- Stream
- Pond
- Topographic Contour (10' Interval)
- Topographic Contour (50' Interval)

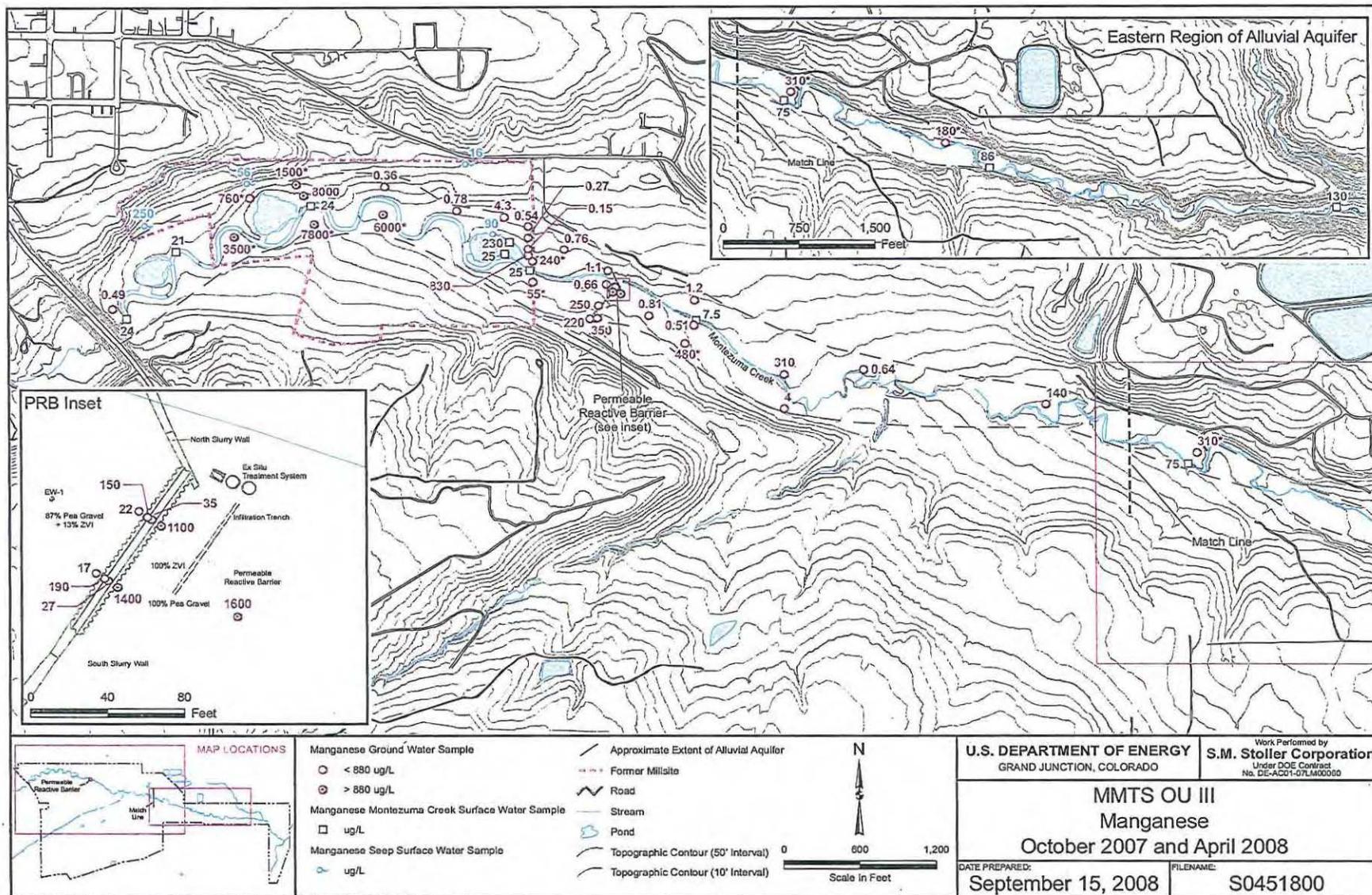


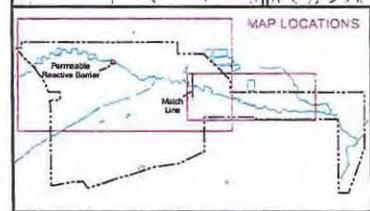
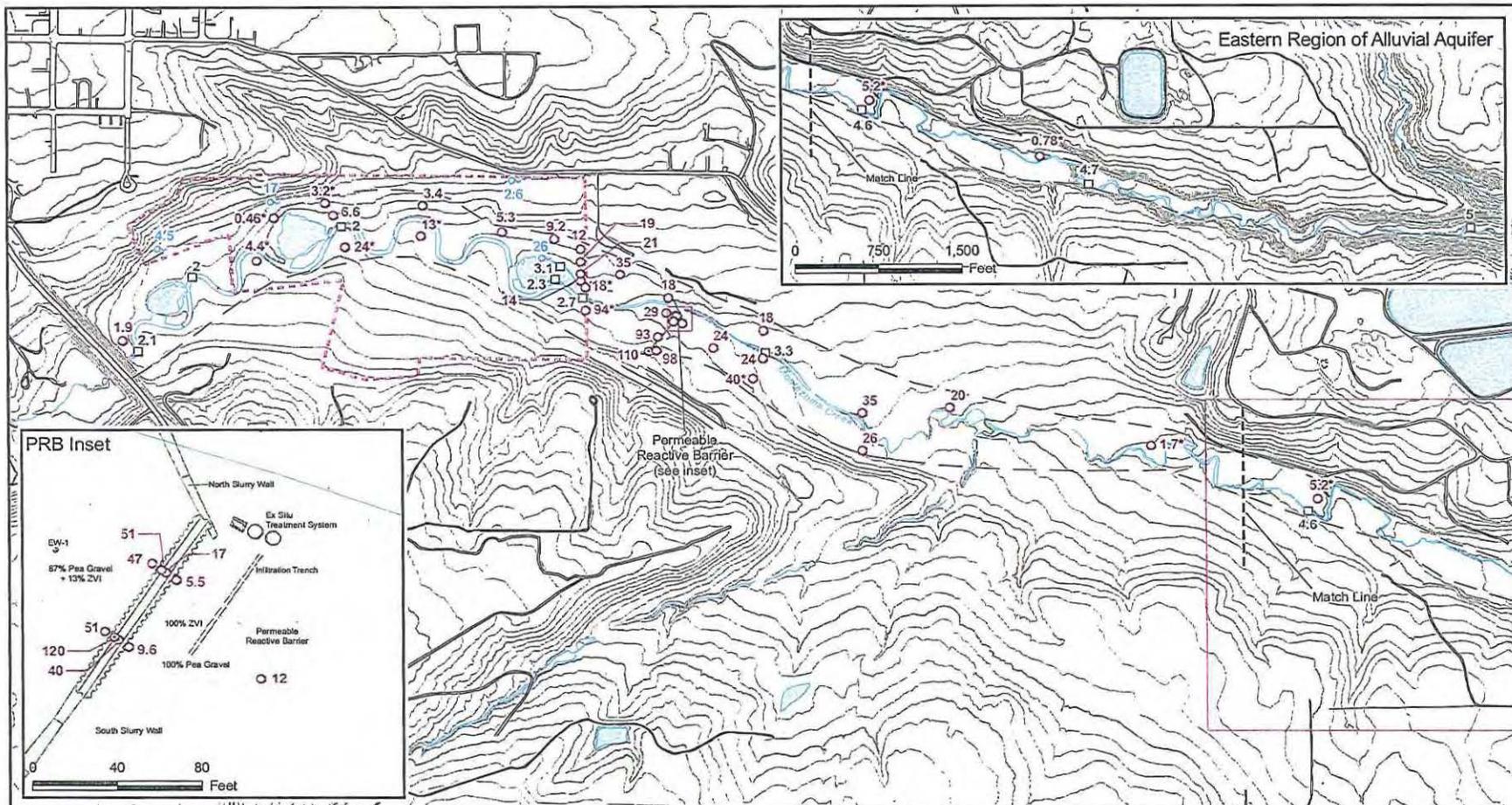
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-07LM00060
MMTS OU III Surface Water and Ground Water Monitoring Locations October 2007 and April 2008	
DATE PREPARED: September 15, 2008	FILENAME: S0451600



<p>Arsenic Ground Water Sample</p> <p>○ < 10 ug/L ⊙ > 10 ug/L</p> <p>Arsenic Montezuma Creek Surface Water Sample</p> <p>□ < 10 ug/L ⊠ > 10 ug/L</p> <p>Arsenic Soap Surface Water Sample</p> <p>◇ < 10 ug/L ⊡ > 10 ug/L</p>	<p>— Approximate Extent of Alluvial Aquifer</p> <p>- - - Former Millsite</p> <p>— Road</p> <p>— Stream</p> <p>— Pond</p> <p>— Topographic Contour (50' Interval)</p> <p>— Topographic Contour (10' Interval)</p>	<p>N</p> <p>0 600 1,200</p> <p>Scale in Feet</p>
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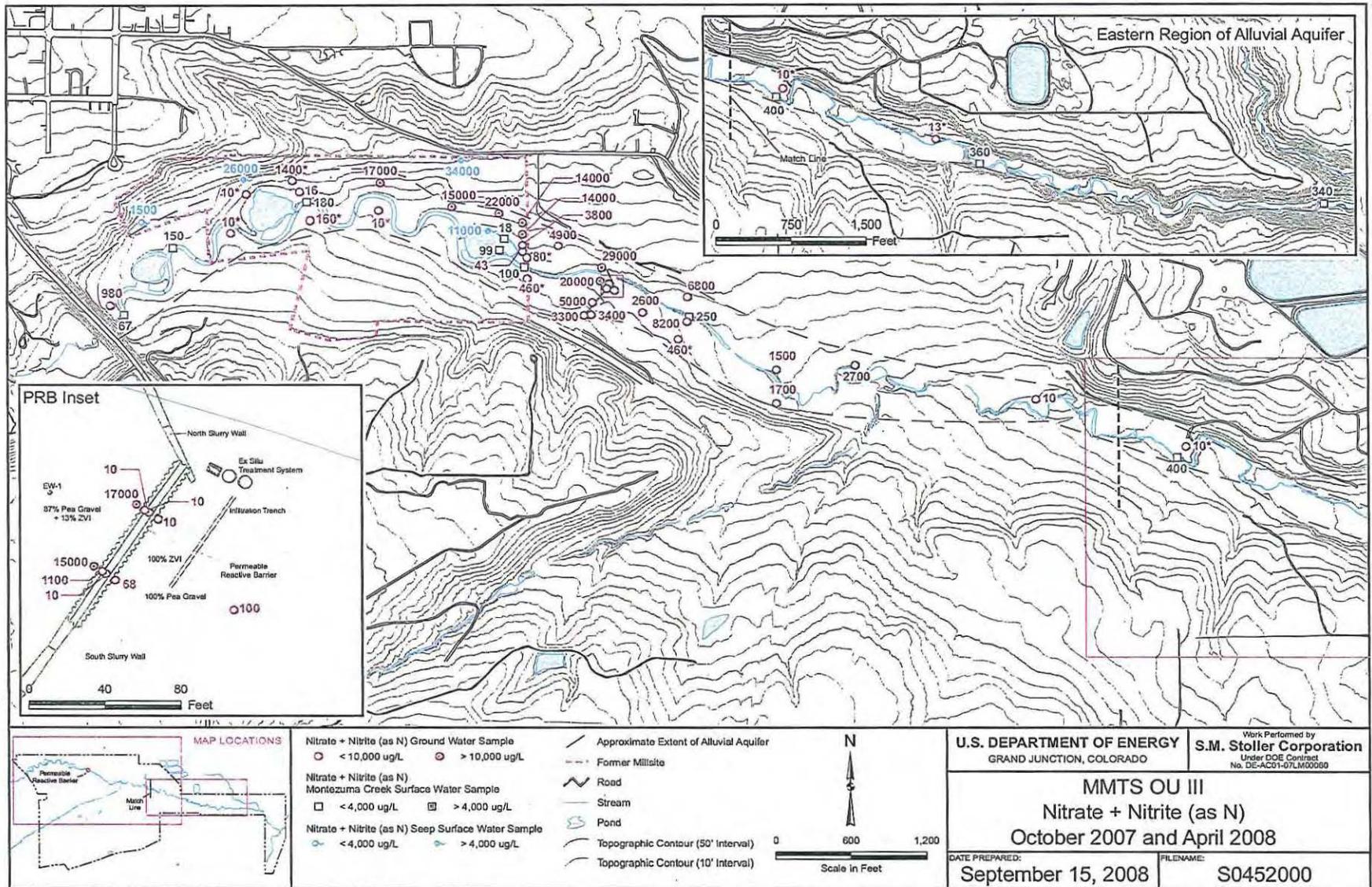
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<p>MMTS OU III</p> <p>Arsenic</p> <p>October 2007 and April 2008</p>	
<p>DATE PREPARED:</p> <p>September 15, 2008</p>	<p>FILENAME:</p> <p>S0451700</p>



