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OCT 08 2002

Mr. James A. Saric, Remedial Project Manager  
United States Environmental Protection Agency  
Region V-SRF-5J  
77 West Jackson Boulevard  
Chicago, Illinois 60604-3590

DOE-0017-03

Mr. Tom Schneider, Project Manager  
Ohio Environmental Protection Agency  
401 East 5<sup>th</sup> Street  
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

**TRANSMITTAL OF THE DRAFT INTEGRATED ENVIRONMENTAL MONITORING PLAN,  
REVISION 3**

This letter serves to transmit the Draft Integrated Environmental Monitoring Plan (IEMP), Revision 3, for review by the United States Environmental Protection Agency (USEPA) and Ohio Environmental Protection Agency (OEPA). The IEMP has been revised to reflect the monitoring program design for 2003 and 2004; the IEMP is revised on a biennial schedule. Modifications to the monitoring programs that are incorporated in Revision 3 are primarily designed to do the following:

- Address any major remediation activities that are continuing or expected to begin during 2003 and 2004,
- Incorporate data and findings from the IEMP monitoring programs available at the time of Revision 3 development,
- Incorporate any new or revised regulatory requirements or agreements, and any commitments made through past IEMP Quarterly Status Reports, the 2000 or 2001 Site Environmental Reports, or associated comment response documents,
- Incorporate changes identified during the 2001 annual IEMP review and minor changes discussed during weekly teleconferences that were approved by the regulatory agencies

OCT 08 2002

Mr. James A. Saric  
Mr. Tom Schneider

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- Define the IEMP semi-annual data reporting strategy, in conjunction with the IEMP Data Information Site (extranet), as agreed to with the USEPA and OEPA.

To facilitate your review process, a summary table of proposed technical changes that were incorporated into this IEMP revision is enclosed.

As discussed with the USEPA and OEPA during meetings in September 2002, this IEMP revision contains modifications to refine the groundwater monitoring program based on the nearly five years of groundwater data collected under the IEMP. Attachment A of this letter includes a summary of both the revised and former groundwater monitoring requirements, including analytical constituents and wells for each groundwater sampling activity. The revised and former monitoring program summary is separated into Attachment A.1 and A.2, respectively, and is intended to provide the reviewer with a simplified overview of the two programs for comparison purposes. The technical justification for the refinement of the groundwater program is contained in Appendix A of the IEMP.

This IEMP revision also includes a modification to the reporting method for fulfilling a requirement contained within the Consolidated Consent Agreement/Federal Facility Compliance Agreement/Federal Facility Agreement/Remedial Investigation/Feasibility Study/Consent Decree agreement. Individual components of this consolidated agreement require the submittal of quarterly reports for effluent radionuclide data (selected surface water locations and radon data) that, since 1998, has been fulfilled through the quarterly IEMP data summary reports. Since this IEMP revision includes a change from quarterly to semi-annual report submittals, the reporting requirement for the radionuclide effluent data will be met through the continual posting of the data on the IEMP Data Information Site as this data becomes available. The USEPA and OEPA approval of the revised IEMP will signify concurrence with this change.

The target date for implementation of Revision 3 of the IEMP is January 1, 2003. This date supports the semi-annual reporting and sampling structure outlined in this revision of the IEMP. To support this implementation schedule, a prompt review of this document and transmittal of comments would be appreciated in order to allow sufficient time for comment resolution and ultimate approval before January 1, 2003.

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Mr. James A. Saric  
Mr. Tom Schneider

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If you have any questions about the IEMP, Revision 3, or the changes made for this revision, please contact Kathleen Nickel of my staff at (513) 648-3166.

Sincerely,



Johnny W. Reising  
Fernald Remedial Action  
Project Manager

FEMP:Nickel

## cc w/enclosures:

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**SUMMARY TABLE OF PROPOSED TECHNICAL CHANGES TO THE  
INTEGRATED ENVIRONMENTAL MONITORING PLAN, REV. 3**

