0058769

FIELD SCREENING
FINAL DATA DELIVERABLE COVER SHEET

Date: **Monday, October 14, 2002**

Sample Authorization Form (SAF) Number: F02-~~010~~ 011 Dayes 2/4/03

SDG Number (assigned by Sample Management): FP0030 Dayes 10/15/02

Attachments (check all that apply or N/A):

X	Test Results
N/A	Narrative Summary
X	Chain of Custody(s)
X	Logbook Pages
N/A	Anomaly Report

Total number of pages (including cover sheet): ~~66~~ 67 Dayes 1/22/03

Comments:
200-PW-1 Vadose Zone Monitoring

THESE TESTS WERE CONDUCTED USING QC-2

RECEIVED
FEB 18 2003
EDMC

Analyst Signature — Date: 10/14/02

Reviewer's Signature — Date: 1-14-03

Distribution: CPP Sample Management A0-21
Project (Specify)

_____ Requires distribution to listed project personnel by Sample Management (check if applicable)

0000001

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4011/ Site 1	B154R0	8/21/2002	9:27	10:08	TMJ	24.0' - 25.4'	-	6.91	2.07	14,500
C4011/ Site 1	B154R1	8/21/2002	9:50	10:09	TMJ	15.2' - 16.1'	-	10.5	2.80	17,500
C4012/ Site 2	B154R2	8/21/2002	11:07	11:56	TMJ	24.0' - 25.4'	-	15.6	4.10	15,700
C4012/ Site 2	B154R3	8/21/2002	11:44	11:57	TMJ	15.2' - 15.8'	-	7.25	2.32	19,500
C4013/Site 11	B154R4	8/21/2002	13:34	14:11	TMJ	24.0' - 25.4'	-	< 1.0	1.08	16,300
C4013/Site 11	B154R5	8/21/2002	13:58	14:12	TMJ	15.7' - 16.7'	-	< 1.0	< 1.0	19,200
C4014/ Site 4	B154R6	8/22/2002	8:06	9:00	TMJ	23.2' - 24.2'	-	1.36	1.85	15,800
C4014/ Site 4	B154R7	8/22/2002	8:37	9:01	TMJ	15.2' - 16.2'	-	< 1.0	1.07	17,500
C4015/ Site 9	B154R8	8/22/2002	9:53	12:23	TMJ	24.2' - 25.4'	-	< 1.0	2.31	14,100
C4015/ Site 9	B154R9	8/22/2002	10:23	12:24	TMJ	15.8' - 16.8'	-	<1.0	2.09	13,900
C4016/ Site 12	B154T0	8/22/2002	11:30	12:25	TMJ	24.2' - 25.4'	-	4.80	3.37	15,600
C4016/ Site 12	B154T1	8/22/2002	11:53	12:26	TMJ	19.6' - 23.3'	-	14.8	4.48	16,200
C4016/ Site 12	B154T4 Duplicate	8/22/2002	11:53	12:27	TMJ	19.6' - 23.3'	-	14.3	4.51	16,200
C4016/ Site 12	B154T2	8/22/2002	14:10	15:16	TMJ	15.2' - 16.5'	-	12.7	5.77	14,000
C4012/ Site 2	B154T3	8/22/2002	14:55	15:17	TMJ	12.0' - 13.4'	-	62.1	12.2	18,100
C4017/ Site 3	B154T5	8/23/2002	8:03	8:43	TMJ	24.2' - 25.4'	-	<1.0	1.72	18,200
C4017/ Site 3	B154T6	8/23/2002	8:29	8:44	TMJ	15.2' - 16.4'	-	<1.0	1.41	19,700
C4018/ Site 7	B154T7	8/23/2002	9:28	10:12	TMJ	24.2' - 25.4'	-	<1.0	1.50	17,200
C4018/ Site 7	B154T8	8/23/2002	9:55	10:13	TMJ	15.2' - 16.5'	-	<1.0	1.16	18,700