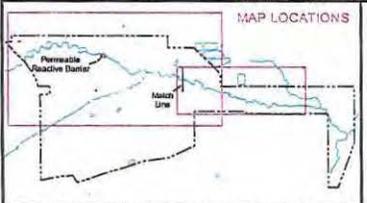
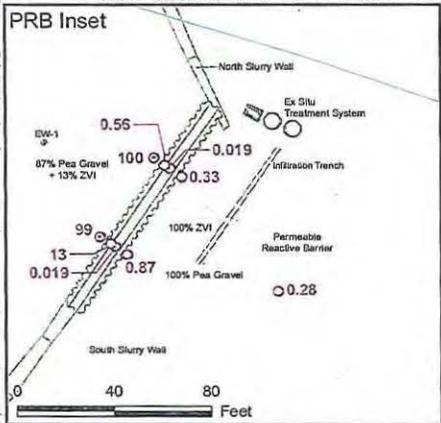
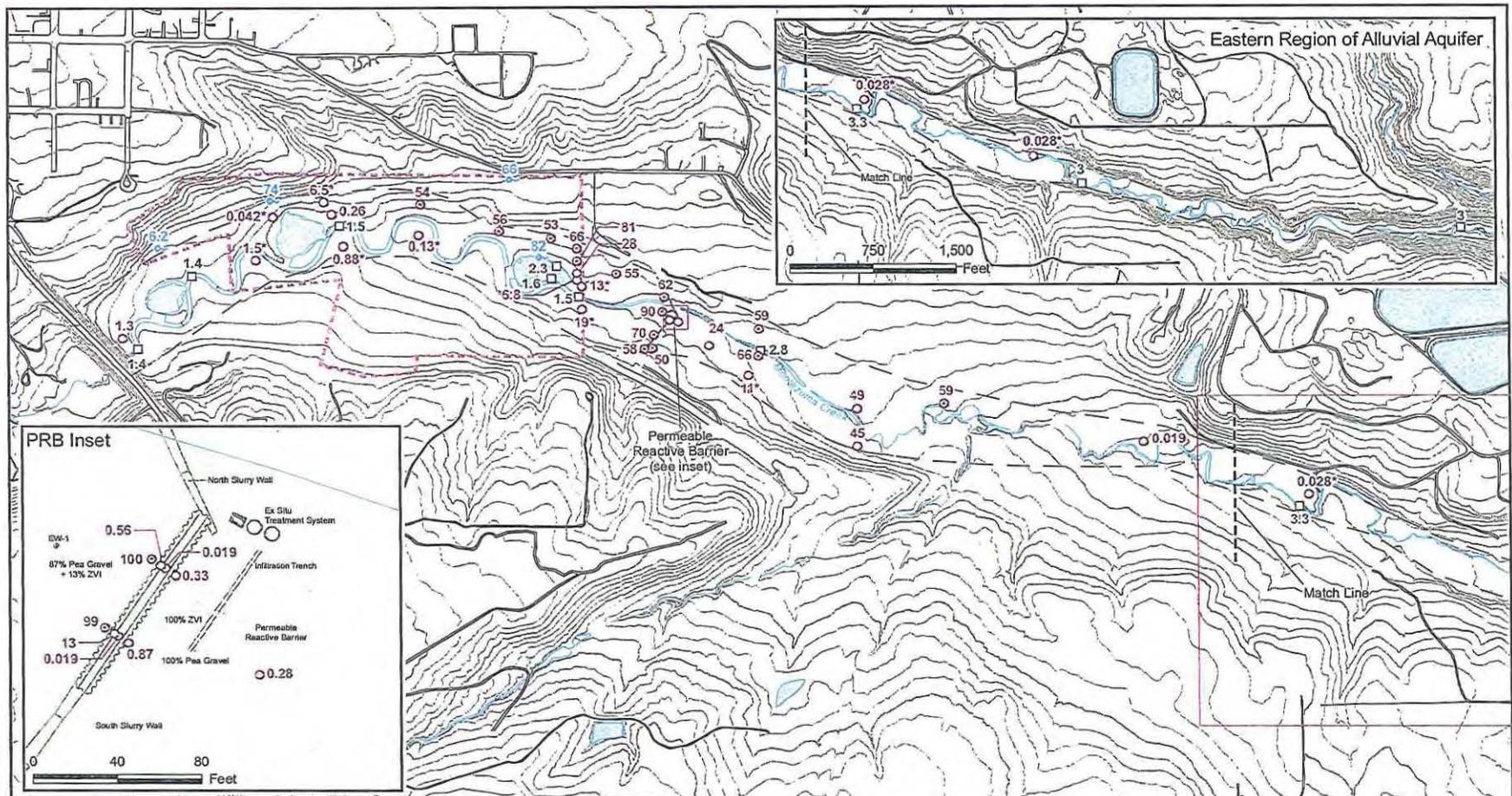


<p>Molybdenum Ground Water Sample</p> <p>○ < 100 mg/L</p> <p>⊙ > 100 mg/L</p> <p>Molybdenum Montezuma Creek Surface Water Sample</p> <p>□ ug/L</p> <p>Molybdenum Seep Surface Water Sample</p> <p>◇ ug/L</p>	<p>— Approximate Extent of Alluvial Aquifer</p> <p>- - - Former Millsite</p> <p>— Road</p> <p>— Stream</p> <p>— Pond</p> <p>— Topographic Contour (50' Interval)</p> <p>— Topographic Contour (10' Interval)</p>	<p>N</p> <p>0 600 1,200</p> <p>Scale In Feet</p>
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<p>U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO</p>		<p>Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-07LM00080</p>	
<p>MMTS OU III Molybdenum October 2007 and April 2008</p>			
<p>DATE PREPARED: September 15, 2008</p>		<p>FILENAME: S0451900</p>	

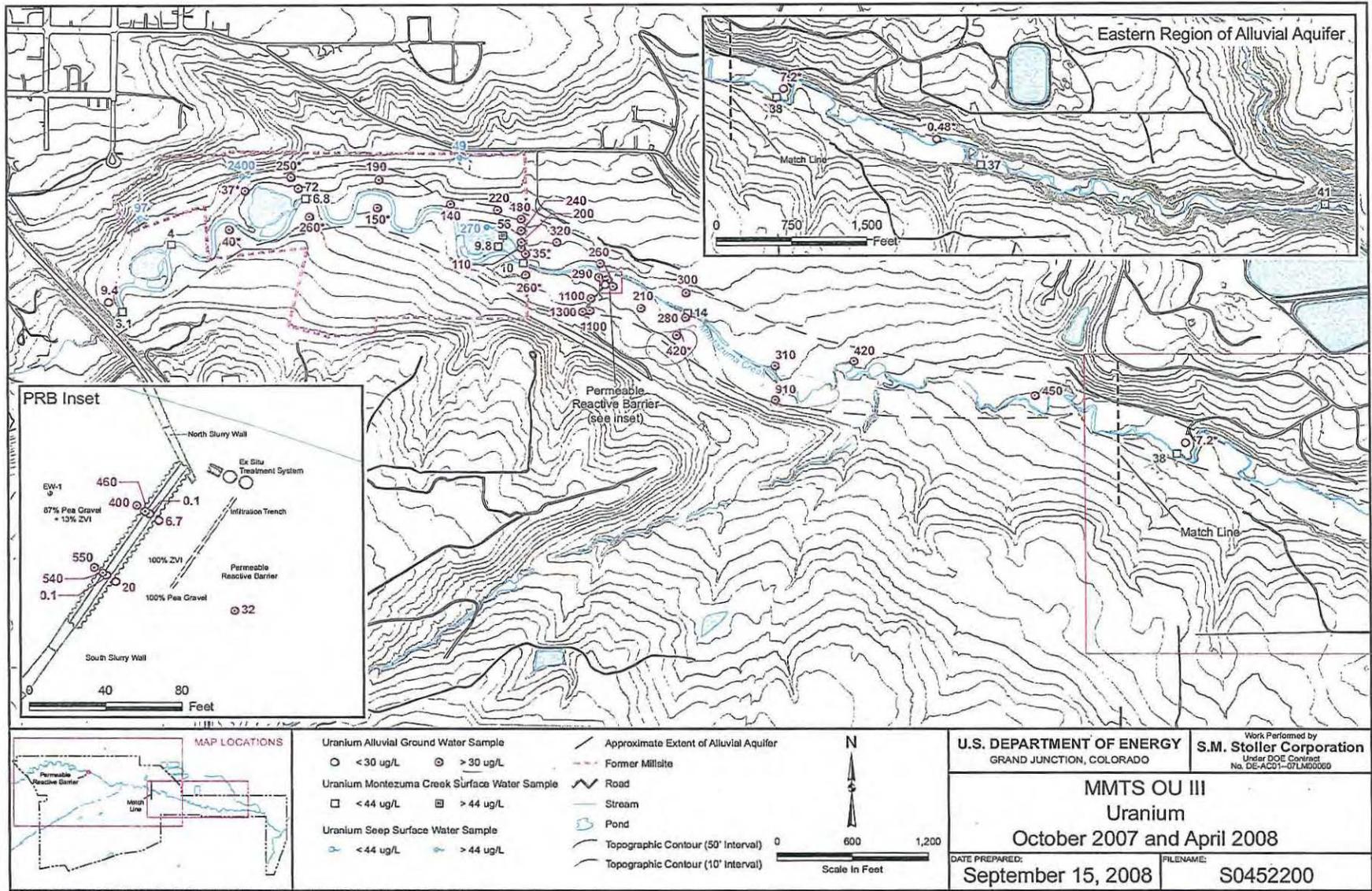


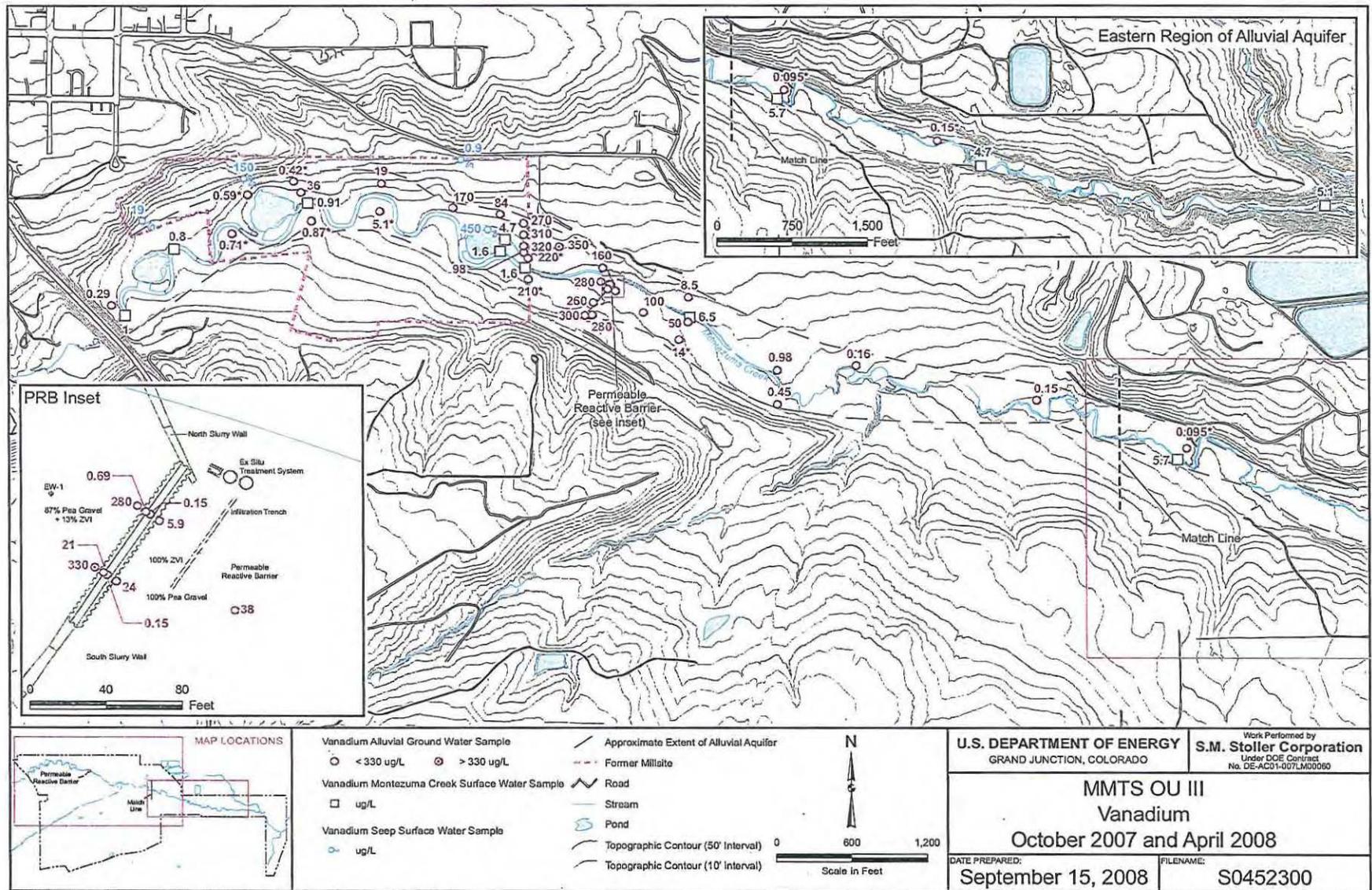
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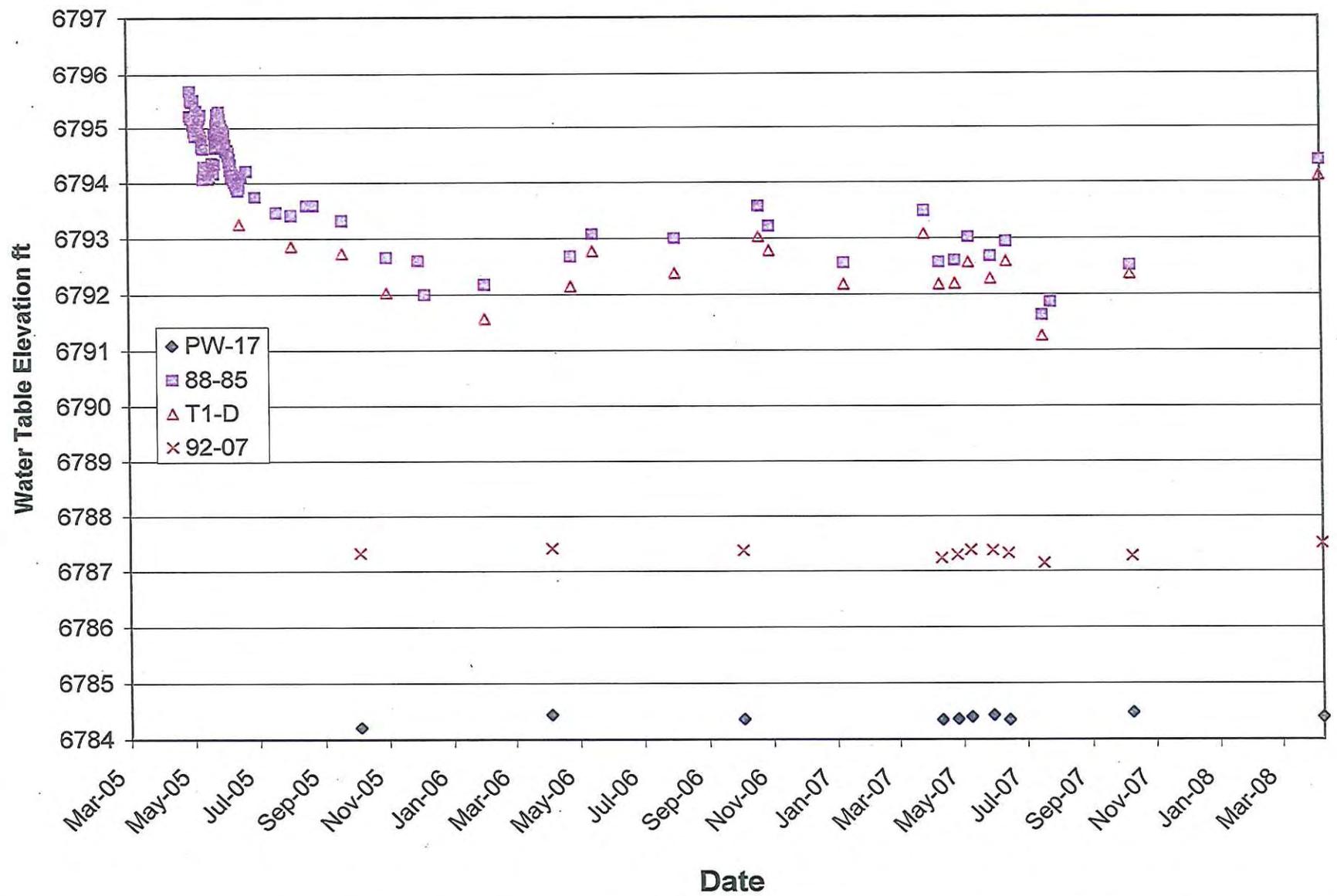


