

Meeting Minutes Transmittal/Approval
Unit Managers' Meeting
200 Area Groundwater and Source Operable Units
1200 Jadwin Avenue, Richland, Washington
October 17, 2002/November 21, 2002/December 19, 2002

0063941

APPROVAL: *Arlene Tortoso* Date: 2/17/05
Arlene Tortoso, Groundwater Unit Manager, DOE/RL

APPROVAL: *Larry Romine* Date: 2-17-05
Larry Romine, Federal Project Director, 200 Area D4 & Waste Site
Remediation, DOE/RL

APPROVAL: *Craig Cameron* Date: 2/17/05
Craig Cameron, 200 Area Unit Manager, EPA

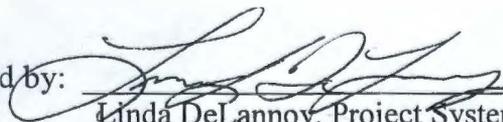
APPROVAL: *John B Price* Date: 2/17/05
John Price, 200 Area Unit Manager, Ecology

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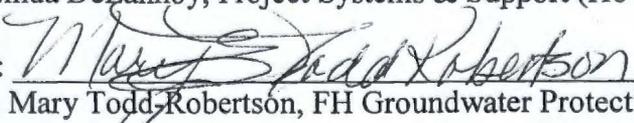
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- Attachment 1 -- October 17, 2002, 200 Area UMM – Agenda, Attendance Record, Meeting Minutes, Current Action Log, Comparison of Maximum Carbon Tetrachloride Rebound Concentrations Monitored at 200-PW-1 Soil Vapor Extraction Sites FY 1997- FY 2002, 200-UP-1, 200-ZP-1 and 200-PW-1 Status Report, 200-PW-1 Soil Vapor Monitoring Plan, October 2002 - March 2003, FS Overview
- Attachment 2 -- November 21, 2002, 200 Area UMM – Agenda, Meeting Minutes, Current Action Log, 200-UP-1, 200-ZP-1 and 200-PW-1 Status Report, Comparison of Maximum Carbon Tetrachloride Rebound Concentrations Monitored at 200-PW-1 Soil Vapor Extraction Sites FY 1997- FY 2002, 200-CS-1 OU FY03 Test Pit Characterization Activities, Enhanced Areas Penetration System (EAPS) Presentation
- Attachment 3 -- December 19, 2002, 200 Area UMM – Agenda, Meeting Minutes, Current Action Log, 200-UP-1, 200-ZP-1 and 200-PW-1 Status Report, Comparison of Maximum Carbon Tetrachloride Rebound Concentrations Monitored at 200-PW-1 Soil Vapor Extraction Sites FY 1997- FY 2002, 200-UP-1 Site Location Map and Monitoring Wells Handout

Prepared by:


Linda DeLannoy, Project Systems & Support (H8-49)

Date 2/15/05

Concurrence by:


Mary Todd-Robertson, FH Groundwater Protection Program (E6-35)

Date 2/18/05

UNIT MANAGERS' MEETING AGENDA

1200 Jadwin Avenue

October 17, 2002

9 a.m. – 11 a.m. 200 Area Room 3C4

General (10 minutes)

- Outstanding Action Items (attached)
- Open for Regulatory Topics or Action Items

GROUNDWATER OPERABLE UNITS

200-BP-5 & 200-PO-1 OUs (5 minutes)

- Status of Activities

200-UP-1 OU (10 minutes)

- Remediation Treatment Status

200-ZP-1 OU (10 minutes)

- Remediation Treatment Status

SOURCE OPERABLE UNITS

200-PW-1, 200-PW-3, & 200-PW-6 OUs (10 minutes)

- Remediation Treatment Status
- PW-1 Soil Vapor Monitoring Plan
- Monthly Monitoring
- Status Fieldwork
- Work Plan Status
- Representative Site SAP Status

200-TW-1 & 200-TW-2 OUs (10 minutes)

- RI Report Progress

200-PW-2 & 200-PW-4 OUs (5 minutes)

- Work Plan Consolidation Status
- PW-4 DQO Decision Maker Interview Schedule

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

EPA

Craig Cameron

B5-01

Ecology

John Price

H0-57

Administrative Record (2)

A3-01

200-IS-1 & ST-1 OUs (2 minutes)

- DQO Status

200-CS-1 OU (5 minutes)

- Upcoming Test Pit Activities
- 216-S-10 Ditch Borehole Options

200-CW-1 & 200-CW-3 OUs (5 minutes)

- FS Status and Briefing

200-CW-5, 200-CW-2, 200-CW-4, & 200-SC-1 Ous (2 minutes)

- Work Plan Consolidation Status

200 Area Ecological Evaluation (2 minutes)

- Comment Resolution Meeting

U Plant Regional Closure Project (2 minutes)

- Regulatory Path Forward Planning

**Groundwater and Source Operable Units Unit Managers' Meeting
Official Attendance Record – 200 Area
October 17, 2002**

Please print clearly and use black ink

PRINTED NAME	ORGANIZATION	O.U. ROLE	TELEPHONE
Evan Dresel	PNNL	Groundwater	376-8341
Ron Jackson	FH	U-Plant	373-3599
Tony Miskho	FH-EIR	Env.	376-7313
John Winterhalter	FH-EIR	Env.	372-8144
Arlene Tortoso	DOE	GW Unit Mgr.	373-9631
Mark Byrnes	FH	Task Lead	373-3996
John Price	ECY	Mgr.	736-3029
Craig Cameron	EPA	UM	376-8665
Virginia Rohay	CHG	PW-1 Task Lead	373-3203
Brenda Jentzen	Ecology	PW-2/PW-4 TW-2 LW-1 IS etc.	736-5707
Bruce Ford	FH	Waste Site RA Lead	573-3809
Jean Darnie	Ecology		736-3046
GLORIA CUMMINS	FH	ENV.	372-2484
Mary Todd	CHG	200-TW-1/2 lead 200-CH-1 lead 100-CH-1 lead	373-3920
Larry Hulstrom	FH	PW2 Task lead	373-3928
Dennis Faller	EPA		
Bryan Foley	DE-RL	200 Area SAs	376-7087

**MEETING MINUTES
200 AREA GROUNDWATER AND SOURCE OPERABLE UNITS
UNIT MANAGERS' MEETING -- 200 AREA
October 17, 2002**

Topics of Discussion:

1. *General*

- Outstanding Action Items – (see attached) EPA identified the EPA Operable Unit leads. Dennis Faulk is the OU lead for 200-PW-1, 200-PW-3, 200-PW-6, 200-ZP-1 and 200-CW-3. Craig Cameron is the OU lead for 200-BP-5 and all other units on the Central Plateau.

GROUNDWATER OPERABLE UNITS

2. *200-BP-5 & 200-PO-1 OUs*

- Status of Activities – The Data Quality Objective for 200-BP-5/200-PO-1 has been issued. The work on the Sampling and Analysis Plan is on schedule.

PNNL stated that the laboratory recently added a method for metal analysis. The intent is to switch over to this new method gradually to make certain the quality is good. Ecology requested that Jerel Yokel (Ecology) be contacted to discuss the new method. A meeting is scheduled to select the wells.

The Purgewater Strategy should be going to DOE-RL soon for approval.

3. *200-UP-1 OU*

- Remediation Treatment Status – Current operations are at 49 gpm. There was a shut down on September 29, 2002, and it was back up later the same day. The average pumping rate is 48.7 gpm. The system run time is at 95.3% through September 30, 2002, 89.2% FY 2002 year to date, and 91.8% since inception (attached).

The RI/FS process begins October 17, 2002. It is scheduled to be complete by the end of fiscal year 2003.

MSE presented the work done. A conference call has been scheduled for the week of October 28, 2002, to address questions from Ecology. The conference call will not include a presentation from MSE.

4. *200-ZP-1 OU*

- Remediation Treatment Status – Current operations are at 142 gpm. Extraction Well #1 is still down due to pumping problems. Its replacement is scheduled for FY 2003.

The system run time is at 100% through September 30, 2002, 93.3% FY 2002 year to date, and 91.7% since inception.

Work on the RI/FS will begin in November 2002 and work on the DQO will begin in FY 2003. The Work Plan will carry over into FY 2004.

SOURCE OPERABLE UNITS

5. 200-PW-1, 200-PW-3, & 200-PW-6 OUs

- Remediation Treatment Status – Operations through September 30, 2002, are at 417 cfm. The average rate for FY 2002 is 359.5 cfm. There have been no outages. The active system was shut off for winter in the first week of October. The system run time is at 100% through September 30, 2002, 98.7% FY 2002 year to date, and 96.8% since inception (attached).
- PW-1 Soil Vapor Monitoring Plan – The Monitoring Plan was signed by DOE-RL and EPA. Monitoring will continue from October 2002 to March 2003 while the vapor extraction system is down (attached).
- Monthly Monitoring – Handouts showing the data were distributed. The first page of the handout shows all the soil vapor extraction data for the six-month operational period. The second page is a comparison of the rate of decline in carbon tetrachloride concentrations at the 216-Z-9 and 216-Z-1A sites. The third page shows a summary of the monthly monitoring data. The fourth page shows the specifics for monitoring in July, August and September 2002. Concentrations tended to be lower in August and higher in July. It is suspected that the barometric pressure fluctuations affect the measured concentration levels (attached).
- Status Fieldwork – Potential release modes are being investigated. Samples have been collected and the work outside the PFP fence has been completed. Samples were collected from 12 locations in the burial grounds. Sampling to a depth of 25 feet, detections were made at five locations. The highest concentration was 62 ppm at a depth of 12 feet at site 2. Attempts to go deeper with the cone penetrometer were then made. Carbon tetrachloride was detected at the same five sites. The highest concentration was 48 ppm detected at a depth of 10 feet at site 2. It is proposed that monitoring probes be placed at site 2 and site 6 for nine months. These probes will be monitored once per month to verify initial results.

The pipelines were sampled using the GeoProbe. The maximum carbon tetrachloride concentrations detected was 4 ppm along the pipeline to Z-18 at a depth of 25 feet. At the waste sites using the cone penetrometer, a maximum concentration of 8 ppm was detected at the head end of 216-Z-12. Plans are being worked out with the PFP staff to safely perform sampling inside the PFP Protected Area. One safety issue with the proposed work is that energized circuits may be present. Grounding the truck that houses the GeoProbe was suggested as an option. However, the project proposes that rather than using the grid method to determine locations for deeper sampling, engineering information would be used to determine the locations. This would result in fewer sample locations. Hand digging

was suggested but that will raise other safety issues. ARA is still planning an on-site demonstration of the Enhanced Access Penetration System in an uncontaminated area. This demonstration will take place before the end of October 2002.

- Work Plan Status – Work continues on the consolidated Work Plan.
 - Representative Site SAP Status – The SAP was transmitted to EPA.
- 6. 200-TW-1 & 200-TW-2 OUs**
- RI Report Progress – The RI Report is just now in the approval process. It is expected that the report will be submitted to DOE-RL by the end of the week.
- 7. 200-PW-2 & 200-PW-4 OUs**
- Work Plan Consolidation Status – A meeting was held on September 24 to discuss the consolidation activities. A briefing for RL and the regulators on the 200-PW-4 DQO is planned for October 31.
 - PW-4 DQO Decision Maker Interview Schedule – This meeting was held on September 24.
 - Field Work – In addition to work plan revisions, other pre-job planning activities such as the hazard classification, waste control plan, excavation permit, and plant force work reviews have been initiated.
- 8. 200-IS-1 and ST-1 OUs**
- DQO Status – A briefing with Ecology is being arranged to review the DQO Summary for the last week in October.
- 9. 200-CS-1 OU**
- Upcoming Test Pit Activities – The final test pit sampling activities are being scheduled in the field. There is a TPA Milestone associated with this field activity and the target is to be out in the field by the end of November. The test pit activities will be at the B-63 Trench and the S-16 Ditch. Drilling activities at the S-10 Ditch and Pond will be coming up in early spring.
 - 216-S-10 Ditch Borehole Options – There is another opportunity to look at similar integration of our drilling in meeting CERCLA and RCRA requirements. There is a need for another well at the 216-S-10 Ditch. The SAP will need to be modified and the location of that borehole changed. We want to drill a borehole just outside the waste site and install a test pit within the foot print of the waste site.
- 10. 200-CW-1 & 200-CW-3 OUs**
- FS Status and Briefing – Work continues on the FS. The FS needs to articulate how institutional control criteria will be applied. Ecology stated that endangered species needs to be addressed in the FS. An FS overview handout was distributed. (attached)

11. 200-CW-5, 200-CW-2, 200-CW-4, & 200-SC-1 OUs

- Work Plan Consolidation Status – There will be a meeting October 18, 2002, to review the OU consolidation tables that have been generated for the CW-5/CW-2/CW-4/SC-1 OU with the EPA leads and to review the OU consolidation tables that have been generated for the TW-1/TW-2/PW-5 OU with both the EPA and Ecology leads. Following completion of these discussions, a path forward for the consolidated OU work plans will be discussed.

The proposed OU changes include a number of waste sites. The TPA change form outlines these sites and the existing revised OUs in which to put them. It would be much simpler administratively to do this prior to the Appendix C update.

12. 200 Area Ecological Evaluation –

- Comment Resolution Meeting – The Ecological Evaluation is being reviewed by several experts. EPA requested a briefing from DOE-RL on the Ecological Evaluation. Nancy Lane will be meeting with FH on October 18, 2002. Briefings by the end of October will be arranged. The intent is to provide information to the regulators before the comment resolution meeting.

13. U Plant Regional Closure Project

- Regulatory Path Forward Planning – DOE-RL requested that comments from EPA and Ecology be resolved. More specific definition and clarification needs to be developed.

Comparison of Maximum Carbon Tetrachloride Rebound Concentrations
Monitored at 200-PW-1 Soil Vapor Extraction Sites
FY 1997 - FY 2002

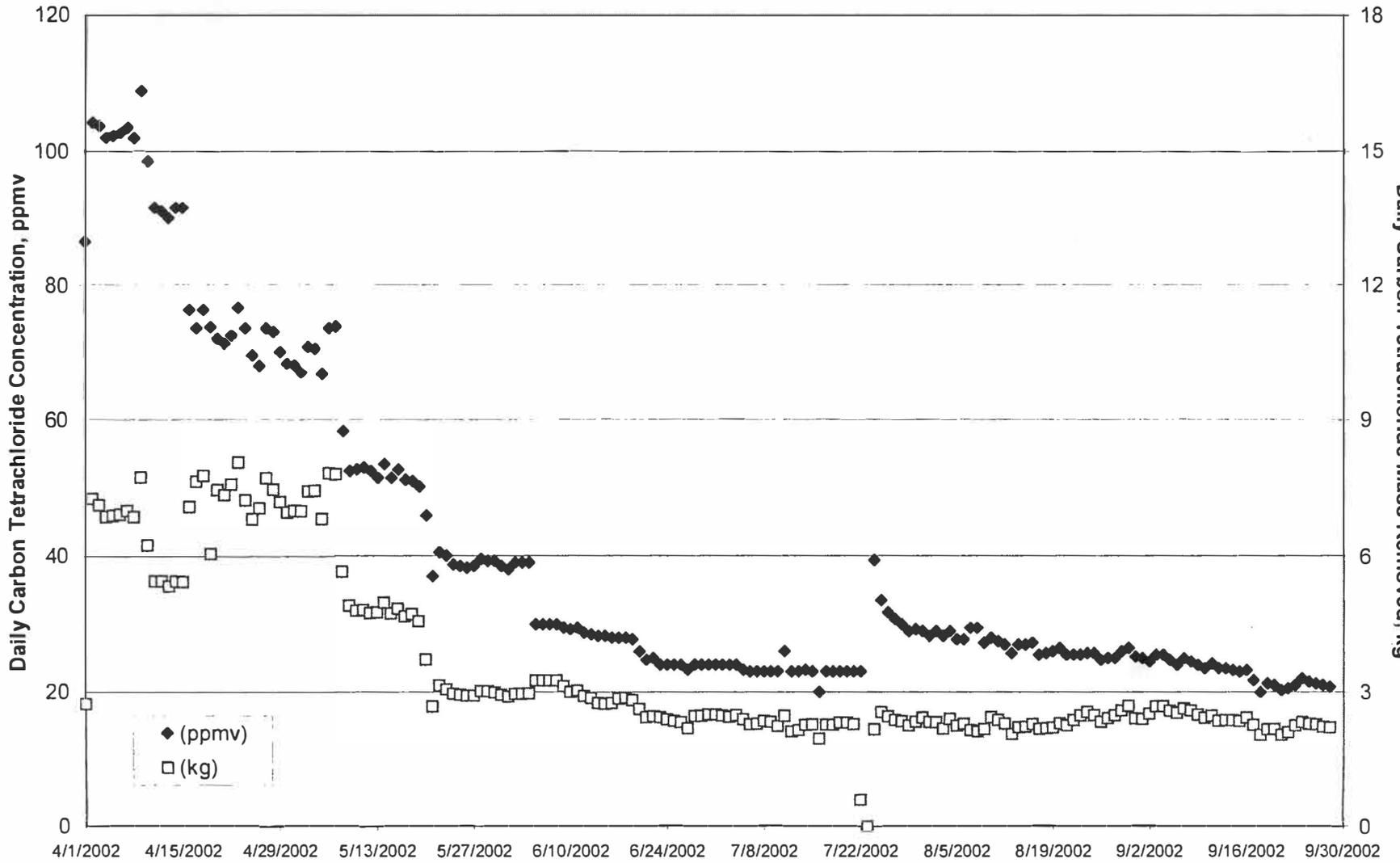
200-PW-1 (200-2P-2)		November 1996 - July 1997		October 1997 - September 1998		July 1998 - September 1999		July 1999 - June 2001		July 2001 - June 2002		July 2002 - June 2003		
Location (Well or Probe) /feet bgs	Site	Zone	Maximum Rebound Carbon Tetrachloride (ppmv)	months of rebound	Maximum Rebound Carbon 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	1	0	8	0	3	0	12						
79-06/ 5 ft	Z-1A	1	not measured		not measured		1.4	12						
79-11/ 5 ft	Z-1A	1	0	8	0	6	2.9	12						
86-05/ 5 ft	Z-9	1	not measured		not measured		0	3						
86-05-01/ 5 ft	Z-9	1	not measured		not measured		0	3						
86-06/ 5 ft	Z-9	1	1.3	8	0	9	1.9	6						
87-05/ 5 ft	Z-1A	1	not measured		0	3	1.0	12						
87-09/ 5 ft	Z-1A	1	not measured		1.5	3	2.6	12						
94-02/ 5 ft	Z-9	1	0	8	not measured		1.4	3						
95-11/ 5 ft	Z-9	1	0	8	2.1	9	2.5	6						
95-12/ 5 ft	Z-9	1	1.1	8	1.5	9	1.3	6						
95-14/ 5 ft	Z-9	1	not measured		not measured		0	3						
CPT-13A/ 9 ft	Z-1A	2	not measured		0	6	1.0	12						
CPT-16/ 10 ft	Z-9	2	not measured		0	9	1.5	6						
CPT-17/ 10 ft	Z-9	2	not measured		4.2	9	5.1	6	6.6	24	3.2	6	2.0	3
CPT-18/ 15 ft	Z-9	2	not measured		6.5	9	5.0	6	5.2	24	1.4	6	1.2	3
CPT-31/25 ft	Z-1A	2	not measured		0	6	0	12						
CPT-16/ 25 ft	Z-9	2	not measured		not measured		not measured		1.8	24	1.1	6	0	3
CPT-32/ 25 ft	Z-1A	2	not measured		9.1	6	10	12	16.5	18	13.0	12		
CPT-4A/ 25 ft	Z-1A	2	not measured		not measured		not measured		3.5	0	3.4	10		
CPT-4E/ 25 ft	Z-1A	2	not measured		not measured		not measured		not measured		2.6	12	1.3	0
CPT-30/ 28 ft	Z-18	2	not measured		not measured		3.2	12	1.4	18	0	12		
CPT-13A/ 30 ft	Z-1A	2	2.2	8	not measured		not measured		3.6	18	2.6	12	1.4	0
CPT-7A/ 32 ft	Z-1A	2	not measured		2.3	6	5.4	12	6.2	18	5.6	12	2.7	0
CPT-27/ 33 ft	Z-9	2	1.2	8	not measured		not measured		2.6	24	1.5	6	0	3
CPT-1A/ 35 ft	Z-12	2	2.0	8	1.4	3	3.0	12	7.7	18	11.3	12	4.2	0
CPT-28/ 40 ft	Z-9	2	40.1	8							56.5	6		
CPT-33/ 40 ft	Z-1A	2	not measured		2.0	3	2.6	12			2.3	12		
CPT-34/ 40 ft	Z-18	2	2.3	8	not measured		1.7	12	1.9	0	2.2	12	1.6	0
CPT-21A/ 45 ft	Z-9	2	65.6	8	52.7	9	57	3	127	24	133	6	68.0	3
W15-220SST/ 52 ft	Z-9	2	2	8	not measured		1.6	3	2.5	24			1.5	1
CPT-28/ 60 ft	Z-9	2	not measured		1.5	0	3.7	3						
CPT-9A/ 60 ft	Z-9	2	45.5	8	41.1	0	44	3	68	24	45.3	6	35.1	3
CPT-16/ 65 ft	Z-9	2	4.6	8	not measured		not measured		not measured		not measured		3.1	3
CPT-1A/ 68 ft	Z-12	2	not measured		not measured		not measured		not measured		5.5	12		
CPT-30/ 68 ft	Z-18	2	1.7	8	not measured		3.0	12						
CPT-32/ 70 ft	Z-1A	2	7.4	8							7.7	12		
CPT-13A/ 70 ft	Z-1A	2	5.2	8	not measured		5.6	12						
CPT-24/70 ft	Z-9	2	not measured		3.2	9	3.6	3					3.3	3
W15-219SST/ 70 ft	Z-9	2	14.6	8	not measured		7.6	3	7.8	24			1.9	1
CPT-18/ 75 ft	Z-9	2	not measured		not measured		not measured		18	24			1.5	3
CPT-4A/ 75 ft	Z-1A	2	not measured		not measured		not measured		not measured		7.1	3		
CPT-31/ 76 ft	Z-1A	2	4.0	8	not measured		4.2	12						
CPT-33/ 80 ft	Z-1A	2	5.8	8	not measured		9.2	12						
W15-82/ 83 ft	Z-9	2	28.9	8	5.5	9	46	6	55	24	66.7	6	85.8	3
CPT-21A/ 86 ft	Z-9	2	221	8	206	9	148	6	195	24	186	6	159	3
CPT-34/ 86 ft	Z-18	2	36.3	8	5.9	3	0	12						
W15-95U/ 86 ft	Z-9	2	not measured		15.3	9	39	6	43	21				
W15-218SST/ 86 ft	Z-9	2	not measured		not measured		0	3					1.6	2
CPT-28/ 87 ft	Z-9	2	280	8	230	9	203	6	224	24	229	6	208	3
CPT-4B/ 90 ft	Z-1A	2									3.2	10		
CPT-1A/ 91 ft	Z-18	2	3.9	8	not measured		4.2	12			10.7	10		
CPT-4A/ 91 ft	Z-1A	2	not measured		7.7	3	14	12			7.5	2		
CPT-9A/ 91 ft	Z-9	2	103	8	34.5	9	72	3			74.3	6		
W15-85/ 91 ft	Z-9	2	not measured		not measured		not measured		51	24				
W18-252SST/ 100	Z-1A	2	38.2	8	17.8	3	24	12						
W18-152/ 101 ft	Z-12	2	46.8	8	11.1	3	33	12	25	18	25.7	12		
CPT-4E/ 103 ft	Z-1A	2	23.2	8	not measured		not measured		not measured		16.1	12		
W18-167/ 106 ft	Z-1A	3	323	8	79.7	3	228	12	248	18	297	12		
W18-165/ 109 ft	Z-1A	2	not measured		not measured		not measured		not measured		278	12		
W15-217/ 114 ft	Z-9	3	797	8	630	9	561	6	442	24	93.6	6	214	3
CPT-24/ 118 ft	Z-9	3	44.6	8	37.7	9	37	6	35	24			27.7	3
W15-220SST/ 118	Z-9	4	21.9	8	not measured		36	3	34	24			27.5	3
W18-158L/ 120 ft	Z-1A	3	not measured		143	3	492	12	284	18	163	3		
W15-219SST/ 130	Z-9	4	298	8	not measured		47	3	54	24			23.1	1
W18-249/ 130 ft	Z-18	3	206	8	20.4	3	215	12	176	18	196	12		
W18-248/ 131 ft	Z-1A	3	288	8	86.3	3	177	12	214	18	306	12		
W15-95L/ 144 ft	Z-9	4	not measured		not measured		not measured		not measured		31.8	6	16.1	3
W15-219SST/ 155	Z-9	5	59.6	8	not measured		24	3	44	24			6.8	1
W15-9L/ 176 ft	Z-9	6	18.3	8	15.0	9	15	6	20	21	16.9	6		
W15-84L/ 180 ft	Z-9	6	not measured		not measured		not measured		not measured		not measured		13.1	3
W15-6L/ 182 ft	Z-9	6	22.6	8	17.8	9	1.3	6						
W15-220SST/ 185	Z-9	5	14.5	8	not measured		13	3	15	24				1
W18-7/ 197 ft	Z-1A	6	28.5	8	17.3	3	29	12						
W18-12/ 198 ft	Z-18	6	not measured		3.81	3	19	12						
W18-6L/ 208 ft	Z-1A	6	36	8	31.3	6	15	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