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4019/ Site 5	B154T9	8/23/2002	11:12	12:11	TMJ	24.2' - 25.4'	-	<1.0	2.57	15,500
C4019/ Site 5	B154V0	8/23/2002	11:35	12:12	TMJ	15.2' - 16.5'	-	<1.0	1.55	17,900
C4020/ Site 10	B154V1	8/26/2002	7:27	8:07	TMJ	24.2' - 25.4'	-	<1.0	1.52	16,600
C4020/ Site 10	B154V2	8/26/2002	7:43	8:08	TMJ	15.2' - 16.7'	-	<1.0	1.47	19,800
C4021/ Site 8	B154V3	8/26/2002	8:48	9:28	TMJ	24.2' - 25.4'	-	<1.0	1.83	17,700
C4021/ Site 8	B154V4	8/26/2002	9:15	9:29	TMJ	15.2' - 16.5'	-	<1.0	1.62	20,300
C4022/ Site 6	B154V5	8/26/2002	10:14	11:01	TMJ	24.2' - 25.4'	-	2.4	2.78	16,700
C4022/ Site 6	B154V6	8/26/2002	10:42	11:02	TMJ	15.2' - 16.7'	-	<1.0	1.56	19,000
C4023/P6-13	B154V7	8/26/2002	12:24	13:30	TMJ	24.2' - 25.4'	-	<1.0	2.11	15,500
C4023/P6-13	B154V8	8/26/2002	12:50	13:31	TMJ	15.2' - 16.8'	-	<1.0	1.87	17,300
C4023/P6-13	B154V9	8/26/2002	13:13	13:32	TMJ	5.2' - 6.3'	-	<1.0	1.87	18,700
C4024/P6-12	B154W0	8/26/2002	13:53	15:01	TMJ	24.2' - 25.4'	-	<1.0	3.81	15,800
C4024/P6-12	B154W4 Duplicate	8/26/2002	13:53	15:02	TMJ	24.2' - 25.4'	-	<1.0	3.97	15,700
C4024/P6-12	B154W1	8/26/2002	14:15	15:03	TMJ	15.2' - 15.5'	-	<1.0	2.38	16,900
C4024/P6-12	B154W2	8/26/2002	14:39	15:04	TMJ	5.2' - 6.5'	-	<1.0	2.13	19,300
C4003/P6-21	B154W3	8/27/2002	7:07	10:12	TMJ	24.2' - 25.4'	-	<1.0	1.59	11,700
C4003/P6-21	B154W5	8/27/2002	7:30	10:13	TMJ	15.2' - 16.7'	-	<1.0	1.64	11,800
C4003/P6-21	B154W6	8/27/2002	7:53	10:14	TMJ	5.2' - 6.8'	-	<1.0	2.64	11,900
C4025/P6-11	B154W7	8/27/2002	8:56	10:15	TMJ	24.2' - 25.4'	-	<1.0	2.01	15,400

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200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4025/P6-11	B154W8	8/27/2002	9:24	10:16	TMJ	15.2' - 16.8'	-	<1.0	1.29	16,200
C4025/P6-11	B154W9	8/27/2002	9:52	10:17	TMJ	5.2' - 6.5'	-	<1.0	1.55	16,700
C4026/P6-10	B154X0	8/27/2002	10:33	11:48	TMJ	24.2' - 25.4'	-	<1.0	1.80	14,800
C4026/P6-10	B154X1	8/27/2002	10:53	11:49	TMJ	15.2' - 16.5'	-	<1.0	1.40	15,300
C4026/P6-10	B154X2	8/27/2002	11:39	11:50	TMJ	5.2' - 6.9'	-	<1.0	<1.0	14,400
C4027/P6-9	B154X3	8/27/2002	12:47	13:41	TMJ	24.2' - 25.2'	-	<1.0	1.79	15,400
C4027/P6-9	B154X4	8/27/2002	13:09	13:42	TMJ	15.2' - 16.5'	-	<1.0	1.50	16,600
C4027/P6-9	B154X5	8/27/2002	13:27	13:43	TMJ	5.2' - 6.8'	-	<1.0	<1.0	15,200
C4028/P6-8	B154X6	8/27/2002	13:57	15:01	TMJ	24.2' - 24.9'	-	<1.0	1.80	15,000
C4028/P6-8	B154X7	8/27/2002	14:24	15:02	TMJ	15.2' - 15.5'	-	<1.0	1.51	16,900
C4028/P6-8	B154X8	8/27/2002	14:48	15:03	TMJ	5.2' - 6.5'	-	<1.0	1.47	16,700
C4029/P6-7	B156N6	8/28/2002	7:03	8:02	TMJ	24.2' - 25.4'	-	<1.0	1.51	15,400
C4029/P6-7	B156N7	8/28/2002	7:26	8:03	TMJ	15.2' - 15.5'	-	<1.0	1.36	16,700
C4029/P6-7	B156N8	8/28/2002	7:45	8:04	TMJ	5.2' - 6.7'	-	<1.0	1.03	14,100
C4030/P6-6	B156N9	8/28/2002	8:20	9:11	TMJ	24.2' - 25.4'	-	<1.0	1.68	16,800
C4030/P6-6	B156P0	8/28/2002	8:38	9:12	TMJ	15.2' - 16.5'	-	<1.0	<1.0	17,400
C4030/P6-6	B156P1	8/28/2002	8:55	9:13	TMJ	5.2' - 6.5'	-	<1.0	<1.0	15,500
C4031/P6-5	B156P2	8/28/2002	9:29	10:11	TMJ	18.7' - 18.8'	-	<1.0	1.34	16,700
C4031/P6-5	B156P3	8/28/2002	9:43	10:12	TMJ	15.2' - 15.5'	-	<1.0	1.13	17,600

