

**HARD COPY DISTRIBUTION  
UNIT MANAGERS' MEETING,  
200 AREA GROUNDWATER SOURCE OPERABLE UNITS  
October 18, 2006**

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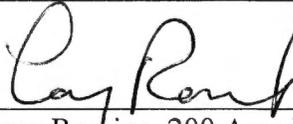
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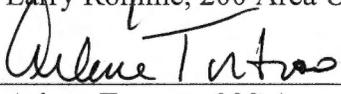
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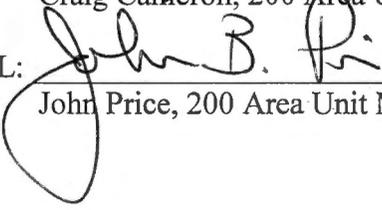
**Meeting Minutes Transmittal/Approval  
Unit Managers' Meeting  
200 Area Groundwater and Source Operable Units  
1200 Jadwin Avenue, Richland, Washington  
October 18, 2006**

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APPROVAL:  Date: 11/27/06  
Larry Romine, 200 Area Unit Manager, DOE/RL

APPROVAL:  Date: 11/27/06  
Arlene Tortoso, 200 Area Assistant Manager, DOE/RL

APPROVAL:  Date: 11/16/06  
Craig Cameron, 200 Area Unit Manager, EPA

APPROVAL:  Date: 11/16/2006  
John Price, 200 Area Unit Manager, Ecology

# 200 AREA UNIT MANAGERS' MEETING DRAFT AGENDA

1200 Jadwin/Rm 1-C-1  
October 18, 2006

## GROUNDWATER OPERABLE UNITS STATUS (8:30-9:15)

### ISSUE RESOLUTION (9:15- )

- (See Issues List)

## SOURCE OPERABLE UNITS AND FACILITIES STATUS (9:15-10:00)

### General

- Outstanding Action Items
- Open for Regulatory Topics or Action Items

Minutes of the 200 Area Unit Managers' Meeting of October 18, 2006 are attached. Minutes are comprised of the following:

Attachment 1	Agenda
Attachment 2	Attendance Record
Attachment 3	Groundwater Operable Units Status
Attachment 4	200-UP-1 Rebound Study, Technetium-99
Attachment 5	200-UP-1 Rebound Study, Uranium
Attachment 6	Tc-99 concentrations in extraction wells 299-W15-44 and 299-W15-765
Attachment 7	New ZP-1 Well DD (C5101, 299-W11-86)
Attachment 8	Carbon Tetrachloride Soil Vapor Monitoring Plan for October 2006 through March 2007
Attachment 9	Comparison of Maximum Carbon Tetrachloride Rebound Concentrations Monitored at 200-PW-1 Soil Vapor Extraction Sites FY 2003 – FY 2006
Attachment 10	200-PO-1 Groundwater Monitoring-Fourth Quarter Activity, Figures 1-5.
Attachment 11	200-BP-5 Groundwater OU Proposed F, I, and J Well Location Map.
Attachment 12	Source Operable Units and Facilities Status
Attachment 13	Agreements and Issues List
Attachment 14	Action Item List

200 Area Unit Managers Status Meeting  
October 18, 2006

Please print clearly and use black ink

PRINTED NAME	ORGANIZATION	O.U. ROLE	TELEPHONE
Jenne Sealer	Ecology	200 area	372-7956
Arden Tonto	DOE-RC	UM	373-9631
Frank Roddy	DOE/RL	LW142	372-0945
Shawney Simon	ODDGS		(541) 912 0853
Rob P/OOZ	FH		373-3285
Open Name	Eco		372-7930
Jon Lindberg	PNNL	200-PD-1	376-5005
Janice Williams	FH		2-3553
John Winterhalter	FH	ENW	2-8144
Curtis Koiker	FH		373-3461
GLORIA CUMMINGS	FH	200-PD-1	372-2484
Greg Thomas	FH	200-BP-5	373-3907
Brian Charbonneau	RL	UM	373-6137
John Price	ECY	UM	372-7921
Stuart Lyttell	PNNL		6-6023
SUB/L	FH	GW	373-3804
Virginia Rohay	FH	200-PW-1	373-3803
Rod Lobos	EPA		
Craig Cameron	EPA		
R Douglas Alderman	DOE-RL	BP-3	373-9126



# 200-UP-1, 200-ZP-1, AND 200-ZP-2 GROUNDWATER OPERABLE UNITS

October 18, 2006

## GROUNDWATER OPERABLE UNITS STATUS

### Institutional Controls for 200-ZP-1 and 200-UP-1 OU Wells:

- All groundwater monitoring wells are capped and locked. Only approved sampling staff and selected field management have access to keys.
- The 200-ZP-1 and 200-UP-1 OUs both have restricted access, requiring U.S. Department of Energy badge to access the site.
- None of the wells within the 200-ZP-1 and 200-UP-1 OUs are allowed to be used as drinking water wells.

### **200-UP-1 OU**

- Rebound Study:
  - Tc-99 and uranium concentrations are still below the interim RAOs of 9,000 pCi/L and 480 µg/L respectively (**Attachments 4 and 5**).
  - Ecology is working on an Explanation of Significant Difference (ESD) for the UP-1 interim ROD.
- RI/FS Work Plan:
  - Six of 12 new 200-UP-1 wells (UP1, UP2, UP3, UP4, UP5, and UP11) required by the RI/FS Work Plan have been installed. The remaining six are scheduled for FY2008.

### **200-ZP-1 OU**

- Remediation Treatment Status:
  - Between September 11 and September 30, 2006 the 200-ZP-1 pump-and-treat system average pumping rate was approximately 263 gpm.
  - A 10<sup>th</sup> 200-ZP-1 extraction well was put online September 28, 2006. It is currently pumping at 7.5 gpm. A larger pump is being purchased to boost pumping rates.
  - During this period a short system shutdown occurred due to a lock and tag power outage.
  - Extraction Well #5 went down September 12 and needs a pump replacement. Extraction Well #4 went down last week. These wells are scheduled to be repaired following the replacement of the pump in 299-W15-6.
  - **Attachment 6** shows the most recent Tc-99 concentrations in extraction wells 299-W15-765 and 299-W15-44. The average Tc-99 concentration of the mixed extraction water entering the ZP-1 treatment building is still below the

- MCL of 900 pCi/L.
- The Draft A Treatability Test Plan for Tc-99 removal from groundwater is ready for DOE-RL and EPA review.
- The implementation schedule shows the installation and testing of the Purolite resin to be performed in the Spring of FY2007. MSE will be assisting this effort.
- DNAPL Investigation Status:
  - Vista Engineering is currently incorporating comments received on the Draft A DNAPL investigation report.
- New Well Status:
  - New ZP-1 well DD (C5101, 299-W11-86) (**Attachment 7**) had some problems during well completion. FH should know today the results from the implementation of the recovery plan. FH requires that this well be re-drilled.
  - New ZP-1 well EE (C5102, 299-W14-71) has reached the lower mud unit and is being completed as a monitoring well. This well is about 1,000 feet north of U Plant.
  - New well AA (C5103, 299-W14-72) will be reaching total depth in the next week or so. This well is between PFP and the Old Laundry Facility.
- RI/FS Status:
  - RI Report:
    - Currently going through the FH signature process.
  - FS Report:
    - Background text sections and summary of RI Report sections are complete.
    - The detailed screening of technologies is approximately 70% complete.
    - Data Management Plan is still being finalized.
    - Vista Engineering interviewed 5 companies for performing risk calculations for the ZP-1 baseline risk assessment.
- Tc-99 Investigation Status:
  - The draft DQO summary report is being prepared for stakeholder review.

#### 200-PW-1 OU

- Soil Vapor Extraction System (SVE):
  - The FY2005 annual summary report was issued.
  - The system average extraction rate was 225 cfm between September 11 and September 30, 2006.
  - The SVE system was shut down for the winter on September 29, 2006.
- The passive system remains operational.

- The carbon tetrachloride soil vapor monitoring plan for October 2006 through March 2007 was approved by DOE-RL and EPA on 9/25/06. The approved plan will be attached to the October 2006 UMM meeting minutes (**Attachment 8**).
- Monthly monitoring results for September 2006 are presented in **Attachment 9**.

## 200-PO-1 GROUNDWATER OPERABLE UNIT

October 18, 2006

### GROUNDWATER OPERABLE UNIT STATUS

#### 200-PO-1 OU

- Regulatory Path Forward:
  - A tentative agreement has been reached on a regulatory path forward as part of M-013-00 & M-015-00 milestone negotiations pending public review and comment.
- Groundwater Well Sampling & Analysis:
  - 200-PO-1 OU Preliminary 2006 Monitoring Well Information (**Attachment 10**)
- DQO:
  - The DQO process continued for a 200-PO-1 OU investigation effort. Additional work is being done on listing and screening of COPCs to be consistent with the efforts done at 200-ZP-1 and 200-UP-1 OUs.