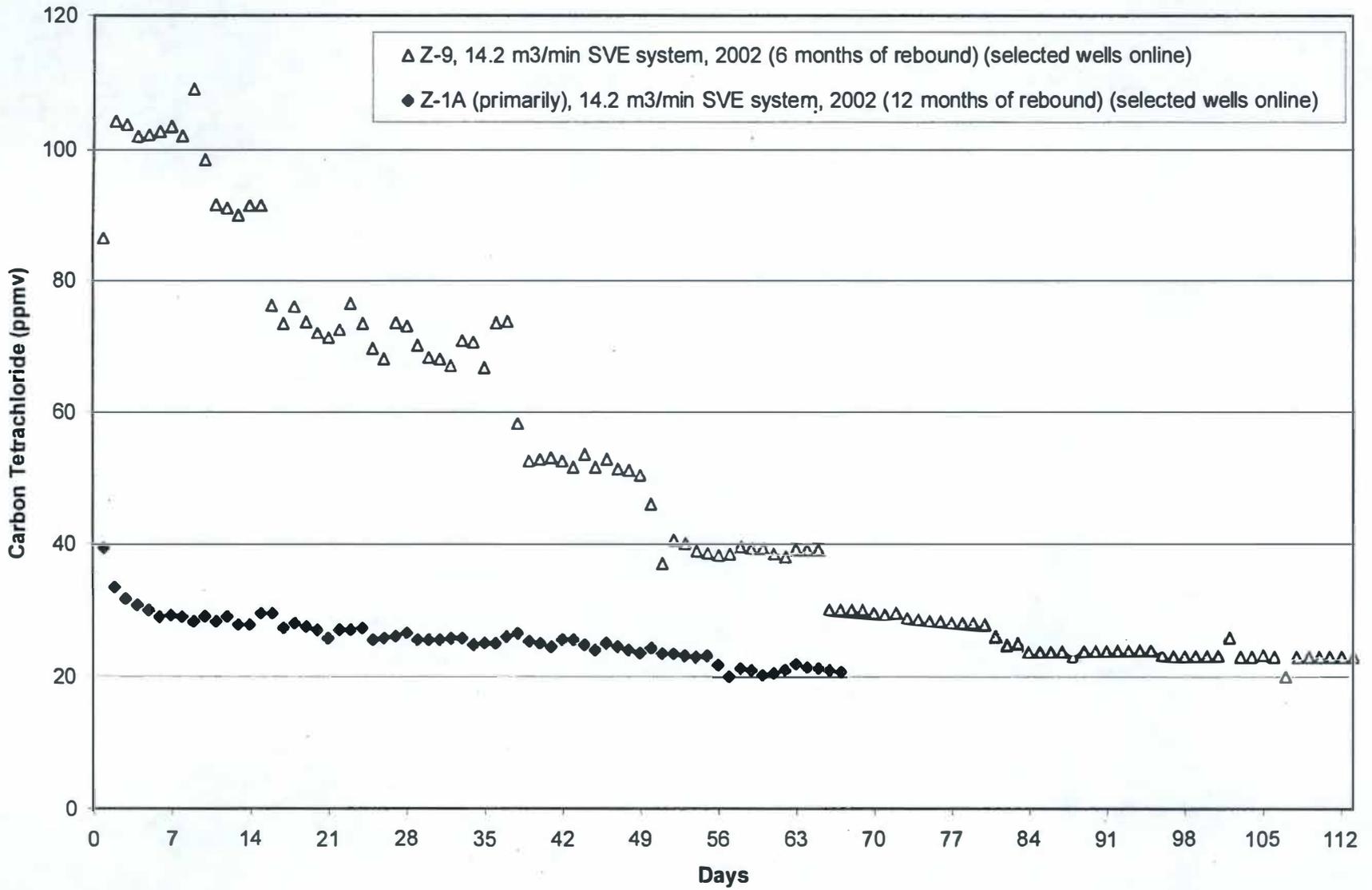
- Z-18 and Z-12 wells off-line Oct 96 - Apr 98

- 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)



Preliminary Data



**Carbon Tetrachloride Rebound Concentrations
Monitored at 200-PW-1 Soil Vapor Extraction Sites
July 2002 - September 2002**

200-PW-1 (200-ZP-2)			07/30/2002	08/26/2002	10/04/2002
Location (Well or Probe) /feet bgs	Site	Zone	CCl4 (ppmv)	CCl4 (ppmv)	CCl4 (ppmv)
CPT-17/ 10 ft	Z-9	2	1.6	1.4	2.0
CPT-18/ 15 ft	Z-9	2	0	0	1.2
CPT-16/ 25 ft	Z-9	2	0	0	0
CPT-4E/ 25 ft (c)	Z-1A	2	1.3	0	0
CPT-13A/ 30 ft	Z-1A	2	1.4	1.3	0
CPT-7A/ 32 ft	Z-1A	2	2.7	1.2	1.4
CPT-27/ 33 ft	Z-9	2	0	0	0
CPT-1A/ 35 ft	Z-12	2	4.1	4.2	3.4
CPT-34/ 40 ft	Z-18	2	1.6	1.2	1.2
CPT-21A/ 45 ft	Z-9	2	60.2	31.6	68.0
W15-220SST/ 52 ft	Z-9	2	1.5		
CPT-9A/ 60 ft	Z-9	2	35.1	8.4	27.8
CPT-16/ 65 ft (d)	Z-9	2		0	3.1
CPT-24/ 70 ft (e)	Z-9	2		1.5	3.3
W15-219SST/ 70 ft (b)	Z-9	2	1.9		
CPT-18/ 75 ft	Z-9	2	0	0	1.5
W15-82/ 83 ft	Z-9	2	85.8	5.6	58.8
CPT-21A/ 86 ft	Z-9	2	159	55	155
W15-218SST/ 86 ft (f)	Z-9	2		1.6	---- (h)
CPT-28/ 87 ft	Z-9	2	208	54.2	169
W15-217/ 114 ft	Z-9	3	82.1	34.0	214
CPT-24/ 118 ft	Z-9	3	27.7	4.2	16.3
W15-220SST/ 118 ft	Z-9	3	27.5	1.3	21.3
W15-219SST/ 130 ft (b)	Z-9	3	23.1		
W15-95L/ 144 ft	Z-9	4	13.3	0	16.1
W15-219SST/ 155 ft (b)	Z-9	5	6.8		
W15-84L/ 180 ft (g)				5.8	13.1
W15-220SST/ 185 ft	Z-9	6	---- (a)		
(a) Unable to sample. Sample port appears to be plugged.					
(b) Sampling extremely slow.					
(c) Substitute for CPT-4A/ 25 ft					
(d) Substitute for W15-220SST/ 52 ft					
(e) Substitute for W15-219SST/ 70 ft					
(f) Substitute for W15-219SST/ 130 ft					
(g) Substitute for W15-219SST/ 155 ft					
(h) Unable to sample.					

200 Area UMM – October 2002

200-UP-1:

- The system is currently operating at approximately 49 gpm.
- One of the two extraction wells (299-W19-39) was shut down for 9 hours on September 29 due to low water levels. It was restarted later that day.
- No problems to report.

- Average Pumping Rate for FY02: 48.7 gpm
- Average Pumping Rate for FY03: Not enough data yet to calculate
- System Run Time
 - Through September 30 95.3%
 - FY2002 (Year to date) 89.2%
 - System Inception to date 91.8%
- Officially kicking-off RI/FS process today by starting DQO process which will feed the Work Plan

200-ZP-1:

- The system is operating at approximately 142 gpm.
- Extraction Well #1 is currently down due to pump problems. This extraction well and Extraction Well #4 are scheduled to be replaced in FY03.
- The remaining extraction wells had no scheduled or un-scheduled outage during this reporting period

- Average Pumping Rate for FY02: 159.0 gpm
- Average Pumping Rate for FY03: Not enough data yet to calculate
- System Run Time
 - Through September 30 100%
 - FY2002 (Year to date) 93.3%
 - System Inception to date 91.7%

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

- The system was operating through September 30 at approximately 417 cfm.
- There were no scheduled or un-scheduled outages through September 30
- Active system was shut down for the winter the first week of October
- The passive system remains operational.
- Average Pumping Rate for FY02: 359.5 cfm
- System Run Time
 - Through September 30 100%
 - FY2002 (Year to date) 98.7%
 - System Inception to date 96.8%

APPROVAL OF THE CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION
(200-PW-1 OPERABLE UNIT) SOIL VAPOR MONITORING PLAN FOR
OCTOBER 2002 THROUGH MARCH 2003

The Unit Managers for the Carbon Tetrachloride Expedited Response Action (200-PW-1 Operable Unit) approve the attached Soil Vapor Monitoring Plan for October 2002 through March 2003.

A.C. Tortoso 10/17/02 D. A. Faulk 10-17-02

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

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

CARBON TETRACHLORIDE EXPEDITED RESPONSE ACTION
SOIL VAPOR MONITORING PLAN FOR OCTOBER 2002 THROUGH MARCH 2003

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 2002 through March 2003 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 Plio-Pleistocene layer, and the ground surface at the Z-1A and Z-9 sites while they are not being actively remediated using SVE. 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).

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 will 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:

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- Collect soil vapor samples using the rebound study sampling method and sampling pump (Rohay 1997)
- Analyze soil vapor samples for carbon tetrachloride using B&K at field screening level QC-1 (BHI-QA-03)
- Evaluate concentration trends for Fluor Hanford Groundwater Protection Program
- 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 Plio-Pleistocene layer 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 2002 through March 2003 during FY 2003. It is anticipated that non-operational and passive extraction monitoring will be continued from April through September 2003 during operation of the SVE system.

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 Plio-Pleistocene layer (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 included in the annual performance evaluation report.

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References:

BHI-QA-03, ERC Quality Assurance Program Plans, Procedure 5.2, Onsite Measurements
Quality Assurance Program Plan

Rohay, V.J., 1997, Rebound Study Report for the Carbon Tetrachloride Soil Vapor Extraction
Site, Fiscal Year 1997, BHI-01105, Rev. 0

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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)	5	6	11
Plio-Pleistocene (25-45 m below ground surface)	5	5	10
Groundwater (50-65 m below ground surface)	8 ^a	2	10
Total	18	13	31

^a 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).

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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-18 15 ft (white)	5	northwest 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-16 25 ft (blue)	8	east of Z-9	CPT-13A 30 ft (blue)	10	southeast of Z-1A
near-surface	CPT-27 33 ft (red)	10	southeast of Z-9	CPT-7A 32 ft (yellow)	10	farfield northeast of Z-1A
near-surface	CPT-21A 45 ft (green)	14	south 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			
Plio-Pleisto	W15-82	25	east side of Z-9	W18-165	33	within Z-1A
Plio-Pleisto	CPT-21A 86 ft (red)	26	south of Z-9	W18-152	34	northwest corner of Z-12
Plio-Pleisto	CPT-28 87 ft (red)	27	farfield south of Z-9	W18-167	37	within Z-1A
Plio-Pleisto	W15-217	35	southwest corner of Z-9	W18-249	41	northeast corner of Z-18
Plio-Pleisto	W15-95L	44	north side of Z-9	W18-248	41	east side of Z-1A
Gw	W15-84L	55	west of Z-9	W18-247L*	51	southeast of Z-18
Gw	W15-9L	57	north of Z-9, 11 m from W15-32 extraction well	W18-246L*	52	west of Z-1A
Gw	---	---	---	W18-252L*	53	west of Z-1A (middle of Z-1A/Z-18/Z-12 field)
Gw	---	---	---	W18-10L*	55	east side of Z-18
Gw	---	---	---	W18-7*	57	east side of Z-1A
Gw	---	---	---	W18-6L*	60	west side of Z-1A
Gw	---	---	---	W18-11L*	60	Z-18
Gw	---	---	---	W18-12*	60	Z-18

* Passive soil vapor extraction wells

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

October 9, 2002

FS Overview – October 200 Area UMM
October 17, 2002

Purpose: Present basic framework and activities associated with the FS and to identify areas where additional information or detail is needed

- Fate and Transport Vadose Modeling – Protection of Groundwater using STOMP
 - Modeled rad and nonrad contaminants
 - Used site-specific data
 - Coordinated with SAC and tank farm modeling efforts
 - No future impacts to groundwater identified
 - Minimal nonrad constituents, low levels, screened with RESRAD
 - Rads are Cs-137 and Sr-90: decay before reaching groundwater
 - No river impacts because no impacts to groundwater

- Risk Assessment
 - Industrial done in RI Report; updated to be consistent with new MTCA
 - Additional risk evaluations for sites outside exclusive-use boundary for residential and recreational scenarios based on anticipated results of risk framework workshops
 - Site-specific input parameters from RI and similar inputs from 100 Area work
 - May do Native American if inputs can be identified and agreed to
 - RESRAD for direct exposure to radionuclides
 - MTCA C and B for chemicals
 - Modeling and MTCA for groundwater protection
 - Baseline eco risk assessment per EPA, BDAC, and MTCA

- RAOs
 - Human health to 10^{-5} risk, HQ and HI equal to or less than 1, 15 mrem
 - Ecological to HQ and HI equal to or less than 1
 - Protect groundwater from further degradation above MCLs; protect river through protection of groundwater
 - Protect workers
 - Minimize the general disruption of cultural resources and wildlife habitat and prevent adverse impacts to cultural resources and threatened or endangered species
 - Provide conditions suitable for future land use of the 200 Area, for sites both within and outside the exclusive-use boundary
 - Ensure that appropriate institutional controls and monitoring requirements are in place to protect future users of a remediated site
 - Remove or stabilize physical structures associated with the waste site such that they do not pose a potential human health or environmental risk

- Technologies
 - Initially identified and screened in Implementation Plan
 - Reevaluated in FS for new information and data

- Additional technologies reviewed in FS
 - + Phytoremediation
 - + Biointrusion barriers
 - + Mono-layered vegetative barrier for arid lands
 - + In situ subsurface barrier

- Analogous sites
 - Sites assigned to contaminant distribution model based on physical and contaminant characteristics
 - Sites reassigned to other OUs if not applicable to models
 - Sites rejected through WIDS process
 - 200 North Area waste sites (e.g., septic tanks, rail line) are unusual to the representative/analogous site concept and will be identified for confirmatory sampling

- Alternatives
 - No Action
 - Institutional Controls
 - Barriers
 - + RCRA C
 - + Biointrusion (thick soil barrier, biointrusion layer)
 - Remove and Dispose
 - + Full removal
 - + Hot spot removal
 - + Removal for surface or groundwater protection

- Detailed and Comparative Analysis
 - CERCLA 9 criteria
 - NEPA
 - Cost analysis for different exposure scenarios

- Closure Plan
 - Work with WAC requirements to use FS process ~~in place of~~ CP ✓ *to fulfill requirements*
 - Include necessary information in FS and PP to fulfill requirements of RCRA

to fulfill requirements
JBP
2-17-05
LDZ 2-17-05

UNIT MANAGERS' MEETING AGENDA

1200 Jadwin Avenue
November 21, 2002

9 a.m. – 11 a.m. 200 Area Room 3C4

General (10 minutes)

- Outstanding Action Items (attached)
- Open for Regulatory Topics or Action Items
- Approval Status of TPA Appendix C

GROUNDWATER OPERABLE UNITS

200-BP-5 & 200-PO-1 OUs (5 minutes)

- Status of Activities

200-UP-1 OU (10 minutes)

- Remediation Treatment Status

200-ZP-1 OU (10 minutes)

- Remediation Treatment Status

SOURCE OPERABLE UNITS

200-PW-1, 200-PW-3, & 200-PW-6 OUs (20 minutes)

- Remediation Treatment Status
- Monthly Monitoring
- Status Fieldwork
- Status of Enhanced Access Penetration System demonstration
- Data Quality Objectives Process Status
- Work Plan Status
- Representative Site SAP Status

200-TW-1, 200-TW-2, & PW-5 OUs (10 minutes)

- RI Report Review Schedule

200-PW-2 & 200-PW-4 OUs (5 minutes)

- Work Plan Consolidation Status
- Field Work Status

200-CS-1 OU (5 minutes)

- Summary of Test Pit Activities
- 216-S-10 Ditch Borehole Options

200-CW-1 & 200-CW-3 OUs (5 minutes)

- FS Status and Schedule
- Tribal Scenario Workshop Status

200-CW-5, 200-CW-2, 200-CW-4, & 200-SC-1 OUs (2 minutes)

- Work Plan Consolidation Status

200 Area Ecological Evaluation (2 minutes)

- Comment Resolution Meeting

U Plant Regional Closure Project (2 minutes)

- Resolution Meeting with Regulators on M-15-47 Modification

MEETING MINUTES
200 AREA GROUNDWATER AND SOURCE OPERABLE UNITS
UNIT MANAGERS' MEETING -- 200 AREA
November 21, 2002

Topics of Discussion:

1. General

- Outstanding Action Items – EPA will provide a written list of the operable unit leads.
- Open for Regulator Topics or Action Items – No Discussion
- Approval Status of TPA Appendix C – Ecology has not completed the review. Several sites in 200-CW-1 will be affected. The TPA Change Package form could be changed.