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<b>Section/Page Number<sup>a</sup></b>	<b>Description of Proposed Modification</b>	<b>Driver/Technical Information</b>
Section 1.1, page 1-1	This section was updated to reflect the progress of several remediation projects, the IEMP monitoring programs and the recognition of December 2006 as the target site closure completion date as defined in the closure contract.	With more than five years of IEMP data collected since its inception in 1997, this background section required updates because of the remediation progress achieved beyond the remedial investigation phase. Target completion dates for the remediation projects are established as part of the 2006 site closure schedule.
Section 1.4, page 1-7	Historical details of pre-IEMP environmental monitoring evaluation approaches were deleted (few sentences) for clarification.	The text is no longer appropriate at this stage of the IEMP considering the progress of remediation. These historical details can be retrieved from previous IEMP revisions as needed.
Section 1.5.2 and 1.5.4, pages 1-9 through 1-12	Minor revisions to the methods of reporting potential noncompliances (weekly teleconference and IEMP mid-year data summary). Also revised organizational responsibility for these situations at the division level.	The modified text includes the weekly teleconference and revised titles of IEMP reports for reporting noncompliances. Responsible organizations are now primarily under one division.
Section 2.1, page 2-1	Discussion of operable unit management approach was deleted (few sentences) text was added to update the section with the current 2006 closure plan.	The text is no longer appropriate at this stage of the IEMP considering the progress of remediation.
Figure 2-1, page 2-2	Figure was updated with the current site closure schedule for each project.	The update is required due to the 2006 site closure plan.
Table 2-1, pages 2-3 through 2-6	Table was updated to include plans for amending the OU4 ROD to allow for elimination of treatment of Silo 3 waste prior to disposal at a permitted off-site disposal facility; and to allow for disposal of treated Silos 1 and 2 material at Envirocare of Utah as 11e(2) waste.	Silo 3 material is 11e(2) waste and is exempt from RCRA 40 CFR 261.4(a)(4); a key requirement of gaining acceptance of the amendment is the demonstration of safely handling and transporting the fine-grained material. For Silo 1 and 2 material, the project plans to dispose of the material at Envirocare, pending approval of the ROD amendment, to save disposal costs, enhance transportation logistics and meet the 2006 closure schedule
Section 2.1, pages 2-7 and 2-8	Added information on the current status of the remediation projects and their schedule acceleration initiatives in light of the 2006 site closure plan.	Given the progress of remediation and the maturity of most projects, the current status compared to the estimated completion goal (e.g., total waste volume or mass) provides additional perspective. Acceleration initiatives are critical to each project's success in achieving the revised target completion schedule.

**SUMMARY TABLE  
(Continued)**

Section/Page Number	Description of Proposed Modification	Driver/Technical Information
Section 2.2, pages 2-9 and 2-10	Concerning the general remediation activities planned for 2003-2004, the text was clarified to include the potential contaminant transport source is fugitive dust and stormwater runoff in most cases. Updates were also required to focus on general remediation activities planned for 2003-2004.	The section required updates to indicate the common remediation field activities for the 2003-2004 timeframe and clarification was needed on potential impacts to environmental media.
Table 2-2, pages 2-11 and 2-12	Updated the table with the projection of specific remediation activities (physical area, buildings, etc.) in 2003 and 2004 for each project.	The update is required for the 2003-2004 timeframe covered by Revision 3 of the IEMP.
Figure 2-2, page 2-13	Figure was updated to illustrate the physical location of primary remediation activities for 2003 and 2004.	The update is required for the 2003-2004 timeframe covered by Revision 3 of the IEMP.
Section 3.0 (global)	Changed the groundwater total uranium FRL to 30 ppb.	The OUS Explanation of Significant Differences (ESD) document was approved by the EPA and OEPA in November 2001.
Table 3-1, Section 3.2.2	Removed action for dose assessment that evaluates the contribution of the groundwater pathway to the annual dose to the public (DOE Order 5400.5).	No dose assessment pertaining to groundwater is required since a public water supply is now available.
Section 3.3.3	Modified responsibility boundary for monitoring the On-Site Disposal Facility. Aquifer Restoration Project is responsible for leak detection monitoring and leachate monitoring, conveyance and treatment. Soil and Disposal Facility Project is responsible for OSDF construction, filling, capping and maintenance.	Project responsibilities have been redefined therefore the IEMP has been revised to reflect the current responsibilities of the projects involved.
Section 3.4.2.1	Added a new section heading called Background.	Background information was separated from the Modular Approach to Aquifer Restoration section (now 3.4.2.2)
Section 3.4.2.2	Updated to include Waste Storage Area (Phase I) and South Field (Phase II) designs.	Results of both designs needed to be added to IEMP.
Section 3.4.2.3	Updated to reflect current field conditions and off property limitations in selecting monitoring well locations.	Installation of new monitoring wells to address changes made to remediation design with incorporation of WSA and South Field Phase II wells.
Section 3.4.2.4, Table 3-2; Appendix A	Refocus the monitoring program based on more recent data collected since inception of IEMP sampling. Refined the monitoring protocol based on where FRL exceedances are occurring.	See Appendix A for detailed justification of changes. Two attachments to this table are also provided for comparative purposes. Attachment A.1 summarizes the recommended monitoring program and Attachment A.2 summarizes the program defined in the IEMP Revision 2 (2001-2002 program).
Section 3.5; Section 3.6.2; and Appendix A (and all associated tables)	Sample for area-specific FRL exceedances (i.e., total uranium and 13 additional constituents) on a semi-annual frequency at various locations including the property/plume boundary.	See Appendix A for detailed justification of changes. Two attachments to this table are also provided for comparative purposes. Attachment A.1 summarizes the recommended monitoring program and Attachment A.2 summarizes the program defined in the IEMP Revision 2 (2001-2002 program).