## 200-BP-5 GROUNDWATER OPERABLE UNIT

October 18, 2006

### GROUNDWATER OPERABLE UNIT STATUS

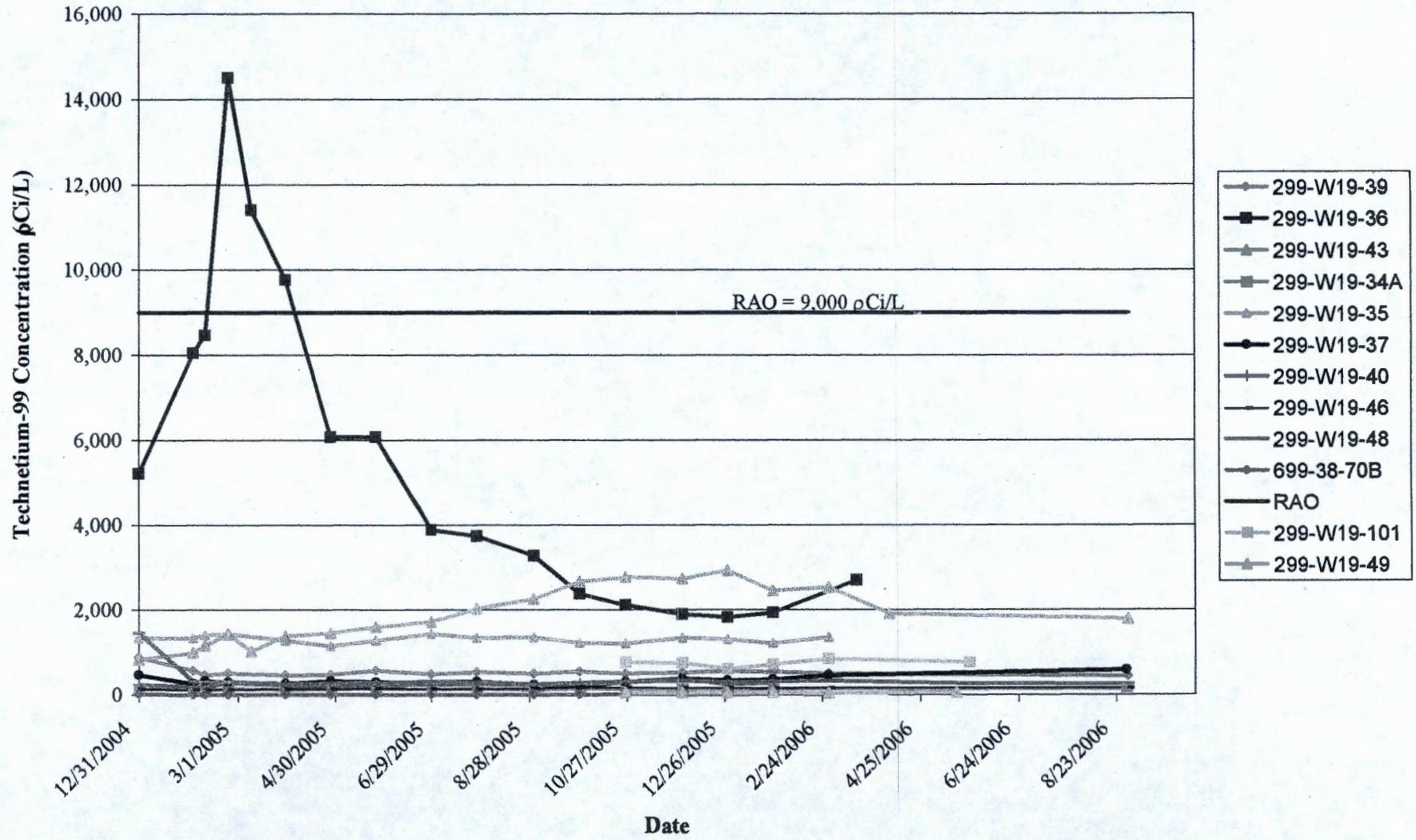
**Drilling SAP:** Revisions completed and awaiting EPA signature. Scope is drilling F, I and J wells from the DQO (See **Attachment 11**).

**Drilling:** Start drilling the week of October 23.

**DQO Report:** EPA comments are being incorporated.

**Work Plan:** Work plan is in progress. The decisional draft is scheduled to be completed by the beginning of December 2006. Work is currently focused on Sections one and two.

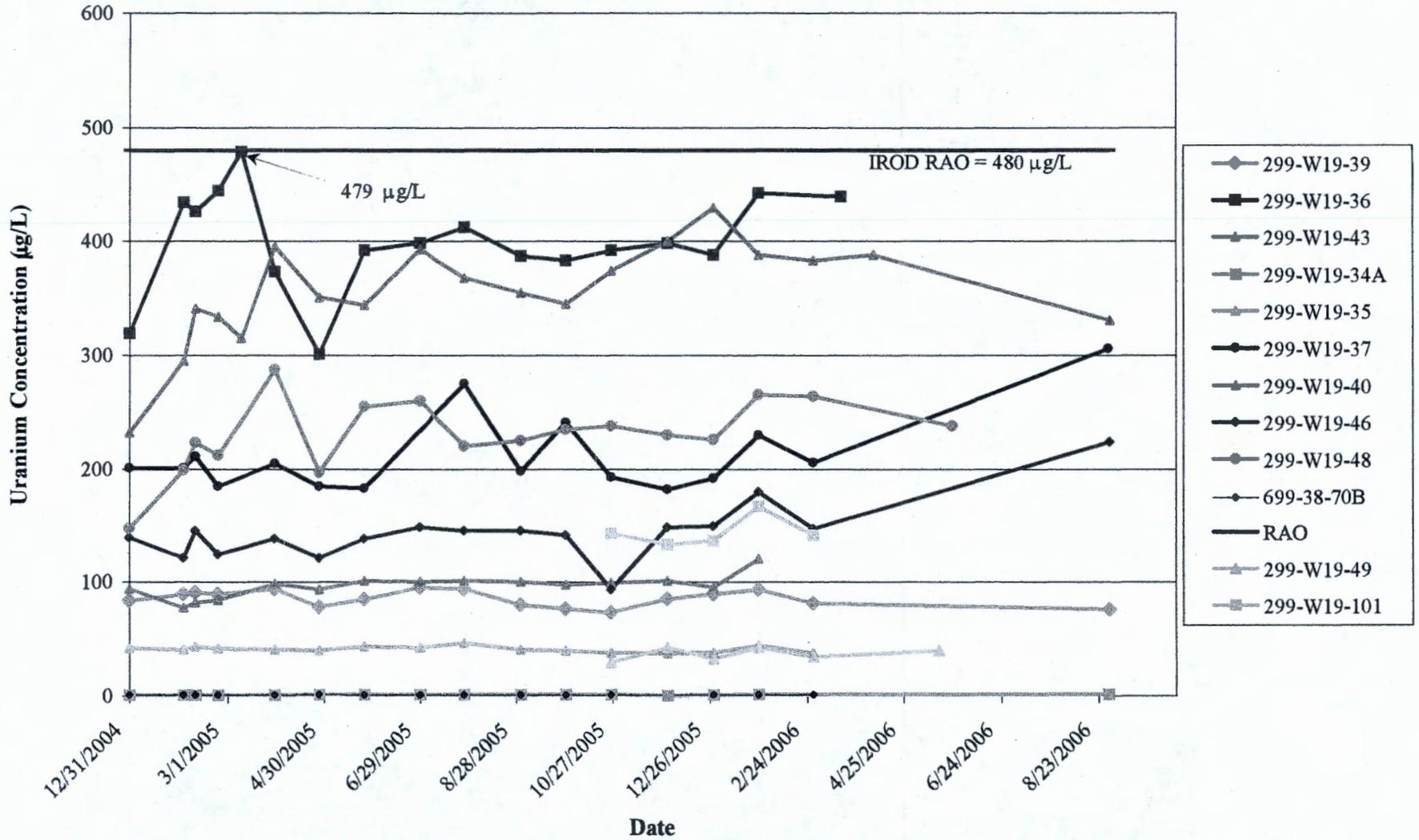
200-UP-1, Rebound Study, Technetium-99 (pCi/L)



Attachment 1

Attachment 4

200-UP-1, Rebound Study, Uranium ( $\mu\text{g/L}$ )

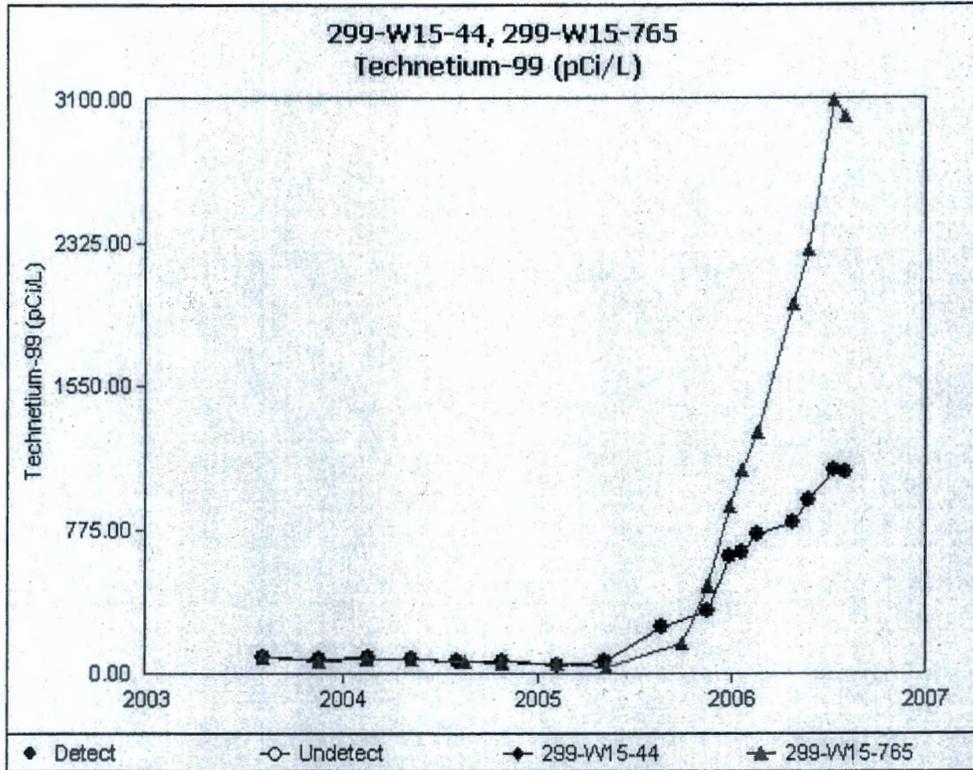


Attachment 2

Attachment 5

# Attachment 3

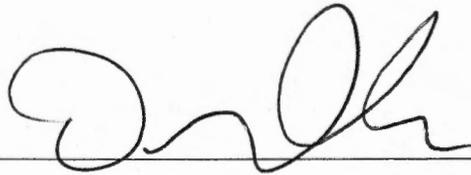
Technetium-99 at Extraction Wells 299-W15-44 and 299-W15-765





APPROVAL OF THE CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION  
(200-PW-1 OPERABLE UNIT) SOIL VAPOR MONITORING PLAN FOR  
OCTOBER 2006 THROUGH MARCH 2007

The Unit Managers for the Carbon Tetrachloride Expedited Response Action (200-PW-1 Operable Unit) approve the attached Soil Vapor Monitoring Plan for October 2006 through March 2007.

