

Meeting Minutes Transmittal/Approval
Unit Managers' Meeting
200 Area Groundwater and Source Operable Units
1200 Jadwin Avenue, Richland, Washington
March 17, 2005

APPROVAL: *Larry Romine* Date: 4-14-05
Larry Romine, 200 Area Unit Manager, DOE/RL

APPROVAL: *Arlene C. Tortoso* Date: 4/13/05
Arlene Tortoso, 200 Area Assistant Manager, DOE/RL

APPROVAL: *Craig Cameron* Date: 4/7/05
Craig Cameron, 200 Area Unit Manager, EPA

APPROVAL: *John B. Price* Date: 4/4/05
John Price, 200 Area Unit Manager, Ecology

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**DISTRIBUTION
UNIT MANAGERS' MEETING,
200 AREA GROUNDWATER SOURCE OPERABLE UNITS**

DOE/RL

Steve Bertness	A6-39
Bryan Foley	A6-38
Larry Romine	RMIS
Arlene Tortoso	RMIS

EPA

Craig Cameron	B1-46
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Ecology

Brenda Jentzen	RMIS
Tina Masterson-Heggen	H0-57
John Price	H0-57
Jennie Stults	H0-57
Jean Vanni	H0-57

FH

Lanny Dusek	RMIS
Gloria Cummins	RMIS
Bruce Ford	RMIS
Jane Borghese	E6-35
Mark Byrnes	RMIS
Virginia Rohay	RMIS
L. Craig Swanson	RMIS
Mary Todd-Robertson	E6-35

CHG

Curt Wittreich	RMIS
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PNNL

Stuart Luttrell	K6-96
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Administrative Record (2)	A3-01
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Debbi Isom	H6-08
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Please inform Dee Goodson – FH (373-4456)
of deletions or additions to the distribution list.

UNIT MANAGERS' STATUS MEETING MINUTES
1200 Jadwin/Rm 1-C1
March 17, 2005

Meeting Minutes are attached. Minutes are comprised of the following:

Attachment 1	Attendance Record
Attachment 2	Agenda
Attachment 3	Groundwater Operable Units Minutes
Attachment 4	Groundwater Status
Attachment 5	Discussion on Document Approval and Point of Contact List
Attachment 6	200-PW-1 Soil Vapor Extraction Sites
Attachment 7	Approval of Soil Vapor Extraction System Operating Plan
Attachment 8	Technetium-99 Summary at WMA T
Attachment 9	Action Item List

UNIT MANAGERS' MEETING AGENDA

1200 Jadwin/Rm 1-C1

March 17, 2005

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

SOURCE OPERABLE UNITS STATUS (Canceled)

ISSUE RESOLUTION MEETING (Canceled)

- (See Issues List)

General

- Outstanding Action Items
- Open for Regulatory Topics or Action Items
- Risk Assessment Configuration Management Board Update

UNIT MANAGERS' STATUS MEETING MINUTES GROUNDWATER OPERABLE UNITS

1200 Jadwin/Rm 1-C1
March 17, 2005

GROUNDWATER OPERABLE UNITS STATUS (8:30-10:30)

- Discussion on Document: Approval and Ecology Point of Contact List
 - Approvals for documents discussing intrusive activities in the 200-ZP-1 operable unit required EPA signature, at a minimum. Depending on where the activities are located, Ecology's signature may be required. If it is a 200-PO-1 or 200-UP-1 activity, only an Ecology signature is required. The Point of Contact List for Ecology (Attachment 5) will assist document preparers on whom to seek for information.
 - Discussion on the process for review of documents will occur at another meeting.

200-BP-5 & 200-PO-1 OUs

- 200-BP-5 Sampling and Analysis Plan status
 - 200-BP-5 SAP is approved.
- 200-PO-1 Sampling and Analysis Plan status
 - SAP will be sent to RL on 3/17 and RL will forward to Ecology.
- Revised Tables in 200-PO-1 Waste Control Plans
 - Ecology action of updated 200-PO-1 and Waste Control Plan Tables

200-UP-1 OU (Attachment (4))

- Remediation Treatment Status
- RI/FS Work Plan Status – Incorporating Ecology comments
- Update on Rebound Study

200-ZP-1 OU (Attachment (4))

- Remediation Treatment Status
- Update on Expanding P&T System to North
- Update on Contained-In for 5 Current Extraction Wells

200-PW-1, 200-ZP-2 OU

- Remediation Treatment Status – The soil vapor extraction operating plan was prepared to support restart of operations in April 2005. The plan has been approved by DOE-RL and EPA. Use of well 299-W15-8 for vapor extraction was included in the plan. (Attachment (7))

- Monthly Monitoring – Monthly carbon tetrachloride soil vapor monitoring was conducted in February 2005 (Carbon Tetrachloride Rebound Concentrations are attached). The results were consistent with monitoring results from previous months. (Attachment (6))

SOURCE OPERABLE UNITS STATUS (Canceled)

ISSUE RESOLUTION MEETING (Canceled)

200 Area UMM – March 2005

200-UP-1:

- The Rebound Study started January 26.
- The first three rounds of groundwater sampling were successfully implemented February 2, 9, and 23 (Attachments 1 and 2). Wells 299-W19-36 and 299-W19-43 were also sampled March 9 since these wells are showing increasing Tc-99 and/or uranium concentrations.
- The re-analysis of February 23 sampling was due last night. I will have to report this data later today.
- RI/FS Work Plan – Once Ecology provides the revised location for new well UP10, all document revisions will be complete.

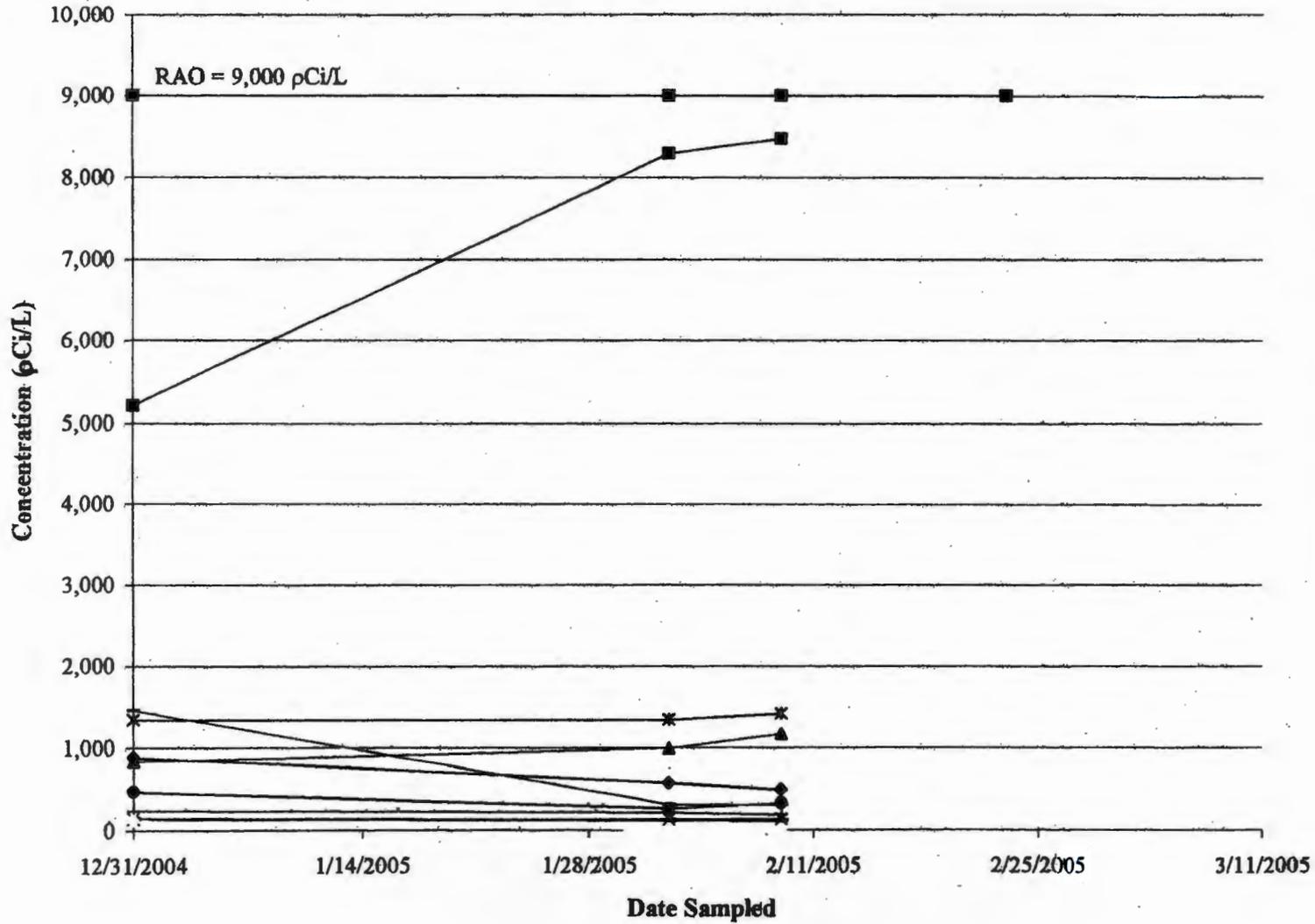
200-ZP-1:

- Average Pumping Rate for January 31 through March 13, 2005: 183 gpm
- The starter was recently replaced in extraction well #5 earlier this week, now the motor has given out. The motor will be replaced early next week.
- From January 31 through March 13, 2005 the system operated between 177 and 199 gpm (Attachment 3).
- System Run Time
 - For January 31 through March 13 82.9%
 - FY2004 (Year to date) 90.2%
 - System Inception to date 92.5%
- Design work for the ZP-1 pump-and-treat expansion is just now finishing up. Construction well start later this month. We are on-schedule for a July 31 startup date.
- John Winterhalder will discuss the status of "Contained-In" determination to remove the need for ZP-1 leak detection.
- Vista Engineering's DNAPL investigation is close to on schedule. Groundwater sampling done. Soil-gas done except for TX Tank Farm. Geophysical surveys will start March 21 (if all goes smoothly will not impact April 1 SVE startup). CPT pushes will start March 28 (3 weeks in length) – includes push-pull testing.
- New wells "H" (by T Plant) and "T" (2/3 mile north of T Plant) will begin being drilling in the next month. (Attachments 4).
- PNNL will present depth-discrete groundwater data from new T Farm detection well "T1" (299-W11-25) (Attachment 5).
- RI/FS Schedule:
 - RI Report preparation is scheduled to begin October 1, 2005
 - Feasibility Study/Proposed Plan is scheduled to begin October 1, 2006

200-PW-1 (200-ZP-2):

- Active system will be starting up first week of April.
 - Well 299-W15-8 (Attachment 6) will be fitted for SVE hookup by middle of April 2005.
 - Need signatures on 2005 SVE Operating Plan.
- The passive system remains operational

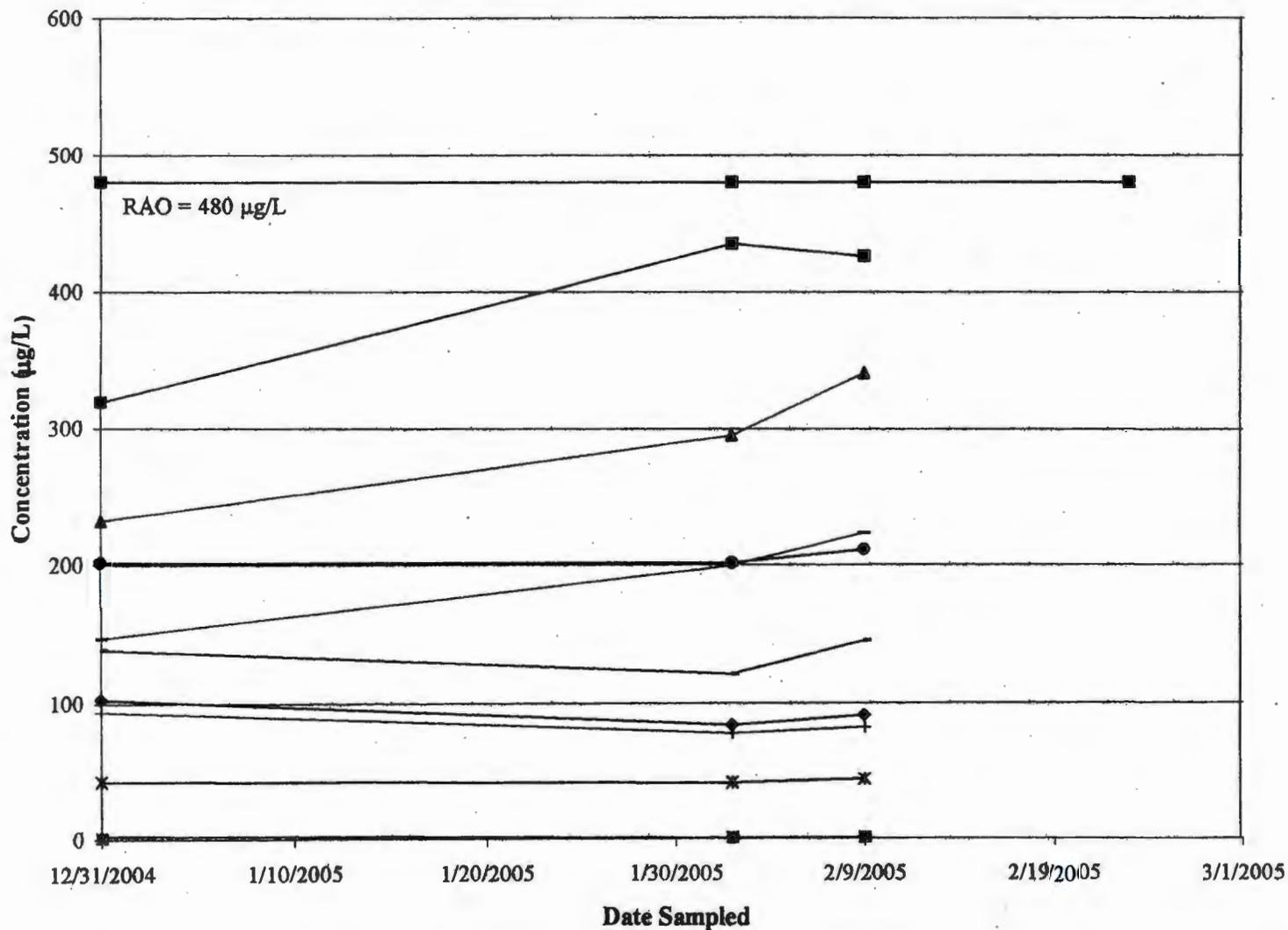
Techneium-99 (pCi/L)



- ◆ 299-W19-39
- 299-W19-36
- ▲ 299-W19-43
- × 299-W19-34A
- * 299-W19-35
- 299-W19-37
- + 299-W19-40
- 299-W19-46
- 299-W19-48
- 699-38-70B
- RAO