**SUMMARY TABLE  
(Continued)**

Section/Page Number	Description of Proposed Modification	Driver/Technical Information
Section 3.6.2.2	Added Re-Injection monitoring to the South Field area monitoring program.	All injection wells are in the South Field area, therefore it is a better fit to have re-injection monitoring as a subsection of the South Field monitoring.
Section 3.7	Revised and clarified data evaluation procedures.	Incorporate new VAM-3D and ZOOM groundwater models.
Section 4.3, page 4-7	Update description of programmatic boundary based on changes in controlled and uncontrolled areas of storm water runoff	The update is required for the 2003 – 2004 timeframe covered by Revision 3 of the IEMP.
Figure 4-2	Modification of controlled and uncontrolled storm water runoff areas based on current project status.	The update is required for the 2003 – 2004 timeframe covered by Revision 3 of the IEMP.
Section 4.4.2; Section 4.4.2.1; Table 4-2; Table 4-3; Table 4-4; Table 4-5; Section 4.6.1, page 4-41; Appendix B	Updated the surface water monitoring program based on more recent data collected from August 1997 through December 2001 (Appendix B reflects information with respect to this time frame). The evaluation allowed for 1) the elimination of sampling of several constituents that had not exceeded their respective FRLs/BTVs and 2) elimination of “insufficient number of historical analyses” as a criterion. Appendix B (Table B-1) summarizes the evaluation results.	The surface water evaluation results were approved by EPA and OEPA and are included in Revision 3 of the IEMP. The final evaluation results and tables were submitted with the First IEMP Data Quarterly Summary for 2002. This evaluation was driven by the criterion for determining whether monitoring for constituents with “insufficient analyses” should continue or cease after additional data were collected, as identified in Section 4.6.1 (Data Evaluation) of the IEMP (Rev. 2).
Section 4.4.2.4, page 4-19	Updated information relative to Southern Waste Units, WPRAP, and Silos projects.	The update is required for the 2003 – 2004 timeframe covered by Revision 3 of the IEMP.
Section 4.0 (global)	Changed reference groundwater total uranium FRL from 20 ppb to 30 ppb. Added years 2000 and 2001 to figure.	The OU5 ESD document was approved by the EPA and OEPA in November 2001.
Section 4.4.2.7, page 4-25; Figure 4-7	Added reference to NPDES Permit Renewal Application submitted to OEPA on April 30, 2002. Also added NPDES location 4004A to figure.	NPDES Permit Renewal Application.
Section 4.4.2.8, page 4-27	Eliminated reference to South Field Leachate System and the associated sampling thereof.	The update is required for the 2003 – 2004 timeframe covered by Revision 3 of the IEMP.
Section 4.6.2, Page 4-42	The text was revised to state that the Federal Facility Compliance Agreement (FFCA) radionuclide effluent data reporting requirement will now be met via the IEMP Data Information Site.	The radionuclide effluent data (selected surface water locations and radon data) reporting requirement of the Consolidated Consent Agreement/FFCA/ Federal Facility Agreement/ Remedial Investigation/ Feasibility Study/ Consent Decree Progress Report was previously fulfilled through the IEMP quarterly data reports. This quarterly requirement will now be fulfilled through the utilization of the IEMP Data Information Site in conjunction with a semi-annual reporting schedule.