A.C. Tortoso 9/21/06  9/25/06

A. C. Tortoso  
U.S. Department of Energy  
Richland Operations Office

Date D. A. Faulk Date  
U.S. Environmental Protection Agency  
Region 10, Hanford Office

CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION  
SOIL VAPOR MONITORING PLAN FOR OCTOBER 2006 THROUGH MARCH 2007

Non-Operational Monitoring and Passive Soil Vapor Extraction Monitoring

This plan describes planned non-operational monitoring and passive soil vapor extraction monitoring to be conducted during October 2006 through March 2007 for the 200 West Area Carbon Tetrachloride Expedited Response Action (200-PW-1 Operable Unit). Operation of the soil vapor extraction system will be temporarily suspended during this time, and monitoring will be conducted at both the 216-Z-9 (Z-9) site and the 216-Z-1A/Z-18/Z-12 (Z-1A) site. Passive soil vapor extraction will be maintained at Z-1A wells during this time. Operating plans for use of the soil vapor extraction system will be submitted to the Unit Managers for approval prior to implementation.

Soil vapor monitoring will be conducted at vadose zone locations near the groundwater, the Cold Creek unit (formerly called the Plio-Pleistocene layer), and the ground surface at the Z-1A and Z-9 sites while they are not being actively remediated using the soil vapor extraction system. Monitoring results will be reported at the 200 Area Unit Manager Meetings. If carbon tetrachloride vapor concentrations increase such that the carbon tetrachloride contamination may impact human health or the environment (including groundwater), the Unit Managers will decide on the appropriate response to mitigate the problem (e.g., relocating the soil vapor extraction system to address the problem).

Vista Engineering Technologies, L.L.C. will be conducting field investigations in the Z-9 and Z-1A areas during October 2006 through March 2007 as part of the investigation of dense, nonaqueous-phase liquid carbon tetrachloride (DOE/RL-2004-78). Non-operational monitoring and/or passive soil vapor extraction monitoring will be temporarily suspended at any existing well and/or probe that is being used to support these investigations. Other monitoring locations at the Z-9 and Z-1A sites will be adjusted as needed to accommodate these field activities.

**Scope:** Monitor carbon tetrachloride soil vapor concentrations at selected probes and wells during non-operation of the soil vapor extraction (SVE) system (Tables 1 and 2). All of the probes and wells will be "non-operational," i.e., they will not be connected to the SVE system. Approximately eight non-operational wells have a passive soil vapor extraction system installed at the wellhead.

Passive soil vapor extraction is a remediation technology that uses naturally induced pressure gradients between the subsurface and the surface to drive soil vapor to the surface. In general, falling atmospheric pressure causes subsurface vapor to move to the atmosphere through wells, while rising atmospheric pressure causes atmospheric air to move into the subsurface. The passive soil vapor extraction systems will be used to remove carbon tetrachloride from the vadose zone.

Passive extraction wells will vent through aboveground canisters containing granular activated

carbon (GAC). The wells will be monitored monthly using the sampling method used for the non-operational wells. The vapor concentration will be monitored both upstream and downstream of the GAC. The measured vapor concentrations will be used to estimate the amount of carbon tetrachloride extracted through each well during the month.

For monitoring the non-operational probes and wells and the passive extraction wells, the components of this scope are:

- Collect soil vapor samples using the rebound study sampling method and sampling pump (BHI-01105)
- Analyze soil vapor samples for carbon tetrachloride using the B&K multi-gas analyzer in accordance with GRP-EE-05-4.0 at field screening level QC-1 (HNF-20635)
- Evaluate concentration trends for Fluor Hanford Groundwater Remediation Project
- Report results to 200-PW-1 Unit Managers
- Include results in annual reports

**Purpose and Objectives:** The purpose of non-operational monitoring is to measure carbon tetrachloride concentrations in the vadose zone during the shutdown of the SVE system.

The objectives of monitoring the non-operational wells and probes are (1) to be cognizant of carbon tetrachloride concentrations and trends near the vadose-atmosphere and vadose-groundwater interfaces to evaluate whether non-operation of the SVE system is negatively impacting atmosphere or groundwater; and (2) to be cognizant of carbon tetrachloride concentrations and trends near the lower permeability Cold Creek unit to provide an indication of concentrations that can be expected during restart of SVE operations and to support selection of on-line wells.

The objectives of monitoring the passive soil vapor extraction system wells, which are all open near the vadose-groundwater interface, are: (1) to be cognizant of the carbon tetrachloride concentrations and trends near the vadose-groundwater interface to evaluate whether non-operation of the SVE system is negatively impacting groundwater; and (2) to quantify the mass of carbon tetrachloride removed using this technology.

**Duration:** Non-operational monitoring and passive soil vapor extraction monitoring will be conducted from October 2006 through March 2007 during FY 2007.

**Monitoring Frequency:** Monitoring will be conducted monthly.

**Monitoring Locations:** Locations were selected to focus carbon tetrachloride monitoring near the vadose-atmosphere and vadose-groundwater interfaces and near the Cold Creek unit (Table 1). At the recommendation of the technical lead, and with approval from the task lead, these monitoring locations could be revised based on developing trends, accessibility, and/or recommendations of the sampler. The 200-PW-1 Unit Managers will be advised of any changes to the monitoring locations. Monitoring locations are shown on Figure 1.

**Data Management:** The field screening data obtained from non-operational wells and probes and passive extraction wells are entered into a controlled field logbook, which is maintained by Lockheed Martin Services Inc (LMSI) Records Information Management (RIM) department. The technical lead organizes and maintains spreadsheets of the field screening data on a desktop computer. The field screening data are entered into the Hanford Environmental Information System (HEIS) database and are included in the annual performance evaluation report.

**References:**

BHI-01105, 1997, *Rebound Study Report for the Carbon Tetrachloride Soil Vapor Extraction Site, Fiscal Year 1997*, Bechtel Hanford, Inc., Richland, Washington.

HNF-20635, *Groundwater Remediation Project Quality Assurance Project Plan*, Fluor Hanford, Inc., Richland, Washington.

DOE/RL-2004-78, 2004, *Work Plan for Integrated Approach for Carbon Tetrachloride Source Term Location in the 200 West Area of the Hanford Site*, U.S. Department of Energy, Richland Operations Office, Richland, Washington 99352.

GRP-EE-05-4.0, *Analysis of Volatile Organic Compounds in Vapor Samples Using the Bruel and Kjaer 1301 and Innova 1312 Multi-Gas Analyzers*, Fluor Hanford, Inc., Richland, Washington.

Table 1. Distribution of Selected Monitoring Locations.

Target Zone	Number of Monitoring Locations		
	Z-1A	Z-9	Total
Near-surface (3-20 m below ground surface)	6	6	12
Cold Creek unit (25-45 m below ground surface)	5	6	11
Groundwater (50-65 m below ground surface)	8 <sup>a</sup>	2	10
Total	19	14	33

<sup>a</sup> Approximately eight available monitoring locations near the vadose/groundwater interface in the Z-1A area are being monitored as part of the passive soil vapor extraction system network (Table 2).

Table 2. Wells and Probes Selected for Non-Operational Monitoring and Passive Soil Vapor Extraction Monitoring.

Target Zone	Z-9	Depth (m)	Comment	Z-1A	Depth (m)	Comment
near-surface	CPT-17 10 ft (blue)	3	southwest of Z-9	CPT-32 25 ft (green)	8	west of Z-1A
near-surface	CPT-27 15 ft (blue)	5	southeast of Z-9	CPT-13A 30 ft (blue)	10	southeast of Z-1A
near-surface	CPT-16 25 ft (blue)	8	east of Z-9	CPT-7A 32 ft (yellow)	10	farfield northeast of Z-1A
near-surface	CPT-18 35 ft (blue)	11	northwest of Z-9	CPT-1A 35 ft (black)	11	west of Z-12
near-surface	CPT-9A 60 ft (blue)	18	farfield north of Z-9	CPT-30 48 ft (blue)	15	north of Z-18 (middle of Z-1A/Z-18/Z-12 field)
near-surface	CPT-21A 65 ft (green)	20	south of Z-9	CPT-C3872	19	east side of Z-1A
Cold Creek	W15-82	25	east side of Z-9	W18-165	33	within Z-1A
Cold Creek	CPT-21A 86 ft (red)	26	south of Z-9	W18-152	34	northwest corner of Z-12
Cold Creek	CPT-28 87 ft (red)	27	farfield south of Z-9	W18-167	37	within Z-1A
Cold Creek	W15-8U	31	south of Z-9	W18-249	41	northeast corner of Z-18
Cold Creek	W15-217	35	southwest corner of Z-9	W18-248	41	east side of Z-1A
Cold Creek	W15-95L	44	north side of Z-9	---	---	---
ground water	W15-9L	57	north of Z-9, 11 m from W15-32 extraction well	W18-247L*	51	southeast of Z-18
ground water	W15-46	66	south of Z-9	W18-246L*	52	west of Z-1A
ground water	---	---	---	W18-252L*	53	west of Z-1A (middle of Z-1A/Z-18/Z-12 field)
ground water	---	---	---	W18-10L*	55	east side of Z-18
ground water	---	---	---	W18-7*	57	east side of Z-1A
ground water	---	---	---	W18-6L*	60	west side of Z-1A
ground water	---	---	---	W18-11L*	60	Z-18
ground water	---	---	---	W18-12*	60	Z-18

\* Passive soil vapor extraction wells

Note: Colors refer to the color coding on the soil vapor probe tubing.