Attachment 1

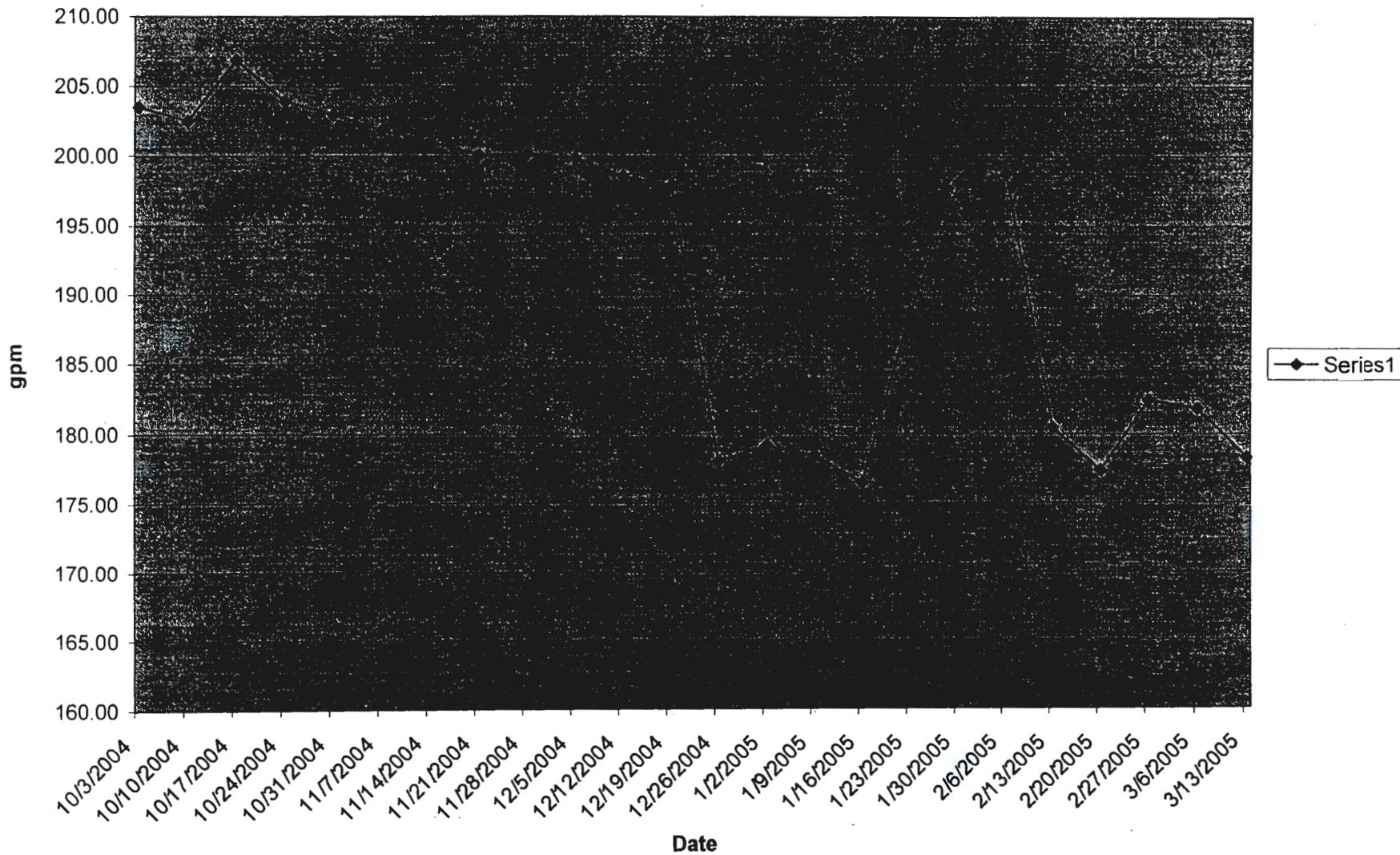
Uranium Concentrations



- ◆ 299-W19-39
- 299-W19-36
- ▲ 299-W19-43
- 299-W19-34A
- * 299-W19-35
- 299-W19-37
- + 299-W19-40
- 299-W19-46
- 299-W19-48
- 699-38-70B
- RAO

Attachment 2

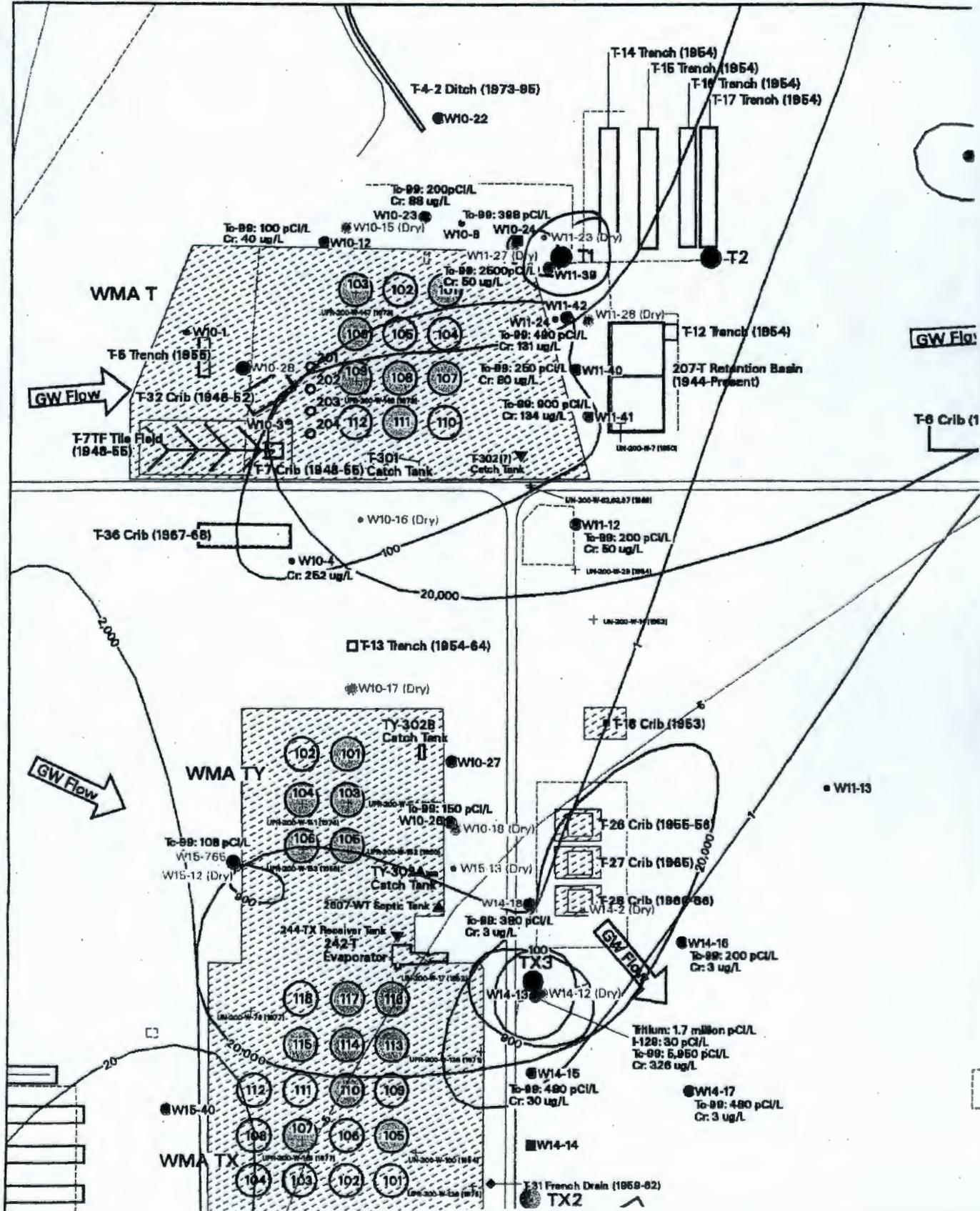
200-ZP-1 Average Pumping Rate for FY2005