**SUMMARY TABLE  
(Continued)**

Section/Page Number	Description of Proposed Modification	Driver/Technical Information
Section 5.1, pages 5-1 and 5-2; Section 5.2, pages 5-2 through 5-4; Section 5.3, page 5-5; Table 5-1, page 5-5; various pages in Section 5	Deleted a paragraph suggesting that the IEMP would be used to document and plan for sediment certification activities. Modified the text to identify that FRL and BTV attainment will be determined and documented by the Soil & Disposal Facility Project, not the IEMP. Also stated that some sediment sampling and excavation is planned for 2003 and 2004 under the Stream Corridors excavation design and certification subproject.	While the IEMP may continue to define annual sampling of sediment following certification of upstream areas within the watershed, it will not serve the purpose of identifying and delineating contamination, if present, nor certifying that the sediment meets FRLs. This function is the responsibility of the Soil & Disposal Facility Project. Due to pre-design and certification sampling being planned for 2003 and 2004, it is necessary to integrate this sampling with the annual IEMP sediment sampling program.
Section 5.4.2, page 5-6	Updated the planned excavation and construction activities for 2003 and 2004.	The update is required for the 2003-2004 timeframe covered by Revision 3 of the IEMP.
Section 5.4.2, pages 5-6 And 5-8	Condensed the discussion of the past 10 years of sediment data results into a brief summary. Added a discussion on integration of the annual IEMP sediment sampling program with project-specific pre-design and certification sampling as necessary.	The detailed discussion of historical data results is no longer essential to this section. Only one sediment FRL exceedance has been observed since 1991. Due to pre-design and certification sampling being planned for 2003 and 2004, it is necessary to integrate this sampling with the annual IEMP sediment sampling program.
Section 5.6.1, page 5-18	Deleted two sentences pertaining to the elimination of four sediment sampling locations beginning in 1999. Also added text to indicate that data evaluation will be integrated to include both IEMP sediment results (if necessary) and projectspecific pre-design and certification sediment sampling.	Three years of sediment data sets indicate that contingency sampling that was dependent on upstream total uranium results at the four locations (eliminated in 1999) is not necessary. Regarding integration with pre-design sampling activities, this is necessary to avoid duplication of effort.
Section 6.1, pages 6-1 and 6-2	Text and bulleted items revised to update potential major sources of emissions and accelerated clean-up schedule initiatives expected to be active during 2003 and 2004.	The update is required for the 2003-2004 timeframe covered by Revision 3 of the IEMP.
Section 6.4.2.1, pages 6-15 through 6-16; Appendix C (Section C.3.3.1)	Text and table were revised to reflect the proposed change (from biweekly to monthly) in the frequency of isotopic thorium analysis at fence line and background air monitors	Monthly thorium analysis will provide sufficient feedback regarding the cumulative site wide effectiveness of project-specific emission controls. Following the start of the WPRAP pug mill ventilation system, fence line Th-230 concentrations have remained low while dryer throughput and Th-230 concentration in feed material have increased. Accelerated schedule and remediation projects do not have significant potential to increase fence line thorium concentrations beyond current or historical levels. In addition, there is no longer on-site thorium analysis capability (which previously provided quick turn-around results at relatively low cost). Also, biweekly thorium data does not add sufficient value due to relatively low site emissions compared to 10 mrem NESHAP standard.
Section 6.4.2.1, pages 6-11 and 6-14; Figure 6-1;	Text and figures revised to reflect the proposed reduction in number (from two to one) of background air monitoring locations. AMS-16	With more than five years of operational experience collecting and evaluating background air data, improved laboratory reliability and analytical data quality, and a comprehensive database of background

**SUMMARY TABLE  
(Continued)**

<b>Section/Page Number</b>	<b>Description of Proposed Modification</b>	<b>Driver/Technical Information</b>
Figure 6-4; Section 6.4.2.3, page 6-21; Appendix C (Section C.3.3.1) Figure 6-2	would be eliminated and AMS-12 would remain as a background monitoring location.  Windrose figure was revised and updated to reflect five year period from 1997 through 2001.	data indicating similar results, there is sufficient justification to utilize one background monitor. In addition, recent expansion of light industry in the area around AMS-16 may not be entirely representative of a background area.  Update necessary to provide most recent five-year windrose data.
Section 6.4.2.2, pages 6-17 through 6-20; Figure 6-3	Text and figure to be revised to reflect the proposed reduction in number (from two to one) of background radon monitors. AMS-16 would be eliminated and AMS-12 would remain as a background radon monitor.	Based on data from 1998 through 2001, the annual average radon concentration at AMS-16 is comparable to AMS-12 concentration, no additional data value is provided by second background radon monitor. Several years background radon data have been collected and a comprehensive database of typical background radon concentrations have been amassed. AMS-12 is now monitored continuously via wireless data collection thereby substantially reducing the risk of data loss. In addition, recent expansion of light industry in the area around AMS-16 may not be entirely representative of a background area.
Section 6.4.2.3, pages 6-20 and 6-21; Figure 6-4	Text and Figure 6-4 were revised to reflect the addition of five direct radiation monitoring (TLD) locations. The locations and designations for the monitors are:  <ul style="list-style-type: none"> <li>• Location 43 located near the KNW-A radon monitor</li> <li>• Location 44 located near the KSW-A radon monitor</li> <li>• Location 45 located near the KSO radon monitor</li> <li>• Location 46 located south of the transfer tank area building</li> <li>• Location 47 located south on the (future) waste treatment facility.</li> </ul>	The existing IEMP TLD monitoring network has been modified in late 2002 to take into account the pending relocation of the wastes stored in Silos 1 and 2. As necessary, current TLD locations were adjusted and new TLD locations added to adequately characterize and monitor the direct radiation in the vicinity of the Silos project and the site fence line.
Section 7.5.2, pages 7-6 through 7-8; Table 7-2	Text and table were modified to designate total uranium and thorium-230 as the target constituents for produce sample analysis.	The relative concentrations of radionuclides in airborne emissions have changed and modifications to the produce sampling and analysis program are needed in order to refine the focus of the produce monitoring.
Section 8.2.2, pages 8-2 and 8-3	Updated this summary of all IEMP media-specific monitoring programs with the changes for 2003 and 2004 contained in other IEMP sections.	The update is required for the 2003-2004 timeframe covered by Revision 3 of the IEMP.
Section 8.3.1, page 8-5	Revised the text regarding the 1986 FFCA and the reference to a 1996 agreement to state that the requirement for quarterly progress reports will be met through posting of data to the IEMP Data Information Site.	The EPA and OEPA agreed to begin semi-annual IEMP reporting in conjunction with continual posting data to the IEMP Data Information Site as data becomes available. Refer to the Section 8.3.3 change below.