<p>Selenium Alluvial Ground Water Sample</p> <p>○ < 50 ug/L ⊙ > 50 ug/L</p> <p>Selenium Montezuma Creek Surface Water Sample</p> <p>□ < 5 ug/L ⊠ > 5 ug/L</p> <p>Selenium Seep Surface Water Sample</p> <p>⋯ < 5 ug/L ⋯ > 5 ug/L</p>	<p>— Approximate Extent of Alluvial Aquifer</p> <p>- - - Former Millsite</p> <p>— Road</p> <p>— Stream</p> <p>— Pond</p> <p>— Topographic Contour (50' Interval)</p> <p>— Topographic Contour (10' Interval)</p>	<p>N</p> <p>0 600 1,200</p> <p>Scale in Feet</p>
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<p>U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO</p>	<p>Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-LM00000</p>
<p>MMTS OU III Selenium October 2007 and April 2008</p>	
<p>DATE PREPARED: September 15, 2008</p>	<p>FILENAME: S0452100</p>







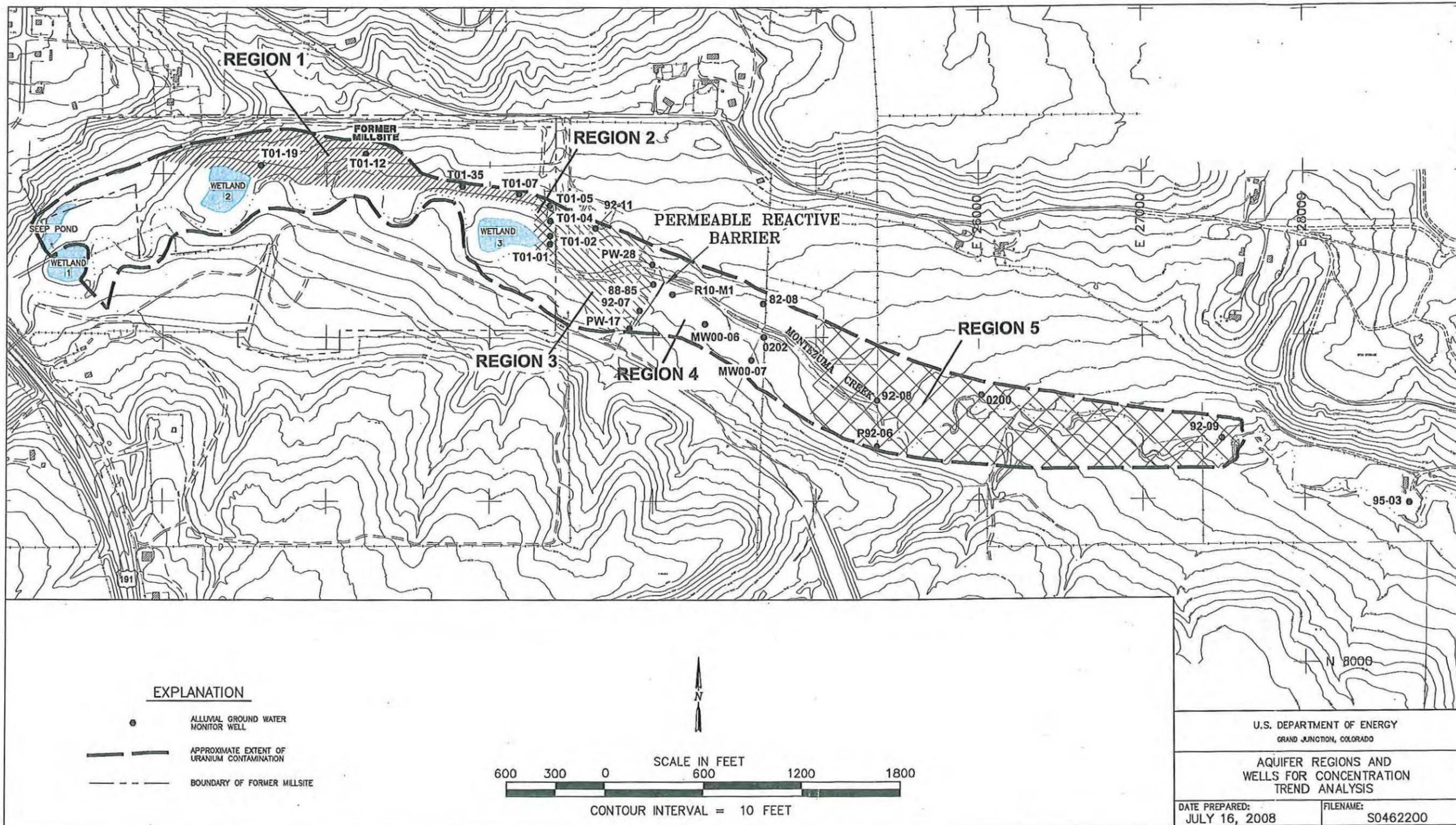


Figure 31. Aquifer Regions and Monitor Wells Selected for Concentration Trend Analysis

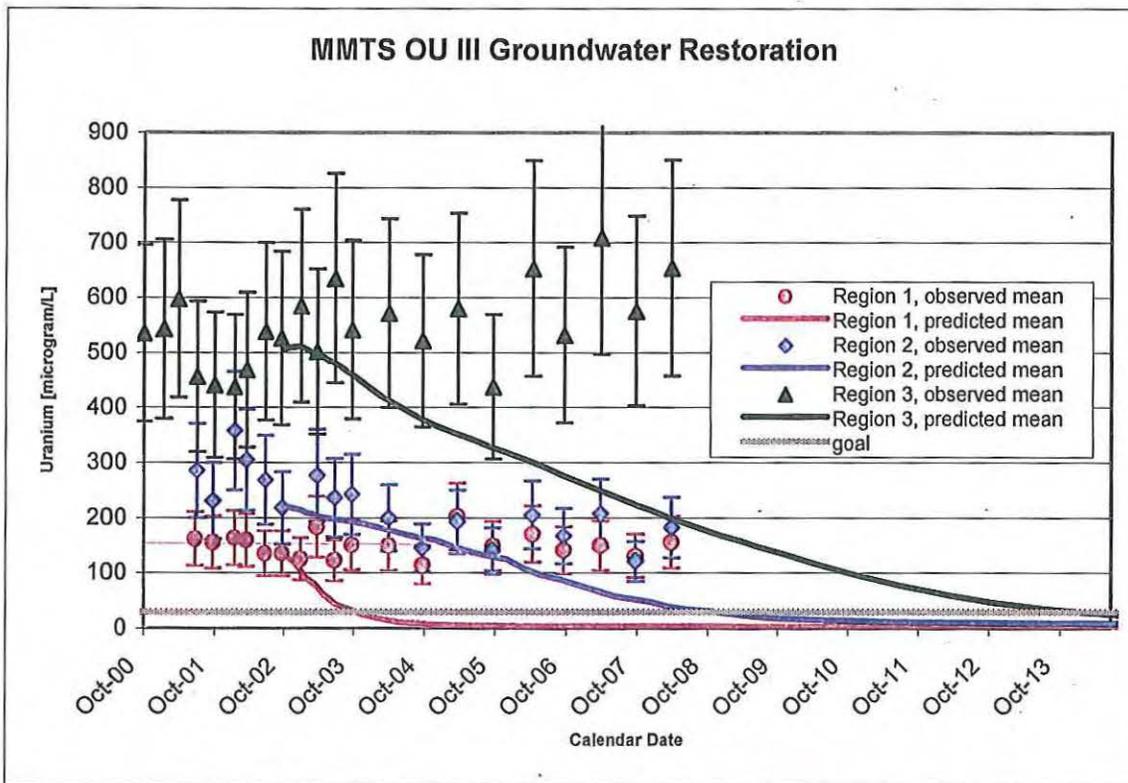


Figure 32. Comparison of Model Prediction to Observed Restoration Progress—Aquifer Regions 1 to 3

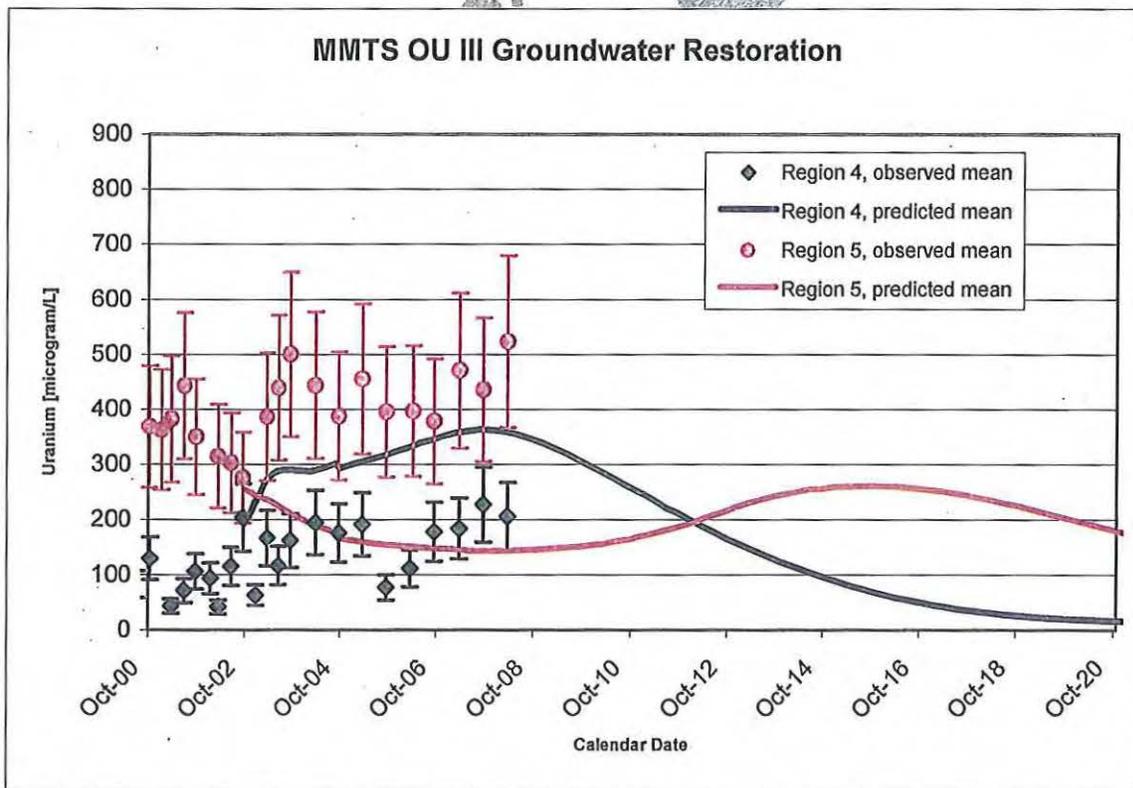


Figure 33. Comparison of Model Prediction to Observed Restoration Progress—Aquifer Regions 4 and 5