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4031/P6-5	B156P4	8/28/2002	10:02	10:13	TMJ	5.2' - 6.4'	-	<1.0	1.04	17,700
C4032/P6-4	B156P5	8/28/2002	10:02	11:49	TMJ	24.2' - 25.5'	-	<1.0	2.15	14,400
C4032/P6-4	B156P6	8/28/2002	10:43	11:50	TMJ	15.2' - 16.5'	-	<1.0	2.27	18,500
C4032/P6-4	B156P7	8/28/2002	11:28	11:51	TMJ	6.2' - 7.5'	-	<1.0	2.58	19,000
C4033/P6-3	B156P8	8/28/2002	12:56	14:01	TMJ	24.2' - 24.9'	-	<1.0	3.51	14,800
C4033/P6-3	B156P9	8/28/2002	13:19	14:02	TMJ	15.2' - 16.8'	-	<1.0	2.23	16,400
C4033/P6-3	B156R0	8/28/2002	13:39	14:03	TMJ	6.2' - 7.7'	-	<1.0	1.14	16,500
C4034/P6-2	B156R1	8/28/2002	14:22	14:08	TMJ	24.2' - 24.9'	-	<1.0	4.22	14,300
C4034/P6-2	B156R4 Duplicate	8/28/2002	14:22	14:09	TMJ	24.2' - 25.3'	-	<1.0	4.43	14,300
C4034/P6-2	B156R2	8/28/2002	14:46	14:10	TMJ	15.2' - 16.8'	-	<1.0	3.56	18,500
C4034/P6-2	B156R3	8/28/2002	15:00	14:11	TMJ	8.2' - 9.5'	-	<1.0	2.47	22,400
C4035/P6-1	B156R5	8/29/2002	7:15	9:15	TMJ	24.2' - 25.1'	-	<1.0	1.54	14,000
C4035/P6-1	B156R6	8/29/2002	8:39	9:16	TMJ	15.2' - 16.4'	-	<1.0	1.24	13,900
C4035/P6-1	B156R7	8/29/2002	8:55	9:17	TMJ	7.7' - 9.1'	-	<1.0	<1.0	15,300
C4036/P1-12	B156R8	8/29/2002	9:58	10:51	TMJ	24.2' - 25.4'	-	<1.0	2.25	13,200
C4036/P1-12	B156R9	8/29/2002	10:24	10:52	TMJ	15.2' - 16.7'	-	<1.0	1.44	14,800
C4036/P1-12	B156T0	8/29/2002	10:39	10:53	TMJ	10.2' - 16.7'	-	<1.0	1.55	15,200
C4037/P1-11	B156T1	8/29/2002	11:23	12:11	TMJ	24.2' - 25.4'	-	3.63	3.09	13,600
C4037/P1-11	B156T2	8/29/2002	11:43	12:12	TMJ	15.2' - 16.2'	-	<1.0	2.08	14,500