GROUNDWATER OPERABLE UNITS

2. 200-BP-5 & 200-PO-1 OUs

- Status of Activities – The Data Quality Objective report was transmitted in September for 200-BP-5 and 200-PO-1. The Sampling and Analysis Plan will be in internal review the week of November 18, 2002, for 200-BP-5. The Sampling and Analysis Plan for 200-PO-1 will be in internal review the week of November 25, 2002.

3. 200-UP-1 OU

- Remediation Treatment Status – Current operations are between 49 and 51 gpm. The design work on the third well begins in March 2003, and the tie in will start in July 2003. An effort will be made to speed up the design work. The average pumping rate through October is 50 gpm. The system run time is at 100% through October 31, 2002, 100% FY2002 year to date, and 91.9% since inception (attached).

The Remedial Investigation/Feasibility Study process is starting. A meeting with Ecology is scheduled for November 21, 2002.

4. 200-ZP-1 OU

- Remediation Treatment Status – Current operations are at 137 - 141 gpm. The system run time is at 82.1% through October 31, 2002, 84.2% FY2002 year to date, and 91.6% since inception. The average pumping rate through October is 139 gpm. The well was shut down two times for less than a day for heater/chiller repairs (attached). The new pump has been received and is to be installed. There are preparations being made to replace extraction well #1.

SOURCE OPERABLE UNITS

5. 200-PW-1, 200-PW-3, & 200-PW-6 OUs

- Remediation Treatment Status – The active system was shut down for the winter. The passive system is operational (attached).
- Monthly Monitoring – A handout was distributed of the monthly monitoring results. Results are consistent with past samples (attached).
- Status Fieldwork – Three probes were installed at the burial grounds and two probes were installed near the vent risers. Both probes went to a depth of 35 feet.
- Status of Enhanced Access Penetration System Demonstration – A presentation was made on the Enhanced Access Penetration System (EAPS) and a handout was provided (attached). EAPS provides a better method to investigate the sub-surface. Drilling is the current method used at Hanford and is very expensive.
- Data Quality Objectives Process Status – The process has been started. For 200-PW-1 characterization, DNAPL is being looked at.
- Work Plan Status – Issues raised regarding consolidation of 200-PW-1, 200-PW-3 and 200-PW-6 are being worked out. A key issue is tying the 216-A-8 waste site into the conceptual model as EPA requested.
- Representative Site SAP Status – As with the Work Plan, issues are being worked. The SAP is on hold.

6. 200-TW-1 & 200-TW-2 OUs

- RI Report Review Schedule – The RI Report is in regulator review. The review period was scheduled to end December 14, 2002. However, Ecology requested an extension to the review period.

7. 200-PW-2 & 200-PW-4 OUs

- Work Plan Consolidation Status – Consolidation discussions have been completed. Comments received during those discussions are being incorporated into the appendix of the Work Plan. A red line/strike out version will be distributed the first week of December 2002. Pre-job planning activities are in process. The expectation is to be in the filed by early March of 2003.
- Field Work Status – Borehole field drilling is being performed at six locations.

8. 200-CS-1 OU

- Summary of Test Pit Activities – Test pits at three locations (the 216-S-10 Pond, S-10 Ditch, and 216-B-63 Trench) were started the week of November 11, 2002. Two

test pits in B-63 and two test pits at the S-10 Pond were completed that week. An informational handout was distributed (attached). Completion of four more test pits at the S-10 Ditch is on schedule. There was a delay November 19, 2002, due to high winds in the area. Results at a high level show nothing above background values. Due to cave in problems at the second hole at B-63 excavation was stopped at 18 feet.

- 216-S-10 Ditch Borehole Options – DOE-RL gave authorization to perform work associated with the test pit and completion of the borehole. FH provided a cost estimate.

9. 200-CW-1 & 200-CW-3 OUs

- FS Status and Schedule – The FS is in final preparation for internal FH review. DOE-RL requested feedback from Ecology on the review schedule. Ecology suggested that a thumbnail of the document be provided to the River and Plateau Committee of the HAB prior to the regulator review. An approval schedule was distributed.
- Tribal Scenario Workshop Status – A date has not been determined for this workshop. FH is coordinating a date with the tribal nations.

10. 200-CW-5, 200-CW-2, 200-CW-4, & 200-SC-1 OUs

- Work Plan Consolidation Status – The Work Plan is progressing.

11. 200 Area Ecological Evaluation –

- Comment Resolution Meeting – A meeting is scheduled for November 22, 2002. Nancy Lane is focusing on the threatened and endangered species. She has also developed a set of recurring questions or issues that may impact the document.

12. U Plant Regional Closure Project

- Resolution Meeting with Regulators on M-15-47 Modification – A meeting is scheduled for December 4, 2002.

200 Area UMM – November 2002

200-UP-1:

- For the month of October the system operated at between 49 and 51 gpm. In the month of November the rates have dropped slightly.
- The design work for tying in a third extraction well (299-W19-43) is scheduled to begin March 3, 2003. The tie in will begin July 1, 2003
- There were no scheduled or unscheduled outages.

- Average Pumping Rate for FY03 through October 30: 50 gpm
- System Run Time
 - Through October 31 100%
 - FY2003 (Year to date) 100%
 - System Inception to date 91.9%

200-ZP-1:

- For the month of October the system operated at between 137 and 141 gpm.
- Extraction Well #1 is currently down due to pump problems. The replacement pump has arrived and will be installed as soon as craft become available.
- Preparation to replace Extraction Well #1 and 4 is underway.
- The system was shutdown 2 time (<day) for heater/chiller repairs.

- Average Pumping Rate for FY03 through October 30: 139
- System Run Time
 - Through October 31 82.1%
 - FY2003 (Year to date) 84.2%
 - System Inception to date 91.6%

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

- Active system is shutdown for the winter
- The passive system remains operational.

Comparison of Maximum Carbon Tetrachloride Rebound Concentrations
Monitored at 200-PW-1 Soil Vapor Extraction Sites
FY 1997 - FY 2003

200-PW-1 (200-ZP-2)		November 1996 - July 1997		October 1997 - September 1998		July 1998 - September 1999		July 1999 - June 2001		July 2001 - June 2002		July 2002 - October 2002	
Location (Well or Probe)	Site	Maximum Rebound of Carbon Tetrachloride (ppmv)	months of rebound										
/feet bgs													
79-03/ 5 ft	Z-18	0	8	0	3	0	12						
79-06/ 5 ft	Z-1A	not measured		not measured		1.4	12						
79-11/ 5 ft	Z-1A	0	8	0	6	2.9	12						
86-05/ 5 ft	Z-9	not measured		not measured		0	3						
86-05-01/ 5 ft	Z-9	not measured		not measured		0	3						
86-08/ 5 ft	Z-9	1.3	8	0	9	1.9	6						
87-05/ 5 ft	Z-1A	not measured		0	3	1.0	12						
87-09/ 5 ft	Z-1A	not measured		1.5	3	2.8	12						
94-02/ 5 ft	Z-9	0	8	not measured		1.4	3						
95-11/ 5 ft	Z-9	0	8	2.1	9	2.5	6						
95-12/ 5 ft	Z-9	1.1	8	1.5	9	1.3	6						
95-14/ 5 ft	Z-9	not measured		not measured		0	3						
CPT-13A/ 9 ft	Z-1A	not measured		0	6	1.0	12						
CPT-16/ 10 ft	Z-9	not measured		0	9	1.5	6						
CPT-17/ 10 ft	Z-9	not measured		4.2	9	5.1	6	6.6	24	3.2	6	2.0	4
CPT-18/ 15 ft	Z-9	not measured		6.5	9	5.0	6	5.2	24	1.4	6	1.2	4
CPT-4A/ 25 ft	Z-1A	not measured		not measured		not measured		3.5	0	3.4	10		
CPT-4E/ 25 ft	Z-1A	not measured		not measured		not measured		not measured		2.6	12	1.3	0
CPT-16/ 25 ft	Z-9	not measured		not measured		not measured		1.8	24	1.1	6	0	4
CPT-31/25 ft	Z-1A	not measured		0	6	0	12						
CPT-32/ 25 ft	Z-1A	not measured		9.1	6	10	12	16.5	18	13.0	12	0	1
CPT-30/ 28 ft	Z-18	not measured		not measured		3.2	12	1.4	18	0	12	0	1
CPT-13A/ 30 ft	Z-1A	2.2	8	not measured		not measured		3.6	18	2.6	12	1.4	1
CPT-7A/ 32 ft	Z-1A	not measured		2.3	6	5.4	12	6.2	18	5.8	12	2.7	1
CPT-27/ 33 ft	Z-9	1.2	8	not measured		not measured		2.6	24	1.5	6	0	4
CPT-1A/ 35 ft	Z-12	2.0	8	1.4	3	3.0	12	7.7	18	11.3	12	4.2	1
CPT-28/ 40 ft	Z-9	40.1	8							56.5	6		
CPT-33/ 40 ft	Z-1A	not measured		2.0	3	2.6	12			2.3	12		
CPT-34/ 40 ft	Z-18	2.3	8	not measured		1.7	12	1.9	0	2.2	12	1.6	0
CPT-21A/ 45 ft	Z-9	65.6	8	52.7	9	57	3	127	24	133	6	68.0	4
W15-220ST/ 52 ft	Z-9	2	8	not measured		1.6	3	2.5	24			1.5	1
CPT-28/ 60 ft	Z-9	not measured		1.5	0	3.7	3						
CPT-9A/ 60 ft	Z-9	45.5	8	41.1	0	44	3	68	24	45.3	6	35.1	4
CPT-16/ 65 ft	Z-9	4.6	8	not measured		not measured		not measured		not measured		3.1	4
CPT-1A/ 68 ft	Z-12	not measured		not measured		not measured		not measured		5.5	12		
CPT-30/ 68 ft	Z-18	1.7	8	not measured		3.0	12						
CPT-32/ 70 ft	Z-1A	7.4	8							7.7	12		
CPT-13A/ 70 ft	Z-1A	5.2	8	not measured		5.6	12						
CPT-24/ 70 ft	Z-9	not measured		3.2	9	3.6	3					3.3	3
W15-219SST/ 70 ft	Z-9	14.6	8	not measured		7.6	3	7.8	24			1.9	1
CPT-18/ 75 ft	Z-9	not measured		not measured		not measured		18	24			1.5	3
CPT-4A/ 75 ft	Z-1A	not measured		not measured		not measured		not measured		7.1	3		
CPT-31/ 76 ft	Z-1A	4.0	8	not measured		4.2	12						
CPT-33/ 80 ft	Z-1A	5.8	8	not measured		9.2	12						
W15-82/ 83 ft	Z-9	28.9	8	5.5	9	4.6	6	55	24	66.7	6	85.8	4
CPT-21A/ 86 ft	Z-9	221	8	206	9	148	6	195	24	186	6	159	4
CPT-34/ 86 ft	Z-18	36.3	8	5.9	3	0	12						
W15-95U/ 86 ft	Z-9	not measured		15.3	9	39	6	43	21				
W15-218SST/ 86 ft	Z-9	not measured		not measured		0	3					1.6	2
CPT-28/ 87 ft	Z-9	280	8	230	9	203	6	224	24	229	6	208	4
CPT-4B/ 90 ft	Z-1A									3.2	10		
CPT-1A/ 91 ft	Z-18	3.9	8	not measured		4.2	12			10.7	10		
CPT-4A/ 91 ft	Z-1A	not measured		7.7	3	14	12			7.5	2		
CPT-9A/ 91 ft	Z-9	103	8	34.5	9	72	3			74.3	6		
W15-85/ 91 ft	Z-9	not measured		not measured		not measured		51	24				
W18-252SST/ 100	Z-1A	38.2	8	17.8	3	24	12						
W18-152/ 101 ft	Z-12	46.8	8	11.1	3	33	12	25	18	25.7	12	7.5	1
CPT-4E/ 103 ft	Z-1A	23.2	8	not measured		not measured		not measured		16.1	12		
W18-167/ 106 ft	Z-1A	323	8	79.7	3	228	12	248	18	297	12	243	1
W18-165/ 109 ft	Z-1A	not measured		not measured		not measured		not measured		276	12	328	1
W15-217/ 114 ft	Z-9	797	8	630	9	561	6	442	24	93.6	6	214	4
CPT-24/ 118 ft	Z-9	44.6	8	37.7	9	37	6	35	24			27.7	3
W15-220SST/ 118	Z-9	21.9	8	not measured		36	3	34	24			27.5	3
W18-158L/ 120 ft	Z-1A	not measured		143	3	492	12	284	18	163	3		
W15-219SST/ 130	Z-9	298	8	not measured		47	3	54	24			23.1	1
W18-249/ 130 ft	Z-18	206	8	20.4	3	215	12	176	18	196	12	11.8	1
W18-248/ 131 ft	Z-1A	288	8	86.3	3	177	12	214	18	306	12	27.0	1
W15-95L/ 144 ft	Z-9	not measured		not measured		not measured		not measured		31.8	6	18.5	4
W15-219SST/ 155	Z-9	59.6	8	not measured		24	3	44	24			6.8	1
W15-220L/ 163 ft	Z-9												
W15-219L/ 175 ft	Z-9												
W15-9L/ 176 ft	Z-9	18.3	8	15.0	9	15	6	20	21	16.9	6	5.1	4
W15-84L/ 180 ft	Z-9	not measured		13.1	4								
W15-6L/ 182 ft	Z-9	22.6	8	17.8	9	13	6						
W15-220SST/ 185	Z-9	14.5	8	not measured		13	3	15	24				1
W18-7/ 197 ft	Z-1A	28.5	8	17.3	3	29	12						
W18-12/ 198 ft	Z-18	not measured		3.81	3	19	12						
W18-6L/ 208 ft	Z-1A	36	8	31.3	8	15	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 CCM concentrations and airflow modeling based on measured vacuums (BHI-01105, p. 6-1)

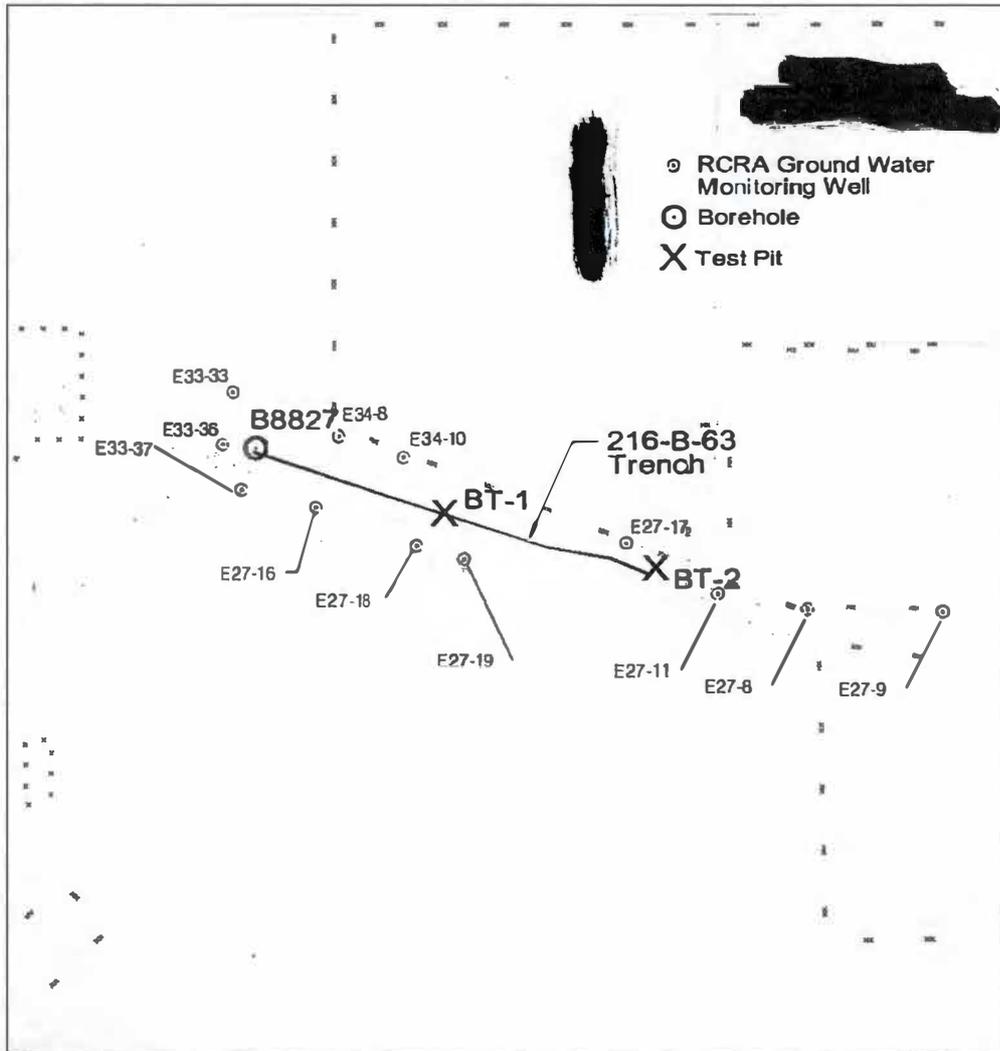
Carbon Tetrachloride Rebound Concentrations
Monitored at 200-PW-1 Soil Vapor Extraction Sites
July 2002 - October 2002