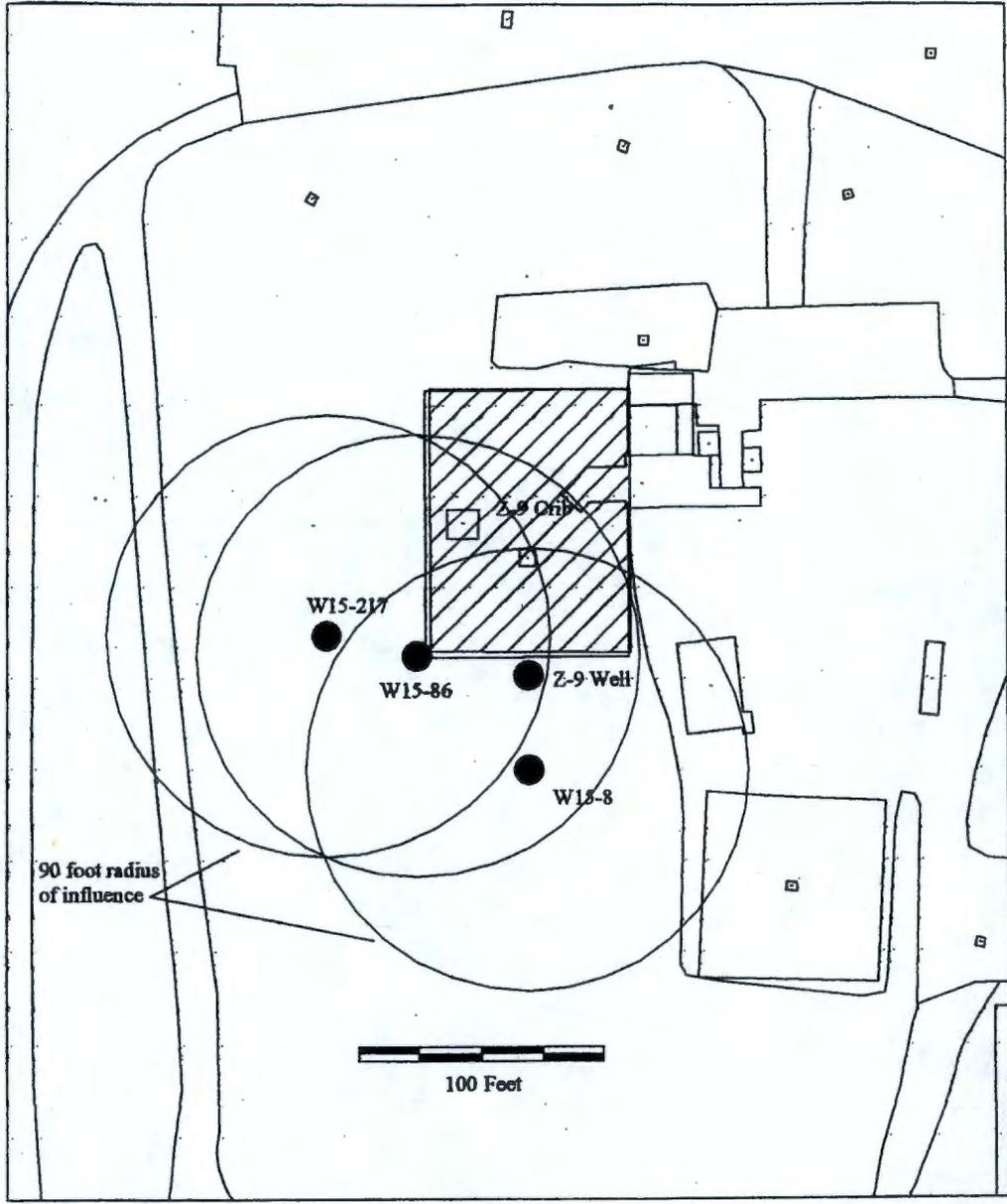
Attachment 3

Attachment 4

Attachment 5



Attachment 6



Groundwater Operable Units

**ER Project Manager
John Price**

3/17/05

**200-UP-1 Unit Manager
Zelma Jackson**

**200-PO-1 Unit Manager
Zelma Jackson**

**100-NR-2 Unit Manager
Dib Goswami**

**100-HR-3 Unit Manager
Dib Goswami**

**EPA Lead GW OU Ecology Support
Dib Goswami**

**Sitewide GW
Dib Goswami**

200-ZP-1
200-BP-5
100-BC5
100-KR-4
100-HR-3
300-FF-3

M24 Milestone Wells
Hanford Sitewide Assessment
•Composite Analysis
Other Sitewide Concerns

Comparison of Maximum Carbon Tetrachloride Rebound Concentrations
 Monitored at 200-PW-1 Soil Vapor Extraction Sites
 FY 1999 - FY 2005

200-PW-1 (200-ZP-2)		July 1999 - June 2001		July 2001 - June 2002		July 2002 - September 2003		July 2002 (Z-9) or October 2003 (Z-1A) - March 2004		July 2002 (Z-9) or April 2004 (Z-1A) - September 2004		October 2004 - February 2005	
Location (Well or Probe)	Site	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	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												
86-09/ 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	6.6	24	3.2	6	6.6	15	9.0	21	9.9	27	7.1	4
CPT-18/ 15 ft	Z-9	5.2	24	1.4	6	2.4	15	2.4	21	2.5	27	3.1	4
CPT-4A/ 25 ft	Z-1A	3.5	0	3.4	10								
CPT-4E/ 25 ft	Z-1A	not measured		2.6	12	1.3	0			2.4	0		
CPT-16/ 25 ft	Z-9	1.8	24	1.1	6	2	15	2.6	21	3.6	27	4.4	4
CPT-31/ 25 ft	Z-1A												
CPT-32/ 25 ft	Z-1A	16.5	18	13.0	12	6.3	6	6	6			5.5	5
CPT-30/ 28 ft	Z-18	1.4	18	0	12	0	6	0	6			1.6	5
CPT-13A/ 30 ft	Z-1A	3.6	18	2.6	12	1.6	6	2	6	1.9	0	7.1	5
CPT-7A/ 32 ft	Z-1A	6.2	18	5.6	12	3.9	6	9.5	6	1.9	0	3.9	5
CPT-27/ 33 ft	Z-9	2.6	24	1.5	6	1.7	15	2.7	21	2.7	27	8.4	4
CPT-1A/ 35 ft	Z-12	7.7	18	11.3	12	22.0	15	18.3	6	18.0	0	14.0	5
CPT-28/ 40 ft	Z-9			56.5	6								
CPT-33/ 40 ft	Z-1A			2.3	12								
CPT-34/ 40 ft	Z-18	1.9	0	2.2	12	1.6	0			1.8	0		
CPT-21A/ 45 ft	Z-9	127	24	133	6	90.0	15	150	21	150	27	181	4
W15-220ST/ 52 ft	Z-9	2.5	24			1.5	1						
CPT-28/ 60 ft	Z-9												
CPT-9A/ 60 ft	Z-9	68	24	45.3	6	35.9	15	35.9	21	35.9	27	32.4	4
CPT-C3872 / 61 ft	Z-1A											7.6	5
CPT-16/ 65 ft	Z-9	not measured		not measured		4.2	15			4.2	27	6.7	4
CPT-1A/ 68 ft	Z-12	not measured		5.5	12								
CPT-30/ 68 ft	Z-18												
CPT-32/ 70 ft	Z-1A			7.7	12								
CPT-13A/ 70 ft	Z-1A												
CPT-24/ 70 ft	Z-9					4.7	15			9.1	27		
W15-219SST/ 70 ft	Z-9	7.8	24			1.9	1			5.7	22		
CPT-18/ 75 ft	Z-9	18	24			4.5	15			8.3	27		
CPT-4A/ 75 ft	Z-1A	not measured		7.1	3								
CPT-31/ 76 ft	Z-1A												
CPT-33/ 80 ft	Z-1A												
W15-82/ 83 ft	Z-9	55	24	66.7	6	85.8	15	85.8	21	85.8	27	95.8	4
CPT-21A/ 86 ft	Z-9	195	24	186	6	206	15	244	21	244	27	209	4
CPT-34/ 86 ft	Z-18												
W15-95U/ 86 ft	Z-9	43	21										
W15-218SST/ 86 ft	Z-9					1.6	2						
CPT-28/ 87 ft	Z-9	224	24	229	6	235	15	258	21	258	27	245	4
CPT-4B/ 90 ft	Z-1A			3.2	10								
CPT-1A/ 91 ft	Z-18			10.7	10								
CPT-4A/ 91 ft	Z-1A			7.5	2								
CPT-9A/ 91 ft	Z-9			74.3	6								
W15-85/ 91 ft	Z-9	51	24										
W18-252SST/ 100	Z-1A												
W18-152/ 101 ft	Z-12	25	18	25.7	12	20.7	6	12.4	6			14.6	5
CPT-4E/ 103 ft	Z-1A	not measured		16.1	12								
W18-167/ 106 ft	Z-1A	248	18	297	12	243	6	266	6			37.4	5
W18-165/ 109 ft	Z-1A	not measured		278	12	328	6	205	6			35.2	5
W15-217/ 114 ft	Z-9	442	24	93.6	6	444	15	458	21			39.6	4
CPT-24/ 118 ft	Z-9	35	24			27.8	15			15.3	27		
W15-220SST/ 118	Z-9	34	24			27.5	3			26.0	27		
W18-158L/ 120 ft	Z-1A	284	18	163	3								
W15-219SST/ 130	Z-9	54	24			23.1	1			0	22		
W18-249/ 130 ft	Z-18	176	18	196	12	46.3	6	41.0	6			52.2	5
W18-248/ 131 ft	Z-1A	214	18	306	12	182	6	180	6			70.5	5
W15-95L/ 144 ft	Z-9	not measured		31.8	6	25.1	15	40.3	21	40.3	27	26.7	4
W15-219SST/ 155	Z-9	44	24			6.8	1			9.5	22		
W15-220L/ 163 ft	Z-9						15			8	27		
W15-219L/ 175 ft	Z-9						15			23	27		
W15-9L/ 176 ft	Z-9	20	21	16.9	6	13.1	15	13.1	21	13.1	27	2.1	4
W15-84L/ 180 ft	Z-9	not measured		not measured		25.9	15	25.9	21	25.9	27	22.0	4
W15-6L/ 182 ft	Z-9												
W15-220SST/ 185	Z-9	15	24				1						
W18-7/ 187 ft	Z-1A												
W18-12/ 188 ft	Z-18												
W18-6L/ 208 ft	Z-1A												

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

APPROVAL OF THE CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION
SOIL VAPOR EXTRACTION SYSTEM OPERATING PLAN FOR FY 2005

The Unit Managers for the Carbon Tetrachloride Expedited Response Action (200-PW-1 Operable Unit) approve the attached FY 2005 Soil Vapor Extraction System Operating Plan.

A.C. Tortoso 3/17/05 D. A. Faulk 3-17-05

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

FY 2005 SOIL VAPOR EXTRACTION SYSTEM OPERATING PLAN FOR THE
CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION
(200-PW-1 OPERABLE UNIT)

Soil vapor extraction will be used at the 200-PW-1 Operable Unit (OU) during FY 2005 to remove carbon tetrachloride from the vadose zone. The primary objectives for this remediation are protection of the groundwater and mass removal. Only the 14.2 m³/min soil vapor extraction (SVE) system will be operated. Two sites will be remediated using SVE: the 216-Z-9 (Z-9) site and the 216-Z-1A/Z-18/Z-12 (Z-1A) site. Specific on-line wells have been selected prior to start-up at each site based on vapor monitoring, previous concentration trends, and location. These site-specific plans are included in this operating plan for approval by the Unit Managers prior to implementation. Based on characterization data collected at on-line wells during operation, the mix of on-line wells may be reconfigured during operations to optimize removal. These adjustments to the mix of on-line wells will not be submitted to the Unit Managers for approval prior to implementation but will be reported at Unit Manager Meetings. Ongoing passive soil vapor extraction will be maintained at Z-1A wells.