**SUMMARY TABLE**  
(Continued)

Section/Page Number	Description of Proposed Modification	Driver/Technical Information
Section 8.3.3, pages 8-6 and 8-7; (also revised reporting subsections for each media accordingly)	Revised text to specify that IEMP reporting will include a mid-year data summary submitted in November of each year, the annual site environmental report submitted in June of each year and ongoing updates to the IEMP Data Information Site. Also defined that the mid-year data summary would include the sample data collected from January through June of the respective year.	The change from quarterly reporting of IEMP data to semi-annual reporting, in conjunction with continual updates to the IEMP Data Information Site (extranet), was agreed upon by DOE, EPA, and OEPA.
Figure 8-1, page 8-8	Revised figure to align with the mid-year data summary and the annual site environmental report content.	The change from quarterly reporting of IEMP data to semi-annual reporting, in conjunction with continual updates to the IEMP Data Information Site (extranet), was agreed upon by DOE, EPA, and OEPA.
Appendix A	See references to Appendix A above under Section 3.4 and 3.5.	See references to Appendix A above under Section 3.4 and 3.5.
Appendix B	Figures modified and some figures deleted to reflect the actual FRL/BTV exceedances which have occurred from August 1997 through December 2001. Table B-1 was added to the appendix to identify the constituents that were removed from monitoring.	As identified in Section 4.6.1 of the IEMP. The surface water monitoring program should be updated with data collected under the IEMP to ascertain whether monitoring for constituents with "insufficient analyses" should continue. The evaluation results were approved by EPA and OEPA and included in Revision 3 of the IEMP.
Appendix C	See changes above under Section 6.4.2.1 which reference Appendix C.	See changes above under Section 6.4.2.1 which reference Appendix C.
Section D.2.3, page D-3	Remove the statement regarding comment opportunity by the Advisory Council on Historic Preservation	Revision to the National Historic Preservation Act
Section D.2.4, page D-4	Refer to signed Memorandum of Understanding (MOU)	The MOU was signed in 2001.
Section D, D.2.4, page D-4; Attachment D, Section D.3, Page D.1-6	Refer to annual consolidated monitoring report for restored areas at the FEMP	Summary information regarding restoration monitoring is provided in annual site environmental reports. Detailed discussions and data are presented in the annual consolidated monitoring reports for restored areas. The first report was developed in 2001.
Section D.4.1.1, page D-7	Discuss cessation of visual turbidity observations in the northern drainage ditch until deemed necessary due to remediation activities	Cessation of visual turbidity observations verbally agreed to by OEPA in May 2002. This change was identified to EPA and OEPA through the May 28 weekly conference call.
Section D.4.5, page D-12	Update Table D-2 to reflect monitoring commitments in 2003 and 2004	The update is required for the 2003-2004 timeframe covered by Revision 3 of the IEMP.

\*Page numbers refer to the page on which the modification was made in Revision 3 of the IEMP.

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**INTRODUCTION FOR  
SUMMARY TABLE ATTACHMENTS A.1 & A.2**

**INTRODUCTION FOR SUMMARY TABLE ATTACHMENTS A.1 AND A.2**

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To facilitate the review, summaries of the monitoring requirements, including constituents and wells for each associated sampling activity are presented for both the proposed and the current program in Attachments A.1 and A.2, respectively. The proposal acknowledges the five years worth of groundwater data that has been collected since 1997 under the IEMP, to identify which constituents need to be analyzed more frequently (semi-annual cycle) and which can be captured by the five-year total FRL list requirement. The proposal also places a greater emphasis on uranium monitoring to track the success of the restoration effort, increasing the number of wells from 126 to 148. The five-year sampling is essentially the same under the current and proposed programs (i.e., all FRL constituents at all locations, chromium and dioxin exceptions noted in Appendix A). These attachments are in similar format to facilitate comparison of the existing and proposed sampling activities.

**ATTACHMENT A.1**  
**PROPOSED MONITORING PROGRAM**

PROPOSED MONITORING PROGRAM<sup>a</sup>

TABLE A.1-1

## ANALYTICAL SUMMARY

**1. TOTAL URANIUM** (148 wells – 47 wells are from the programs below)**2. WASTE STORAGE AREA** (7 wells)

General Chemistry	Inorganic	Radionuclide	Organic
Nitrate/Nitrite	Manganese Molybdenum	Technetium-99 Total Uranium <sup>b</sup>	Carbon Disulfide Trichloroethene

**3. SOUTH FIELD** (2 wells)

General Chemistry	Inorganic	Radionuclide	Organic
NA	Boron	Total Uranium <sup>b</sup>	NA

**4. PROPERTY/PLUME BOUNDARY FOR FRL EXCEEDANCES** (38 wells)

General Chemistry	Inorganic	Radionuclide	Organic
Fluoride	Antimony Arsenic Lead Manganese Nickel Zinc	Total Uranium <sup>b</sup>	NA

**5. PROPERTY/PLUME BOUNDARY FOR PRRS** (11 wells are a subset of the 38 Property/Plume Boundary)

General Chemistry	Inorganic	Radionuclide	Organic
Phosphorous	Arsenic <sup>c</sup> Potassium Sodium	NA	Benzene Ethyl benzene Isopropyl benzene Toluene Total xylene

<sup>a</sup>Monitoring for the constituents shown in this table will be conducted semi-annually. The remaining constituents on the FRL list are analyzed as part of the 5-year requirement.