200-PW-1 (200-ZP-2) Location (Well or Probe) /feet bgs	Site	07/30/2002 CCl4 (ppmv)	08/26/2002 CCl4 (ppmv)	10/04/2002 CCl4 (ppmv)	10/30/2002 CCl4 (ppmv)
CPT-17/ 10 ft	Z-9	1.6	1.4	2.0	1.6
CPT-18/ 15 ft	Z-9	0	0	1.2	0
CPT-4E/ 25 ft (c)	Z-1A	1.3	0	0	
CPT-16/ 25 ft	Z-9	0	0	0	0
CPT-32/ 25 ft	Z-1A				0
CPT-30/ 28 ft	Z-1A				0
CPT-13A/ 30 ft	Z-1A	1.4	1.3	0	0
CPT-7A/ 32 ft	Z-1A	2.7	1.2	1.4	1.1
CPT-27/ 33 ft	Z-9	0	0	0	0
CPT-1A/ 35 ft	Z-12	4.1	4.2	3.4	3.5
CPT-34/ 40 ft	Z-18	1.6	1.2	1.2	
CPT-21A/ 45 ft	Z-9	60.2	31.6	68.0	61.9
W15-220SST/ 52 ft	Z-9	1.5			
CPT-9A/ 60 ft	Z-9	35.1	8.4	27.8	22.2
CPT-16/ 65 ft (d)	Z-9		0	3.1	
CPT-24/ 70 ft (e)	Z-9		1.5	3.3	
W15-219SST/ 70 ft (b)	Z-9	1.9			
CPT-18/ 75 ft	Z-9	0	0	1.5	
W15-82/ 83 ft	Z-9	85.8	5.6	58.8	35.6
CPT-21A/ 86 ft	Z-9	159	55	155	95.0
W15-218SST/ 86 ft (f)	Z-9		1.6	---- (h)	
CPT-28/ 87 ft	Z-9	208	54.2	169	130
W18-152/ 101 ft	Z-12				7.5
W18-167/ 106 ft	Z-1A				243
W18-165/ 109 ft	Z-1A				328
W15-217/ 114 ft	Z-9	82.1	34.0	214	38.7
CPT-24/ 118 ft	Z-9	27.7	4.2	16.3	
W15-220SST/ 118 ft	Z-9	27.5	1.3	21.3	
W15-219SST/ 130 ft (b)	Z-9	23.1			
W18-249/ 130 ft	Z-18				11.8
W18-248/ 131 ft (l)	Z-1A				27.0
W15-95L/ 144 ft	Z-9	13.3	0	16.1	18.5
W15-219SST/ 155 ft (b)	Z-9	6.8			
W15-220L/ 163 ft	Z-9				
W15-219L/ 175 ft	Z-9				
W15-9L/ 176 ft	Z-9				5.1
W15-84L/ 180 ft (g)			5.8	13.1	2.8
W15-220SST/ 185 ft	Z-9	---- (a)			
(a) Unable to sample. Sample port appears to be plugged.					
(b) Sampling extremely slow.					
(c) Substitute for CPT-4A/ 25 ft					
(d) Substitute for W15-220SST/ 52 ft					
(e) Substitute for W15-219SST/ 70 ft					
(f) Substitute for W15-219SST/ 130 ft					
(g) Substitute for W15-219SST/ 155 ft					
(h) Unable to sample.					
(l) 10/30/02: sample tubing cracked; sample may have been diluted. Tubing repaired 10/31					

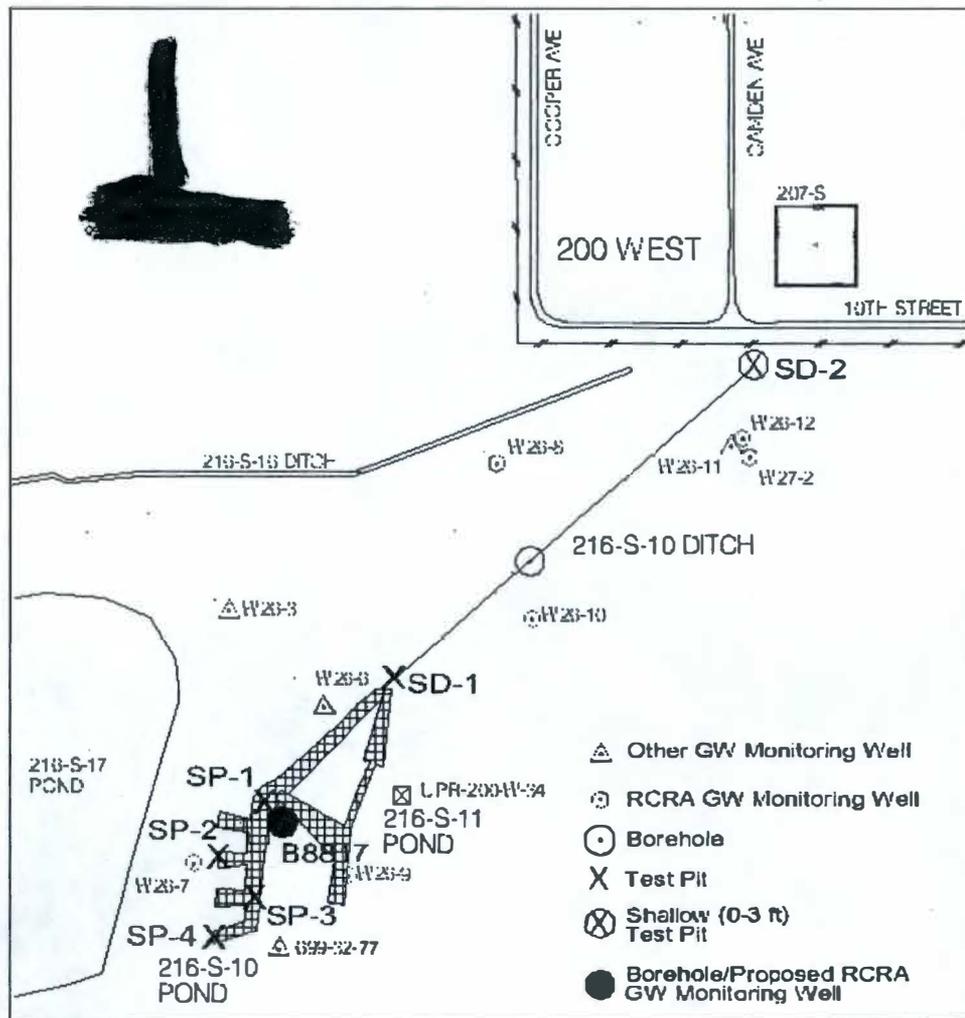
**200-CS-1 OU FY03
Test Pit Characterization Activities**

November 2002

216-B-63 Trench



216-S-10 Pond/Ditch



Summary of Field Screening Results

Site	Test Pit Sample Location	Background - Beta/Gamma (cpm)	Maximum Field Screening Results		Total Depth of Excavation (ft bgs)
			Depth (ft bgs)	Beta/Gamma (cpm)	
216-B-63 Trench	BT-1	346	7.0 - 8.0	570	18
	BT-2	312	6.0 - 7.0	1700	25
216-S-10 Pond	SP-1	280	7.0 - 8.0	400	25
	SP-2	320	6.5 - 7.5	400	25
	SP-3	220	6.0 - 7.0	300	25
	SP-4	289	24.0 - 25.0	439	25
216-S-10 Ditch	SD-1	380	6.0 - 7.0	480	17
	SD-2	290	0 - 1.5	700	3
	SD-3	360	8.0 - 9.0	480	14

Test Pit Excavation at 216-B-63 Trench



Test Pit Excavation at 216-S-10 Ditch



Enhanced Access Penetration System (EAPS)

Presented by:

Scott Petersen
Fluor Hanford, Inc.

Contractor: Applied Research Associates, Inc.

PI: James D. Shinn

Funding Organization: National Energy Technology Laboratory

Contracting Officer's Representative: Karen L. Cohen

Project Overview

- ✧ **Under funding by DOE/NETL, ARA is developing a Wireline CPT system to improve penetration depth:**
 - **Direct penetration and overburden drilling system**
 - **Direct penetration and laser drilling [canceled]**
 - ✧ **The Enhanced Access Penetration System will only be used to penetrate refusal layers**
 - ✧ **The DOE and ARA-developed Conesipper Samplers, which sample groundwater, have been modified to operate with the Wireline System**
-

Summary of Enhanced Access Penetration System (EAPS) Test

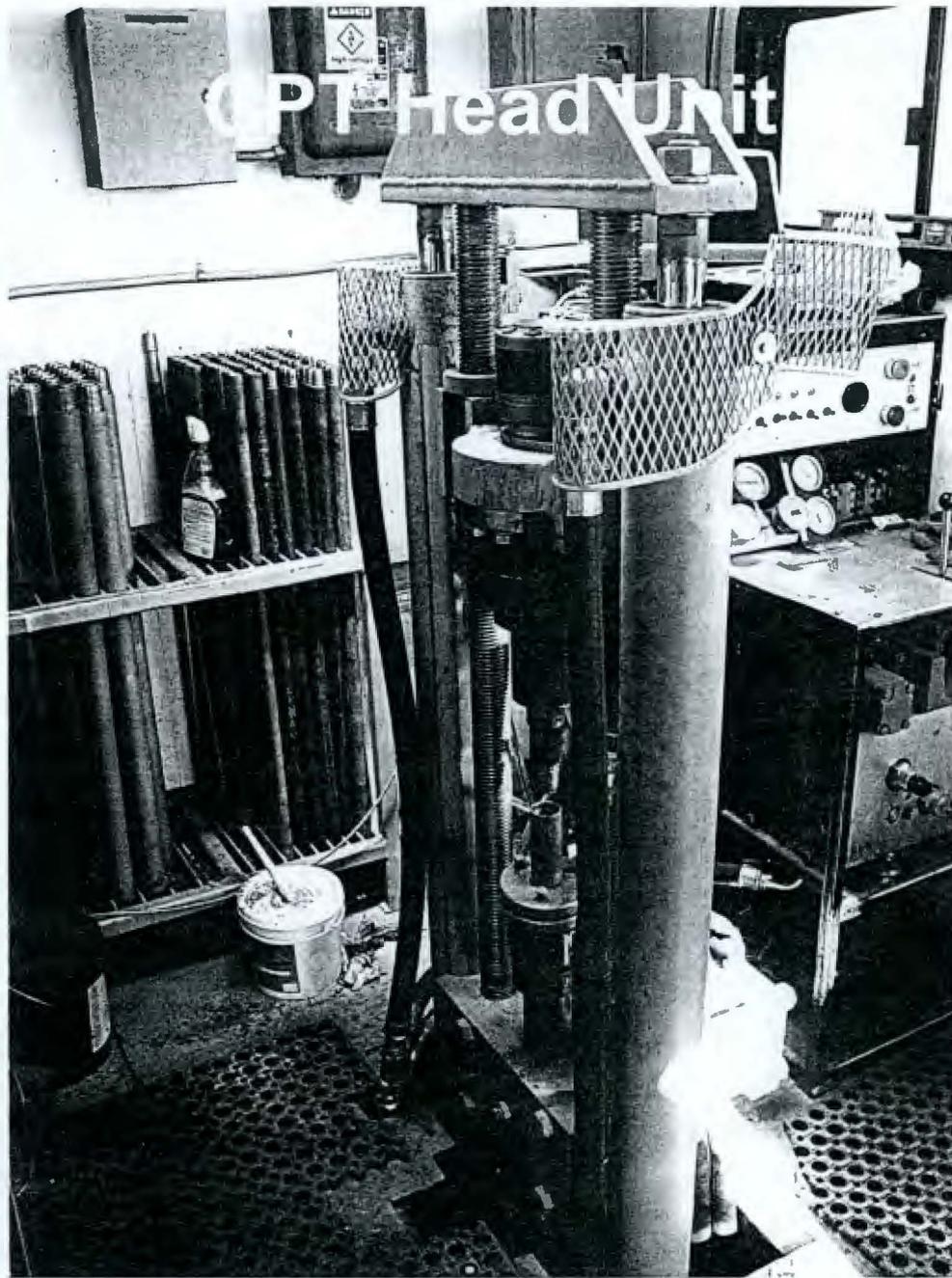
- ✧ **Initial push conducted with DOE/ARA-developed Wireline CPT to refusal layers**
 - ✧ **Implement overburden drilling to penetrate through refusal layers**
 - Two different sizes of drill:
 - Small diameter that works with standard CPT rods
 - Larger diameter that is used as casing for CPT rods
 - Air rotary drilling and under-reaming are used in both
 - Casing eliminates sidewall friction, allowing for extremely deep penetration of Wireline CPT
 - ✧ **Wireline sampling tools**
 - Continuous gas sampling in vadose zone
 - Soil sampling at selected depths
 - Groundwater sampling at selected depths
-