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 SVE. The soil vapor monitoring plan for both sites from April 2005 through September 2005 is included with this operating plan for approval prior to implementation. Monitoring results will be reported at the 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 vapor extraction system to address the problem).

The anticipated schedule for SVE operations and soil vapor monitoring is:

April 2005 through June 2005:	Operate the SVE system at the Z-9 site Monitor soil vapor concentrations at the Z-1A site
July 2005 through September 2005:	Operate the SVE system at the Z-1A site Monitor soil vapor concentrations at the Z-9 site

Vista Engineering Technologies, L.L.C. (VET) is planning to conduct vadose zone investigations at the Z-9 site in March 2005. The cross-well seismic investigation will involve use of vapor extraction wells. VET plans to have these investigations completed before April 2005 in support of the start of vapor extraction operations at Z-9. The Unit Managers agree that soil vapor extraction operations may be initiated a few days after April 1 in the event that VET needs a few extra days to complete their investigation.

SOIL VAPOR EXTRACTION SYSTEM OPERATING PLAN AT THE
216-Z-9 SITE
April 2005 – June 2005

Twenty-three wells at the 216-Z-9 site (Z-9 site) are identified for potential vapor extraction (Table 1). Well 299-W15-8 will be used for vapor extraction in lieu of new well 299-W15-46 (C3426), which is being completed as a groundwater well. Selected wells will be prepared for potential hook-up to the soil vapor extraction system during April through June 2005.

The last non-operational soil vapor monitoring at Z-9 prior to SVE restart will take place in mid to late March 2005. At that time, any sampling tubes will be removed from potential on-line wells. The current wellhead assemblies (configured for non-operational soil vapor monitoring) will not be disturbed until the monitoring has been completed and the tubing removed.

For initial start-up operations at Z-9, extraction will be implemented at four planned intervals: 299-W15-217, 299-W15-82, 299-W15-9U, and 299-W15-9L (Table 1) (Figure 1). Start-up operations at Z-9 in FY 1998, FY 1999, FY 2001, FY 2002, and FY 2004 were also initiated using these four extraction intervals. Selecting the same set of initial wells will allow the rebound in FY 2005 to be compared to the rebound in previous years. (The SVE system was not operated at the Z-9 site during FY2003 to avoid interfering with the characterization sampling to be conducted during drilling of well 299-W15-46.) (Note: The selection of initial on-line wells may need to be modified to accommodate the cross-well seismic test being conducted at Z-9 by Vista Engineering Technologies. However, every attempt will be made to use wells 299-W15-217, 299-W15-82, 299-W15-9U, and 299-W15-9L, as planned.)

These four intervals will be characterized on the first day they are placed into operation. During continued operations, all on-line wells will be characterized each week and all off-line wells, if requested, will be characterized during the 2nd, 4th, 6th, 8th, 10th, and final weeks, according to the attached sampling and analysis plan (Table 2). The mix of on-line wells will be periodically changed during operations, based on changing concentrations, extraction interval locations, and operating experience. In general, the initial extraction wells will be nearer the carbon tetrachloride source (Z-9 Trench) and wells added later will expand operations away from this source. Well 299-W15-8U will be prioritized for early addition to the mix of on-line wells.

The 200-PW-1 OU task lead organizes and maintains spreadsheets of the characterization data on a desktop computer. The characterization data are included in the annual performance evaluation report.

SOIL VAPOR EXTRACTION SYSTEM OPERATING PLAN AT THE
216-Z-1A, 216-Z-18, AND 216-Z-12 SITE
July 2005 – September 2005

Twenty-six wells at the 216-Z-1A, 216-Z-18, and 216-Z-12 site (Z-1A site) are identified for potential soil vapor extraction (Table 3). Selected wells will be prepared for potential hook-up to the soil vapor extraction system during July through September 2005.

The last non-operational soil vapor monitoring at Z-1A prior to SVE restart will take place in mid to late June 2005. At that time, any sampling tubes will be removed from potential on-line wells. The current wellhead assemblies (configured for non-operational soil vapor monitoring) will not be disturbed until the monitoring has been completed and the tubing removed.

Passive soil vapor extraction is being conducted at the following Z-1A wells with lower intervals open between the Cold Creek unit and groundwater: 299-W18-6L, 299-W18-7, 299-W18-10L, 299-W18-11L, 299-W18-12, 299-W18-246L, 299-W18-247L, 299-W18-252L (Table 4).

For initial start-up operations at Z-1A, extraction will be implemented at five planned intervals in the Z-1A tile field: 299-W18-165, 299-W18-166, 299-W18-167, 299-W18-168, and 299-W18-174 (Table 3) (Figure 1). Start-up operations in FY 2001, FY2002, FY 2003, and FY 2004 were also initiated using these five extraction intervals (a sixth interval selected in FY 2001 produced virtually no flow). Selecting the same set of initial wells will allow the rebound in FY 2005 to be compared to the rebound in previous years.

These five intervals will be characterized on the first day of operations. During continued operations, all on-line wells will be characterized each week and all off-line wells, if requested, will be characterized during the 2nd, 4th, 6th, 8th, 10th, and final weeks, according to the attached sampling and analysis plan (Table 3). As before, the mix of on-line wells will be periodically changed during operations, based on changing concentrations, extraction interval locations, and operating experience. In general, the initial extraction wells will be nearer the primary carbon tetrachloride source (Z-1A Tile Field) and wells added later will expand operations away from this source.

The 200-PW-1 OU task lead organizes and maintains spreadsheets of the characterization data on a desktop computer. The characterization data are included in the annual performance evaluation report.

VADOSE ZONE MONITORING PLAN FOR SOIL VAPOR EXTRACTION SITES
April 2005 – September 2005

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 April through September 2005 for the 200 West Area Carbon Tetrachloride Expedited Response Action (200-PW-1 Operable Unit). Non-operational monitoring will be conducted at the 216-Z-1A/Z-18/Z-12 (Z-1A) site during April through June 2005 while the soil vapor extraction (SVE) system is operating at the 216-Z-9 (Z-9) site. Non-operational monitoring will be conducted at the Z-9 site during July through September 2005 while the SVE system is operating at the Z-1A site. Passive soil vapor extraction monitoring will be conducted at the Z-1A site from April 2005 through September 2005.

Scope: Monitor carbon tetrachloride soil vapor concentrations at selected probes and wells during non-operation of the soil vapor extraction (SVE) system (Tables 5 and 6). At any particular time, all of the probes and some of the wells will be "non-operational," i.e., they will not be connected to the SVE system. Eight of the 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 carbon tetrachloride 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 in accordance with GRP-EE-01-5.1
- Analyze soil vapor samples for carbon tetrachloride using the B&K in accordance with GRP-EE-05-4.0 at field screening level QC-1 (CP-A-QA-03-5.2)
- Evaluate concentration trends for the Fluor Hanford Waste Disposal/Groundwater Remediation Project
- Report results to 200-PW-1 Operable 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 measure 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 the 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 measure carbon tetrachloride concentrations and trends near the vadose-groundwater interface; 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 April 2005 through September 2005 during FY 2005.

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 5). These monitoring locations may be revised by the 200-PW-1 OU task lead based on developing trends, accessibility, and/or recommendations of the sampler. The 200-PW-1 Operable Unit Managers will be advised of any changes to the monitoring locations. Monitoring locations are shown on Figures 2 and 3.

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 200-PW-1 OU task lead organizes and maintains spreadsheets of the field screening data on a desktop computer. The field screening data are included in the annual performance evaluation report.

References:

CP-A-QA-03-5.2, *Quality Assurance Program Plans*, Procedure 5.2, "Onsite Measurements Quality Assurance Program Plan," Fluor Hanford, Inc., Richland, Washington.

GRP-EE-01-5.1, *Soil-Gas Sampling*, Fluor Hanford, Inc., Richland, Washington.