<sup>b</sup>Total uranium is monitored as part of the site-wide uranium monitoring.

<sup>c</sup>Arsenic is also monitored with respect to FRL exceedances as part of the Property/Plume Boundary.

TABLE A.1-2

LISTING OF IEMP GROUNDWATER MONITORING WELLS<sup>a</sup>

Number	Total Uranium Monitoring	Property/Plume Boundary Monitoring			Waste Storage Area Monitoring - FRL Exceedances	South Field Monitoring - FRL Exceedances
		Monitor FRL Exceedances	Monitor OSDF Constituents <sup>b</sup>	Monitor PRRS Constituents <sup>c</sup>		
1	13					
2	14					
3	2002					
4	2008					
5	2009					
6	2010				2010	
7	2014					
8	2016					
9	2015					
10	2017					
11	2032					
12	2037				2037	
13	2045					2045
14	2046					
15	2048					
16	2049					2049
17	2054					
18	2060 (12)					
19	2068					
20	2070	2070				
21	2093	2093				
22	2095					
23	2106					
24	2109					
25	2118					
26	2125					
27	2128	2128		2128		
28	2166					
29	2385					
30	2386					
31	2387					
32	2389					
33	2390					
34	2396					
35	2397					
36	2398	2398				
37	2402					
38	2426	2426				
39	2429	2429				
40	2430	2430				
41	2431	2431				
42	2432	2432				
43	2550					

TABLE A.1-2  
(Continued)

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Number	Total Uranium Monitoring	Property/Plume Boundary Monitoring			Waste Storage Area Monitoring - FRL Exceedances	South Field Monitoring - FRL Exceedances
		Monitor FRL Exceedances	Monitor OSDF Constituents <sup>b</sup>	Monitor PRRS Constituents <sup>c</sup>		
44	2552					
45	2553					
46	2625	2625		2625		
47	2636	2636		2636		
48	2648				2648	
49	2649				2649	
50	2733	2733				
51	2821				2821	
52	2880					
53	2897					
54	2898	2898		2898		
55	2899	2899		2899		
56	2900	2900		2900		
57	3009				3009	
58	3014					
59	3015					
60	3032					
61	3045					
62	3046					
63	3049					
64	3054					
65	3067	3067				
66	3069					
67	3070	3070				
68	3093	3093				
69	3095					
70	3106					
71	3125					
72	3128	3128		3128		
73	3385					
74	3387					
75	3390					
76	3396					
77	3397					
78	3398	3398				
79	3402					
80	3424	3424				
81	3426	3426				
82	3429	3429				
83	3431	3431				
84	3432	3432				
85	3550					
86	3552					

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TABLE A.1-2  
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Number	Total Uranium Monitoring	Property/Plume Boundary Monitoring			Waste Storage Area Monitoring - FRL Exceedances	South Field Monitoring - FRL Exceedances
		Monitor FRL Exceedances	Monitor OSDF Constituents <sup>b</sup>	Monitor PRRS Constituents <sup>c</sup>		
87	3636	3636		3636		
88	3733	3733				
89	3821				3821	
90	3880					
91	3897					
92	3898	3898		3898		
93	3899	3899		3899		
94	3900	3900		3900		
95	4125					
96	4398	4398				
97	6880					
98	6881					
99	21033					
100	21063	21063				
101	21192					
102	22204	22204	22204			
103	22205	22205	22205			
104	22208	22208	22208			
105	22198	22198	22198			
106	22199	22199	22199			
107	23064					
108	23118					
109	23271					
110	23272					
111	23273					
112	23274					
113	23275					
114	23276					
115	23277					
116	23278					
117	23279					
118	23280					
119	23281					
120	23282					
121	31217	31217				
122	32766					
123	32768					
124	62408					
125	62433					
126	63116					
127	63119					
128	63121					
129	63122					
130	63283					

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**TABLE A.1-2  
(Continued)**

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Number	Total Uranium Monitoring	Property/Plume Boundary Monitoring			Waste Storage Area Monitoring - FRL Exceedances	South Field Monitoring - FRL Exceedances
		Monitor FRL Exceedances	Monitor OSDF Constituents <sup>b</sup>	Monitor PRRS Constituents <sup>c</sup>		
131	63284					
132	63285					
133	63286					
134	63287					
135	63288					
146	63289					
137	63290					
138	63291					
139	63292					
140	82433					
141	83117					
142	83120					
143	83123					
144	83124					
145	83293					
146	83294					
147	83295					
148	83296					

<sup>a</sup>The Column 1 number is used to identify the number of wells in the overall program. The individual monitoring well identification numbers are provided in Columns 2-7 as appropriate.