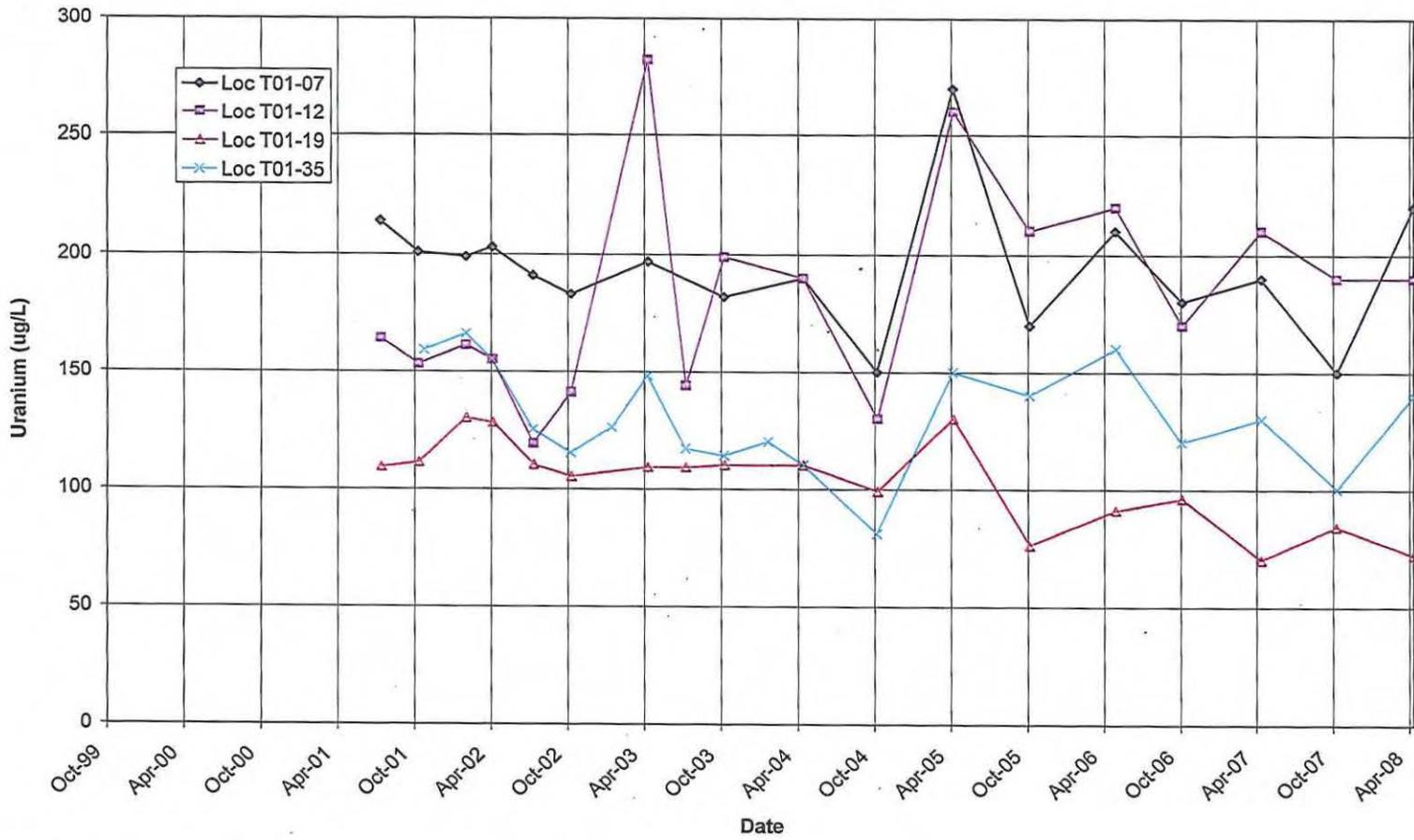


Figure 34. Region 1 Uranium concentration Trends

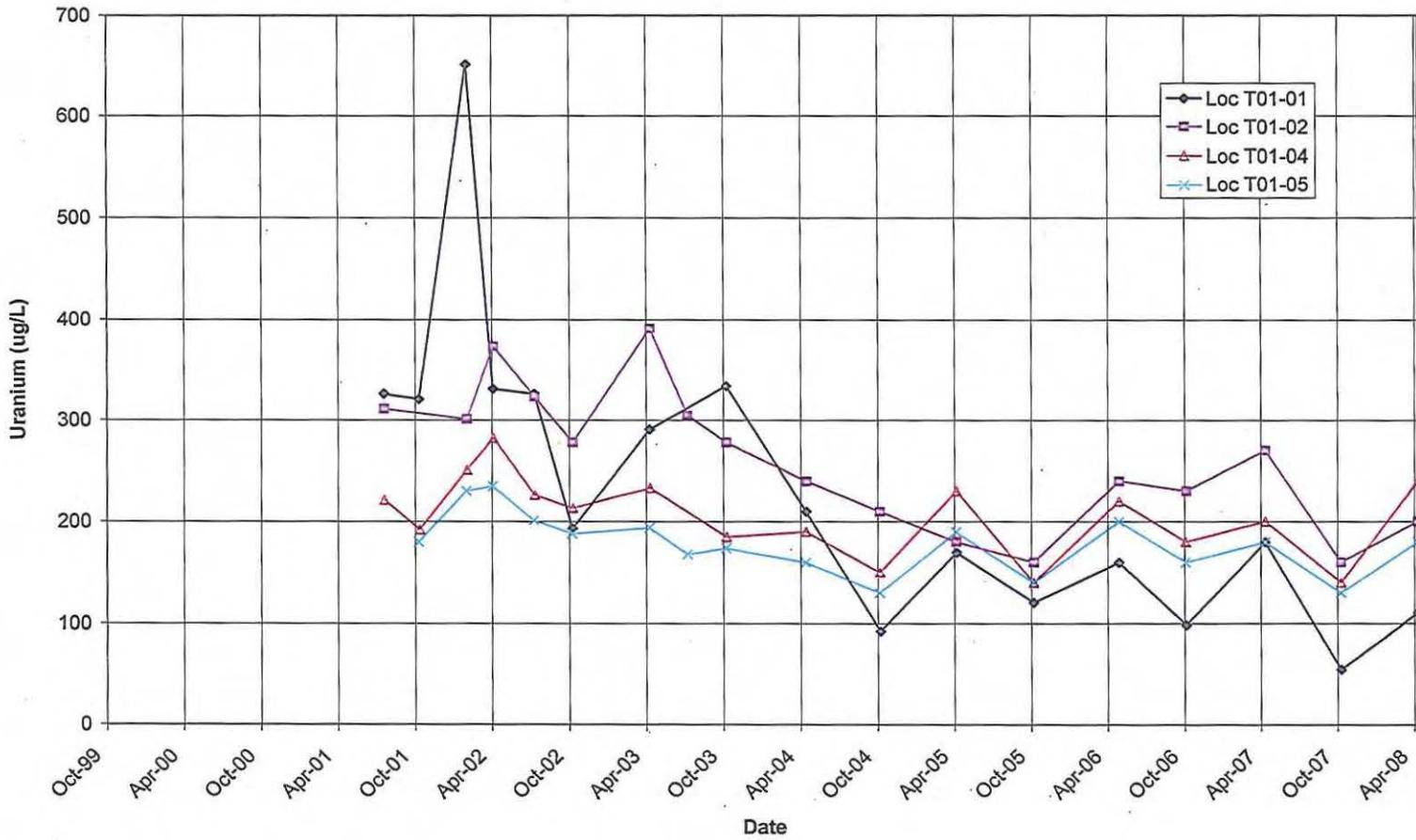


Figure 35. Region 2 Uranium Concentration Trends

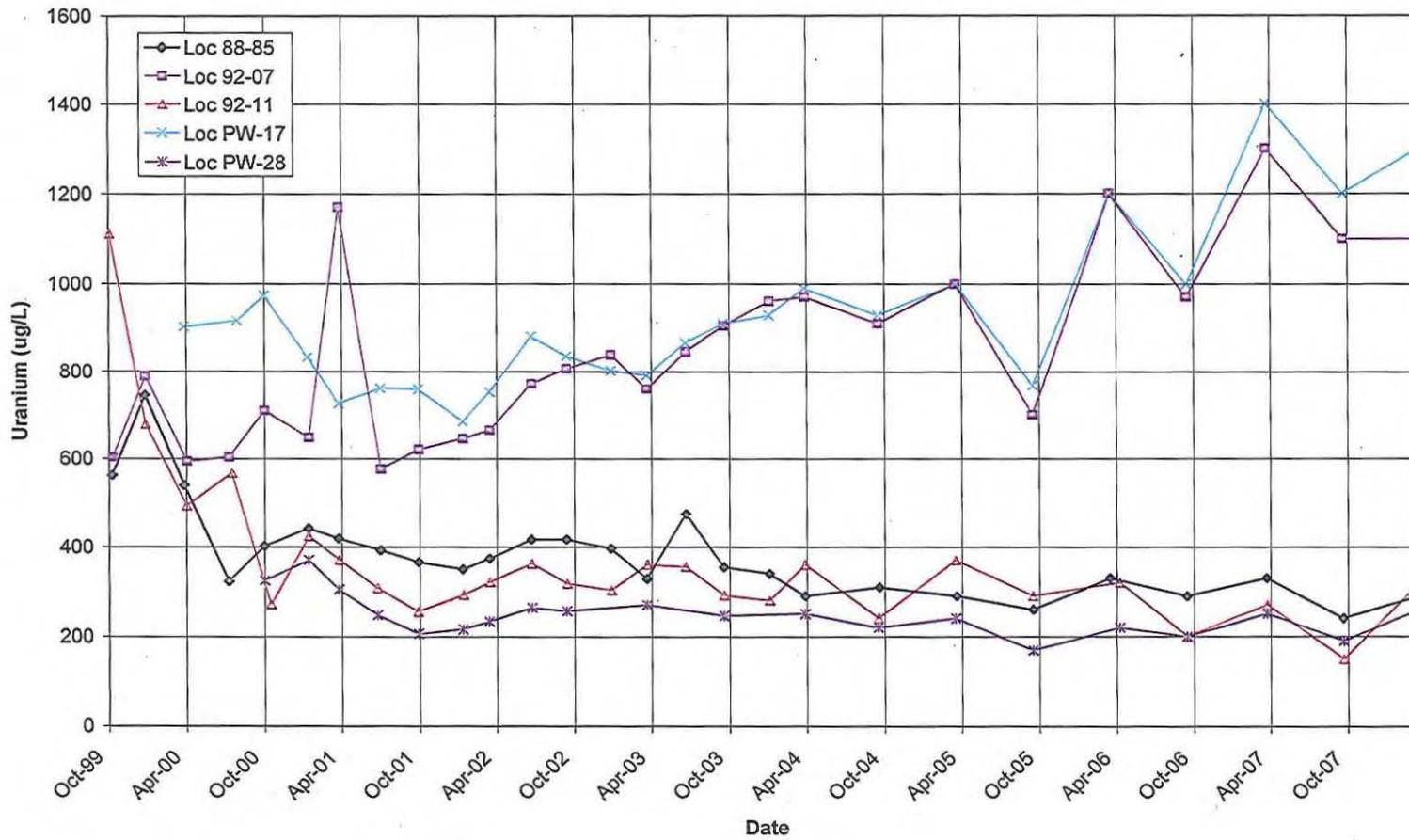


Figure 36. Region 3 Uranium Concentration Trends

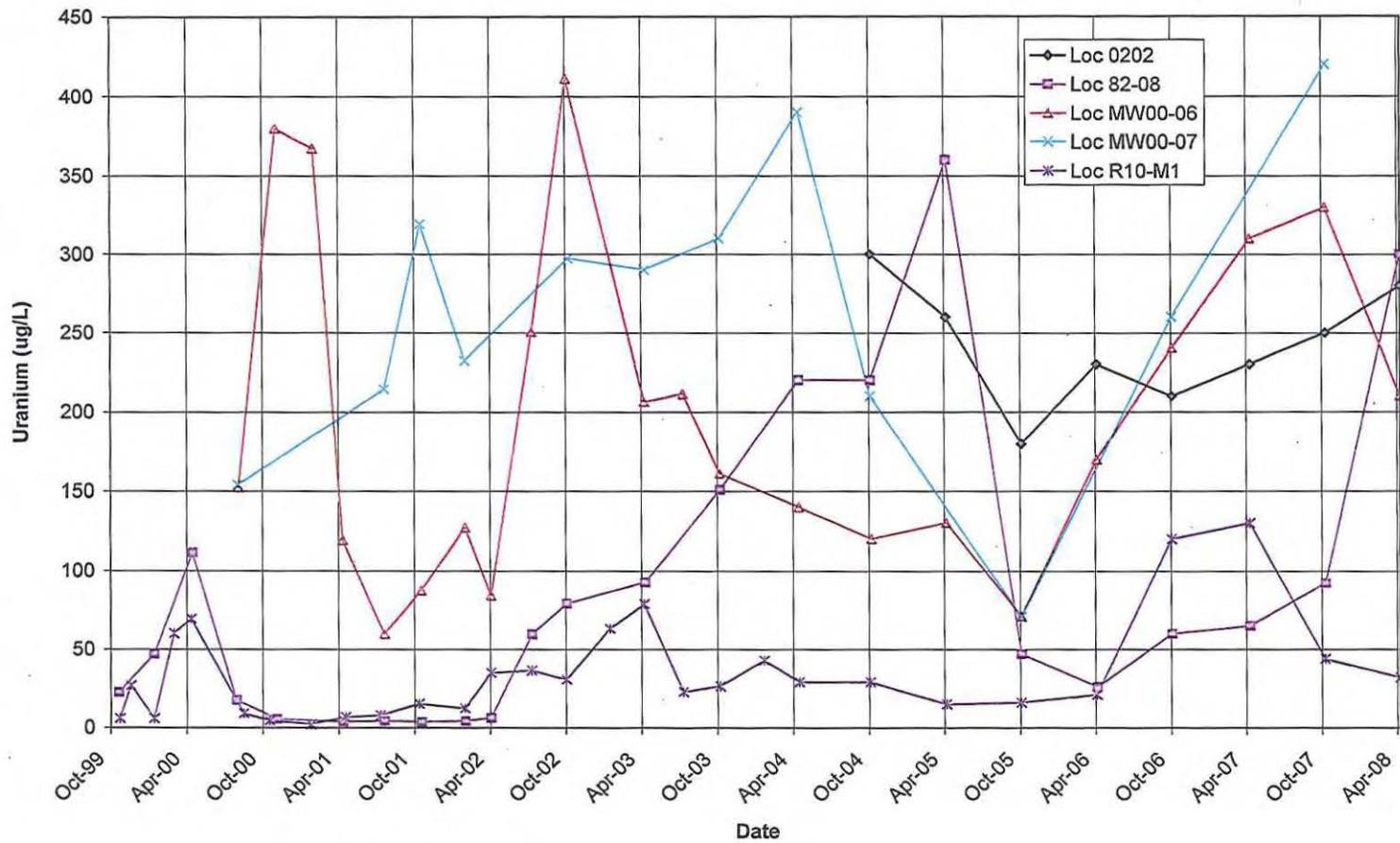


Figure 37. Region 4 Uranium Concentration Trends