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. Wells Available for Soil Vapor Extraction System Operations at the 216-Z-9 Site, April through June 2005

Potential On-Line Wells	Reason	Initial Wells
299-W15-6U	Mass removal	
299-W15-6L	Groundwater Protection	
299-W15-8U	Mass removal	
299-W15-8L	Groundwater Protection	
299-W15-9U	Mass removal	X
299-W15-9L	Groundwater Protection	X
299-W15-82	Mass removal	X
299-W15-84U	Mass removal	
299-W15-84L	Mass removal	
299-W15-85	Mass removal	
299-W15-86	Mass removal	
299-W15-95U	Mass removal	
299-W15-95L	Mass removal	
299-W15-216U	Mass removal	
299-W15-216L	Groundwater Protection	
299-W15-217	Mass removal	X
299-W15-218U	Mass removal	
299-W15-218L	Groundwater Protection	
299-W15-219U	Mass removal	
299-W15-219L	Groundwater Protection	
299-W15-220U	Mass removal	
299-W15-220L	Groundwater Protection	
299-W15-223	Mass removal	

Table 2. Sampling and Analysis Plan for Soil Vapor Extraction System Operations, April through September 2005

When to Monitor	on-line wells	off-line wells	vacuum wellhead	flow	CCl4	CHCl3	CH2Cl2	MEK
					carbon tetrachloride	chloroform	methylene chloride	MEK
first day of operations	X		X	X	X	X	X	X
beginning of 2nd week	X	X	X	X	X	X	X	X
beginning of 3rd week	X		X	X	X	X	X	X
beginning of 4th week	X	X	X	X	X	X	X	X
beginning of 5th week	X		X	X	X	X	X	X
beginning of 6th week	X	X	X	X	X	X	X	X
beginning of 7th week	X		X	X	X	X	X	X
beginning of 8th week	X	X	X	X	X	X	X	X
beginning of 9th week	X		X	X	X	X	X	X
beginning of 10th week	X	X	X	X	X	X	X	X
beginning of 11th week	X		X	X	X	X	X	X
beginning of 12th week	X		X	X	X	X	X	X
last day of operations	X	X	X	X	X	X	X	X
Fax copy of monitoring records to 200-PW-1 OU Task Lead (Virginia Rohay at 373-3974) by close of day following monitoring.								

Table 3. Wells Available for Soil Vapor Extraction System Operations at the 216-Z-1A/Z-18/Z-12 Site, July through September 2005

Potential On-Line Wells	Reason	Initial Wells
299-W18-6U	Mass removal	
299-W18-89	Mass removal	
299-W18-93	Mass removal	
299-W18-94	Mass removal	
299-W18-96	Mass removal	
299-W18-97	Mass removal	
299-W18-98	Mass removal	
299-W18-99	Mass removal	
299-W18-152	Mass removal	
299-W18-153	Mass removal	
299-W18-157	Mass removal	
299-W18-158L	Mass removal	
299-W18-159	Mass removal	
299-W18-163L	Mass removal	
299-W18-165	Mass removal	X
299-W18-166	Mass removal	X
299-W18-167	Mass removal	X
299-W18-168	Mass removal	X
299-W18-169	Mass removal	
299-W18-171L	Mass removal	
299-W18-174	Mass removal	X
299-W18-246U	Mass removal	
299-W18-247U	Mass removal	
299-W18-248	Mass removal	
299-W18-249	Mass removal	
299-W18-252U	Mass removal	

Table 4. Passive Soil Vapor Extraction Wells at the 216-Z-1A/Z-18/Z-12 Site, FY 2005

Passive Soil Vapor Extraction Wells	Reason
299-W18-6L	Groundwater Protection
299-W18-7	Groundwater Protection
299-W18-10L	Groundwater Protection
299-W18-11L	Groundwater Protection
299-W18-12	Groundwater Protection
299-W18-246L	Groundwater Protection
299-W18-247L	Groundwater Protection
299-W18-252L	Groundwater Protection

Table 5a. Distribution of Selected Monitoring Locations During Soil Vapor Extraction System Operations at the 216-Z-9 Site, April through June 2005

Target Zone	Number of Monitoring Locations		
	Z-1A	Z-9	Total
Near-surface (3-25 m below ground surface)	11	3	14
Cold Creek (25-45 m below ground surface)	6	2	8
Groundwater (50-65 m below ground surface)	8 ^a	0	8
Total	25	5	30

^a 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 5b. Distribution of Selected Monitoring Locations During Soil Vapor Extraction System Operations at the 216-Z-1A/Z-18/Z-12 Site, July through September 2005

Target Zone	Number of Monitoring Locations		
	Z-1A	Z-9	Total
Near-surface (3-25 m below ground surface)	5	9	14
Cold Creek (25-45 m below ground surface)	0	8	7
Groundwater (50-65 m below ground surface)	8 ^a	5	12
Total	13	22	35

^a 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 6a. Non-Operational Wells and Probes Selected for Monitoring During Soil Vapor Extraction System Operations at the 216-Z-9 Site, April through June 2005

Target Zone	Z-9	Depth (m)	Comment	Z-1A	Depth (m)	Comment
near-surface	CPT-28 40 ft (green)	12	farfield south of Z-9	CPT-32 25 ft (green)	8	west of Z-1A
near-surface	CPT-21A 45 ft (green)	14	south of Z-9	CPT-4E 25 ft (white)	8	north central in Z-1A/Z-18/Z-12 field
near-surface	CPT-9A 60 ft (blue)	18	farfield north of Z-9	CPT-30 28 ft (green)	9	north of Z-18 (middle of Z-1A/Z-18/Z-12 field)
near-surface				CPT-13A 30 ft (blue)	10	southeast of Z-1A
near-surface				CPT-7A 32 ft (yellow)	10	farfield northeast of Z-1A
near-surface				CPT-1A 35 ft (black)	11	west of Z-12
near-surface				CPT-33 40 ft (green)	12	between Z-18 and Z-12
near-surface				CPT-34 40 ft (green)	12	west of Z-18
near-surface				CPT-C3872 61 ft	19	east side of Z-1A
near-surface				CPT-1A 68 ft (yellow)	21	west of Z-12
near-surface				CPT-32 70 ft (red)	21	west of Z-1A
Cold Creek	CPT-21A 86 ft (red)	26	south of Z-9	299-W18-152	31	northwest corner of Z-12
Cold Creek	CPT-28 87 ft (red)	27	farfield south of Z-9	299-W18-167	32	within Z-1A
Cold Creek				CPT-4F 109 ft (red)	33	north central in Z-1A/Z-18/Z-12 field
Cold Creek				299-W18-165	33	within Z-1A
Cold Creek				299-W18-249	40	northeast corner of Z-18
Cold Creek				299-W18-248	40	east side of Z-1A
ground-water				299-W18-247L*	51	southeast of Z-18
ground-water				299-W18-246L*	52	west of Z-1A
ground-water				299-W18-252L*	53	middle of Z-1A/Z-18/Z-12 field
ground-water				299-W18-10L*	55	east side of Z-18
ground-water				299-W18-7*	60	east side of Z-1A
ground-water				299-W18-11L*	60	within Z-18
ground-water				299-W18-12*	60	within Z-18
ground-water				299-W18-6L*	63	west side of Z-1A