<sup>b</sup>Listing of total uranium monitoring wells and Property/Plume Boundary monitoring wells that overlap with OSDF monitoring wells.

<sup>c</sup>Listing of total uranium monitoring wells and Property/Plume Boundary monitoring wells that overlap with PRRS monitoring wells.



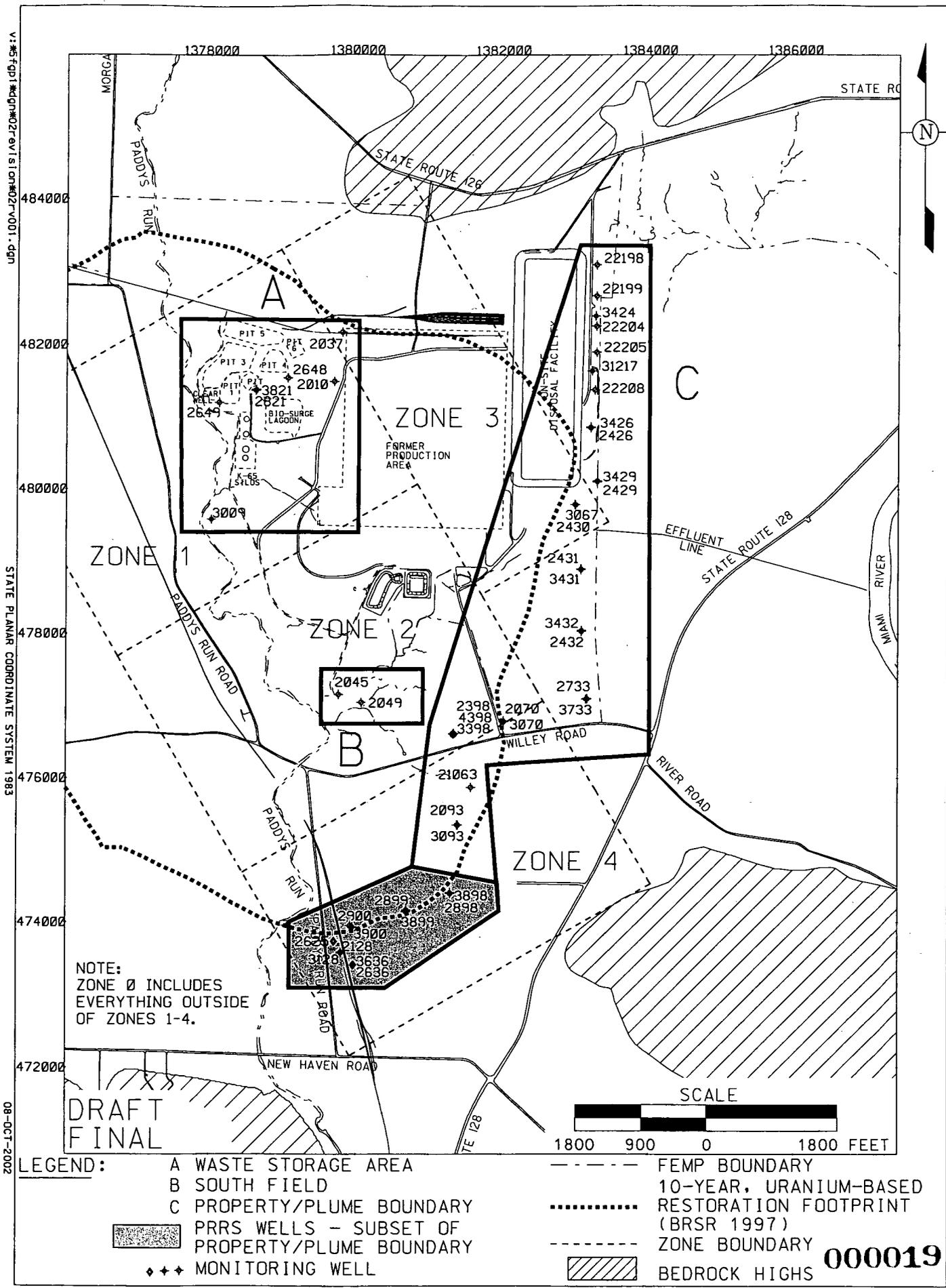


FIGURE A.1-2. LOCATIONS FOR SEMI-ANNUAL URANIUM AND NON-URANIUM MONITORING PROPERTY/PLUME BOUNDARY, SOUTH FIELD, AND WASTE STORAGE AREA

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STATE PLANNING COORDINATE SYSTEM 1983  
08-OCT-2002