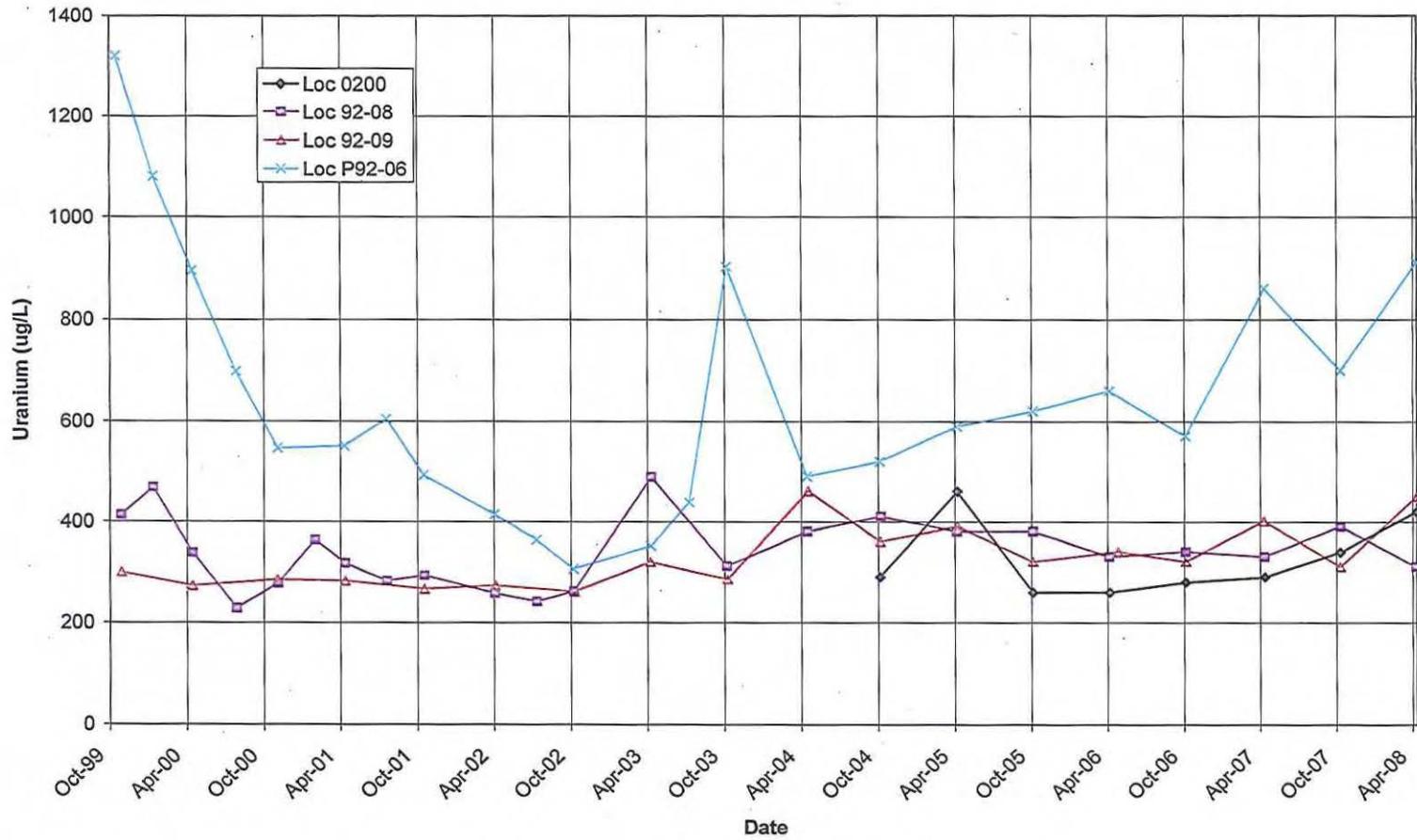


Figure 38. Region 5 Uranium Concentration Trends

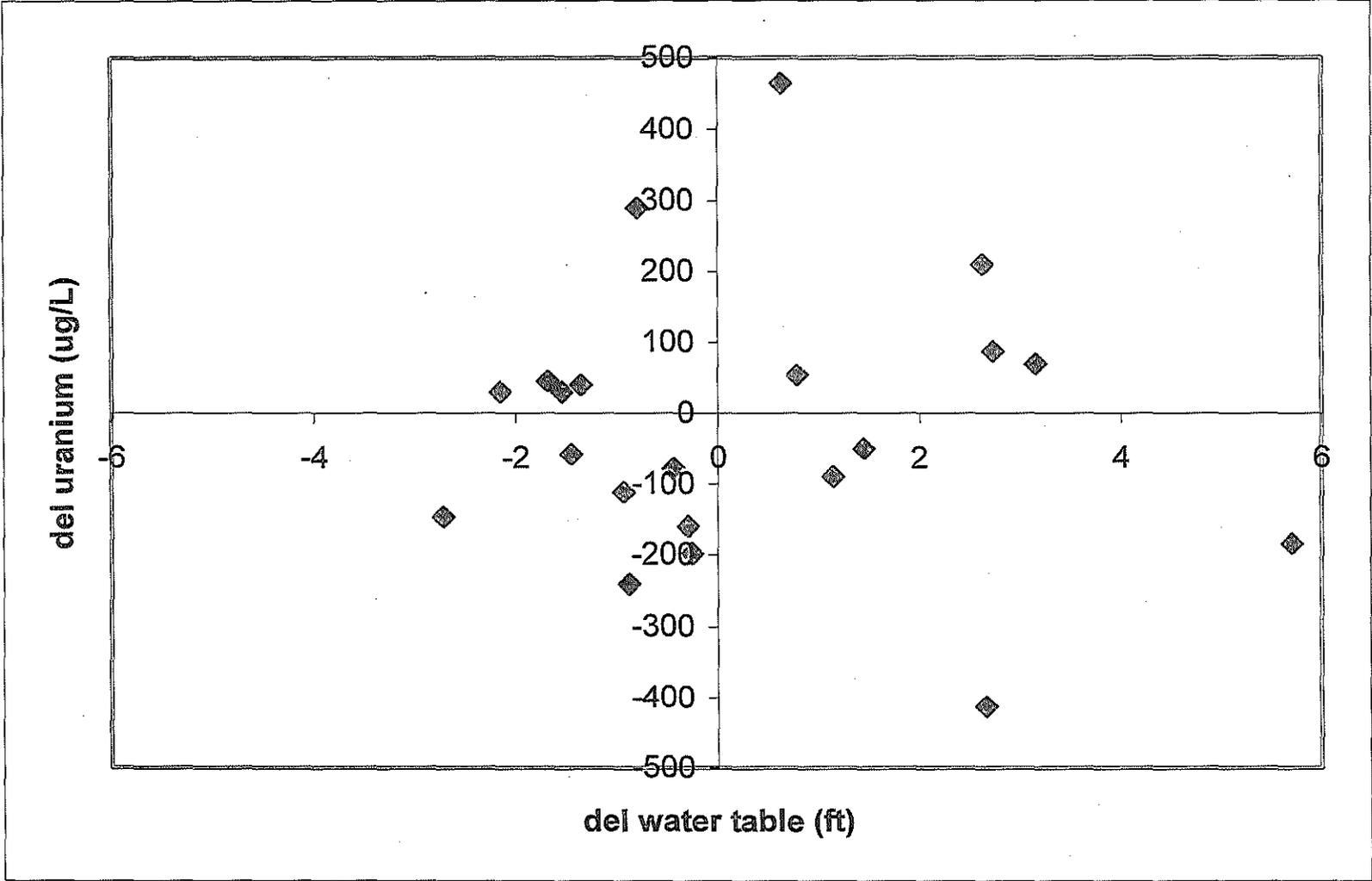


Figure 39. Uranium Concentration versus Water Table Elevation, Well P92-06

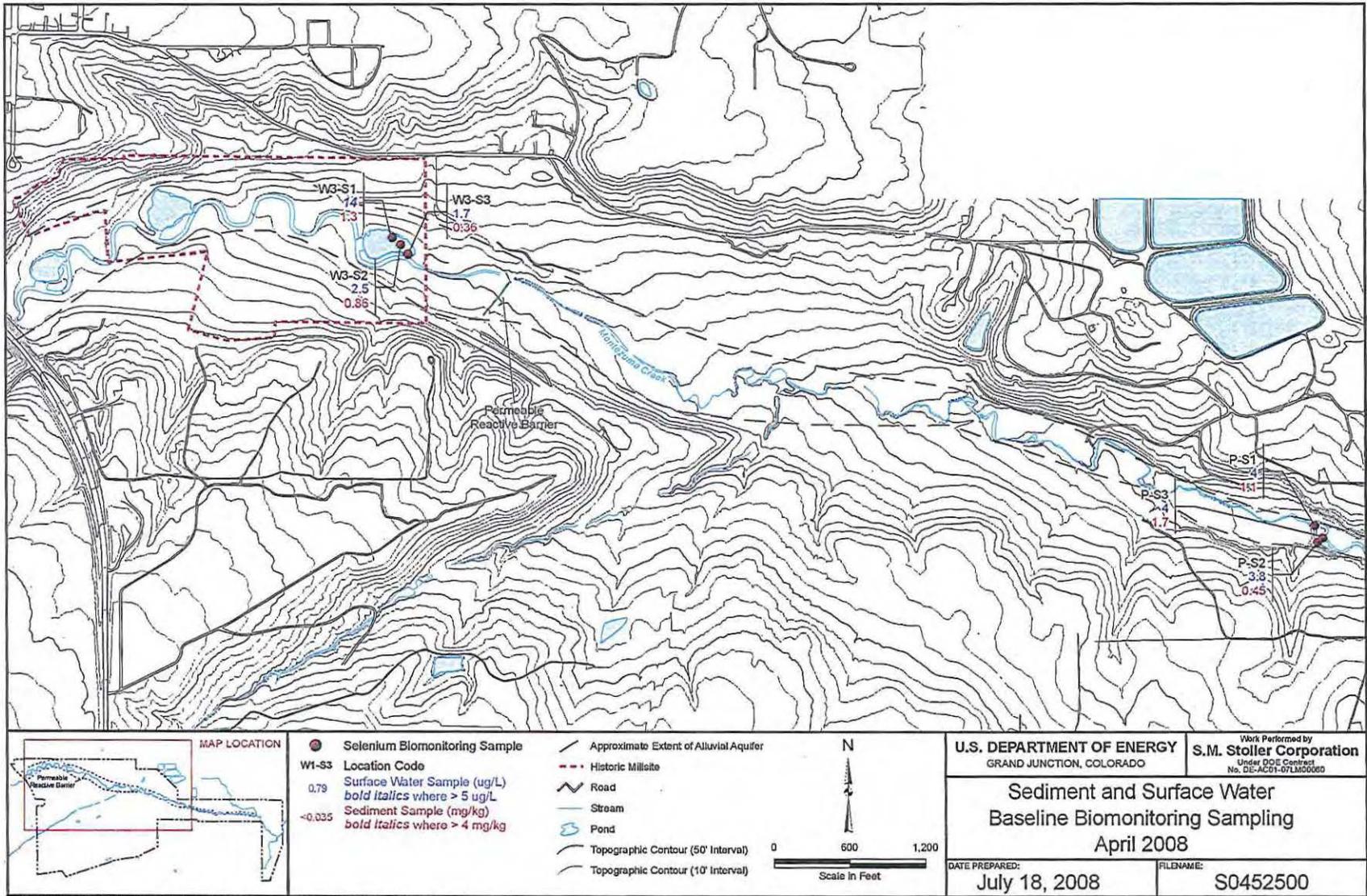


Figure 40. Sediment and Surface Water Baseline Biomonitoring Sampling—April 2008