* Passive soil vapor extraction wells

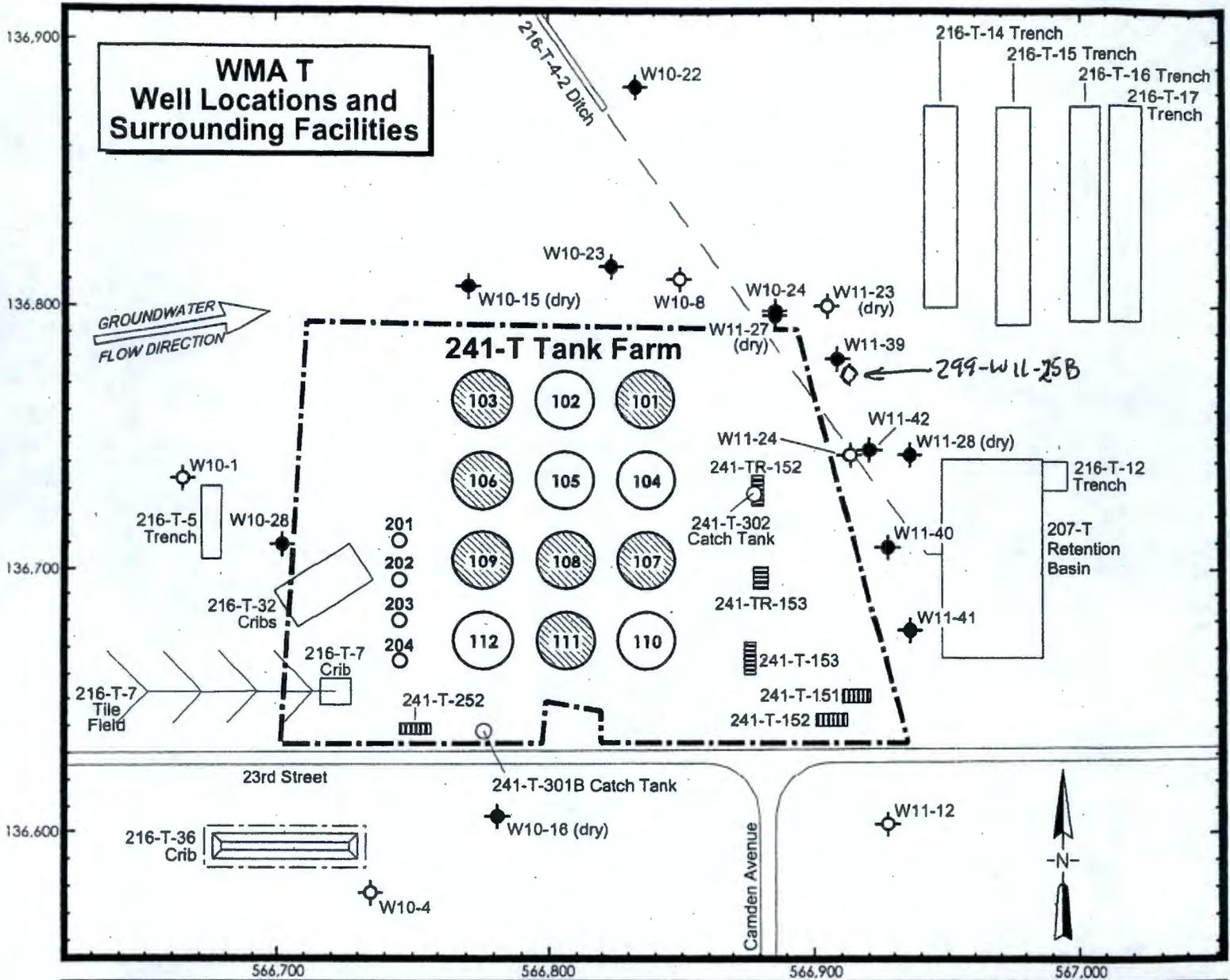
Note: Colors refer to the color coding on the soil vapor probe tubing.

Table 6b. Non-Operational Wells and Probes Selected for Monitoring During Soil Vapor Extraction System Operations at the 216-Z-1A/Z-18/Z-12 Site, July through September 2005

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-4E 25 ft (white)	8	north central in Z-1A/Z-18/Z-12 field
near-surface	CPT-18 15 ft (white)	5	northwest 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-27 33 ft (red)	10	southeast of Z-9	CPT-1A 35 ft (black)	11	west of Z-12
near-surface	CPT-21A 45 ft (green)	14	south of Z-9	CPT-34 40 ft (green)	12	west of Z-18
near-surface	CPT-9A 60 ft (blue)	18	farfield north of Z-9			
near-surface	CPT-16 65 ft (red)	20	east of Z-9			
near-surface	CPT-24 70 ft (green)	21	northwest of Z-9			
near-surface	CPT-18 75 ft (red)	23	northwest of Z-9			
Cold Creek	299-W15-82	25	east side of Z-9			
Cold Creek	CPT-21A 86 ft (red)	26	south of Z-9			
Cold Creek	CPT-28 87 ft (red)	27	farfield south of Z-9			
Cold Creek	299-W15-8U	31	southside of Z-9			
Cold Creek	299-W15-217	35	southwest corner of Z-9			
Cold Creek	CPT-24 118 ft (red)	36	northwest of Z-9			
Cold Creek	299-W15-220 SST/118 ft (red)	36	east of Z-9			
Cold Creek	299-W15-95L	44	north side of Z-9	299-W18-247L*	51	southeast of Z-18
ground-water	299-W15-220L 163 ft	50	east of Z-9	299-W18-246L*	52	west of Z-1A
ground-water	299-W15-219L 175 ft	53	northwest of Z-9	299-W18-252L*	53	middle of Z-1A/Z-18/Z-12 field
ground-water	299-W15-84L 180 ft	55	west of Z-9	299-W18-10L*	55	east side of Z-18
ground-water	299-W15-9L	57	11 m from 299-W15-32 extraction well	299-W18-7*	60	east side of Z-1A
ground-water	299-W15-46	66	southside of Z-9	299-W18-11L*	60	Within Z-18
ground-water				299-W18-12*	60	Within Z-18
ground-water				299-W18-6L*	63	west side of Z-1A

* Passive soil vapor extraction wells

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



 201 Single-Shell Tank	 Suspected/Confirmed Leaking Single-Shell Tank	 RCRA Well	 Non-RCRA Well	 Chain-link Fence	 Roads
		 RCRA Well	 Non-RCRA Well	 Diversion Box	

0 25 50 75 m

0 50 100 150 200 250 ft

All Tank Names prefixed by 241-T-
All Well names prefixed by 299-

Available technetium-99, chromium, nitrate, and carbon tetrachloride data from
new well 299-W11-25B at WMA T.

Sample Depth (ft bgs)	Depth Below Water Table (ft)	Sample Method	Tc-99 (pCi/L)	Cr (µg/L)	Nitrate (µg/L)	CCl ₄ (ug/L)
247	5	Air lifted	238	< quantitation limit	945,930	
250	8	Air lifted	13,073	< quantitation limit	799,420	
255	13	Air lifted	12,716	< quantitation limit	1,009,270	
260	18	Pumped	77,010	1,033	371,700	797
265	23	Air lifted	81,940	2.34	550,400	
270	28	Air lifted	140,080	1.95	585,940	
275	33	Air lifted	181,900	2.24	663,540	
280	38	Pumped	151,810	555	569,230	957
285	43	Air lifted	8,551		579,880	
290	48	Air lifted	31,960		404,030	
295	53	Air lifted	37,060		410,390	
300	58	Air lifted	49,470		Not Analyzed	
300	58	Pumped	54,740	63.7	426,810	1146
305	63	Air lifted	37,910	2.73	404,410	
310	68	Air lifted	30,770	4.04	354,520	
315	73	Air lifted	43,350	13.3	379,720	
320	78	Pumped	49,810	14.3	403,540	997
320	78	Air lifted	13,549	non detect	Not Analyzed	
325	83	Air lifted	39,950	1.46	410,420	
330	88	Air lifted	39,440	<quantitation limit	406,490	
335	93	Air lifted	29,580	<quantitation limit	399,490	
340	98	Pumped	42,330		415,320	520
345	103	Air lifted	28,900	<quantitation limit	392,360	
350	108	Air lifted	25,500	<quantitation limit	418,610	
355	113	Air lifted	17,340	10	376,470	
360	118	Air lifted	11,492	13.5	Not analyzed	1253 1341 (Dup)
360	118	Pumped	37,740	18.7	409,120	
365	123	Air lifted	30,000		393,780	
370	128	Air lifted	26,860		405,690	

375	133	Air lifted	15,674		314,570
380	138	Pumped	25,160		334,980
385	143	Air lifted	15,181		275,400
390	148	Air lifted	15,198		260,110
395	153	Air lifted	26,010		366,380
400	158	Pumped	30,770		370,440
405	163	Air lifted	13,022		264,700
409	167	Air lifter	12,121		241,750
409	167	Pumped	21,250		374,480

299-W11-25

Concentration (ug/L or pCi/L)