**ATTACHMENT A.2**  
**CURRENT PROGRAM UNDER IEMP REVISION 2 (2001 & 2002)**  
**MONITORING REQUIREMENTS**

## ATTACHMENT A.2

**CURRENT PROGRAM UNDER IEMP REVISION 2 (2001 & 2002)  
MONITORING REQUIREMENTS**

Monitoring Frequency: Quarterly and Annual Components identified below

**1. TOTAL URANIUM** (126 wells - these wells include wells from the programs below and also include the private wells)

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**2. WASTE STORAGE AREA** (11 wells)

Constituents Categorized as ">MP" shown in **Bold** are Analyzed Quarterly  
All <MP and >N Constituents are Analyzed Annually

General Chemistry	Inorganic	Radionuclide	Organic
<b>Fluoride</b>	Antimony	Neptunium-237	alpha-Chlordane
<b>Nitrate/Nitrite</b>	Arsenic	<b>Strontium-90</b>	Bromodichloromethane
	Beryllium	<b>Technetium-99</b>	Carbon disulfide
	Boron	Thorium-228	1,2-Dichloroethane
	Cadmium	<b>Total Uranium</b>	Trichloroethene
	Cobalt		Vinyl chloride
	Lead		
	Manganese		
	<b>Mercury</b>		
	Molybdenum		
	Nickel		
	Selenium		
	Silver		
	Vanadium		
	Zinc		

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**3. SOUTH FIELD** (27 wells)

Constituents Categorized as ">MP" Shown in **Bold** are Analyzed Quarterly  
All <MP and >N Constituents are Analyzed Annually

General Chemistry	Inorganic	Radionuclide	Organic
<b>Fluoride</b>	Antimony	<b>Neptunium-237</b>	alpha-Chlordane
<b>Nitrate/Nitrite</b>	Arsenic	Strontium-90	Bromodichloromethane
	<b>Boron</b>	Technetium-99	Carbon disulfide
	Cadmium	Thorium-228	1,2-Dichloroethane
	Lead	Thorium-232	Trichloroethene
	Manganese	<b>Total Uranium</b>	Vinyl chloride
	<b>Mercury</b>		
	Nickel		
	Selenium		
	Vanadium		
	Zinc		

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**4. PROPERTY BOUNDARY (33 wells) – All Constituents Analyzed Quarterly**

General Chemistry	Inorganic	Radionuclide	Organic
Fluoride	Antimony	Neptunium-237	Benzene
Nitrate/Nitrite	Arsenic	Strontium-90	Carbon disulfide
	Beryllium	Technetium-99	Trichloroethene
	Boron	Thorium-228	
	Cadmium	Thorium-232	
	Cobalt	Total Uranium	
	Lead		
	Manganese		
	Mercury		
	Molybdenum		
	Nickel		
	Selenium		
	Silver		
	Vanadium		
	Zinc		

**5. SOUTH PLUME - ACTIVITY 2 (20 wells)**

Constituents Categorized as ">MP" Shown in **Bold** are Analyzed Quarterly

All <MP and >N Constituents are Analyzed Annually

General Chemistry	Inorganic	Radionuclide	Organic
Fluoride	Antimony	<b>Neptunium-237</b>	Alpha-Chlordane
Nitrate/Nitrite	Arsenic	Radium-226	Bromodichloromethane
	Barium	<b>Strontium-90</b>	1,1-Dichloroethene
	Beryllium	Technetium-99	<b>1,2-Dichloroethane</b>
	Boron	Thorium-228	Trichloroethene
	Cadmium	Thorium-232	Vinyl chloride
	Cobalt		
	Lead		
	Manganese		
	<b>Mercury</b>		
	Nickel		
	Selenium		
	Silver		
	Vanadium		
	Zinc		

Note: Total Uranium is monitored at 43 wells for South Plume - Activity 1.

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6. SOUTH PLUME - PRRS - ACTIVITY 3 (11 wells)

All Constituents Analyzed Quarterly

General Chemistry	Inorganics	Organics
Phosphorus	Arsenic Potassium Sodium	Benzene Ethyl benzene Isopropyl benzene Toluene Total xylene

7. PLANT 6 AREA (5 wells)

Constituents Categorized as ">MP" Shown in **Bold** are Analyzed Semiannually

All <MP and >N Constituents Analyzed Annually

General Chemistry	Inorganic	Radionuclide	Organic
Fluoride	Antimony	Neptunium-237	alpha-Chlordane
Nitrate/Nitrite	Arsenic	<b>Strontium-90</b>	Bromodichloromethane
	Beryllium	Technetium-99	Carbon disulfide
	Boron	Thorium-228	1,2-Dichloroethane
	Cadmium	<b>Total Uranium</b>	Vinyl chloride
	Cobalt		
	Lead		
	Manganese		
	<b>Mercury</b>		
	Molybdenum		
	Nickel		
	Selenium		
	Vanadium		
	Zinc		