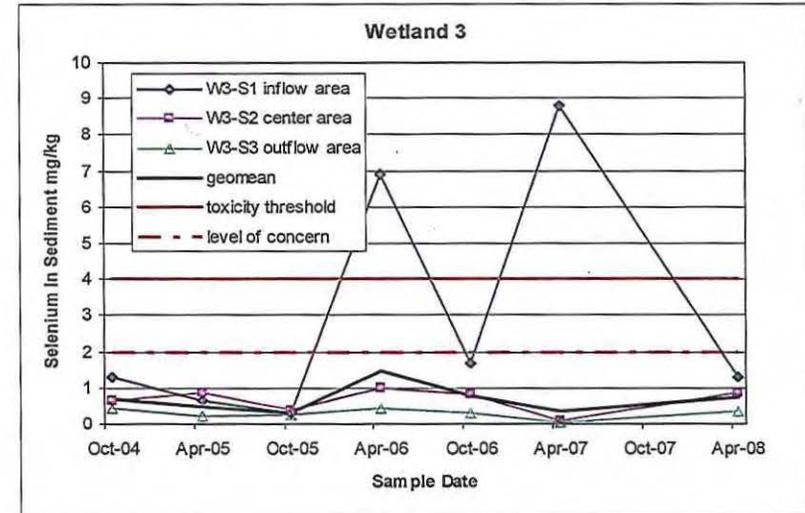
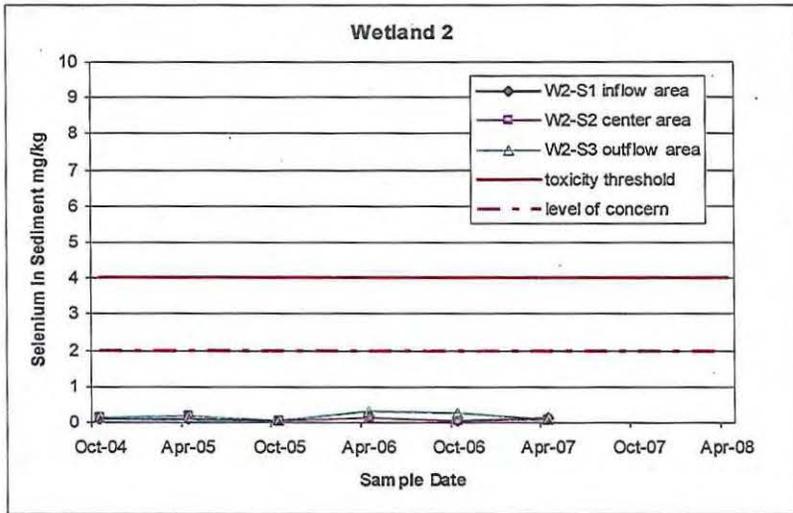
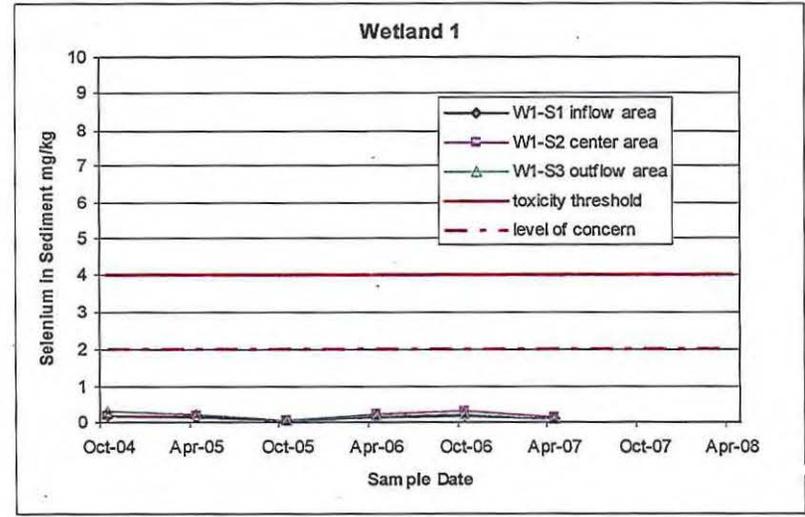
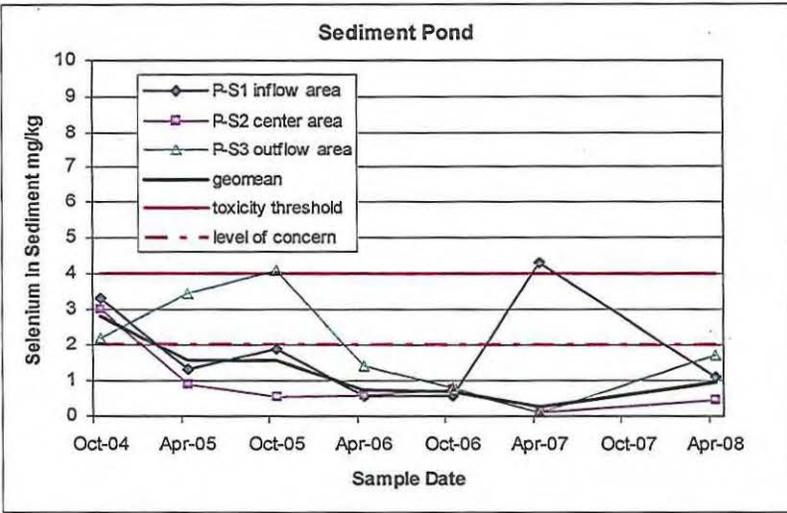


Figure 41. Selenium Concentrations in Sediment

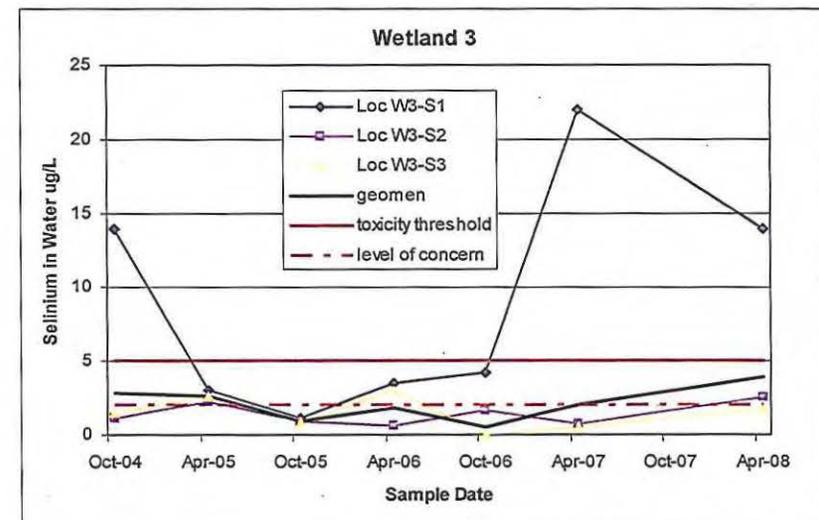
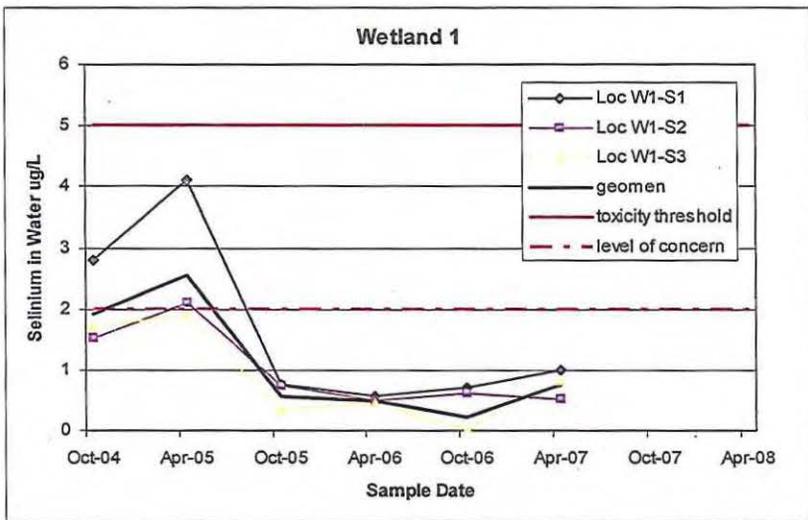
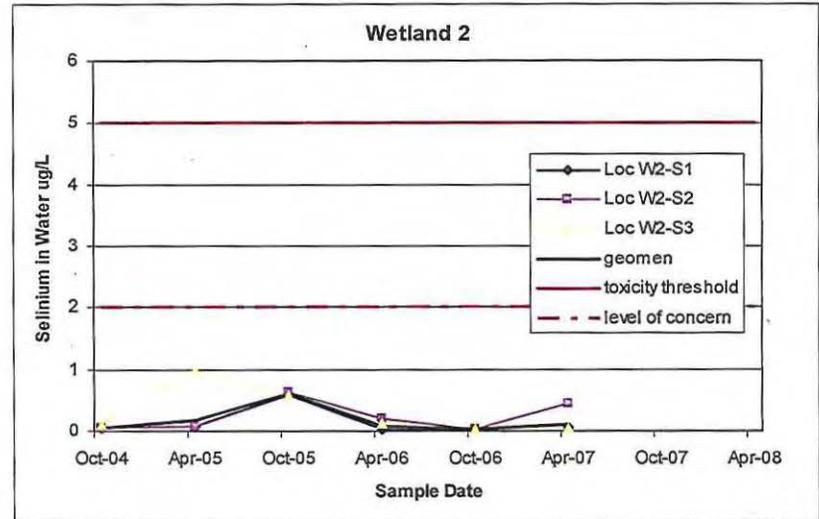
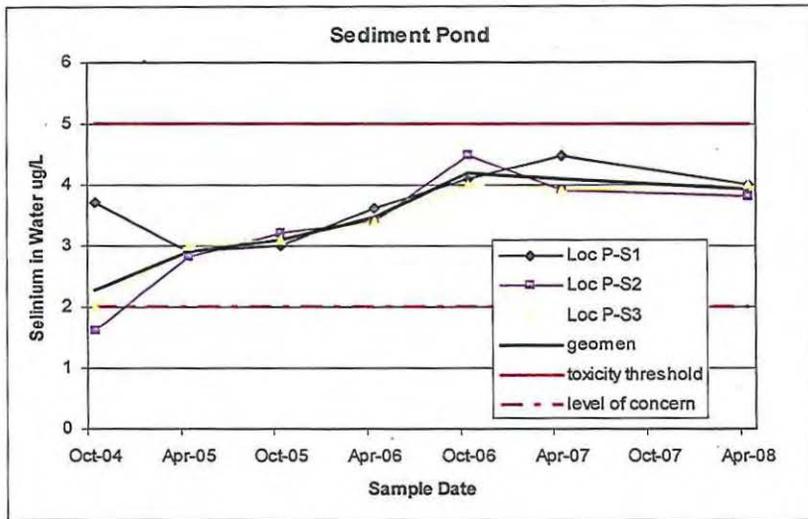