EAPS CPT Truck and Support Trailer



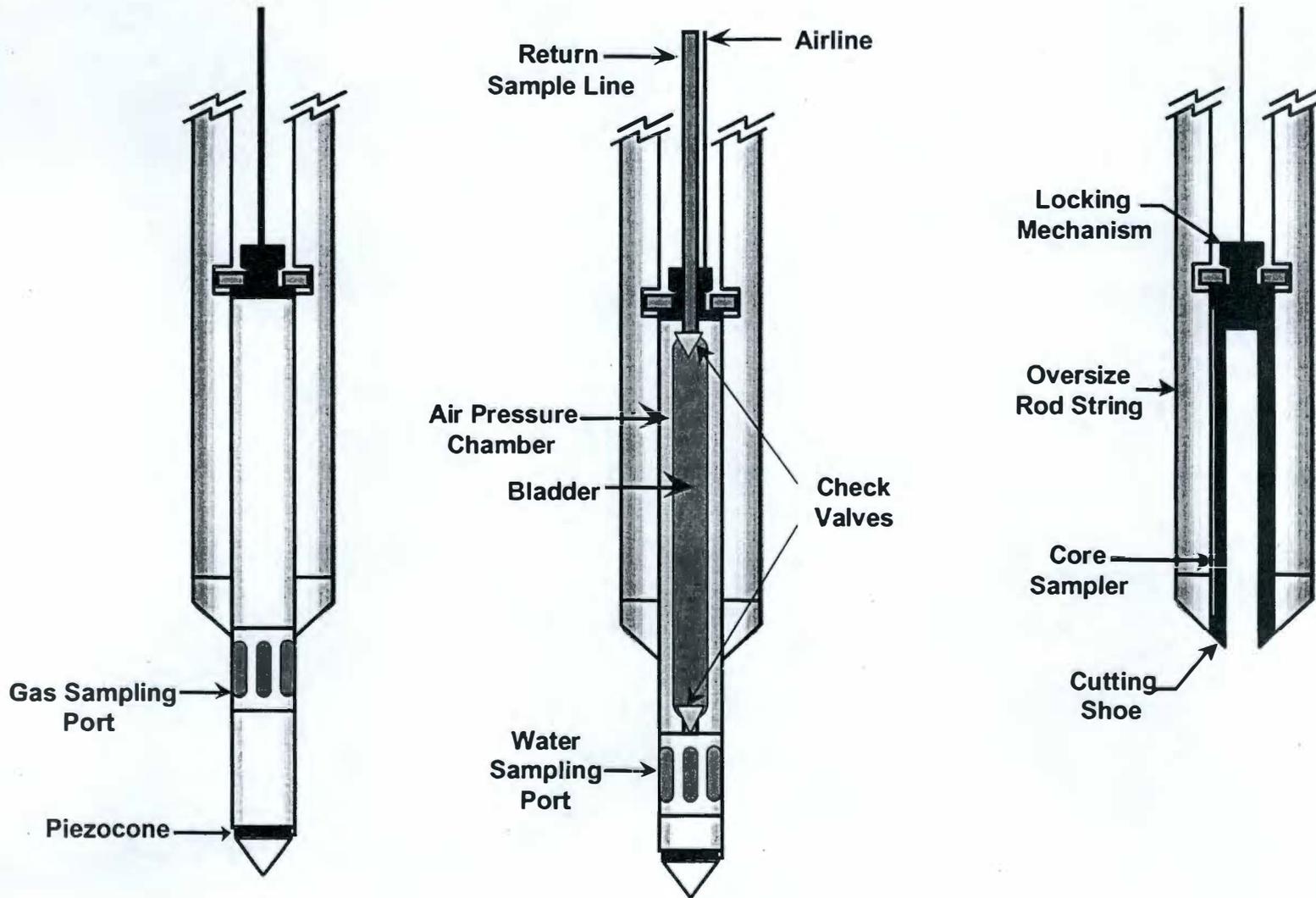
OPT Head Unit

Attachment 2

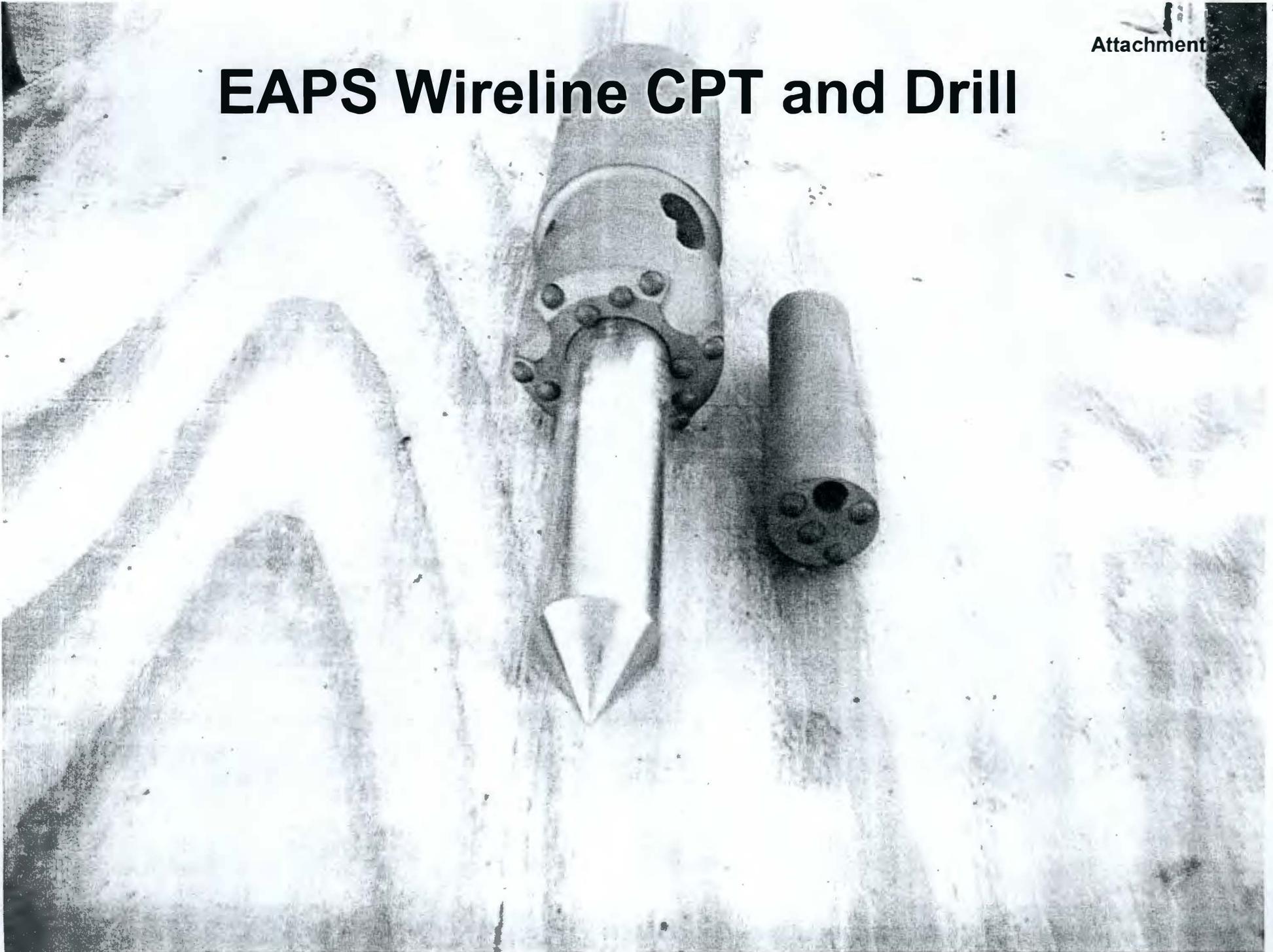


CPT Wireline Sampling Systems

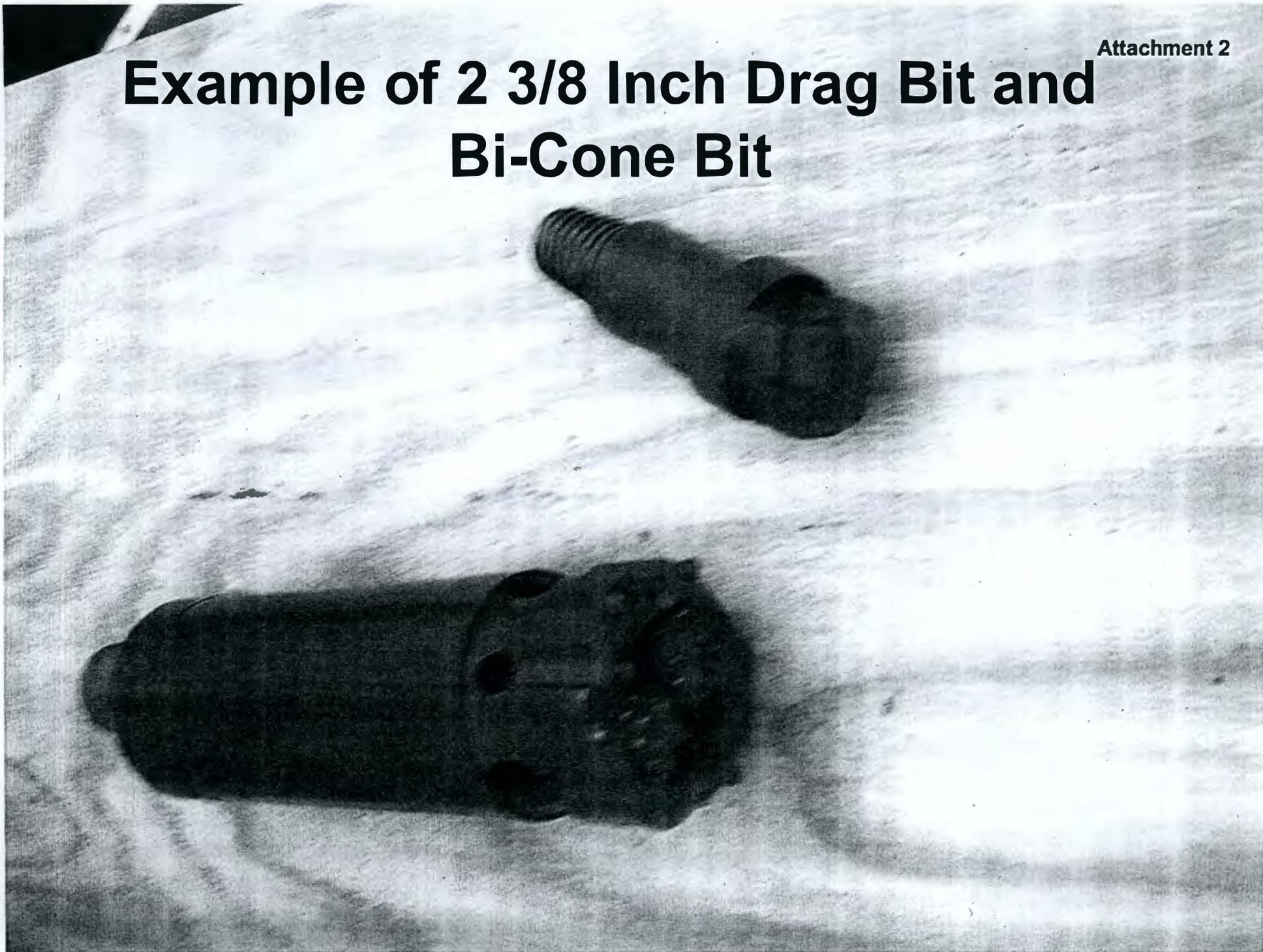
Attachment 2



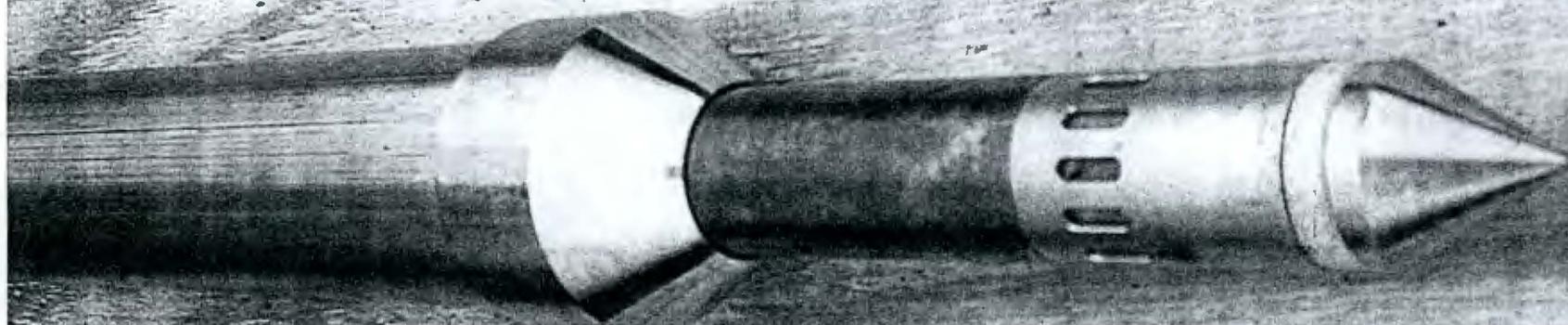
EAPS Wireline CPT and Drill



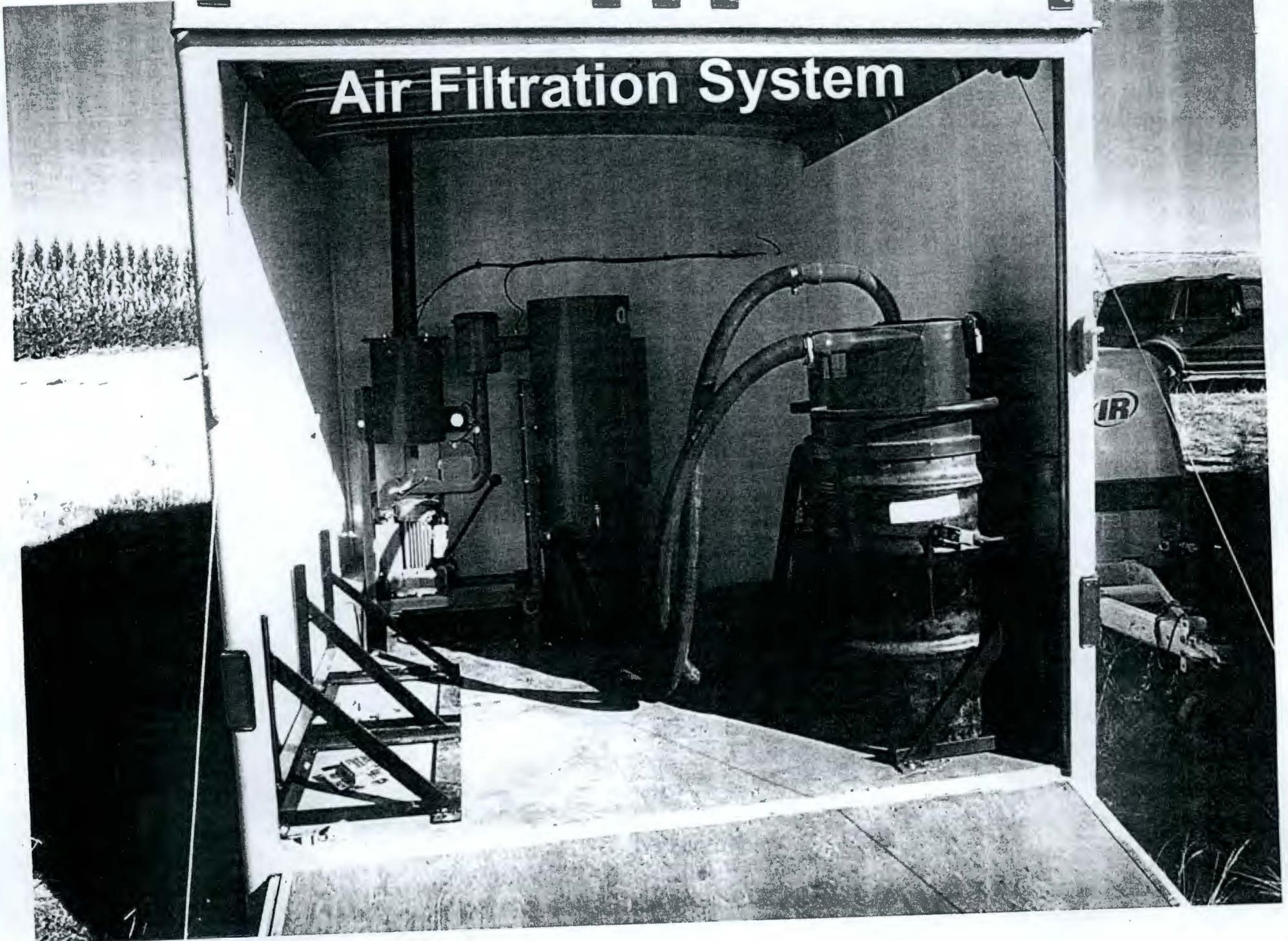
Example of 2 3/8 Inch Drag Bit and Bi-Cone Bit

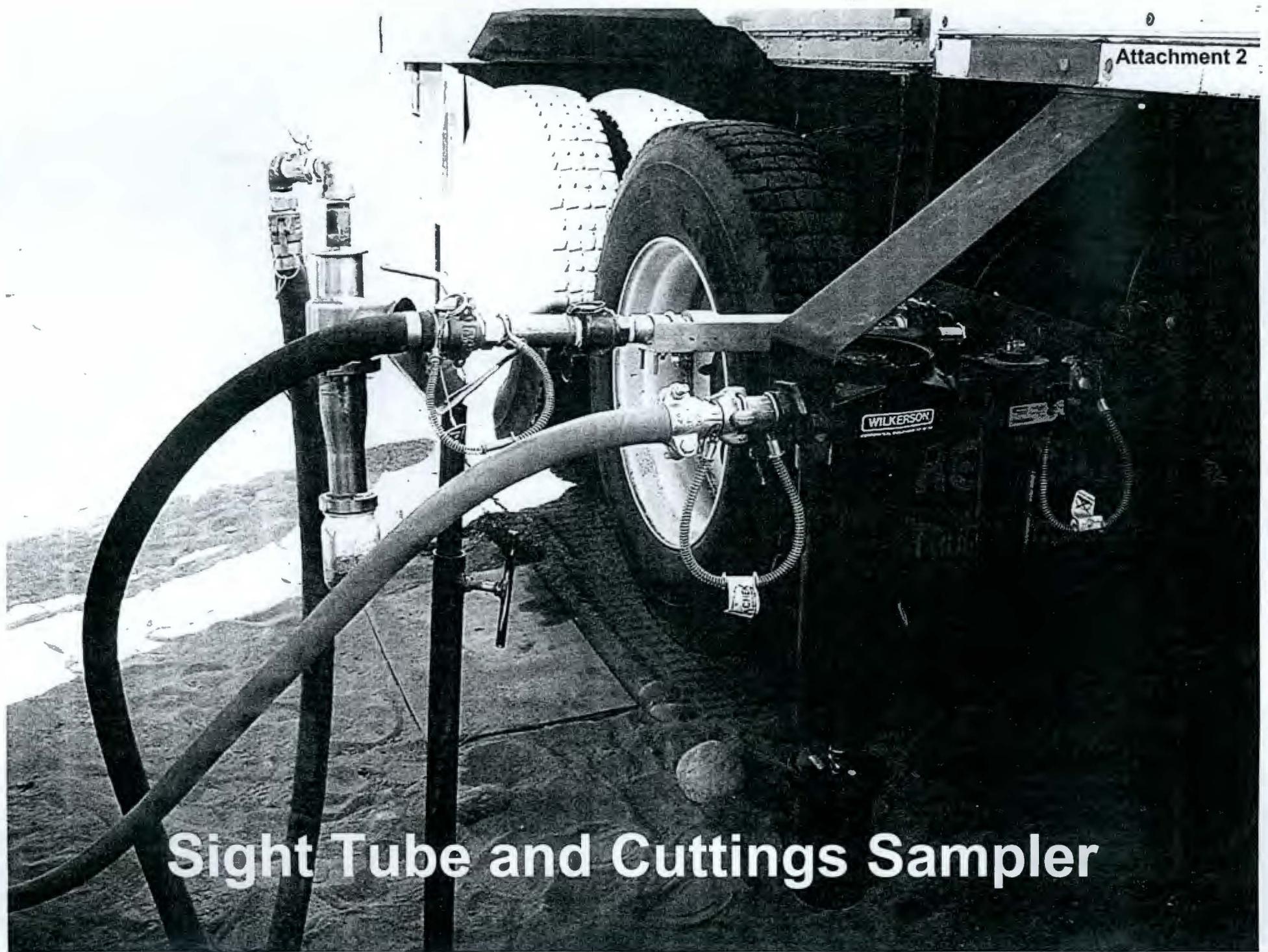


EAPS Groundwater Sampler



Air Filtration System

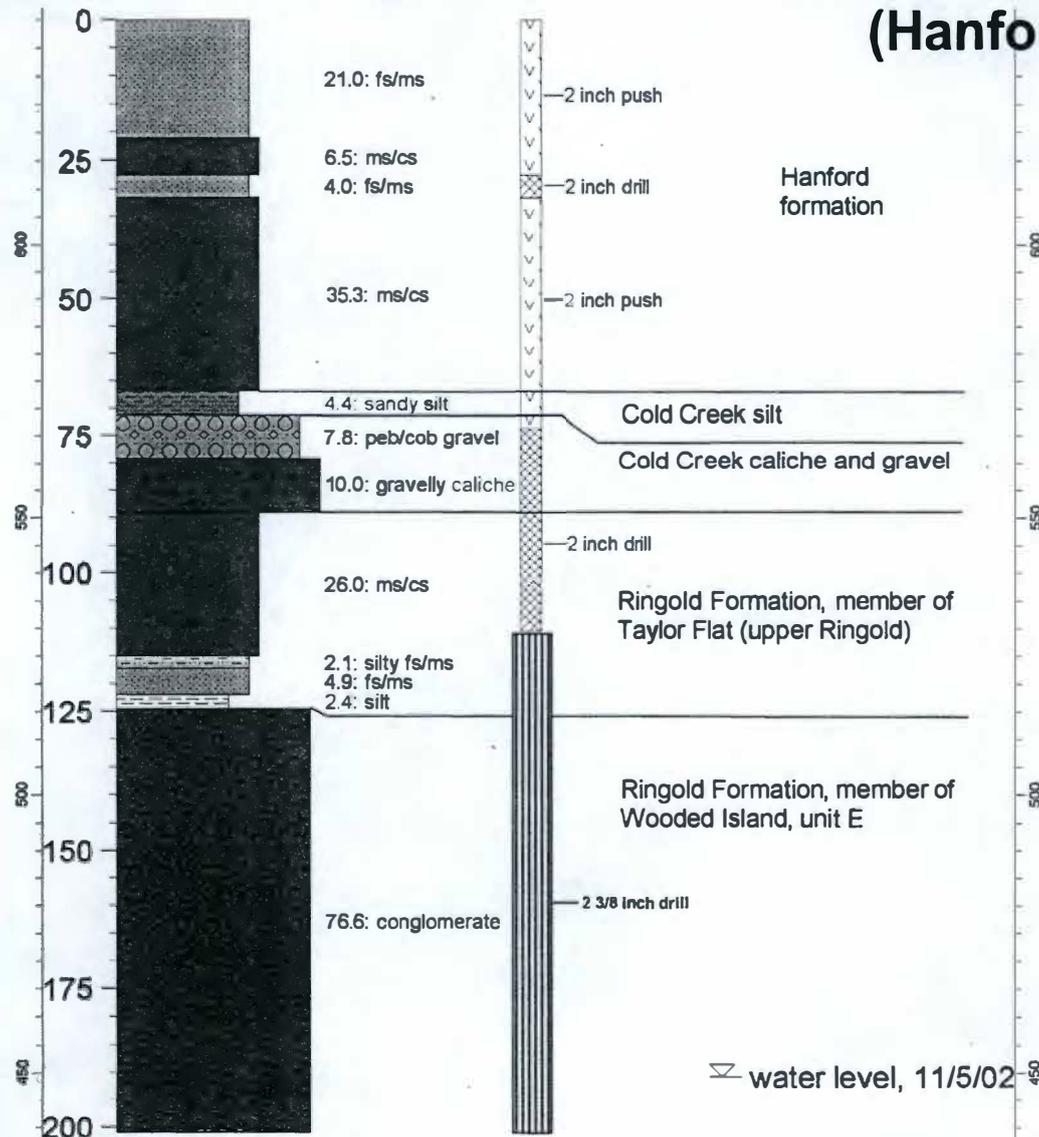




Sight Tube and Cuttings Sampler

Depth Penetration Summary

(Hanford Oct 02 Test)

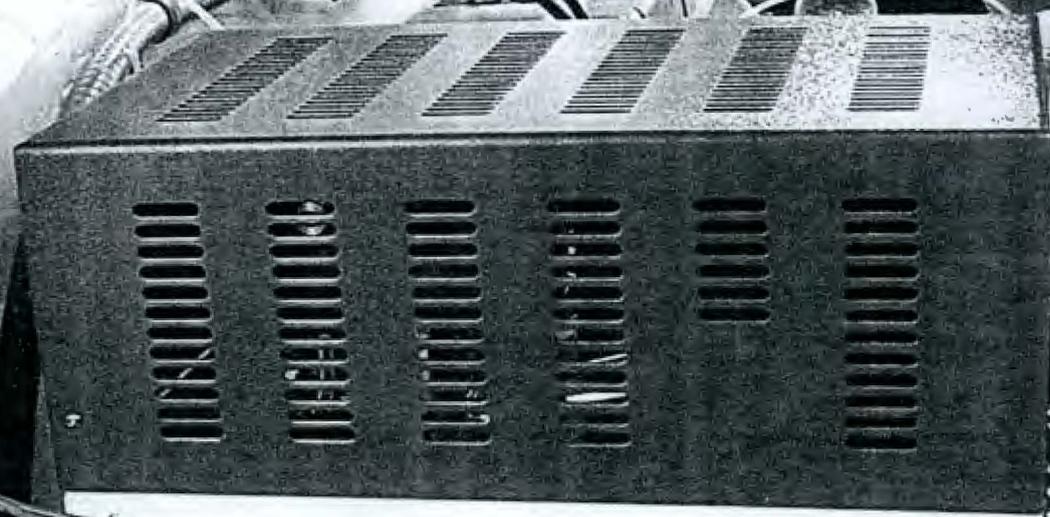


Capabilities Tested at Hanford

October 2002 Test

- ✧ **Conducted 6-day test of EAPS Wireline CPT drilling and sampling system**
 - ✧ **Test conducted in clean area at border of 200 West**
 - ✧ **Test results:**
 - Pushed to Caliche with Wireline CPT to 71 feet
 - Collected continuous soil gas samples and analyzed with GC in real time
 - Drilled through 18 feet of Caliche and gravel with Wireline Drill
 - Pushed to top of Ringold cobble/gravel layer at 110 feet
 - Drilled to depth of 200 feet with water table encountered at 191 feet
 - Collected water sample
 - Generated only 82 gallons (1½ drums) of drilling spoils, versus 80 drums for conventional drilling
-

Gas Chromatograph (GC)