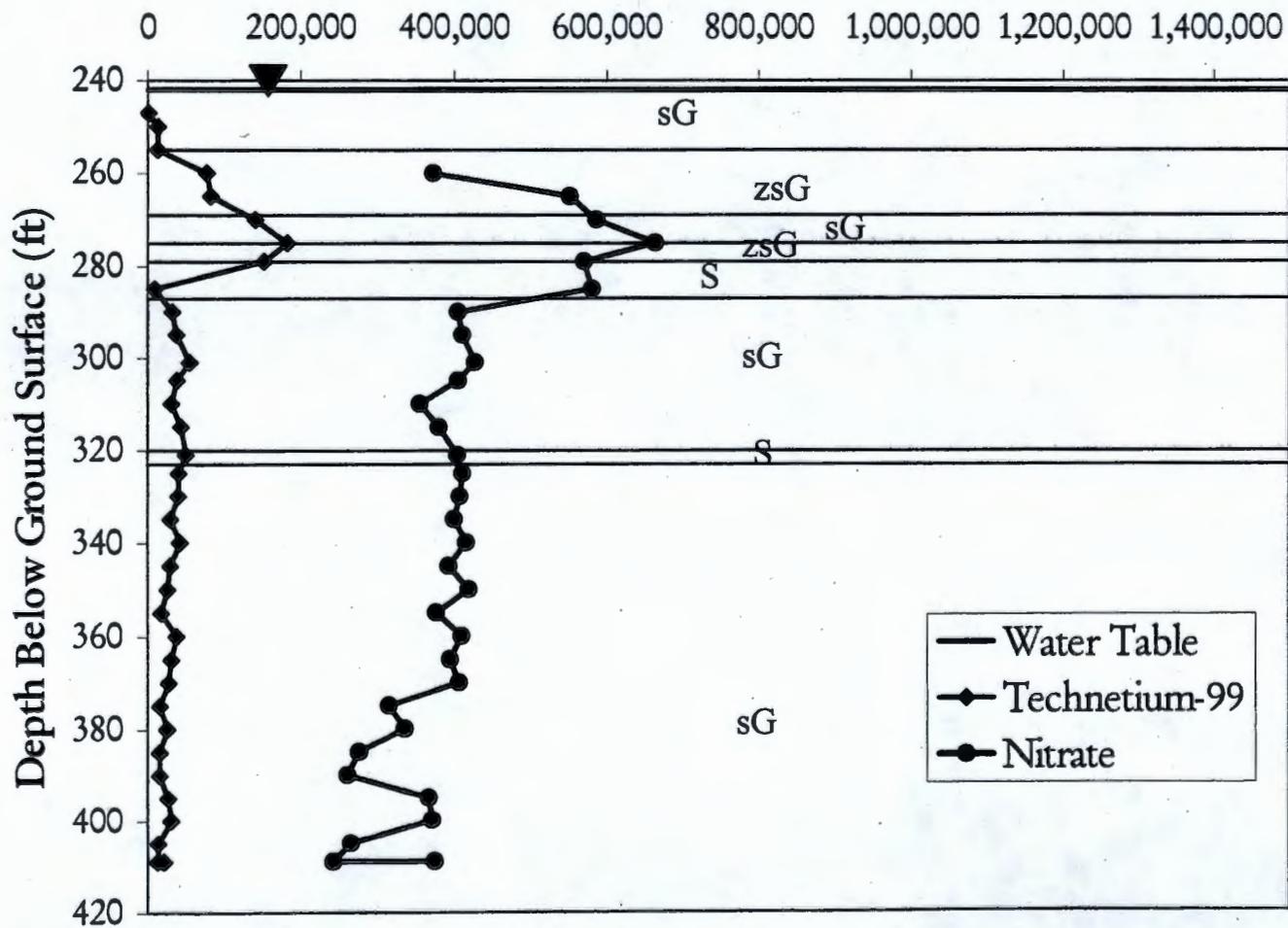
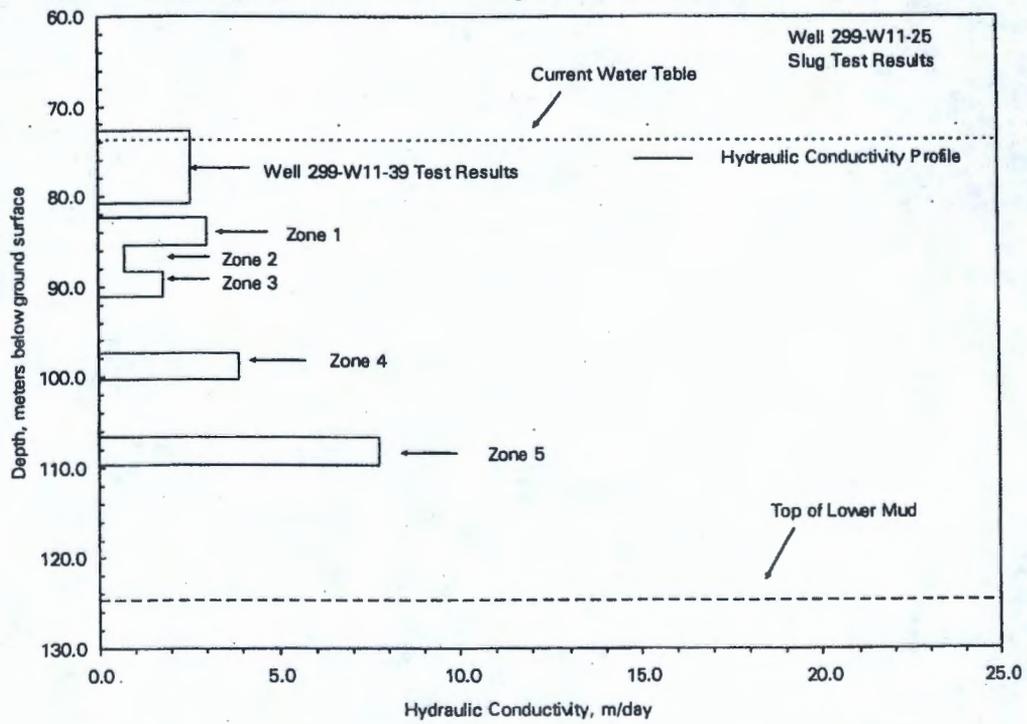


Figure 3. Preliminary Hydraulic Conductivity Profile at Borehole 299-W11-25B



**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
36	Review Modeling lessons learned from TW-1 for applicability to other OUs. Make best of data we have. Larry: Follow-on meeting.	Benecke						A formal fix is in progress. RL/EPA & Ecology met to collect input to address regulatory agency concerns. J. Morse to provide summary @ Nov. UMM
37	Foley suggests Larry/Mike to talk to Bill McMahan. Dual porosity not done. Ecology agreed with EPA that the current modeling is not acceptable. Opportunity to use dual porosity to help guide that.	FH	RL	09/16/04				
38	All agencies to provide written notification and who is designee when unable to attend.	RL/EPA/Ecology	RL/EPA/Ecology				Ongoing	Requirement per TPA
39	Review/Approve Decommissioning List for UP-1	Ecology DOE/FH		01/20/05				
40	Review/Approve Decommissioning List for ZP-1	EPA		01/20/05				
41	Reconstruct Agreements for ZP-1 Expansion	Mark Byrnes	DOE-RL	01/20/05	02/17/05			
42	Set up COPC meeting	Stuart Lutrell	FH/RL	01/20/05	before 02/17/05			
43	Develop charter for ROD strategy to discuss at next UMM	RL	EPA/Ecology	01/20/05	02/17/05			
44	Complete UMM minutes per plan presented at January UMM	FH/RL	EPA/Ecology	01/20/05	02/17/05			
45	Provide a list of issues concerning combining 200-CW-1 and 200-CS-1 FS	Ecology	FH/RL	01/20/05	02/17/05			Complete
46	Enter signed 200-UP-1 Rebound Study Operating Plan into the meeting minutes			01/20/05			1/20/2005	Attachment 10 to 01/2005 UMM minutes
47	Approve decommissioning lists	Ecology/EPA	RL/FH	01/20/05	02/17/05			Attachment 6 to 01/2005 UMM minutes
48	Provide a 200-BP-5 schedule and an updated 200-POP-1 schedule to regulatory agencies	PNNL/RL	EPA/Ecology	02/17/05	03/17/05			

**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
49	Include additional information (i.e., well location and reason for decommissioning) on lists of wells to be decommissioned; conversely, schedule a meeting with regulatory agencies to discuss	PNNL/RL/FH	EPA/Ecology	02/17/05	as decommissioning lists are incorporated into UMM and other documents			
50	Provide comments on the 200-PO-1 Waste Control Plan revisions	Ecology	RL/PNNL	02/17/05	03/17/05			
51	Report 200-TW-1/2 separately on the float table	RL/FH	EPA/Ecology	02/17/05	03/17/05			
52	Include a target date on the float table for 200-CW-1/200-CW-3/200 North Area Waste Sites	RL/FH	EPA/Ecology	02/17/05	03/17/05			
53	Review original TPA and early change packages for better understanding on requirements for 2008 M-015 milestone; mock up change package to provide clarification of requirements to meet 2008 milestone to be included in next modification to M-15	All		02/17/05	TBD			
54	Evaluate impacts of the rail cars and decisions/timeframes to remove them on the ROD for 200-UR-1	Ecology	RL	02/17/05	TBD			
55	Provide letter agreeing to investigation plan for 200-UW-1	Ecology	RL/FH	02/17/05	ASAP			
56	Discuss Region 10 comments on 200-UW-1 Proposed Plan to resolve path forward on RCRA/CERCLA integration	EPA/Ecology	RL/FH	02/17/05	03/17/05			
57	Set up meeting to clarify analyte lists for groundwater and soil work; include staff the handle data and laboratory staff that can discuss methods; focus on groundwater but include source staff (2-hr meeting)	RL/PNNL	Ecology	02/17/05	Prior to 03/17/2005			
58	To provide a response to Ecology's comment requesting revision of 200-CS-1 data tables to be in line with 200-PW-2/4, review costs, methods, and impacts to the RI Report	RL/FH	Ecology	02/17/05	ASAP			