Figure 42. Selenium Concentrations in Surface Water

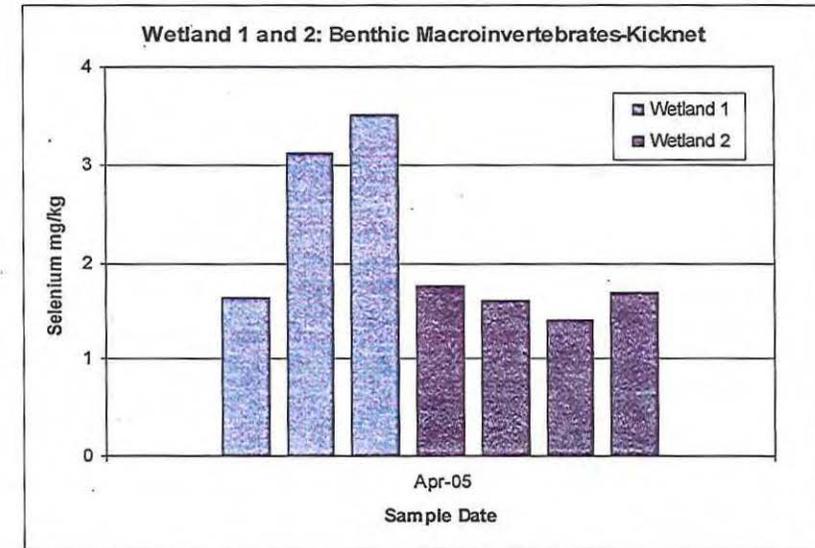
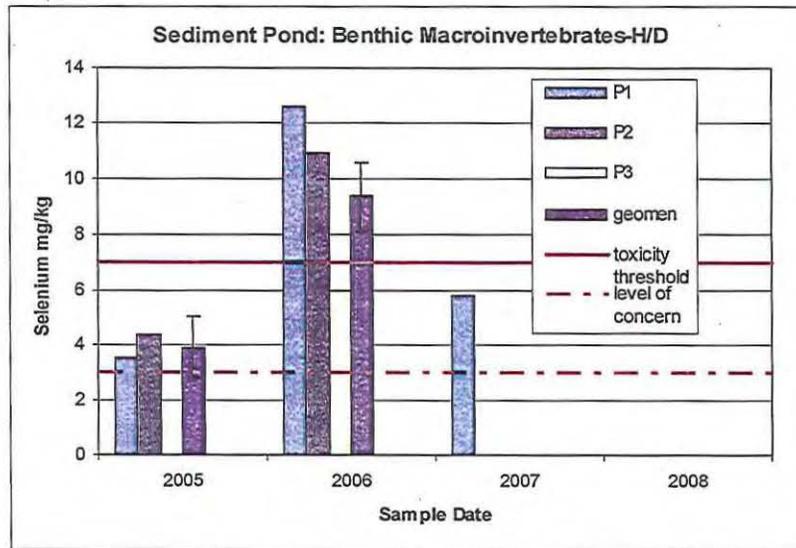
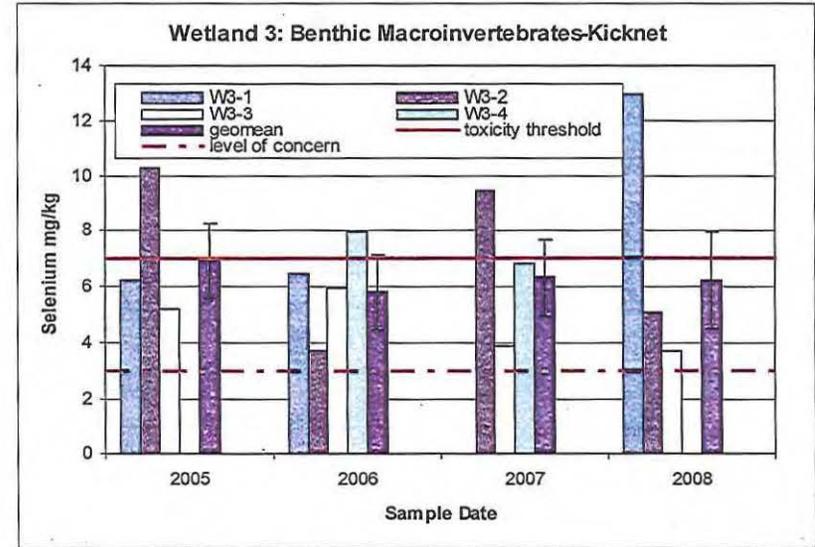
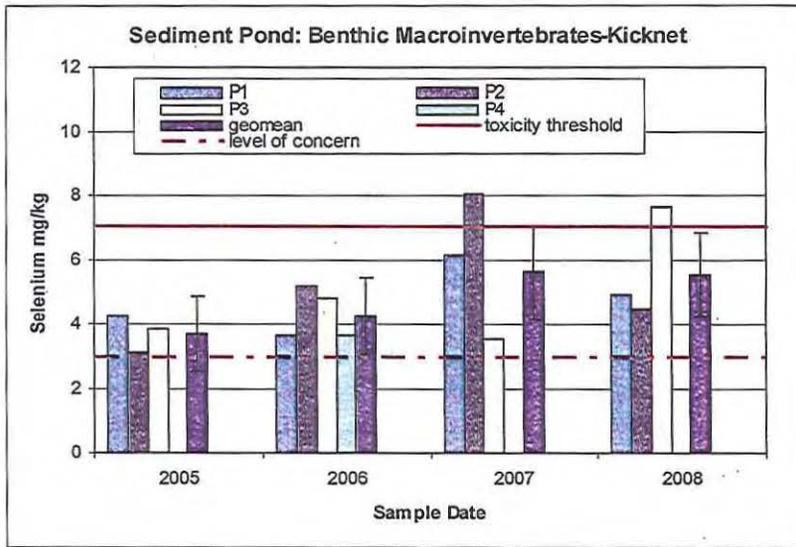
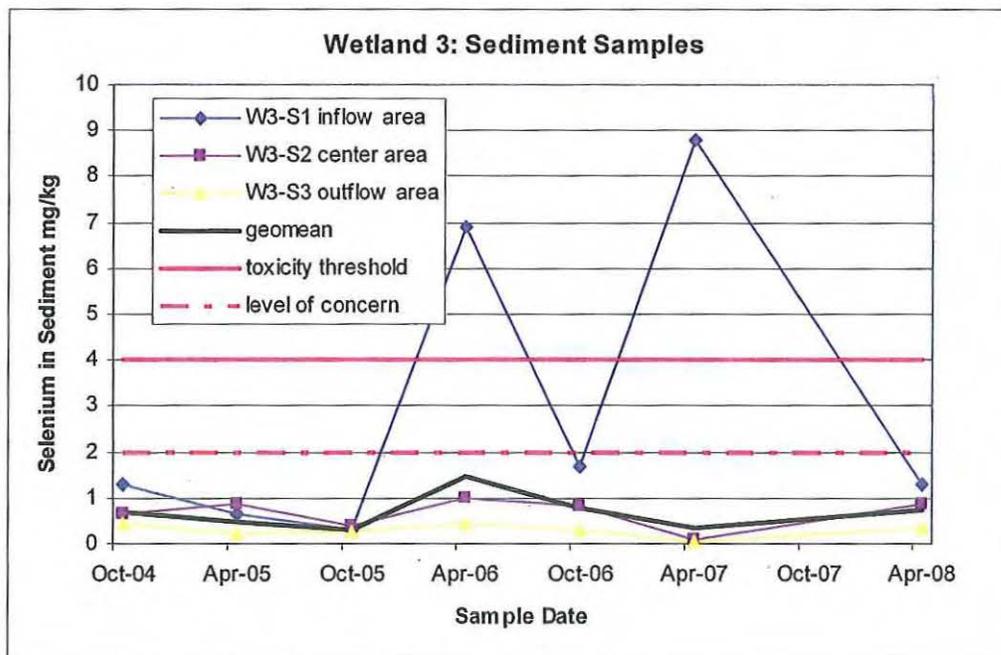
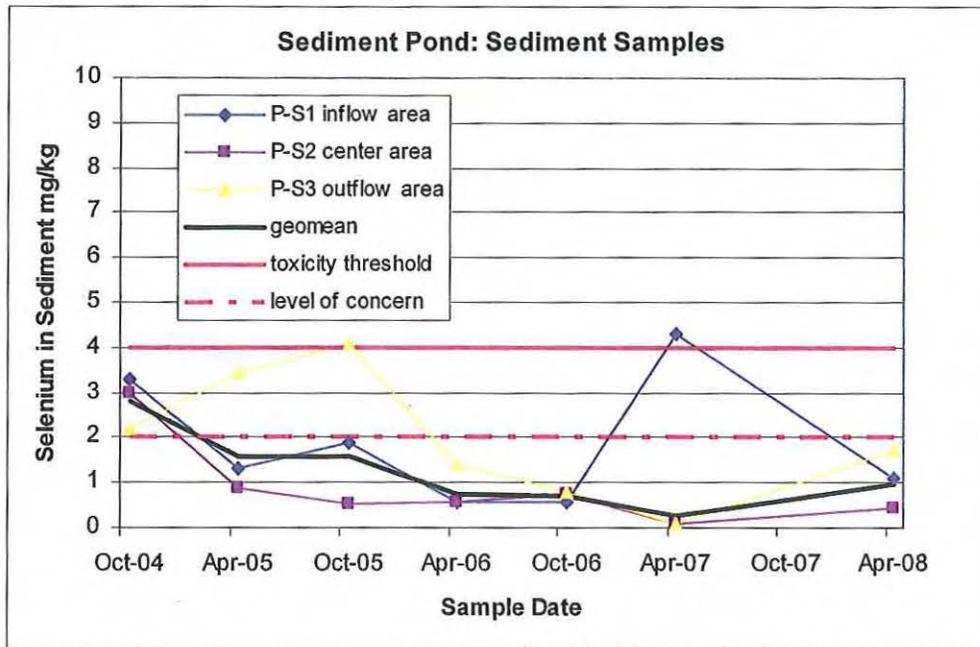
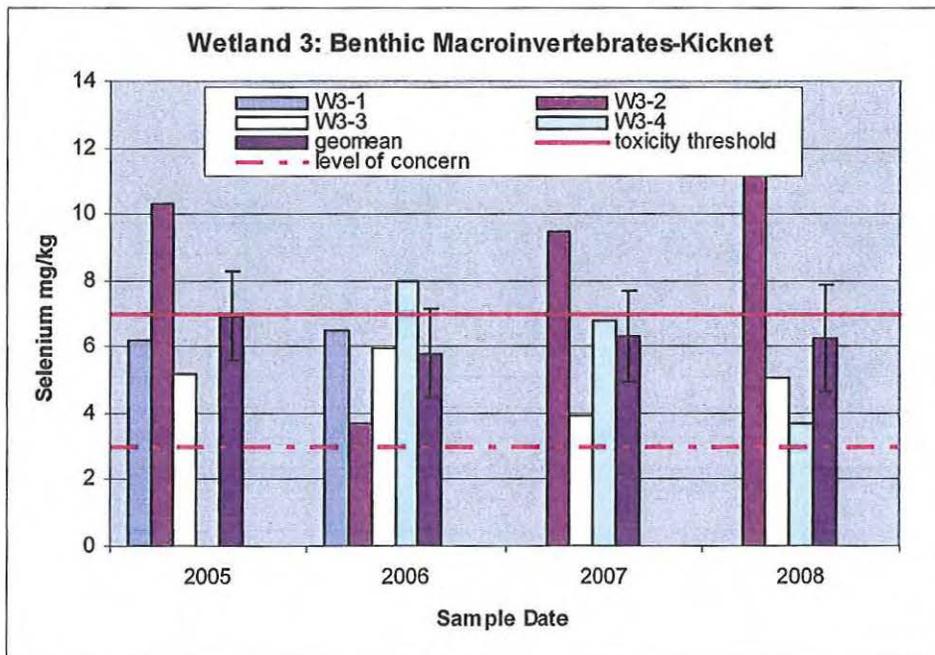
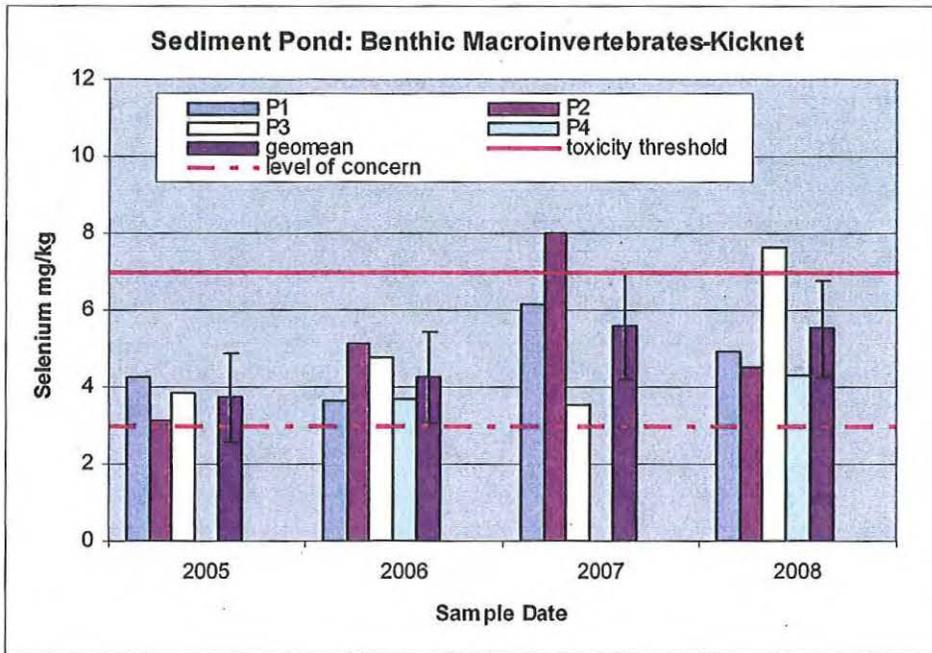
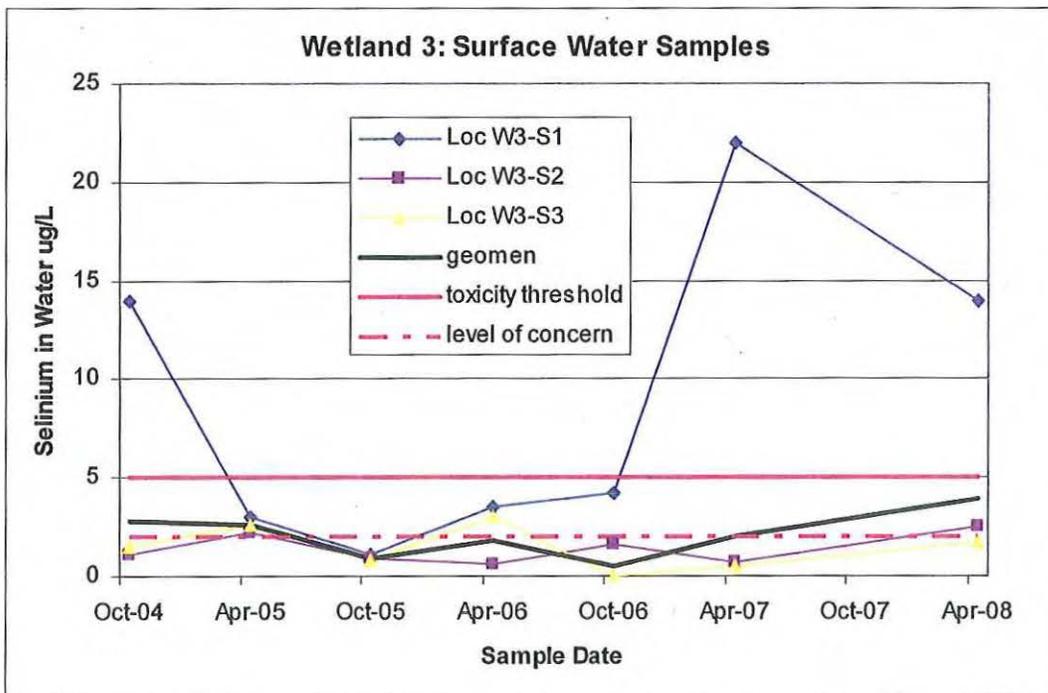
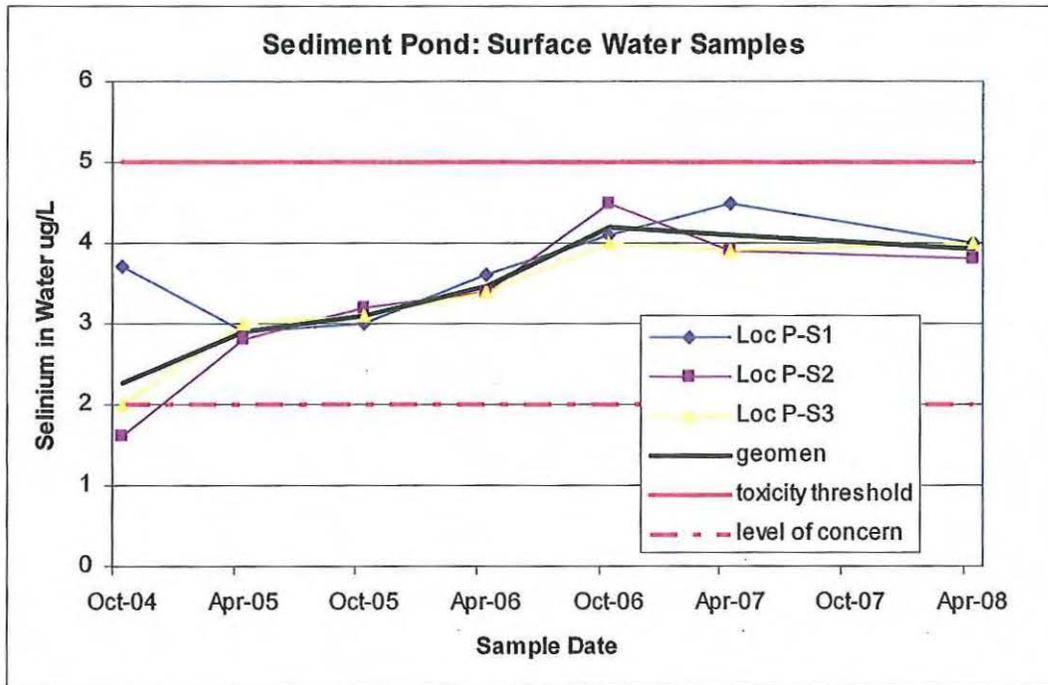