GAS FLOW RATES

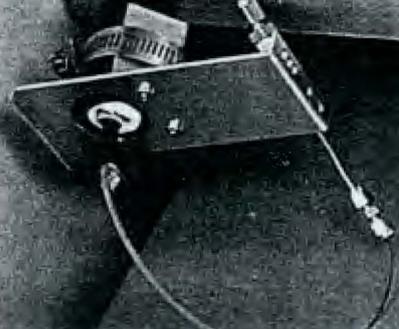
CARRIER	FLOW RATE (ml/min)	CONTROL
HYDROGEN	1.0	10
HYDROGEN 2	1.0	11
AIR	1.0	12
MAKE-UP	1.0	13

RELAY FUNCTIONS (DEFAULT ACTIVE)

A	SPLIT VENT	(CLOSED / OPEN)
B	TRAP HEAT	(ADD / DEL / NO CONTROL)
C	TRAP HEAT	(OFF / ON)
D	TRAP HEAT	(OFF / ON)
E	PET SPARGE GAS	(OFF / ON)
F	TRAP HEAT	(OFF / ON)
G	VALVE POSITION	(LOAD / UNLOAD)
H	VALVE POSITION	(LOAD / UNLOAD)

DELCO

NO TRANSDUCER CONTROL SIGNAL PID DELCO



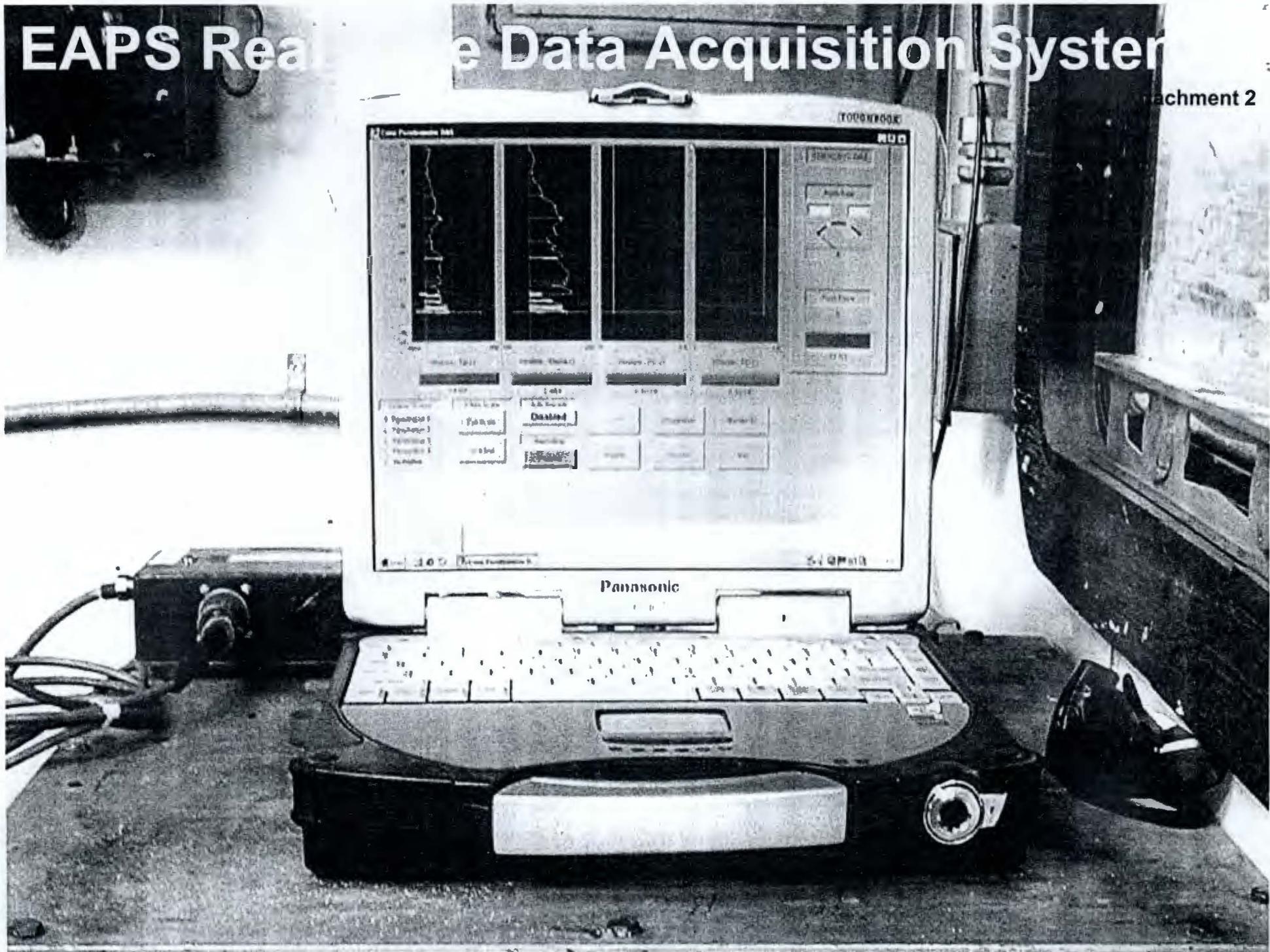
FIELD CLEANING AND/OR DECONTAMINATION

Item	Quantity	Location	Notes

1. GET
2. GET
3. GET

EAPS Real-time Data Acquisition System

Attachment 2



Summary

- ✧ **EAPS enables CPT to penetrate deeper as well as penetrate difficult geologic materials such as cemented caliche and cobbles**
 - ✧ **Integration with Wireline CPT enables a variety of characterization sensors to be deployed with drilling techniques to delineate contaminant plume**
 - ✧ **Benefits:**
 - **Reduced worker exposure to hazardous environment and contaminants**
 - **Higher production rates**
 - **Less waste and real time data on stratigraphy and contaminants**
 - **Lower cost**
-

Upcoming Work

✧ **Improve the drilling rate**

- Obtain and test better bits
- Improve rod handling

✧ **Develop and test sampling (both volatile and solid) and containment procedures**

- Recognize the need to operate in a contaminated area

✧ **Schedule:**

- **Further off-site testing in February and March**
 - **On-site testing in an uncontaminated area in April**
 - **On-site testing in a contaminated area in May-June**
-

UNIT MANAGERS' MEETING AGENDA

1200 Jadwin Avenue
December 19, 2002

9 a.m. – 11 a.m. 200 Area Room 3C4

General (10 minutes)

- Outstanding Action Items
- Open for Regulatory Topics or Action Items
- Approval Status of TPA Appendix C

GROUNDWATER OPERABLE UNITS

200-BP-5 & 200-PO-1 OUs (5 minutes)

- Status of Activities
- Waste Storage Sites

200-UP-1 OU (10 minutes)

- Remediation Treatment Status
- Data Quality Objectives Process Status
- Changes in Contaminant Concentrations in Well 299-W19-43

200-ZP-1 OU (10 minutes)

- Remediation Treatment Status
- Data Quality Objectives Process Status
- Schedule for Replacing Extraction Well #1 (299-W15-33)
- Changes in the Carbon Tetrachloride Plume

SOURCE OPERABLE UNITS

200-PW-1, 200-PW-3, & 200-PW-6 OUs (20 minutes)

- Remediation Treatment Status
- Monthly Monitoring
- Status Fieldwork
- Data Quality Objectives Process Status
- Work Plan Consolidation Status
- Representative Site SAP Status

200-TW-1, 200-TW-2, & PW-5 OUs (10 minutes)

- RI Report Review Schedule

200-PW-2 & 200-PW-4 OUs (5 minutes)

- Work Plan Consolidation Status
- Field Work Status

200-CS-1 OU (5 minutes)

- 216-S-10 Ditch Borehole Letter Status

200-CW-1 & 200-CW-3 OUs (5 minutes)

- FS Status and Schedule
- Tribal Scenario Workshop Status

200-CW-5, 200-CW-2, 200-CW-4, & 200-SC-1 Ous (2 minutes)

- Work Plan Consolidation Status

200 Area Ecological Evaluation (2 minutes)

- Status on Revised Draft

MEETING MINUTES
200 AREA GROUNDWATER AND SOURCE OPERABLE UNITS
UNIT MANAGERS' MEETING -- 200 AREA
December 19, 2002

Topics of Discussion:

1. General

- Outstanding Action Items – All action items have been completed (attached).
- Open For Regulatory Topics or Action Items – EPA attended a demonstration of Innovative Technology's concrete cutter at 233-S. It worked very well and was very impressive.
- Approval Status of TPA Appendix C – Ecology stated that there is some confusion on what is to be reviewed. Ecology requested that IAMIT send it over.
- TSD Units Transitioned from Bechtel Hanford, Inc., to Fluor Hanford – A draft letter to DOE was submitted regarding the Fluor Hanford position that money would be saved if 12 to 14 TSD units were not transferred. Ecology would be happy to have a meeting to discuss the matter. Ecology also stated that the RCRA Coordination Board would be a better forum than the 200 Area Unit Managers' Meetings in which to discuss the issue. DOE stated that a meeting would be arranged with Ellen Mattlin (DOE/RL) to discuss the issue.
- Surveillance and Maintenance Plans – The plans reference BHI procedures. FH is reviewing the possibility of inserting requirements rather than using BHI procedure. There is no definite time schedule as to when this will be complete, perhaps in the next month or so.
- U Plant Area Closure – EPA asked what the relationship is between U Plant and the other Operable Units. FH responded that there have been on-going separate meetings regarding the acceleration and that 99% of the acceleration issues have been resolved. FH feels that the Unit Managers' meetings would be the best forum to discuss U Plant from this point forward. U Plant Area Closure will be added as a topic to future UMM agendas.

GROUNDWATER OPERABLE UNITS

2. 200-BP-5 & 200-PO-1 OUs

- Status of Activities – The current groundwater monitoring schedule for 200-BP-5 and 200-PO-1 has been met. Recommendations are to add more wells to the networks. When the 200-BP-5 Sampling and Analysis Plan was written, the change control form got into the administrative record. A request should be made to remove the change control form (Note: SAPs supersede change control forms).

There are problems with the 200-PO-1 Sampling and Analysis Plan and a one-month delay in delivering the plan was requested. Ecology stated that a delay until the end of January 2003 would be acceptable. Waste Control Plans will be issued after the SAPs. John Price for Ecology and Craig Cameron for EPA will review and approve.

EPA stated that it wasn't clear in the letter from Ecology regarding the Annual Report whether RCRA requirements were part of it. Also, a CERCLA reference should be included in the report.

- Waste Storage Sites – Briefly discussed co-locating 200-BP-5 and 200-PO-1 waste storage sites. Follow on meeting with Ecology will be scheduled.

3. **200-UP-1 OU**

- Remediation Treatment Status – The average pumping rate for FY03 through December 1, 2002, was 49 gpm. For the month of November, the system operated between 47 and 50 gpm. The design work for tying in a third extraction well (299-W19-43) is scheduled to begin March 3, 2003. The tie in will begin July 1, 2003. There were no outages. The system run time was 100% through December 1, 2002, 100% year to date, and 92.1% from system inception to date (attached).
- Changes in Contaminant Concentrations in Well 299-W19-43 – Technetium-99 and uranium concentrations are increasing at well 299-W19-43. A handout (attached) was distributed of the 200-UP-1 site location map and monitoring wells. Graphs reflecting contaminant trends were also distributed and discussed. As previously noted, this well is scheduled for conversion to an extraction well in FY03.

4. **200-ZP-1 OU**

- Remediation Treatment Status – The average pumping rate for FY03 through December 1, 2002, was 140 gpm. For the month of November, the system operated between 137 and 142 gpm. The system was shut down on November 2, 2002, for two days due to condensate build up in the piping, which triggered the leak detection system. It was shut down on November 4, 2002, for one day for heater/chiller repair. Injection well #3 was taken off line periodically for testing. On November 12, 2002, the system was shut down for two days for the testing of high carbon tetrachloride levels. The system run time was 88.2% through December 1, 2002, 87.7% fiscal year to date, and 91.6% from system inception to date (attached).
- Schedule For Replacing Extraction Well #1 (299-W15-33) – The pump in extraction well #1 (299-W15-33) was replaced and tested during this reporting period. Preparation to replace extraction well #1 (299-W15-33) and #4 (299-W15-32) are underway. For extraction well #1, drilling is on schedule for the end of January. For extraction well #4, the timing is not as certain. EPA asked when the drilling plan would be available as there may be characterization to be done. FH stated that the SAP has been out for review, it was not understood that the extraction well needed approval from EPA. EPA responded that any intrusive work requires approval.

- Changes in the Carbon Tetrachloride Plume – A handout of maps and graphs was distributed. At well 299-W15-40, carbon tetrachloride concentrations are going up significantly. Three wells that were installed last year are monitored quarterly and additional information will be provided from groundwater samples. EPA suggested monitoring 299-W15-12 also to determine if concentrations were increasing there as well.

SOURCE OPERABLE UNITS

5. 200-PW-1, 200-PW-3, & 200-PW-6 OUs

- Remediation Treatment Status – The active system was shutdown for the winter. The passive system remains operational (attached).
- Monthly Monitoring – A handout was distributed of the monthly monitoring results. The most recent (November 2002) results are consistent with those from earlier samples (attached).
- Status Fieldwork – Vapor sampling is planned inside the PFP Protected Area. A revised approach will be used. A guzzler will be used to remove the upper few feet of soil to confirm that buried utilities are not present. The GeoProbe will then be used. This is planned to begin in mid-January. DOE-RL and EPA concurred with this revised approach, which is described in more detail in the Supplement to the Sampling and Analysis Plan.
- Data Quality Objectives Process Status – The DQO is underway for the deepening of a well for the DNAPL investigation. The DNAPL investigation is part of the groundwater remedial investigation, not waste site characterization.
- Work Plan Consolidation Status – A meeting in January 2003 with DOE and EPA is being planned to discuss the proposed path forward on the Work Plan Consolidation. It is planned that the Work Plan will be ready for review in late February 2003.
- Representative Site SAP Status – Same status as the Work Plan Consolidation.

6. 200-TW-1 & 200-TW-2 OUs

- RI Report Review Schedule – Ecology stated that there are some questions that need clarification and would like a meeting scheduled. A meeting with EPA and Ecology is scheduled for January 9, 2003.

7. 200-PW-2 & 200-PW-4 OUs

- Work Plan Consolidation Status – The Work Plan Consolidation is in review with Ecology. DOE expects comments back by January 17, 2003.
- Field Work Status – Waste Control Plans for the 200-PW-2 and 200-PW-4 Operable Units were distributed. The internal review is complete for the 200-PW-2 Waste Control Plan. A walk-down of the sites will be set up after EPA and Ecology have reviewed the Work Plans. FH would like to start the geophysical preparation of the

sites by late January. All the sites have been land surveyed and boring locations have been determined. DOE suggested bringing the document to be signed on the walk-down tour.

8. 200-CS-1 OU

- 216-S-10 Ditch Borehole Letter Status – The last test pit characterization was completed in November. There are no preliminary data available at this time. It is planned that data evaluation will begin sometime in February.

9. 200-CW-1 & 200-CW-3 OUs

- FS Status and Schedule – The Feasibility Study is in internal review. The comments will be incorporated and it is scheduled to go to DOE on January 17, 2003. The Proposed Plan will also go to DOE on the same date. The documents are scheduled to go to the regulators March 31, 2003.
- Tribal Scenario Workshop Status – Notes from the workshop are being compiled and will be sent out to the regulators.

10. 200-CW-5, 200-CW-2, 200-CW-4, & 200-SC-1 OUs

- Work Plan Consolidation Status – The Work Plan will be sent to EPA in February for review. Joint reviews with DOE and EPA are planned for all consolidated Work Plans.

11. 200 Area Ecological Evaluation –

- Status on Revised Draft – Progress on preparing a draft document for internal review is good. It may be ready to share with the regulators by the end of January.

**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
26	Prepare a list of OU leads	EPA and Ecology		09/19/02			12/6/02	CLOSED
27	DOE to meet with Ellen Mattlin to discuss TSD Units	DOE		12/19/02				

200 Area UMM – December 2002

200-UP-1:

- Average Pumping Rate for FY03 through December 1: 49 gpm
- For the month of November the system operated at between 47 and 50 gpm.
- The design work for tying in a third extraction well (299-W19-43) is scheduled to begin March 3, 2003. The tie in will begin July 1, 2003
- There were no scheduled or unscheduled outages.
- System Run Time
 - Through December 1 100%
 - FY2003 (Year to date) 100%
 - System Inception to date 92.1%

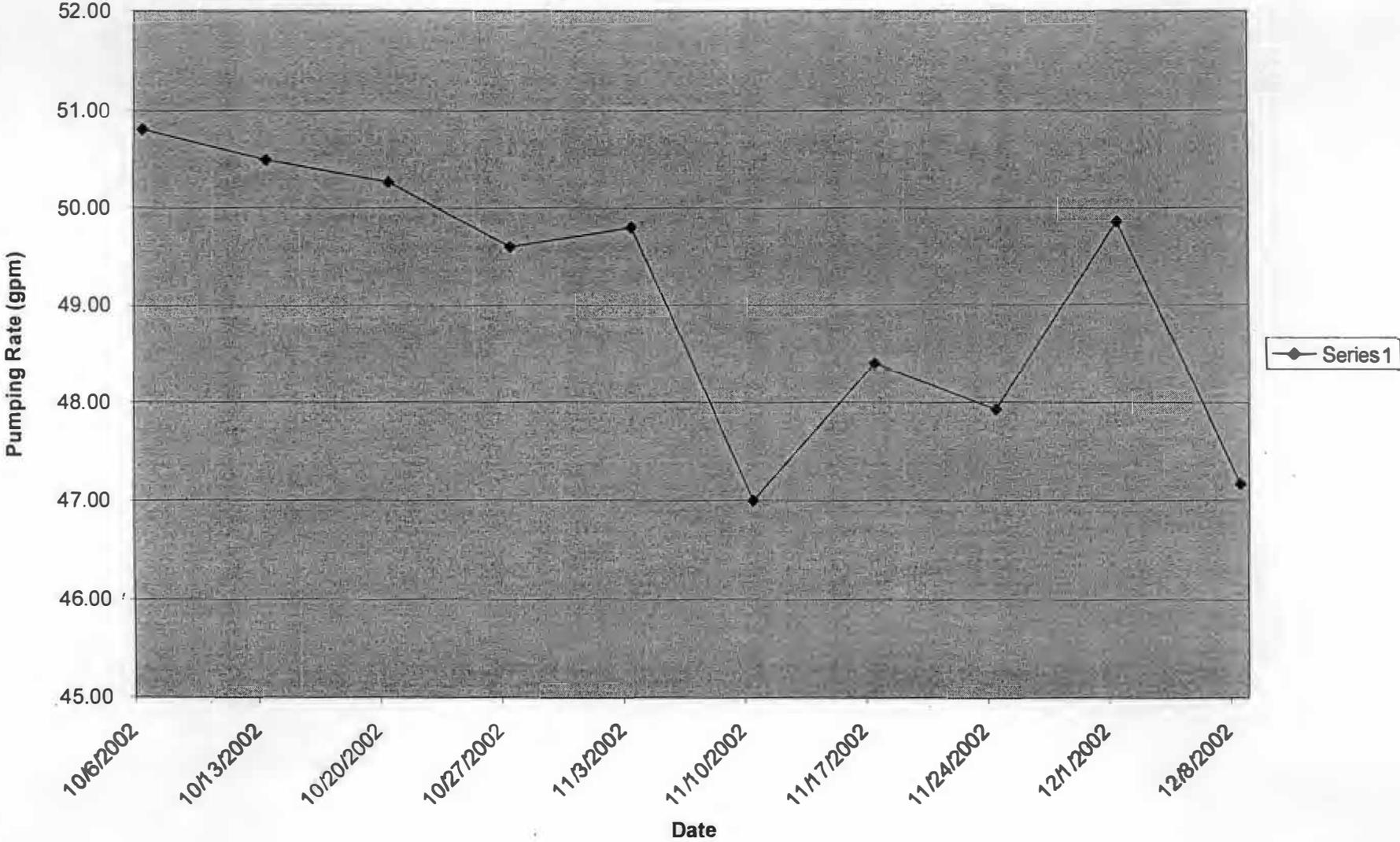
200-ZP-1:

- Average Pumping Rate for FY03 through December 1: 140 gpm
- For the month of November the system operated at between 137 and 142 gpm.
- The pump in Extraction Well #1 (299-W19-33) was replaced and was tested during this reporting period.
- Preparation to replace Extraction Well #1 (299-W19-33) and 4 (299-W19-32) is underway.
- System was shutdown
 - November 2 for 2 days due to condensate building up in piping triggering leak detection system.
 - November 4 for 1 day for heater/chiller repair.
 - November 12 for 2 days for testing high carbon tet. Ambient shutdown alarm.
- Injection well #3 was taken off line periodically for testing.
- System Run Time
 - Through December 1 88.2%
 - FY2003 (Year to date) 87.7%
 - System Inception to date 91.6%

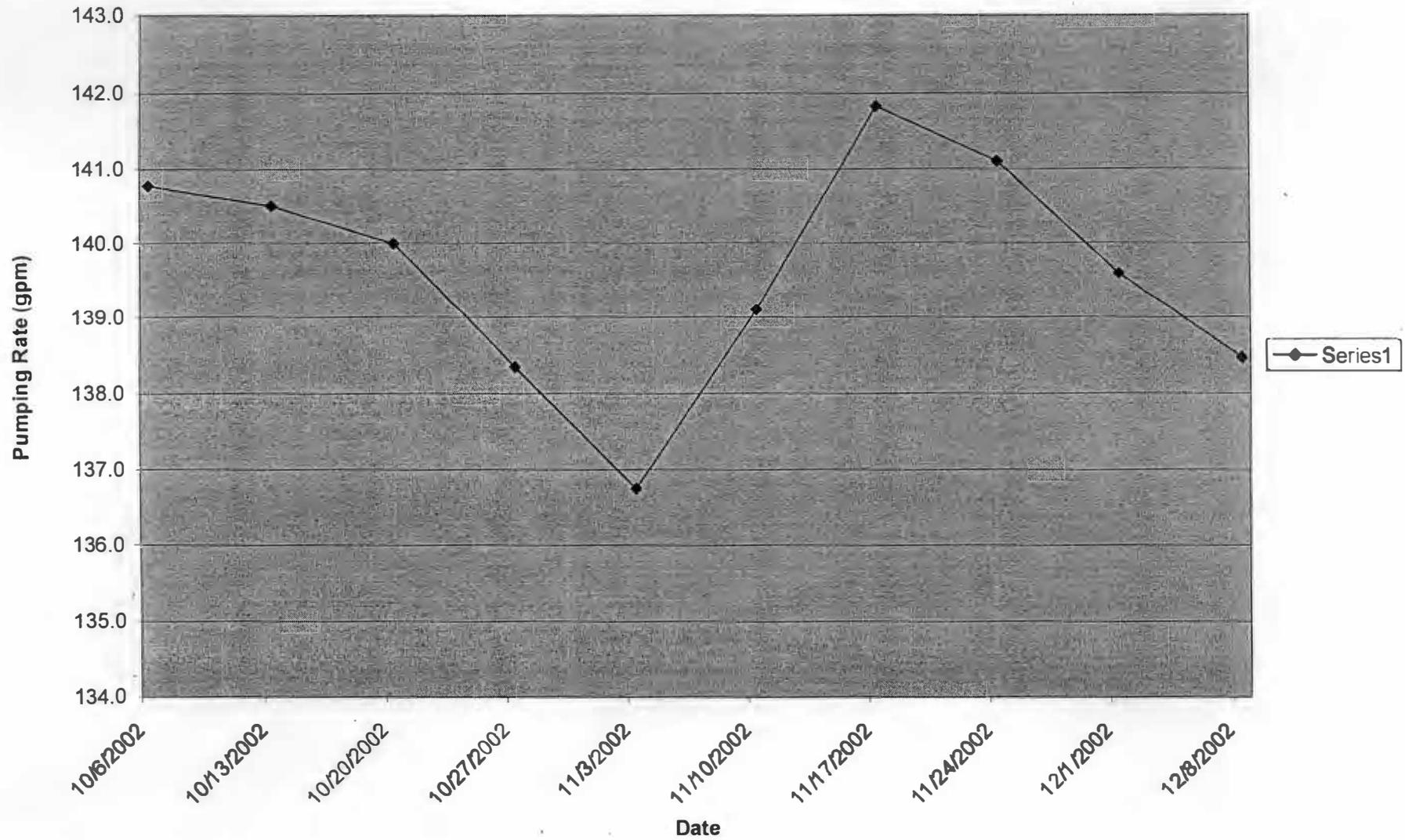
200-PW-1 (200-ZP-2):

- Active system is shutdown for the winter
- The passive system remains operational.

200-UP-1 Average Pumping Rates



200-ZP-1 Average Pumping Rates



Comparison of Maximum Carbon Tetrachloride Rebound Concentrations
Monitored at 200-PW-1 Soil Vapor Extraction Sites
FY 1997 - FY 2003

200-PW-1 (200-ZP-2)		November 1996 - July 1997		October 1997 - September 1998		July 1998 - September 1999		July 1999 - June 2001		July 2001 - June 2002		July 2002 - November 2002	
Location (Well or Probe) /feet bgs	Site	Maximum Rebound Carbon Tetrachloride (ppmv)	months* of rebound										
79-03/ 5 ft	Z-18	0	8	0	3	0	12						
79-06/ 5 ft	Z-1A	not measured		not measured		1.4	12						
79-11/ 5 ft	Z-1A	0	8	0	6	2.9	12						
86-05/ 5 ft	Z-9	not measured		not measured		0	3						
86-05-01/ 5 ft	Z-9	not measured		not measured		0	3						
86-06/ 5 ft	Z-9	1.3	8	0	9	1.9	6						
87-05/ 5 ft	Z-1A	not measured		0	3	1.0	12						
87-09/ 5 ft	Z-1A	not measured		1.5	3	2.6	12						
94-02/ 5 ft	Z-9	0	8	not measured		1.4	3						
95-11/ 5 ft	Z-9	0	8	2.1	9	2.5	6						
95-12/ 5 ft	Z-9	1.1	8	1.5	9	1.3	6						
95-14/ 5 ft	Z-9	not measured		not measured		0	3						
CPT-13A/ 9 ft	Z-1A	not measured		0	6	1.0	12						
CPT-16/ 10 ft	Z-9	not measured		0	9	1.5	6						
CPT-17/ 10 ft	Z-9	not measured		4.2	9	5.1	6	6.6	24	3.2	6	2.0	5
CPT-18/ 15 ft	Z-9	not measured		6.5	9	5.0	6	5.2	24	1.4	6	1.2	5
CPT-4A/ 25 ft	Z-1A	not measured		not measured		not measured		3.5	0	3.4	10		
CPT-4E/ 25 ft	Z-1A	not measured		not measured		not measured		not measured		2.6	12	1.3	0
CPT-16/ 25 ft	Z-9	not measured		not measured		not measured		1.8	24	1.1	6	0	5
CPT-31/25 ft	Z-1A	not measured		0	6	0	12						
CPT-32/ 25 ft	Z-1A	not measured		9.1	6	10	12	16.5	18	13.0	12	0	2
CPT-30/ 28 ft	Z-18	not measured		not measured		3.2	12	1.4	18	0	12	0	2
CPT-13A/ 30 ft	Z-1A	2.2	8	not measured		not measured		3.6	18	2.6	12	1.4	2
CPT-7A/ 32 ft	Z-1A	not measured		2.3	6	5.4	12	6.2	18	5.6	12	2.7	2
CPT-27/ 33 ft	Z-9	1.2	8	not measured		not measured		2.6	24	1.5	6	0	5
CPT-1A/ 35 ft	Z-12	2.0	8	1.4	3	3.0	12	7.7	18	11.3	12	6.8	2
CPT-28/40 ft	Z-9	40.1	8							56.5	6		
CPT-33/ 40 ft	Z-1A	not measured		2.0	3	2.6	12			2.3	12		
CPT-34/ 40 ft	Z-18	2.3	8	not measured		1.7	12	1.9	0	2.2	12	1.6	0
CPT-21A/ 45 ft	Z-9	65.6	8	52.7	9	57	3	127	24	133	6	68.0	5
W15-220S7/ 52 ft	Z-9	2	8	not measured		1.6	3	2.5	24			1.5	1
CPT-28/ 60 ft	Z-9	not measured		1.5	0	3.7	3						
CPT-9A/ 60 ft	Z-9	45.5	8	41.1	0	44	3	68	24	45.3	6	35.1	5
CPT-16/ 65 ft	Z-9	4.6	8	not measured		not measured		not measured		not measured		3.1	3
CPT-1A/ 68 ft	Z-12	not measured		not measured		not measured		not measured		5.5	12		
CPT-30/68 ft	Z-18	1.7	8	not measured		3.0	12						
CPT-32/ 70 ft	Z-1A	7.4	8							7.7	12		
CPT-13A/ 70 ft	Z-1A	5.2	8	not measured		5.6	12						
CPT-24/70 ft	Z-9	not measured		3.2	9	3.6	3					3.3	3
W15-219SST/ 70 ft	Z-9	14.6	8	not measured		7.6	3	7.8	24			1.9	1
CPT-16/ 75 ft	Z-9	not measured		not measured		not measured		18	24			1.5	3
CPT-4A/ 75 ft	Z-1A	not measured		not measured		not measured		not measured		7.1	3		
CPT-31/ 76 ft	Z-1A	4.0	8	not measured		4.2	12						
CPT-33/ 80 ft	Z-1A	5.8	8	not measured		9.2	12						
W15-82/ 83 ft	Z-9	28.9	8	5.5	9	46	6	55	24	66.7	6	85.8	5
CPT-21A/ 86 ft	Z-9	221	8	206	9	148	6	195	24	186	6	159	5
CPT-34/ 86 ft	Z-18	36.3	8	5.9	3	0	12						
W15-95U/ 86 ft	Z-9	not measured		15.3	9	39	6	43	21				
W15-218SST/ 86 ft	Z-9	not measured		not measured		0	3					1.6	2
CPT-28/ 87 ft	Z-9	280	8	230	9	203	6	224	24	229	6	208	5
CPT-4B/ 90 ft	Z-1A									3.2	10		
CPT-1A/ 91 ft	Z-18	3.9	8	not measured		4.2	12			10.7	10		
CPT-4A/ 91 ft	Z-1A	not measured		7.7	3	14	12			7.5	2		
CPT-9A/ 91 ft	Z-9	103	8	34.5	9	72	3			74.3	6		
W15-85/ 91 ft	Z-9	not measured		not measured		not measured		51	24				
W18-252SST/ 100	Z-1A	38.2	8	17.8	3	24	12						
W18-152/ 101 ft	Z-12	46.8	8	11.1	3	33	12	25	18	25.7	12	8.8	2
CPT-4E/ 103 ft	Z-1A	23.2	8	not measured		not measured		not measured		16.1	12		
W18-167/ 106 ft	Z-1A	323	8	79.7	3	228	12	248	18	297	12	243	2
W18-165/ 109 ft	Z-1A	not measured		not measured		not measured		not measured		278	12	328	2
W15-217/ 114 ft	Z-9	797	8	630	9	561	6	442	24	93.6	6	214	5
CPT-24/ 118 ft	Z-9	44.6	8	37.7	9	37	6	35	24			27.7	3
W15-220SST/ 118	Z-9	21.9	8	not measured		36	3	34	24			27.5	3
W18-158L/ 120 ft	Z-1A	not measured		143	3	492	12	284	18	163	3		
W15-219SST/ 130	Z-9	298	8	not measured		47	3	54	24			23.1	1
W18-249/ 130 ft	Z-18	206	8	20.4	3	215	12	176	18	196	12	27.6	2
W18-248/ 131 ft	Z-1A	288	8	86.3	3	177	12	214	18	306	12	81.5	2
W15-95L/ 144 ft	Z-9	not measured		not measured		not measured		not measured		31.8	6	18.5	5
W15-219SST/ 155	Z-9	59.6	8	not measured		24	3	44	24			6.8	1
W15-220L/ 163 ft	Z-9												
W15-219L/ 175 ft	Z-9												
W15-9L/ 176 ft	Z-9	18.3	8	15.0	9	15	6	20	21	16.9	6	5.1	5
W15-84L/ 180 ft	Z-9	not measured		13.1	5								
W15-6L/ 162 ft	Z-9	22.6	8	17.8	9	1.3	6						
W15-220SST/ 185	Z-9	14.5	8	not measured		13	3	15	24				1
W18-7/ 197 ft	Z-1A	28.5	8	17.3	3	29	12						
W18-12/ 198 ft	Z-18	not measured		3.81	3	19	12						
W18-6L/ 208 ft	Z-1A	36	8	31.3	6	15	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)

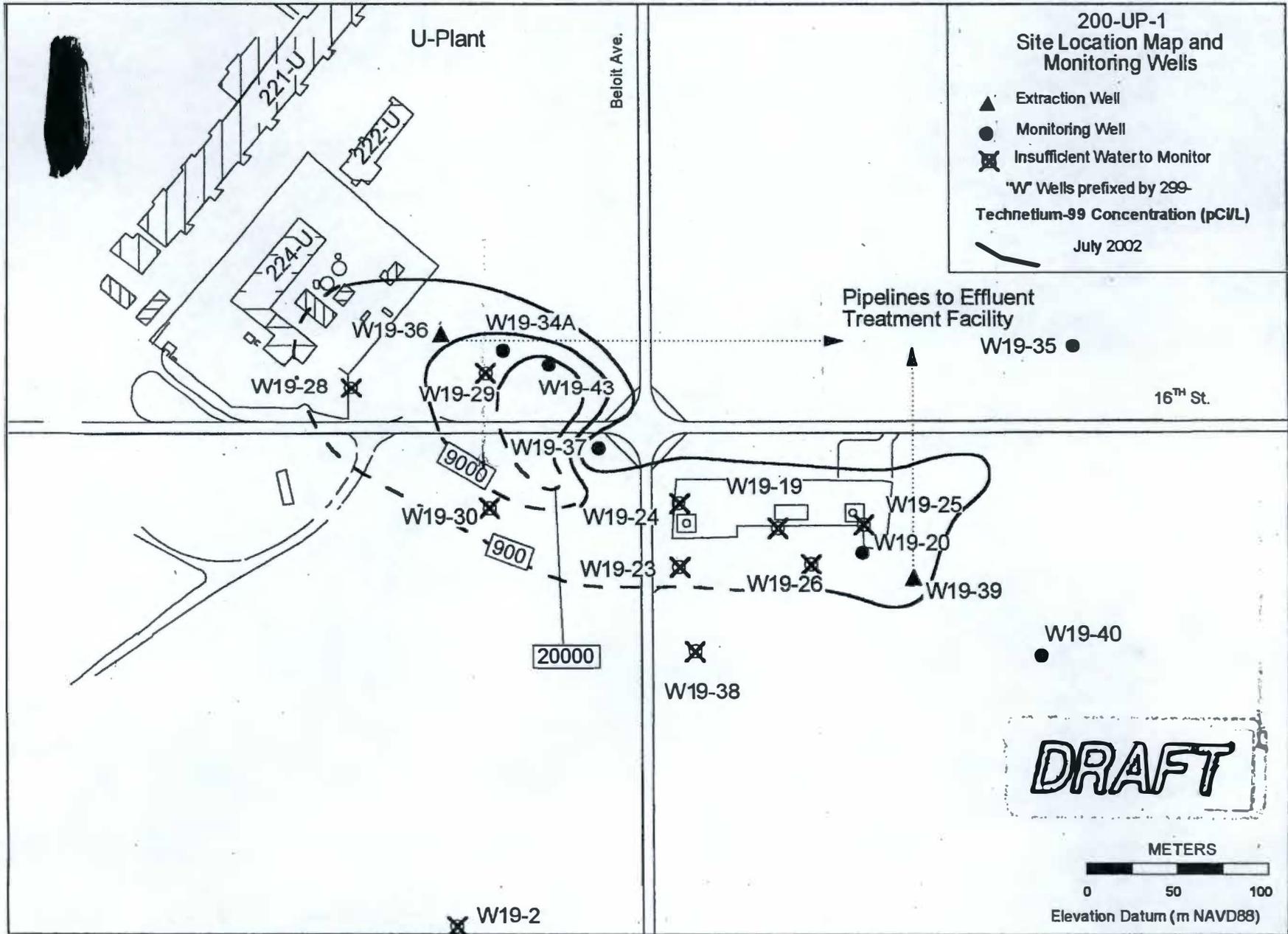
**Carbon Tetrachloride Rebound Concentrations
Monitored at 200-PW-1 Soil Vapor Extraction Sites
July 2002 - November 2002**