Comparison of Maximum Carbon Tetrachloride Rebound Concentrations  
Monitored at 200-PW-1 Soil Vapor Extraction Sites  
FY 2003 - FY 2006

200-PW-1 (200-ZP-2) Location (Well or Probe) /feet bgs	Site	July 2002 (Z-9) or October 2003 (Z-1A) - March 2004		July 2002 (Z-9) or April 2004 (Z-1A) - September 2004		October 2004 - June 2005		July 2005 - June 2006		July 2006 - September 2006	
		Maximum Rebound Carbon Tetrachloride (ppmv)	months* of rebound	Maximum Rebound Carbon Tetrachloride (ppmv)	months* of rebound	Maximum Rebound Carbon Tetrachloride (ppmv)	months* of rebound	Maximum Rebound Carbon Tetrachloride (ppmv)	months* of rebound	Maximum Rebound Carbon Tetrachloride (ppmv)	months* of rebound
79-03/ 5 ft	Z-18										
79-06/ 5 ft	Z-1A										
79-11/ 5 ft	Z-1A										
86-05/ 5 ft	Z-9										
86-05-01/ 5 ft	Z-9										
86-06/ 5 ft	Z-9										
87-05/ 5 ft	Z-1A										
87-09/ 5 ft	Z-1A										
94-02/ 5 ft	Z-9										
95-11/ 5 ft	Z-9										
95-12/ 5 ft	Z-9										
95-14/ 5 ft	Z-9										
CPT-13A/ 9 ft	Z-1A										
CPT-16/ 10 ft	Z-9										
CPT-17/ 10 ft	Z-9	9.0	21	9.9	27	11.4	5	2.5	12		
CPT-18/ 15 ft	Z-9	2.4	21	2.5	27	3.1	5	0	12		
CPT-4A/ 25 ft	Z-1A										
CPT-4E/ 25 ft	Z-1A			2.4	0	2.4	9	2.4	0	0	3
CPT-16/ 25 ft	Z-9	2.6	21	3.6	27	4.4	5	1.6	12		
CPT-31/ 25 ft	Z-12										
CPT-32/ 25 ft	Z-1A	5.9	6			8.6	9	6.4	6	0	3
CPT-30/ 28 ft	Z-18	0	6			1.6	9	1.2	6	0	3
CPT-13A/ 30 ft	Z-1A	1.8	6	1.9	0	8.3	9	4.1	0	2.5	3
CPT-7A/ 32 ft	Z-1A	9.5	6	1.9	0	4.4	9	3.8	0	2.0	3
CPT-27/ 33 ft	Z-9	2.7	21	2.7	27	8.4	5	1.8	12		
CPT-1A/ 35 ft	Z-12	18.3	6	18.0	0	14.0	9	17.2	0	13.4	3
CPT-28/ 40 ft	Z-9					5.4	0			5.5	0
CPT-33/ 40 ft	Z-18					3.9	9			1.6	3
CPT-34/ 40 ft	Z-18			1.8	0	3.0	9	2.0	0	1.3	3
CPT-21A/ 45 ft	Z-9					7.9	0				
W15-220ST/ 52 ft	Z-9										
CPT-9A/ 60 ft	Z-9	35.9	21	35.9	27	32.4	5	29.2	12	15.7	0
CPT-28/ 60 ft	Z-9					68.3	0				
CPT-C3872/ 61 ft	Z-1A					15.5	9	9.9	6	2.4	3
CPT-16/ 65 ft	Z-9			4.2	27	6.7	5	5.6	0		
CPT-21A/ 65 ft	Z-9	150	21	150	27	170	0	167	12	153	0
CPT-1A/ 68 ft	Z-12					13.7	9			13.2	3
CPT-30/ 68 ft	Z-18										
CPT-13A/ 70 ft	Z-1A										
CPT-24/ 70 ft	Z-9			9.1	27			5.2	12		
CPT-32/ 70 ft	Z-1A					5.5	9			4.3	3
W15-219SST/ 70 ft	Z-9			5.7	22						
CPT-4A/ 75 ft	Z-1A										
CPT-18/ 75 ft	Z-9			8.3	27			4.3	12		
CPT-31/ 76 ft	Z-12										
CPT-33/ 80 ft	Z-18										
W15-82/ 83 ft	Z-9	85.8	21	85.8	27	95.8	5	8.1	12		
CPT-21A/ 86 ft	Z-9	244	21	244	27	209	5	223	12	194	0
CPT-34/ 86 ft	Z-18										
W15-95U/ 86 ft	Z-9										
W15-218SST/ 86 ft	Z-9										
CPT-28/ 87 ft	Z-9	258	21	258	27	246	5	245	12	216	0
CPT-4B/ 90 ft	Z-1A										
CPT-1A/ 91 ft	Z-12										
CPT-4A/ 91 ft	Z-1A										
CPT-9A/ 91 ft	Z-9										
W15-85/ 91 ft	Z-9										
W18-252SST/ 100	Z-1A										
W18-152/ 101 ft	Z-12	12.4	6			16.0	9	16.2	6	13.3	3
W15-8U/ 103 ft	Z-9							10.4	12		
CPT-4E/ 103 ft	Z-1A										
W18-167/ 106 ft	Z-1A	266	6			196	9	174	6	0	3
CPT-4F/ 109 ft	Z-1A					11.9	9			2.9	3
W18-165/ 109 ft	Z-1A	205	6			35.2	9	394	6	0	3
W15-217/ 114 ft	Z-9	458	21	467	27	374	5	19.7	12		
CPT-24/ 118 ft	Z-9			15.3	27			23.9	12		
W15-220SST/ 118	Z-9			26.0	27			25.2	12		
W18-158L/ 120 ft	Z-1A										
W15-219SST/ 130	Z-9			0	22						
W18-249/ 130 ft	Z-18	41.0	6			64.9	9	24.1	6	19.4	3
W18-248/ 131 ft	Z-1A	180	6			249	9	67.0	6	43.0	3
W15-95L/ 144 ft	Z-9	40.3	21	40.3	27	26.7	5	25.7	12		
W15-219SST/ 155	Z-9			9.5	22						
W15-220L/ 163 ft	Z-9			7.5	27			13.2	12		
W15-219L/ 175 ft	Z-9			23.0	27			12.2	12		
W15-9L/ 176 ft	Z-9	13.1	21	13.1	27	2.1	5	5.4	12		
W15-84L/ 180 ft	Z-9	25.9	21	25.9	27	23.0	5	14.0	12		
W15-6L/ 182 ft	Z-9										
W15-220SST/ 185	Z-9										
W18-7/ 197 ft	Z-1A										
W18-12/ 198 ft	Z-18										
W18-6L/ 208 ft	Z-1A										
W15-46/ 217 ft	Z-9							4.7	12		

\* - based on location (Z-1A/18/12 or Z-9) of monitoring point; specific points may be beyond SVE zone of influence during particular operating configurations

- Z-18 and Z-12 wells off-line Oct 96 - Apr 98

- CPT-1A, CPT-9A, and possibly CPT-7A appeared to be beyond SVE zone of influence in Oct 96 based on differential pressure (BHI-01105, p. 6-1)

- CPT-9A, CPT-21A, CPT-28 beyond SVE zone of influence in May 96 based on CCl4 concentrations and airflow modeling based on measured vacuums (BHI-01105, p. 6-1)

Carbon Tetrachloride Rebound Concentrations  
Monitored at 200-PW-1 Soil Vapor Extraction Sites  
October 2005 - September 2006

200-PW-1 (200-ZP-2)		10/25/2005	11/01/2005	11/28/2005	12/20/2005	01/26/2006	02/23/2006	03/28/2006	04/28/2006	05/26/2006	06/29/2006	07/26/2006	08/30/2006	09/26/2006
Location	Site	CCI4	CCI4	CCI4	CCI4	CCI4	CCI4	CCI4	CCI4	CCI4	CCI4	CCI4	CCI4	CCI4
(Well or Probe)		(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)	(ppmv)
/feet bgs														
CPT-17/ 10 ft	Z-9	---(n)	1.4	1.2	1.2	1.3	1.5	1.7	2.0	2.2	2.3			
CPT-18/ 15 ft	Z-9	0		0	0	0	0	0	0	0	0			
CPT-4E/ 25 ft	Z-1A								2.4	1.7	0	0	0	0
CPT-16/ 25 ft	Z-9	1.6		1.2	1.4	1.1	1.1	1.1	1.0	0	0			
CPT-32/ 25 ft	Z-1A			1.1	3.4	4.0	4.8	6.4				0	0	0
CPT-30/ 28 ft	Z-1A	1.2		0	1.1	0	0	0				0	0	0
CPT-13A/ 30 ft	Z-1A	3.6		4.1	3.9	3.6	3.5	3.3	3.6	3.8	3.3	2.4	2.5	2.4
CPT-7A/ 32 ft	Z-1A	2.3		2.7	2.2	2.8	3.3	3.8	2.4	2.4	1.8	2.0	1.9	1.2
CPT-27/ 33 ft	Z-9	1.8		0	0	0	0	0	0	0	0			
CPT-1A/ 35 ft	Z-12	17.2		9.1	3.6	7.7	6.0	7.4	6.2	8.9	13.2	11.0	13.4	10.2
CPT-28/ 40 ft	Z-9											5.5	4.3	4.8
CPT-33/ 40 ft	Z-18											0	1.3	1.6
CPT-34/ 40 ft	Z-18	1.8						1.3	1.7	1.2	0	1.3	1.3	1.3
CPT-21A/ 45 ft	Z-9													
CPT-9A/ 50 ft	Z-9	52.8		50.9	50.6	48.1	50.4	46.1	46.9	49.0	39.1	32.8	40.7	43.3
CPT-9A/ 60 ft	Z-9	25.5		21.2	18.6	17.4	11.4	16.0	17.3	24.4	13.3	12.8	9.8	15.7
CPT-28/ 60 ft	Z-9													
CPT-C3872 / 61 ft	Z-1A	4.0		4.3	3.7	5.1	6.3	9.9				2.1	2.2	2.4
CPT-9A/ 64 ft	Z-9	38.6		36.9	36.9	33.4	36.2	36.6	33.1	36.4	33.1	33.8	33.8	33.9
CPT-16/ 65 ft	Z-9								5.3	5.6	4.6			
CPT-21A/ 65 ft	Z-9	151		137	140	139	146	145	139	160	137	153	132	137
CPT-1A/ 68 ft	Z-12											13.2	12.5	5.6
CPT-24/ 70 ft	Z-9								4.4	5.2	4.3			
CPT-32/ 70 ft	Z-1A											4.2	4.3	3.5
W15-219SST/ 70 ft	Z-9													
CPT-18/ 75 ft	Z-9								3.4	3.7	4.3			
W15-82/ 83 ft	Z-9	8.1		1.4	---(m)	---(m)	---(m)	---(m)	2.2	6.8	0			
CPT-21A/ 86 ft	Z-9	208		196	---(p)	186	194	201	192	204	165	179	171	194
CPT-28/ 87 ft	Z-9	241		219	224	213	226	217	217	223	174	180	185	216
W18-152/ 101 ft	Z-12	12.7		14.2	14.5	15.4	15.2	16.2				10.8	12.5	13.3
W15-8U/ 103 ft	Z-9	10.4		2.6	5.1	3.1	4.5	1.3	1.5	2.8	5.5			
W18-167/ 106 ft	Z-1A	63.1		174	---(m)	---(m)	---(m)	---(m)				0	0	0
CPT-4F/ 109 ft	Z-1A											1.2	2.9	0
W18-165/ 109 ft	Z-1A	65.1		394	220	161	160	164				---(q)	0	0
W15-217/ 114 ft	Z-9	16.1		1.7	8.4	11.5	19.7	12.1	1.0	8.6	0			
CPT-24/ 118 ft	Z-9								22.9	23.9	16.0			
W15-220SST/ 118 ft	Z-9								17.9	22.0	21.5			
W18-249/ 130 ft	Z-18	22.5		22.0	12.2	12.4	17.1	24.1				4.6	19.4	18.1
W15-219SST/ 130 ft	Z-9													
W18-248/ 131 ft	Z-1A	67.0		23.1	---(m)	---(m)	---(m)	---(m)				---(m)	27.2	43.0
W15-95L/ 144 ft	Z-9	15.8		16.7	19.0	19.9	22.6	20.6	17.8	17.8	25.7			
W15-219SST/ 155 ft	Z-9													
W15-220L/ 163 ft	Z-9								2.4	9.3	7.3			
W15-219L/ 175 ft	Z-9								4.5	12.2	11.7			
W15-9L/ 176 ft	Z-9	4.0		0	0	4.0	5.4	3.5	1.5	2.4	0			
W15-84L/ 180 ft	Z-9								4.2	14.0	4.1			
W15-46/ 217 ft	Z-9	3.0	---(o)	0	0	4.7	---(p)	2.1	0	2.6	0			
		(m) Unable to sample; well in use by Vista Engineering												
		(n) Unable to sample; aboveground tubing needs to be repaired. Repaired and sampled on 11/1/2005.												
		(o) On 10/25/05, well 299-W15-46 sampled at a depth of approximately 172 ft. E-tape could only be advanced to a depth of 173 ft.												
		(p) Unable to pull representative sample.												
		(q) Unable to sample; well in use for geophysical logging												