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200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4037/P1-11	B156T3	8/29/2002	11:59	12:13	TMJ	10.2' - 11.0'	-	<1.0	2.28	18,500
C3840/Z18A	B156T4	9/4/2002	7:49	9:35	TMJ	15'	-	<1.0	1.99	7,920
C3840/Z18A	B156T5	9/4/2002	8:13	9:36	TMJ	25'	-	<1.0	2.25	8,550
C3840/Z18A	B156T6	9/4/2002	8:44	9:37	TMJ	50'	-	<1.0	2.76	10,600
C3840/Z18A	B156T7	9/4/2002	9:25	9:38	TMJ	60.1'	-	<1.0	9.37	12,300
C3841/Z18B	B156T8	9/4/2002	12:42	14:21	TMJ	15.1'	-	<1.0	16.2	7,160
C3841/Z18B	B156V1 Duplicate	9/4/2002	12:42	14:26	TMJ	15.1'	-	<1.0	16.4	6,960
C3841/Z18B	B156T9	9/4/2002	12:56	14:22	TMJ	25'	-	<1.0	1.75	7,170
C3841/Z18B	B156V0	9/4/2002	13:26	14:23	TMJ	50'	-	<1.0	1.12	7,290
C3842/Z12A	B156V2	9/5/2002	10:26	12:11	TMJ	15'	-	<1.0	2.04	11,300
C3842/Z12A	B156V3	9/5/2002	10:46	12:12	TMJ	25'	-	<1.0	2.23	11,900
C3842/Z12A	B156V4	9/5/2002	11:14	12:13	TMJ	49.4'	-	8.04	1.88	14,400
C3842/Z12A	B156V5	9/5/2002	14:48	12:14	TMJ	15'		<1.0	1.35	11,000
C3842/Z12A	B156W0 Duplicate	9/5/2002	11:14	12:15	TMJ	49.4'	-	7.95	1.78	14,200
C3843/Z12B	B156V6	9/5/2002	14:58	16:10	TMJ	21'	-	<1.0	1.91	13,400
C3843/Z12B	B156V7	9/5/2002	15:09	16:11	TMJ	25'	-	<1.0	1.50	10,000
C3843/Z12B	B156V8	9/5/2002	15:29	16:12	TMJ	50'	-	<1.0	1.64	12,800
C3843/Z12B	B156V9	9/5/2002	15:59	16:13	TMJ	65'	-	<1.0	2.00	23,400
C3844/Z1A	B156W1	9/6/2002	9:04	10:06	TMJ	14.1' - 15'	-	<1.0	<1.0	13,100

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200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3844/Z1A	B156W2	9/6/2002	9:14	10:07	TMJ	24' - 25'	-	<1.0	1.16	14,600
C3844/Z1A	B156W3	9/6/2002	9:48	10:08	TMJ	41' - 41.9'	-	4.01	<1.0	18,500
C3845/Z1C	B156W4	9/6/2002	11:07	12:40	TMJ	14' - 15'	-	<1.0	<1.0	14,200
C3845/Z1C	B156W5	9/6/2002	11:20	12:41	TMJ	19' - 20'	-	<1.0	<1.0	11,000
C3845/Z1C	B156W6	9/6/2002	11:41	12:42	TMJ	24' - 25'	-	4.5	57.8	17,000
C3845/Z1C	B156W7	9/6/2002	12:14	12:43	TMJ	49' - 50'	-	7.2	114.00	12,600
C3845/Z1C	B156W8	9/6/2002	13:58	14:58	TMJ	49' - 50'	-	<1.0	1.44	10,100
C3845/Z1C	B156W9	9/6/2002	15:36	15:46	TMJ	47.5' - 48.8'	-	<1.0	3.03	21,800
C3846/Z12C	B15BR6	9/9/2002	7:18	7:30	TMJ	47' - 48'	-	<1.0	3.51	16,800
C3847/Z1B	B15BR7	9/9/2002	8:34	13:41	TMJ	14' - 15'	-	<1.0	1.06	11,800
C3847/Z1B	B15BR8	9/9/2002	8:45	13:42	TMJ	24' - 25'	-	<1.0	1.75	12,000
C3847/Z1B	B15BR9	9/9/2002	9:00	13:43	TMJ	30' - 31'	-	<1.0	1.92	12,000
C3847/Z1B	B15BT0	9/9/2002	12:29	13:44	TMJ	30' - 31'	-	<1.0	1.75	17,300
C3847/Z1B	B15BT1	9/9/2002	12:45	13:45	TMJ	40.6' - 41.6'	-	1.10	1.53	18,000
C3847/Z1B	B15BT2	9/9/2002	13:00	13:46	TMJ	49' - 50'	-	<1.0	1.49	17,800
C3847/Z1B	B15BT3	9/9/2002	13:36	13:47	TMJ	61.2' - 62.2'	-	<1.0	1.98	21,000
C3948/DZ1A	B15BT4	9/9/2002	14:53	15:42	TMJ	9' - 10'	-	<1.0	1.33	19,200
C3948/DZ1A	B15BT5	9/9/2002	15:03	15:43	TMJ	14' - 15'	-	<1.0	1.54	20,800
C3948/DZ1A	B15BT6	9/9/2002	15:14	15:44	TMJ	24' - 25'	-	2.03	1.01	23,100