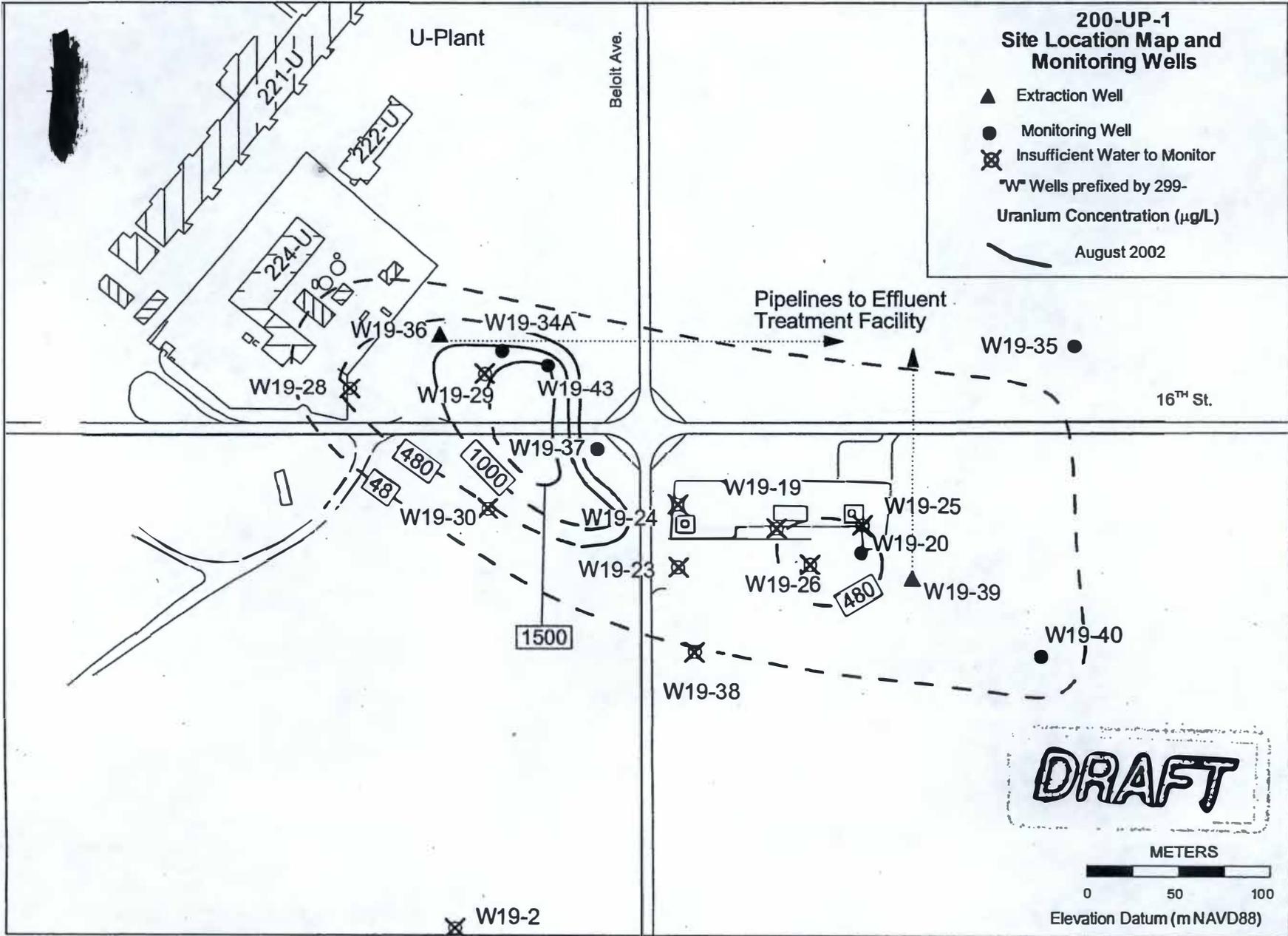
200-PW-1 (200-ZP-2)		07/30/2002	08/26/2002	10/04/2002	10/30/2002	11/27/2002
Location (Well or Probe) /feet.bgs	Site	CCl4 (ppmv)	CCl4 (ppmv)	CCl4 (ppmv)	CCl4 (ppmv)	CCl4 (ppmv)
CPT-17/ 10 ft	Z-9	1.6	1.4	2.0	1.6	1.1
CPT-18/ 15 ft	Z-9	0	0	1.2	0	0
CPT-4E/ 25 ft (c)	Z-1A	1.3	0	0		
CPT-16/ 25 ft	Z-9	0	0	0	0	0
CPT-32/ 25 ft	Z-1A				0	0
CPT-30/ 28 ft	Z-1A				0	0
CPT-13A/ 30 ft	Z-1A	1.4	1.3	0	0	0
CPT-7A/ 32 ft	Z-1A	2.7	1.2	1.4	1.1	1.7
CPT-27/ 33 ft	Z-9	0	0	0	0	0
CPT-1A/ 35 ft	Z-12	4.1	4.2	3.4	3.5	6.8
CPT-34/ 40 ft	Z-18	1.6	1.2	1.2		
CPT-21A/ 45 ft	Z-9	60.2	31.6	68.0	61.9	35.7
W15-220SST/ 52 ft	Z-9	1.5				
CPT-9A/ 60 ft	Z-9	35.1	8.4	27.8	22.2	12.5
CPT-16/ 65 ft (d)	Z-9		0	3.1		
CPT-24/ 70 ft (e)	Z-9		1.5	3.3		
W15-219SST/ 70 ft (b)	Z-9	1.9				
CPT-18/ 75 ft	Z-9	0	0	1.5		
W15-82/ 83 ft	Z-9	85.8	5.6	58.8	35.6	14.7
CPT-21A/ 86 ft	Z-9	159	55	155	95.0	55.3
W15-218SST/ 86 ft (f)	Z-9		1.6	---- (h)		
CPT-28/ 87 ft	Z-9	208	54.2	169	130	51.6
W18-152/ 101 ft	Z-12				7.5	8.8
W18-167/ 106 ft	Z-1A				243	96
W18-165/ 109 ft	Z-1A				328	265
W15-217/ 114 ft	Z-9	82.1	34.0	214	38.7	80.0
CPT-24/ 118 ft	Z-9	27.7	4.2	16.3		
W15-220SST/ 118 ft	Z-9	27.5	1.3	21.3		
W15-219SST/ 130 ft (b)	Z-9	23.1				
W18-249/ 130 ft	Z-18				11.8	27.6
W18-248/ 131 ft (l)	Z-1A				27.0	81.5
W15-95L/ 144 ft	Z-9	13.3	0	16.1	18.5	9.7
W15-219SST/ 155 ft (b)	Z-9	6.8				
W15-220L/ 163 ft	Z-9					
W15-219L/ 175 ft	Z-9					
W15-9L/ 176 ft	Z-9				5.1	2.9
W15-84L/ 180 ft (g)			5.8	13.1	2.8	7.2
W15-220SST/ 185 ft	Z-9	---- (a)				
(a) Unable to sample. Sample port appears to be plugged.						
(b) Sampling extremely slow.						
(c) Substitute for CPT-4A/ 25 ft						
(d) Substitute for W15-220SST/ 52 ft						
(e) Substitute for W15-219SST/ 70 ft						
(f) Substitute for W15-219SST/ 130 ft						
(g) Substitute for W15-219SST/ 155 ft						
(h) Unable to sample.						
(l) 10/30/02: sample tubing cracked; sample may have been diluted. Tubing repaired 10/31/02.						

200-UP-1
Site Location Map and
Monitoring Wells

- ▲ Extraction Well
- Monitoring Well
- ⊗ Insufficient Water to Monitor
- *W Wells prefixed by 299-
Technetium-99 Concentration (pCi/L)

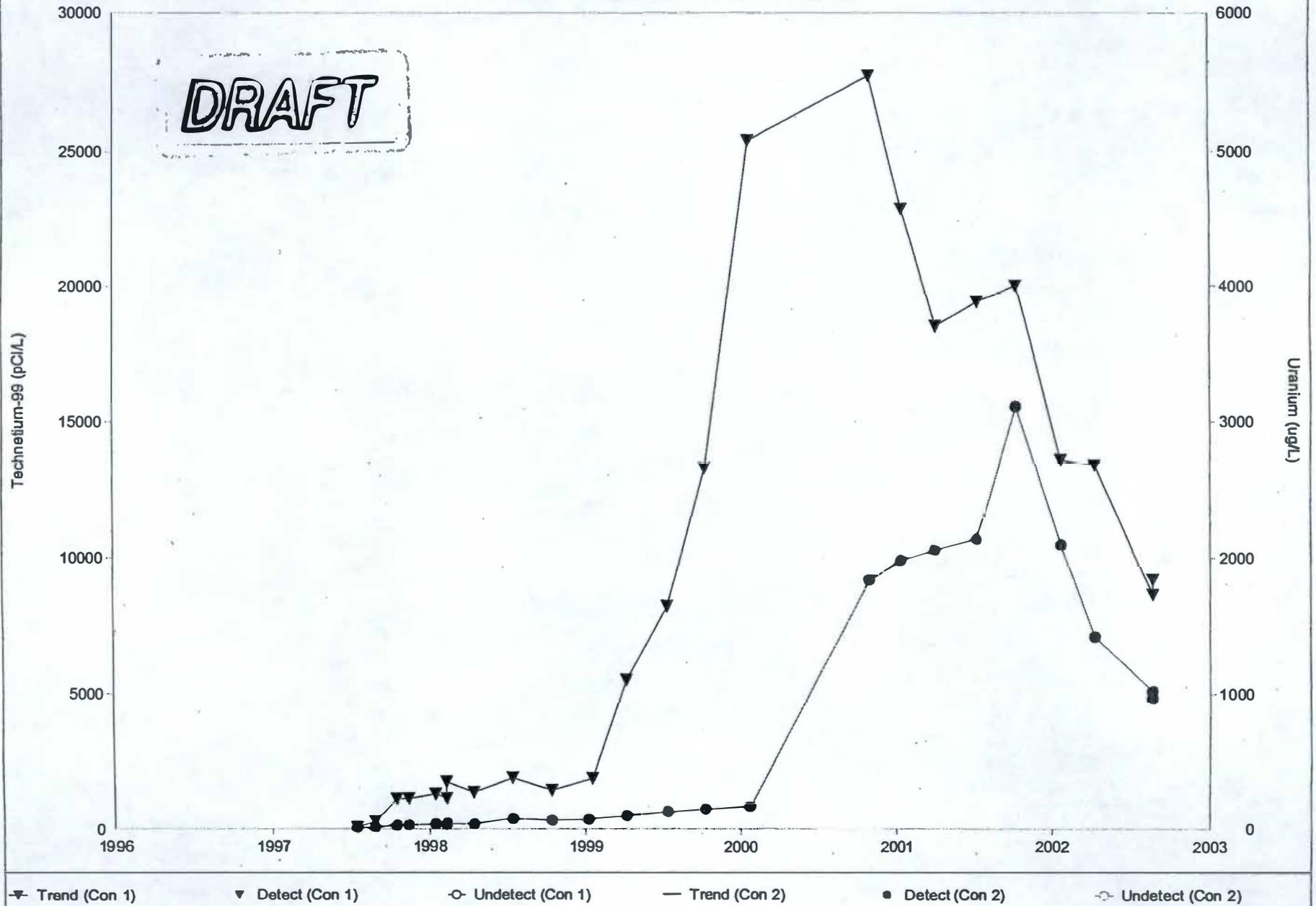
July 2002





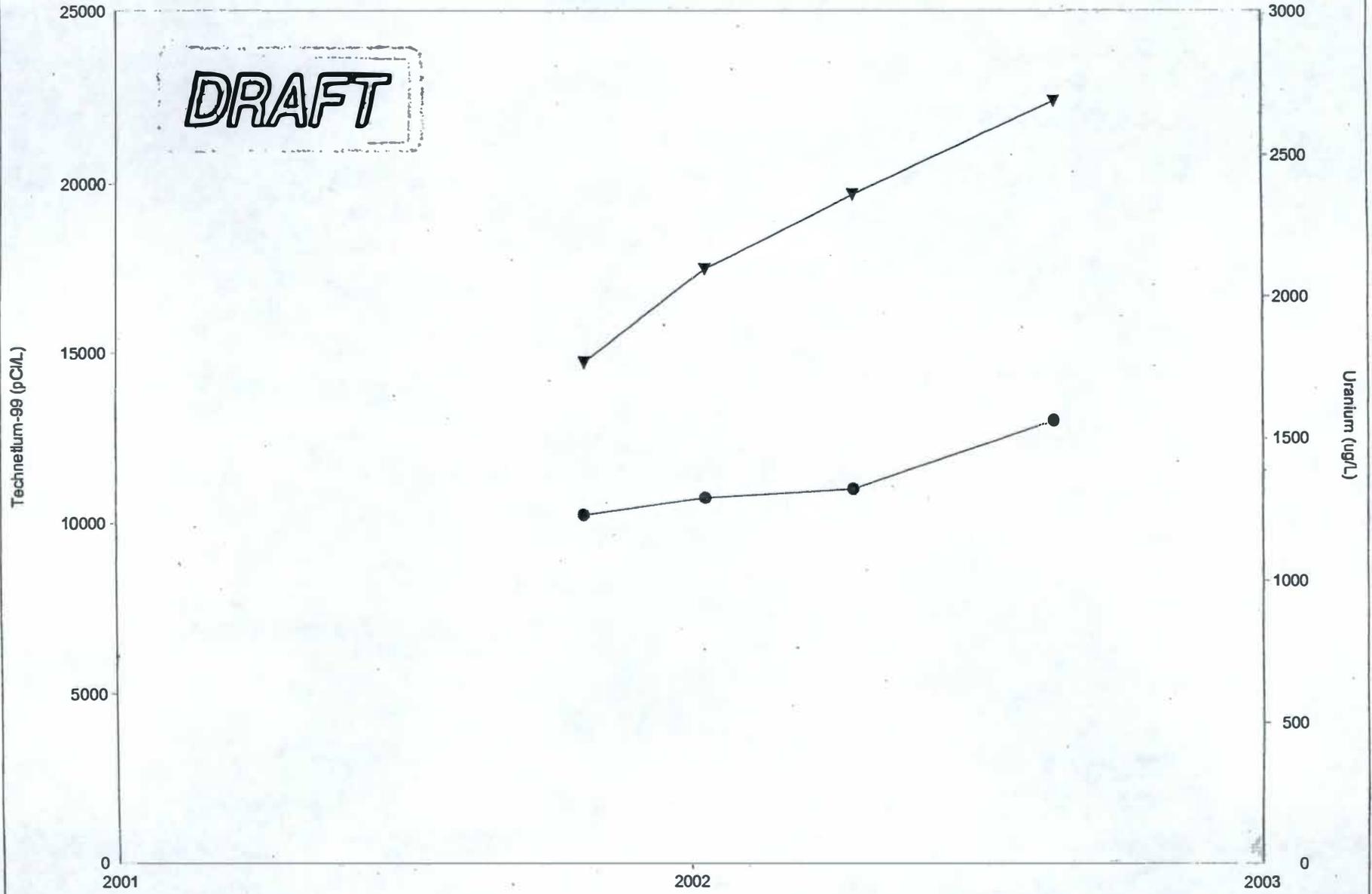
299-W19-36
 Technetium-99 (pCi/L) & Uranium (ug/L)

DRAFT



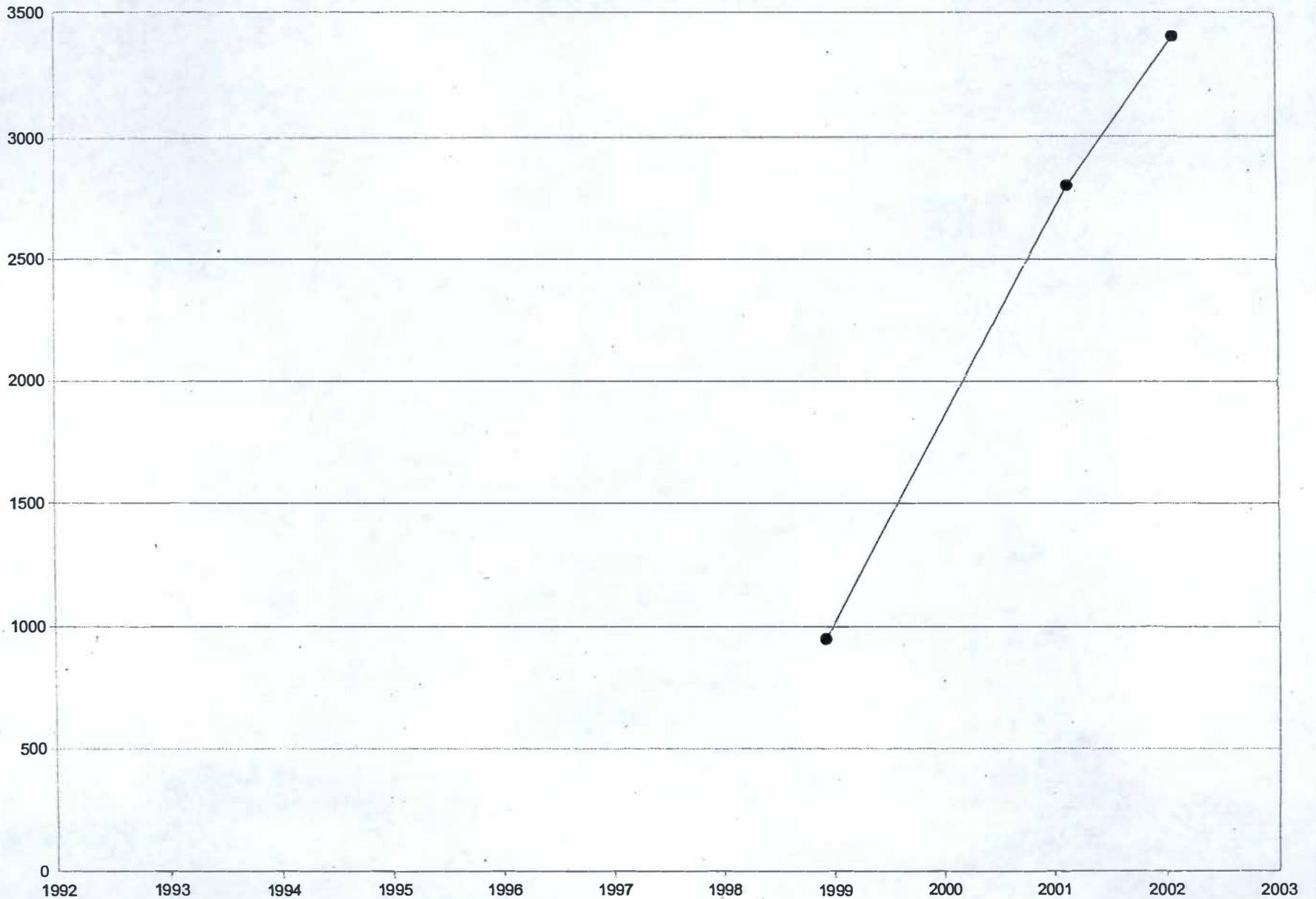
299-W19-43
Technetium-99 (pCi/L) & Uranium (ug/L)

DRAFT



— Trend (Con 1) ▼ Detect (Con 1) -○- Undetect (Con 1) — Trend (Con 2) ● Detect (Con 2) -○- Undetect (Con 2)

299-W15-40
Carbon tetrachloride (ug/L)



— Trend

● Detect

○ Undetect

299-W10-5
Carbon tetrachloride (ug/L)

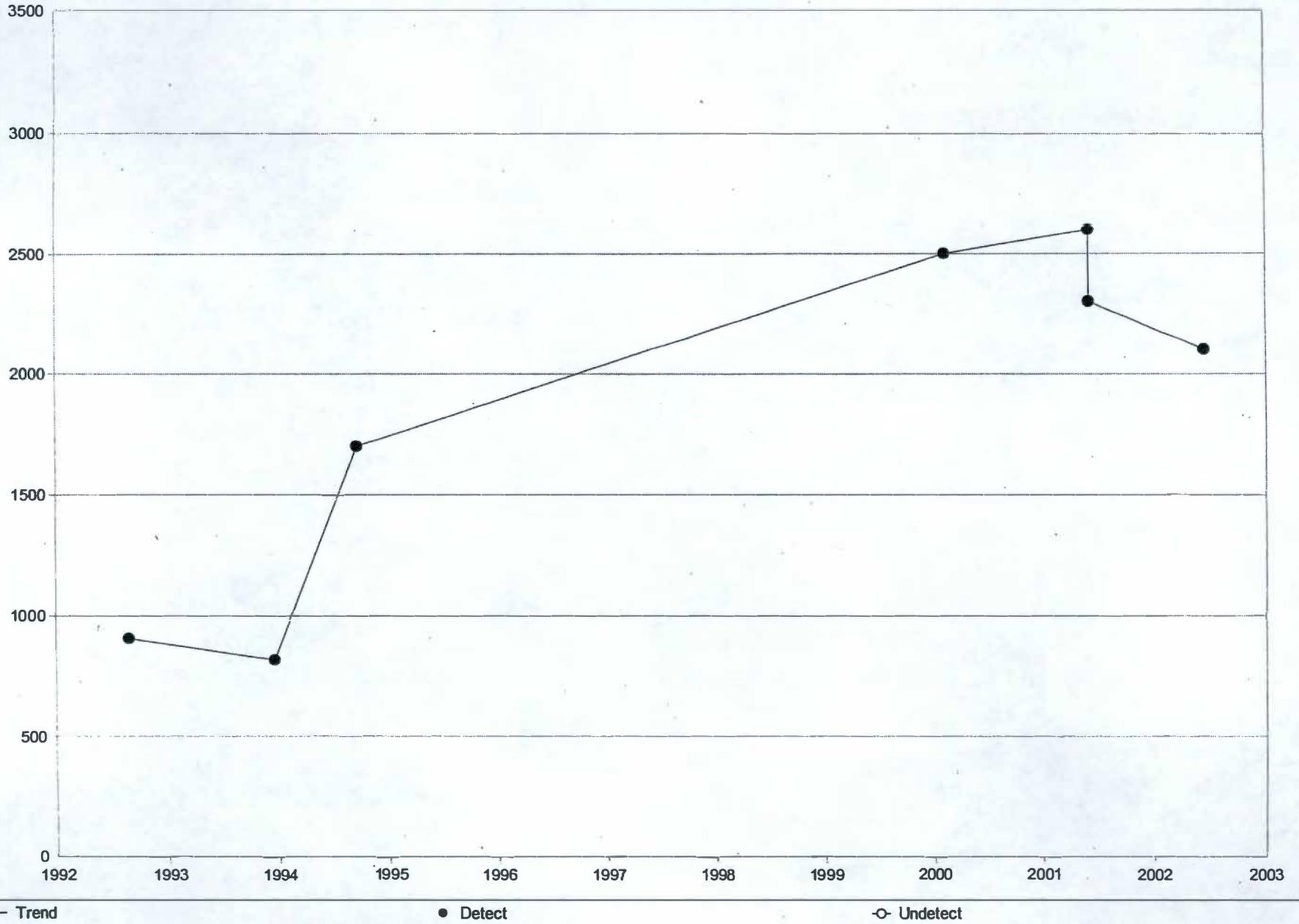


Figure 1. Well Location Map for WMA TX-TY and OU 200-ZP-1.