Carbon Tetrachloride Concentrations  
 Monitored at 200-PW-1 Passive Soil Vapor Extraction Wells  
 October 2005 - September 2006

200-PW-1 (200-ZP-2)	10/19/2005	11/23/2005	12/15/2005	1/27/2006	2/28/2006	3/27/2006	4/28/2006	5/26/2006	6/29/2006	7/26/2006	8/29/2006	9/26/2006
Location (Well or Probe) /feet bgs	CCl4 (ppmv)											
W18-6L/ 208 ft	19.8	---(b)	15.8									
W18-7/ 197 ft	0	9.2	11.7	15.8	16.2	15.3	33.8	20.3	5.9	11.0	15.3	0
W18-10L/ 183 ft	8.4	11.6	4.0	12.1	13.0	3.9	14.1	11.4	11.2	10.0	12.7	11.7
W18-11L/ 199 ft	0	5.9	0	7.6	9.0	0	5.4	7.2	1.8	3.0	8.4	1.3
W18-12/ 198 ft	0	1.6	0	4.9	9.4	1.3	0	2.4	0	0	4.8	0
W18-246L/ 170 ft	13.0	---(b)	3.7									
W18-247L/ 167 ft	0	0	2.4	5.1	7.6	0	3.0	1.8	1.3	0	5.7	1.0
W18-252L/ 175 ft	0	---(b)										
(b) in use by Vista Engineering for cross-well seismic investigation												

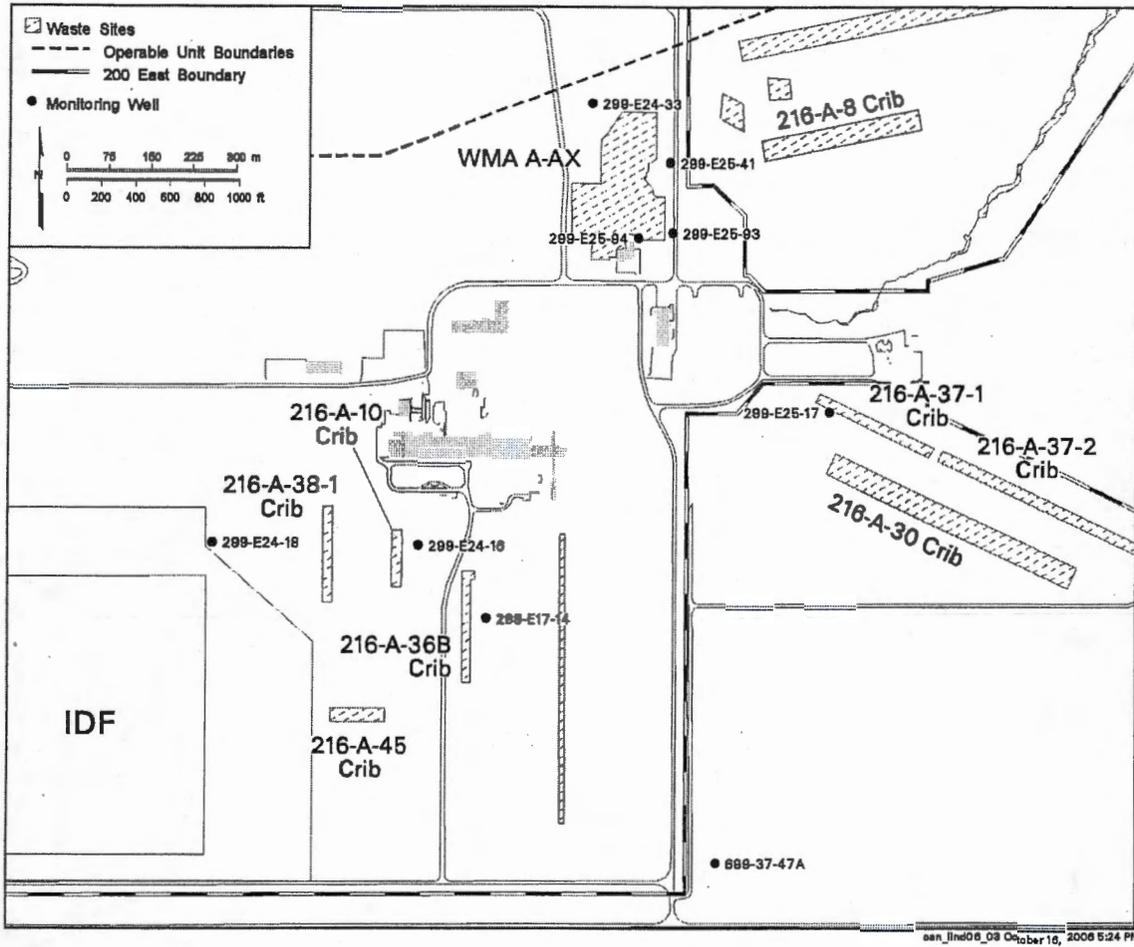
### **200-PO-1 Groundwater Monitoring - Fourth Quarter Activity**

Nitrate concentrations are increasing in a handful of wells near the PUREX cribs (Attachment 1 – well location map). Attachment 2 shows nitrate trend plots for four of the wells near the PUREX cribs with rising trends. The cause for the increasing nitrate concentrations is not clear. It could be from additional nitrate coming from the vadose zone and PUREX cribs, or it may be from changing groundwater flow directions (return to east or southeasterly flow directions after cessation of waste water discharges at 216-B-3 pond). Precise groundwater flow directions are difficult to interpret from water table maps because of the low gradient of the water table in the southeastern portion of the 200 East Area.