Figure 43. Selenium Concentrations in Aquatic Macroinvertebrate Tissue

Biomonitoring Results



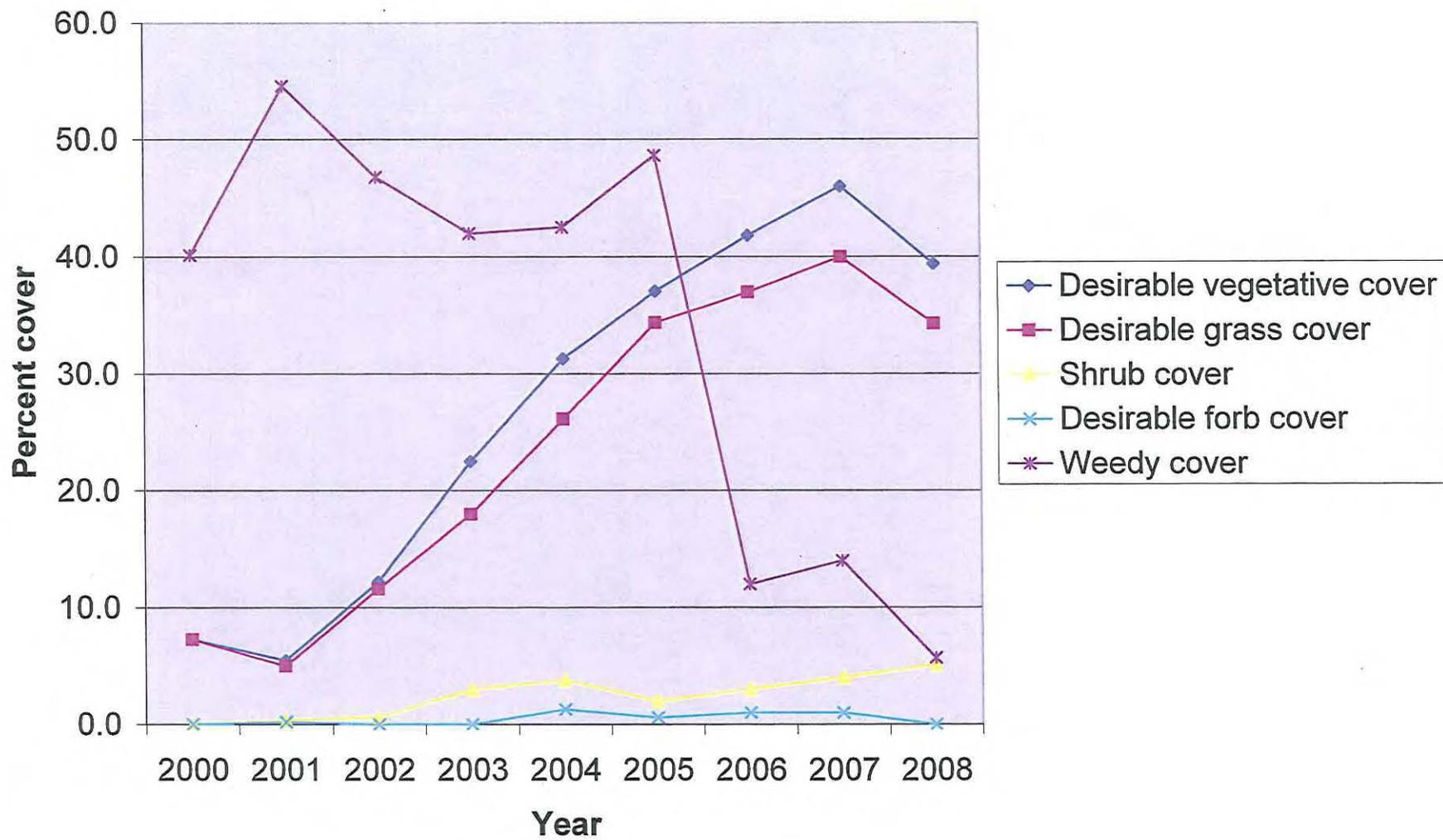




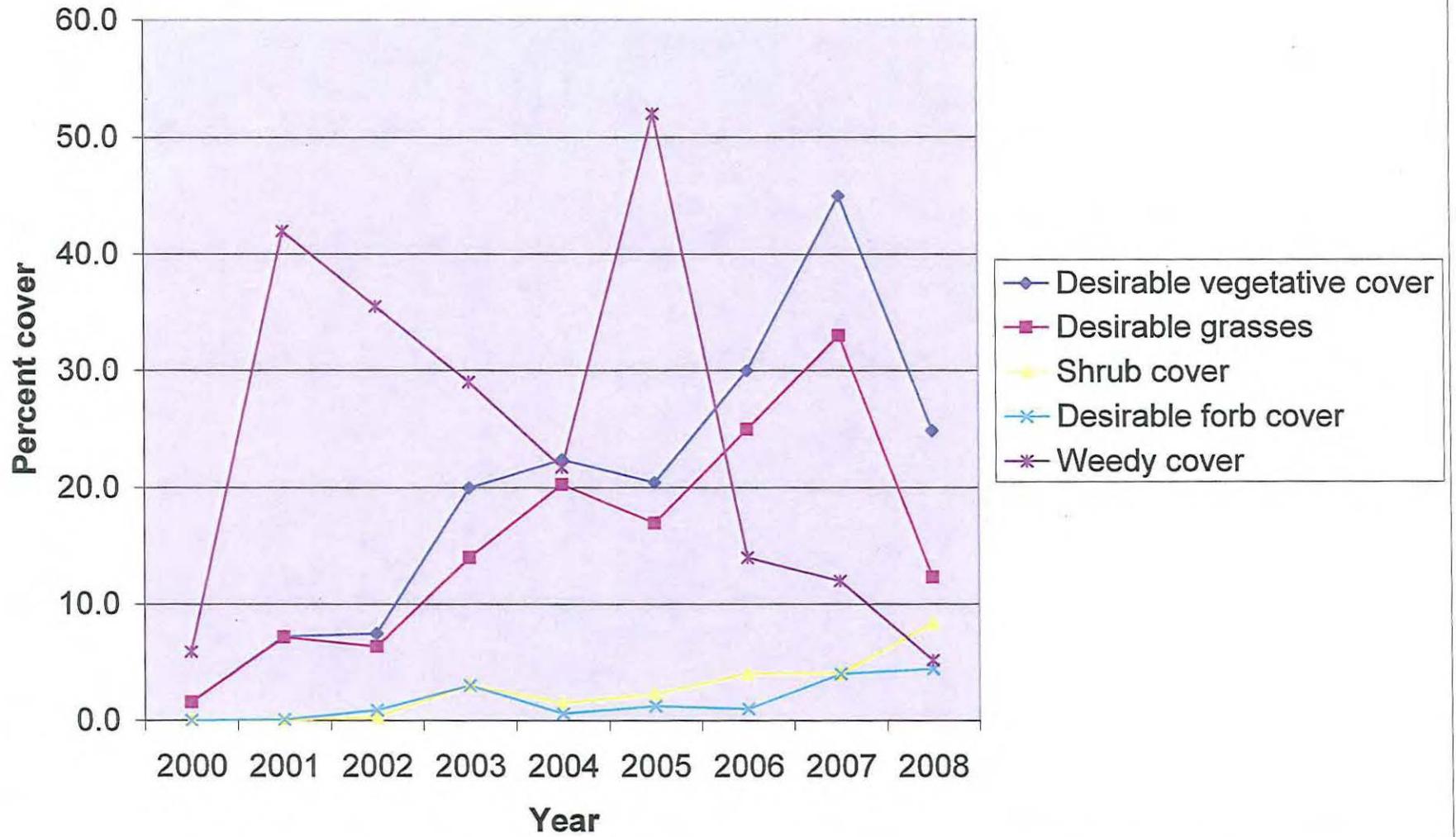
Summary of Bird Survey Data:

- Federally-listed species: *Willow flycatchers* were observed near the Sediment Pond during two of the eight surveys (May 21-22 and June 1-2). Protocol follow-up surveys confirmed that the birds were transitory, not nesting in the area. It is not known whether the birds were endangered Southwestern willow flycatchers or more common species of willow flycatchers.
- State-listed species: A *bobolink* was observed at Wetland 3 during the May 21-22 survey. It was not observed again, indicating that it was a transient, not nesting in the area.
- Birds of Conservation Concern:
 - A pair of *northern harriers* was nesting in Wetland 3. Three fledglings were observed. The birds were observed feeding on mice and rabbits from upland areas.
 - A *black-throated gray warbler* was observed near the Sediment Pond during the August 11-12 survey.
 - A *Virginia's warbler* was observed near the Sediment Pond during the August 11-12 survey.
- The most common species near the Sediment Pond were *cliff swallows*. Other species observed in smaller numbers during the majority of surveys include the *American robin*, *black phoebe*, *black-billed magpie*, *Canada goose*, *common raven*, *great horned owl*, *mallard*, *red-winged blackbird*, *song sparrow*, *spotted towhee*, *violet-green swallow*, *yellow-breasted chat*, and *yellow warbler*.
- The most common species in Wetland 3 were *red-winged blackbirds*. Other common species observed near Wetland 3 include the *song sparrow*, *turkey vulture* and *violet-green swallow*. Other species observed during the majority of surveys in smaller numbers include the *barn swallow*, *blue grosbeak*, *cinnamon teal*, *common raven*, *mallard*, *sora*, and *western meadowlark*.

Vegetative Cover 2000-2008, Zone A1



Vegetative Cover 2000-2008, Zone B



Repository Monitoring Summary, 2008

- Monitoring was performed on August 19 – 21, 2008
- Success criteria:
 - Criterion 1 – Species Composition
 - Zone A1 – 3 desirable perennial grasses, at least 2 native
 - Zone A1 – at least 1 desirable forb and 2 shrubs
 - Zone B – 2 perennial grasses, 1 desirable forb, and 1 shrub
 - Criterion 2 – Vegetative Cover
 - Zone A1 – 40 percent desirable cover
 - Zone B – 25 percent desirable cover
 - Relative cover of each species between 5 and 25 percent
 - Free of noxious weeds
 - Criterion 3 – Species Frequency
 - Frequency of each species at least 25 percent
 - Zone A1 – most abundant shrub species 10 percent in 1 m quadrat; least abundant shrub species 10 percent in a 2 m quadrat
 - Criterion 4 – Shrub Density
 - Zone A1 – 1,000 stems per acre
 - Zone B – 500 stems per acre
- Zone A1 Results:
 - Criterion 1 met with 8 perennial grasses, 6 of which are native, 3 forbs and 3 shrubs
 - Criterion 2 nearly met with 39.4% cover, and relative cover of 4 grass species between 5 and 25 percent; relative cover of forbs too low at 0.1%; two noxious weed species were found (*Convolvulus arvensis* and *Aegilops cylindrica*) in trace amounts.
 - Criterion 3 nearly met with 4 grass species exceeding 25% frequency. Most common shrub (*Artemisia tridentata*) has 29% frequency; less common shrub (*Ericameria nauseosa*) has frequency of 6%
 - Criterion 4 not met, with a shrub density of 65 shrubs/acre
- Zone B Results:
 - Criterion 1 met with 4 grasses, 3 forbs and 3 shrubs
 - Criterion 2 partially met with 25% desirable cover; relative cover not met; one noxious species found (*Convolvulus arvensis*) in trace amounts.
 - Criterion 3 partially met with 1 grass species exceeding 25% frequency
 - Criterion 4 not met, with a shrub density of 116 shrubs/acre

Paul
Mushovic/EPR/R8/USEPA/US

09/12/2008 10:15 AM

To Paul Mushovic/EPR/R8/USEPA/US@EPA

cc

bcc

Subject Fw: ET Cover Performance Monitoring

----- Forwarded by Paul Mushovic/EPR/R8/USEPA/US on 09/12/2008 10:09 AM -----

Paul
Mushovic/EPR/R8/USEPA/US

09/12/2008 09:03 AM

To Steven Rock/CI/USEPA/US

cc

Subject ET Cover Performance Monitoring

Steve:

Is this to rigorous???

Performance Monitoring of the Monticello Repository Site Cover.

Vegetation success criteria has not been met at the Monticello ET - Water Balance repository cover since its construction in 2000. In 2007 a planting of Rabbit Brush seedlings was undertaken to improve the vegetation success criteria for shrub species. The shrub species are essential in removing water from beneath the biota barrier. Results of the plantings were not satisfactory with a mortality rate for seedlings approaching 90 percent. The performance criteria for the cell (40 CFR Part 192) is that it must be protective for a minimum of 200 years with a design life of 1000 years. To continue to provide long term protection from precipitation and snow melt infiltration into the underlying tailings, an HDPE liner was placed immediately below the cover materials. Both a short term, until the vegetation success criteria are met, and a long term performance monitoring program need to be developed for the Monticello Repository. EPA and UDEQ will require that the vegetation success criteria, annual studies, be continued until such time as the vegetative success criteria are met. EPA will also require that the ACAP lysimeter continue to be monitored, and results reported in the annual inspection report until such time as the vegetative success criteria are met and a long term performance and monitoring plan program for the repository cover is agreed upon by DOE, EPA and UDEQ. The long term performance and monitoring plan must address potential climatic changes and edaphic and plant successional changes that are likely to occur at the Monticello site. The performance plan should also address catastrophic events such as major storm and erosional events as well as wildfire that partially or completely destroys the vegetative cover. The long term performance plan should also address the performance criteria for grazing of the Monticello repository cover.