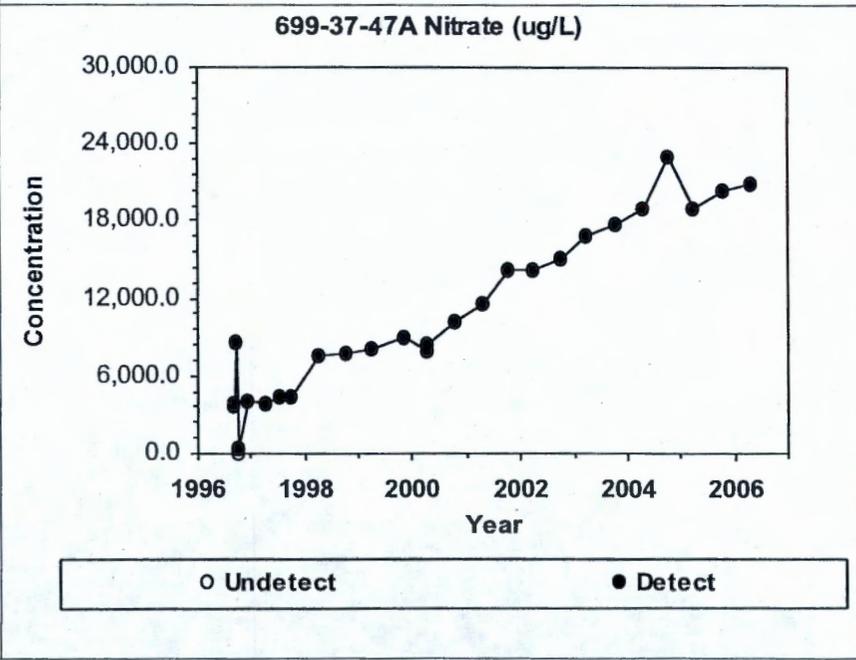
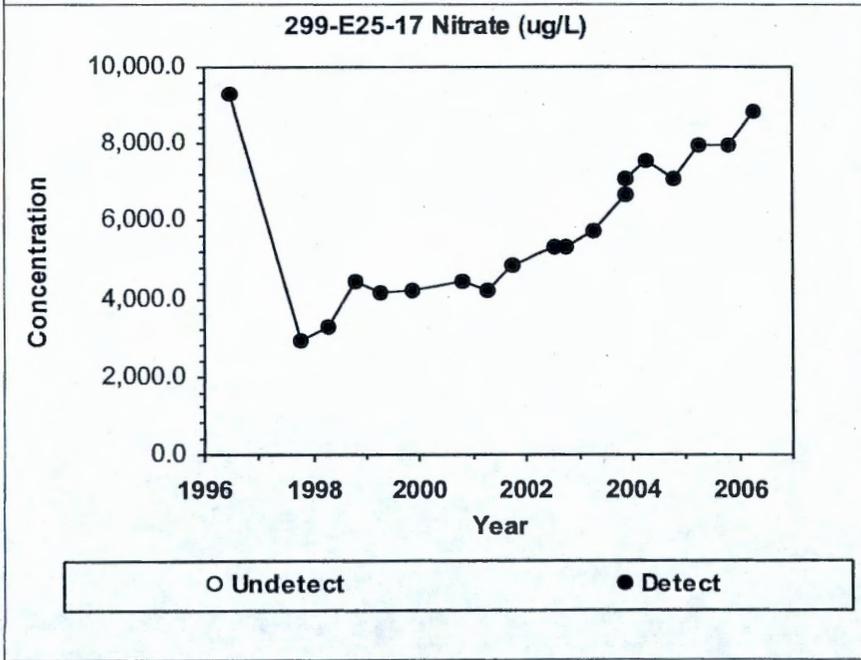
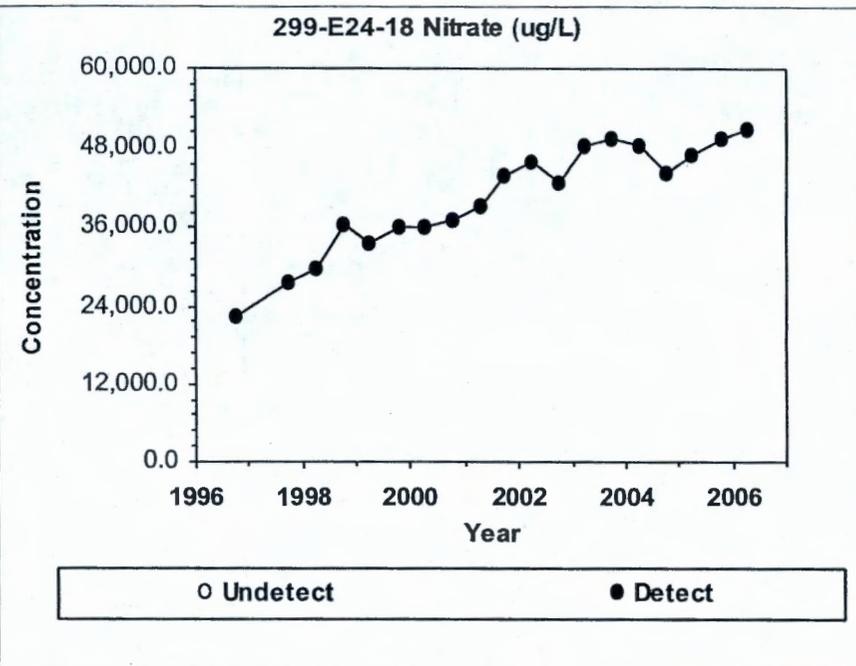
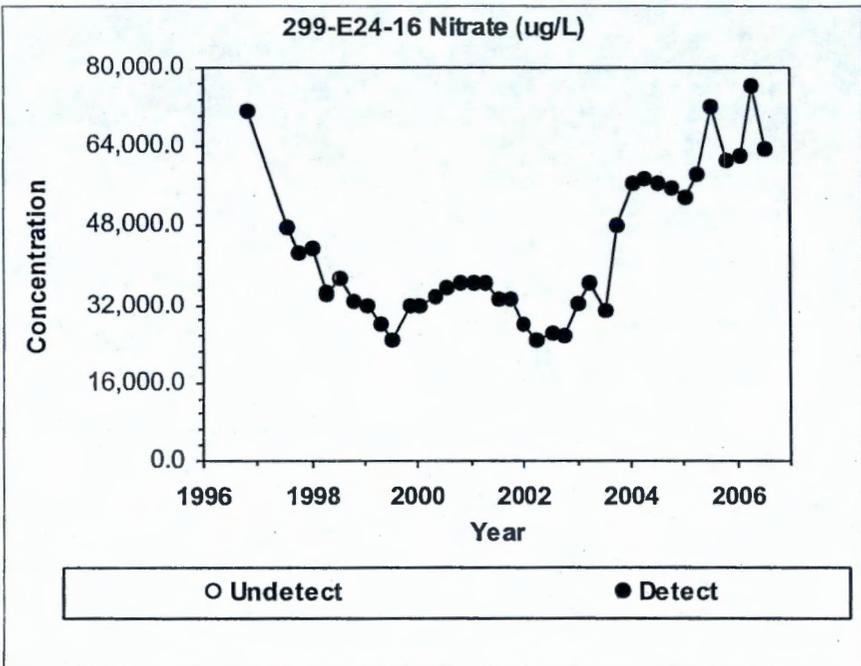
There are elevated levels of technetium-99 in groundwater at WMA A-AX, but the well with the highest activity level (well 299-E25-93) shows a decreasing trend (Attachment 3). The other three wells shown in Attachment 3 have steady or increasing trends.

Elevated levels of strontium-90 (>MCL of 8 pCi/L) at the 216-A-36B crib are detected only in well 299-E17-14. The trend there is relatively steady (although fluctuating slightly) since 2002 (Attachment 4).

# ATTACHMENT 1: 200-PO-1 WELL LOCATIONS



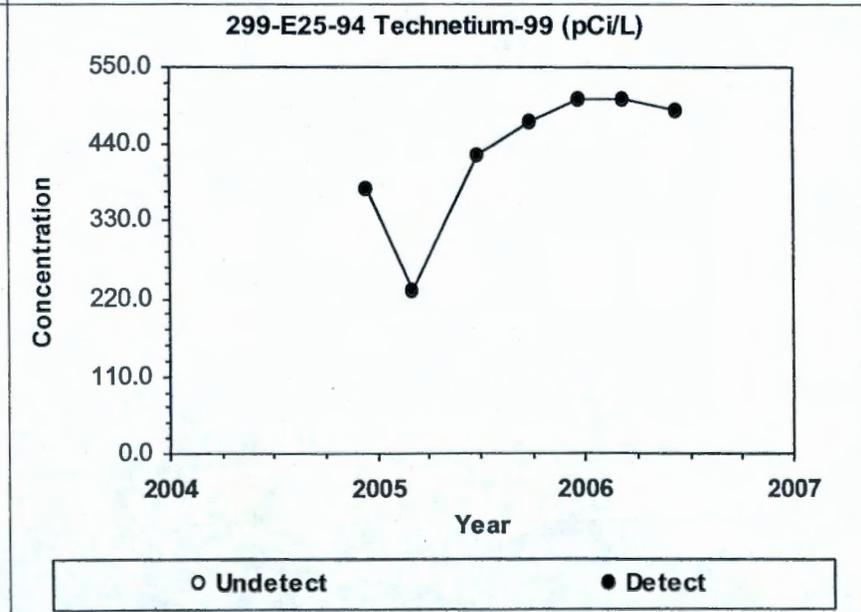
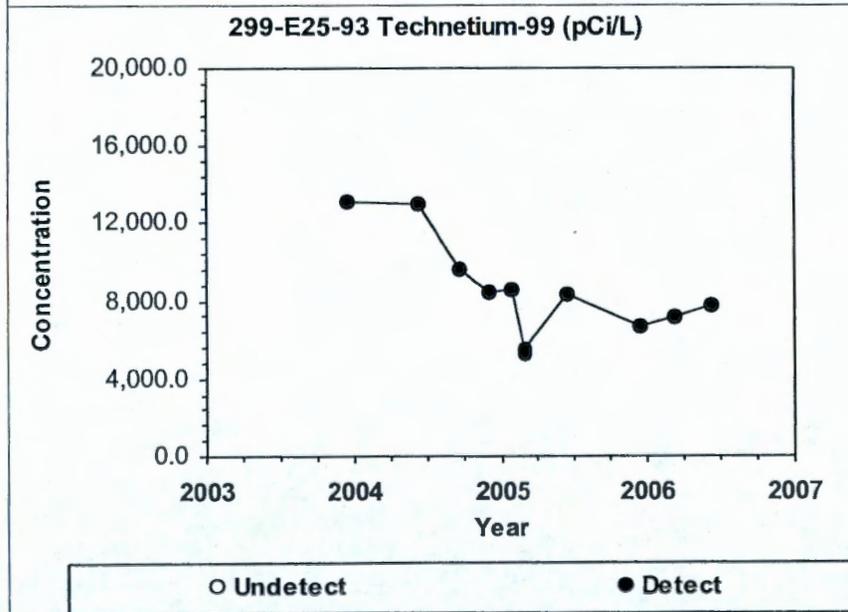
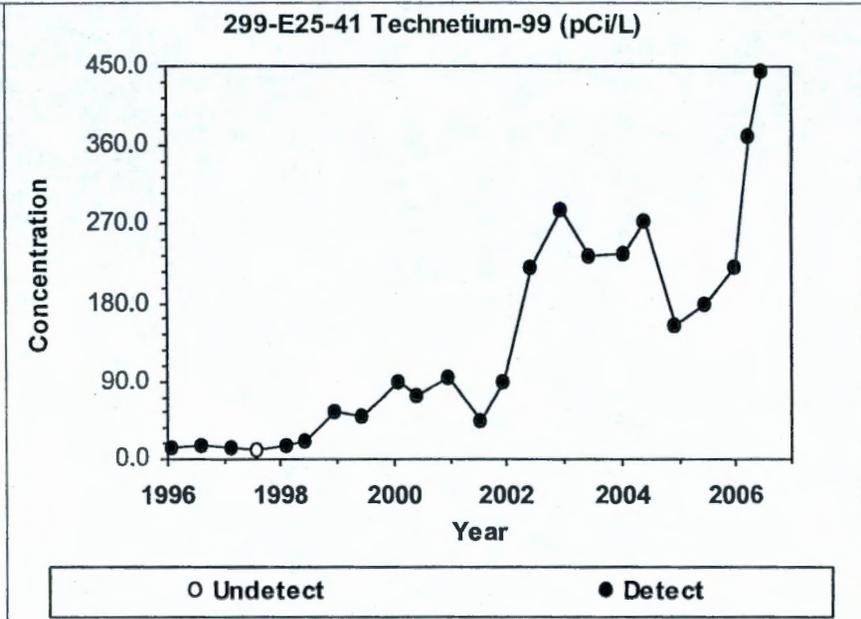
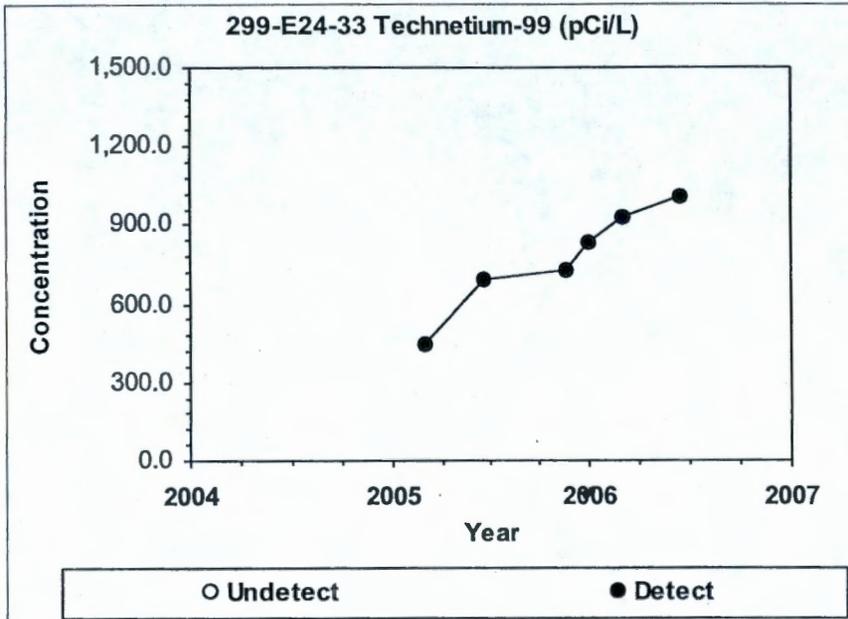
ATTACHMENT 2



NITRATE TREND PLOTS

PUREX CRIBS AREA

# ATTACHMENT 3

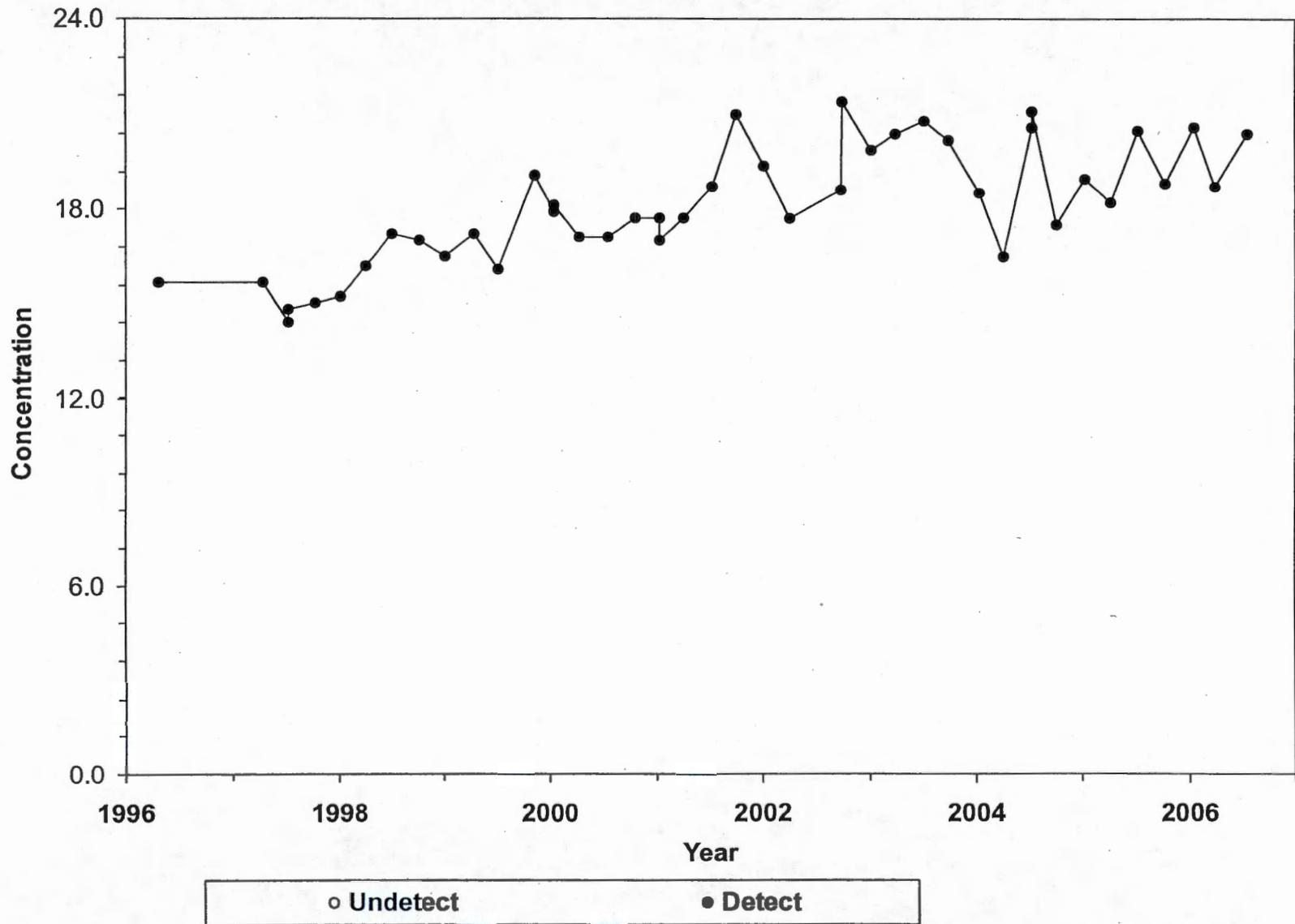


TC-99 TREND PLOTS

WMA A-Ax

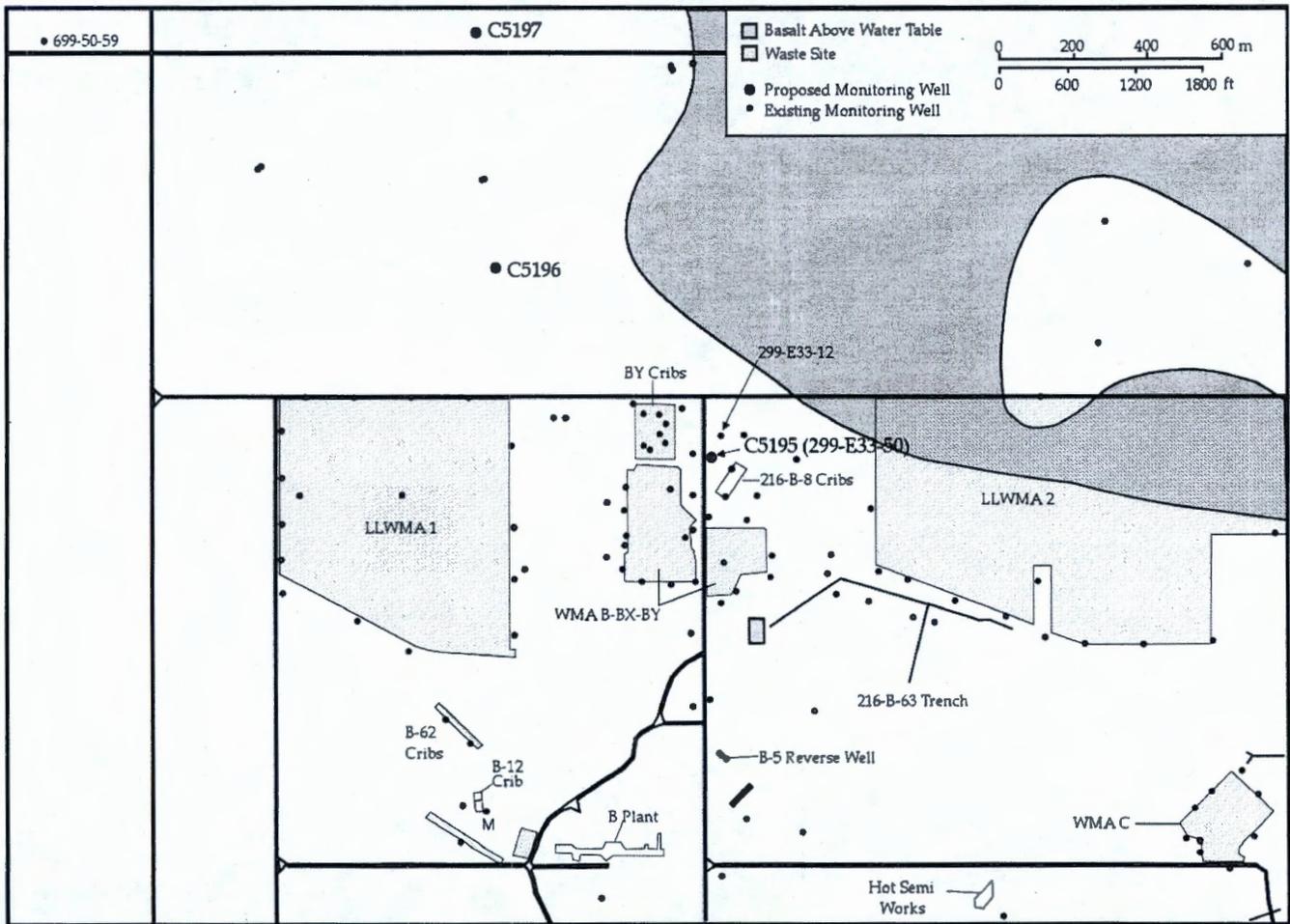
# ATTACHMENT 4

299-E17-14 Strontium-90 (pCi/L)



Strontium-90 at well 299-E17-14.  
216-A-36B Crib.

200-BP-5 Groundwater OU proposed F, I and J well Location Map



## **200 AREA UNIT MANAGERS' MEETING SOURCE OPERABLE UNITS AND FACILITIES STATUS**

October 18, 2006

### **SOURCE OPERABLE UNITS STATUS**

#### **M-15 TPA Milestones**

- "Proposed Tri-Party Agreement Modifications for Central Plateau Waste Site and Groundwater Remediation" (a.k.a. M-15 Tentative Agreement) received final approval and signature by Jay Manning (Director of Ecology) October 4, 2006.

#### **200-PW-1, 200-PW-3, & 200-PW-6**

- RI Report Draft A was transmitted to RL on 9/29/06. Draft A is due to the regulators on 10/30/06 (M-015-45A).
- Vista Engineering has initiated vadose zone sampling in the Z-9 area using the Hydraulic Hammer Rig for subsurface access. Six of the nine planned locations at Z-9 have been completed. Vista will also sample 8 locations at Z-1A.
- Vista Engineering drilled a well 190 ft deep at the headend of Z-1A to support the cross-well seismic test, which has been completed. The well was geophysically logged on 6/29 and will be completed as SVE well 299-W18-253 (C4965).
- Vista Engineering is continuing to collect data from the two instrument trees installed in the air space of the 216-Z-9 trench in May 2006.
- Vista Engineering is finalizing Draft A of their interim report on the DNAPL investigation: DOE/RL-2006-58, Carbon Tetrachloride Dense Non-Aqueous Phase Liquid (DNAPL) Source Term Interim Characterization Report. The report was delivered to DOE-RL on 10/6/06 and is being approved for distribution.

#### **200-TW-1, 200-TW-2 & 200-PW-5 (no change)**

#### **200-CW-1 & 200-CW-3**

- On October 16<sup>th</sup> met with EPA to present the path forward. The project is moving forward with geo-logging and push sampling for waste characterization.

#### **200-PW-2 & 200-PW-4**

- Received a letter from Ecology dated 9/21/06 extending the FS review period to October 31, 2006.

#### **200-CS-1**

- In response to Ecology's July 31, 2006 letter, DOE-RL submitted a plan to Ecology on 8/31/06 to update the Feasibility Study with scheduled events leading to submittal of FS and PP Draft B's by September 30, 2007. Discussions to seek clarification on a portion of Ecology's July 3, 2006 comments are underway.

## **200-CW-5, CW-2, CW-4, & SC-1 (no change)**

### **Ecological Risk Assessment**

- The Phase III ECO SAP was approved on 10/3/06. Other characterization activities are competing for the field samplers, which has delayed the start of soil sampling activities. Biota sampling was completed on 10/9/06. The passive gas samplers used near the 216-Z-1A Tile Field were not conclusive. An additional array of 45 passive gas samplers has been installed in new locations to support installation of the artificial animal burrows.

## **200-IS-1 & 200-ST-1**

- Ecology identified four new Global issues on October 11, 2006.
- Ecology identified two new technical issues on October 11, 2006.
- Identification of new global and technical issues may impact submittal of the 200-IS-1 and 200-ST-1 Work Plan and Sampling and Analysis Plan.

## **200-LW-1/200-LW-2**

- Responses to Ecology's RI Report comments have been prepared for submittal to Ecology. Submittal of Draft A of the FS and PP has been delayed to 3/31/07, per TPA Change Number M-15-06-05.

## **200-MW-1**

- Received comments on the Sampling and Analysis Plan from EPA on September 20, 2006. Comments are being resolved and the revised SAP to be transmitted to RL by October 18, 2006.
- Field work planning is progressing for executing the direct push at E-102 trench and the A-4 replacement borehole.

## **200-UR-1**

- Rev. 1 of the Sampling and Analysis Plan is in the Department of Ecology approval process.
- Non-Intrusive surveys for BC Controlled Area completed September 27, 2006.
- Geoprobe logging for the BC Controlled Area scheduled to begin in December.

## **200-SW-1/2**

- DQO workshops began in late August to define intrusive (and any additional nonintrusive) characterization that should be performed at 200-SW-2 waste sites. DQO sessions are scheduled to continue through mid-January.

## BC Cribs and Trenches

- Agreement has been reached to perform an excavation-based Treatability Test. The information to be gained will address concerns such as potential worker dose uncertainty, the contaminant distribution model(s), refinement of the excavation process, collection of remedial design information, and potential verification of the inventory model. The DQO process defining specific treatability test objectives has been initiated.
- DQO process to address high resolution resistivity (HRR) characterization has been initiated.

## 200-UW-1

- Field work per the Time Critical Removal Action (TCRA) RAWP completed.
  - All 200-W-42 pipeline is removed. Excavation to 15' (+1,-0) is complete and waste transported to ERDF.
  - Sampling and analysis is completed for all excavated areas.
    - Results are within limits from just north of 216-U-8 to U-12, (i.e., Phase I).
    - Results of areas just south and north of 16<sup>th</sup> Street (i.e., Phase II) show contamination >15' deep exceeds MCL.
  - Backfilling of Phase I area completed.
  - A plan is being developed for contamination >15' in depth. Plan calls for a site specific DQO and SAP to support further evaluation of removal/remedial actions.
- ROD and responsiveness summaries are being updated to reflect recent path forward. The Tri-Parties are discussing various decision-making alternatives for the 4 cribs and the 241-U-361 settling tank.
- Responsiveness summaries for TPA Change Request for reclassifying Crib 216-U-12 to a RCRA Past Practice (RPP) unit are being finalized and sent for Tri-party legal review.
- TPA Change Request to change 216-U-15 from a CPP to a RPP has been reviewed and updated. Package will be transmitted with U-12 package for final review. No public review is anticipated for this portion of the change request.
- PRGs / RAGs for 200-UW-1 need to be finalized. RAG modeling is near completion which determines goals based on 1000 and 10000 year MCLs. Results are being evaluated and will be presented in October to DOE-RL, EPA and Ecology to determine acceptable PRGs / RAGs. Delay is due to resource re-allocation to ROD path forward. **Due to contamination >15' depth at 200-W-42 excavation (and possible need for this information in the ROD), establishing acceptable goals will be given a high priority.**
- Challenges to the Area C cultural review are being made by Yakama Tribes and Washington State Department of Archaeology & Historic Preservation (DAHP).

- DOE-RL received final Determination of Eligibility for the National Register of Historical Places from PNNL on 9/5/06. This review determined that the area is eligible for listing on the National Register of Historic Places.
- DOE-RL is drafting a Finding of Effect response to concerns. If an effect is found, a Programmatic Agreement (PA) with DAHP must be completed. US Department of Fish and Wildlife has expressed interest in being a party to this agreement.
- DOE-RL is drafting responses to Yakama Tribe comments
- Sampling and Analysis Plan (SAP) for 241-U-361 Settling Tank contents has received DOE-RL review and is now with Ecology for review.

### **FACILITIES STATUS**

- **221-U Facility/Canyon Disposition Initiative (CDI)**
  - Continue development of remedial design engineering alternatives studies
    - Canyon reactivation study (crane, HVAC, and electrical/lighting) (issued September 28).
    - Canyon demolition study (issued September 28)
    - Grout study (June 2007)
    - Cell 30 tank contents removal study (June 2007)
  - Continued development of Remedial Design Report/Remedial Action Work Plan
  - Continue development of canyon waste acceptance study
- **Facility Binning**

A preliminary draft of an Agreement-in-Principle for proposed TPA revisions related to facility binning path forward is in review at DOE-RL.
- **Miscellaneous Facility D&D**

Completed D&D of five structures (2707E, 2713E, 2715E, 2719E and 2722E) on September 12.

Initiated preparatory activities on 10 miscellaneous structures scheduled for demolition in FY07.

**Issue Resolution Meeting  
Agreements and Issues List  
October 18, 2006  
200 Area Unit Managers' Meeting**

**AGREEMENT: 200-PW-2/4 - Deferral of Ecology Comments on Feasibility Study**

- The Tri-Parties agreed to defer Ecology comments on the 200-PW-2/4 Feasibility Study until the end of the public comment period for the M-015 Change Package. Ecology will submit comments at that time for use in the future revision to the FS.

**200 Area Unit Managers' Meeting  
OPEN ACTION ITEMS & TRACKING**

Action #	Action/Subject	Assigned To	Owed To	Assigned Date	Original Due Date	Adjusted Due Date	Date Complete	Status
77	Send IS-1 DQO to RL, Ecology, and EPA.	FH-Hickey	All	8/23/06	9/6/06	10/19/06	9/26/06	Closed - action complete.
78	Present IS-1 DQO briefing to HAB. RL to request time slot on HAB River & Plateau Committee for this briefing.	DOE-Leary	All	8/23/06	9/21/06	11/15/06		
79	Update on IC Plan as required by TPA-CN-I51	DOE-Sands	All	8/23/06	9/21/06			Closes with presentation at 200A UMM and 100/300A UMM. Action added to TPA commitment log for 9/07.
80	Send report and/or meeting minutes from Remedial Action Decision Making panel (Tom Fogwell)	FH-Byrnes	ECY/EPA Price/Goswami/C ameron	10/18/06	11/16/06			
81	Email 200-PO-1 DQO schedule	FH-Cummins	ECY-Price/Vanni/ Jackson	10/18/06	11/1/06			
82	Evaluate critical path UP-1. Verify completion date and milestone status. Must have 2 years of monitoring prior to RI report.	FH-Byrnes	ECY-Price	10/18/06	11/16/06			
83	Schedule high-level 200-SW-1/2 DQO meeting- alignment of objectives between agencies.	DOE-Charboneau	ECY - Price	10/18/06	11/16/06			