0000007

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3948/DZ1A	B15BT7	9/9/2002	15:22	15:45	TMJ	38' - 39'	-	2.94	1.01	25,900
C3948/DZ1A	B15BT8	9/9/2002	15:38	15:46	TMJ	44.2' - 45.2'	-	1.64	1.17	25,900
C3948/DZ1A	B15BT9 Duplicate	9/9/2002	15:22	15:47	TMJ	38' - 39'	-	2.88	1.15	23,300
C3849/Z8	B15BV0	9/10/2002	7:44	10:20	GT	14' - 15'	-	<1.0	<1.0	11,700
C3849/Z8	B15BV1	9/10/2002	7:54	10:21	GT	20' - 21'	-	<1.0	9.80	12,400
C3849/Z8	B15BV2	9/10/2002	7:58	10:22	GT	20' - 21'	-	<1.0	8.72	12,200
C3849/Z8	B15BV3	9/10/2002	9:00	10:23	GT	20' - 21'	-	<1.0	3.66	13,400
C3849/Z8	B15BV4	9/10/2002	9:05	10:24	GT	20' - 21'	-	<1.0	<1.0	15,000
C3849/Z8	B15BV5	9/10/2002	9:17	10:25	GT	24' - 25'	-	<1.0	<1.0	16,000
C3849/Z8	B15BV6	9/10/2002	9:33	10:26	GT	38' - 39'	-	<1.0	<1.0	17,100
C3849/Z8	B15BV7	9/10/2002	11:53	12:00	TMJ	48' - 49'	-	<1.0	<1.0	21,000
C3850/Z9A	B15BV8	9/10/2002	13:06	14:13	TMJ	14' - 15'	-	<1.0	1.62	17,700
C3850/Z9A	B15BV9	9/10/2002	13:24	14:14	TMJ	24' - 25'	-	<1.0	1.86	14,400
C3850/Z9A	B15BW0	9/10/2002	13:37	14:15	TMJ	32' - 33'	-	<1.0	1.39	15,900
C3850/Z9A	B15BW1	9/10/2002	13:52	14:16	TMJ	39' - 40'	-	<1.0	16.8	17,200
C3850/Z9A	B15BW2	9/10/2002	14:14	14:17	TMJ	43.52' - 44.52'	-	<1.0	1.22	20,900
C3851/Z9B	B15BW3	9/11/2002	6:40	7:43	TMJ	14' - 15'	-	<1.0	<1.0	12,700
C3851/Z9B	B15BW4	9/11/2002	6:52	7:44	TMJ	24' - 25'	-	<1.0	< 1.0	14,400
C3851/Z9B	B15BW5	9/11/2002	7:25	7:45	TMJ	49' - 50'	-	<1.0	1.14	16,100

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3852/Z21C	B15BW6	9/11/2002	8:35	9:18	TMJ	4' - 5'	-	<1.0	<1.0	18,000
C3852/Z21C	B15BW7	9/11/2002	8:48	9:19	TMJ	14' - 15'	-	<1.0	1.27	19,500
C3852/Z21C	B15BW8	9/11/2002	9:09	9:20	TMJ	18.7' - 19.7'	-	<1.0	1.17	21,700
C3853/Z21B	B15BW9	9/11/2002	10:44	11:45	TMJ	7' - 8'	-	<1.0	1.07	16,900
C3853/Z21B	B15BX0	9/11/2002	10:54	11:46	TMJ	14' - 15'	-	<1.0	1.56	18,200
C3853/Z21B	B15BX1	9/11/2002	11:11	11:47	TMJ	24' - 25'	-	<1.0	1.55	20,400
C3853/Z21B	B15BX2	9/11/2002	11:38	11:48	TMJ	27.7' - 28.7'	-	<1.0	1.30	25,300
C3853/Z21B	B15BX3 Duplicate	9/11/2002	11:38	11:49	TMJ	27.7' - 28.7'	-	<1.0	1.32	25,300
C3854/Z9A-1	B15BX4	9/11/2002	13:27	14:15	TMJ	15'	-	<1.0	1.59	20,000
C3854/Z9A-1	B15BX5	9/11/2002	13:40	14:16	TMJ	25'	-	<1.0	2.83	24,100
C3854/Z9A-1	B15BX6	9/11/2002	13:49	14:17	TMJ	33'	-	<1.0	2.78	23,300
C3854/Z9A-1	B15BX7	9/11/2002	14:03	14:18	TMJ	40'	-	<1.0	2.74	27,500
C3854/Z9A-1	B15BX8	9/11/2002	14:14	14:19	TMJ	40.89'	-	<1.0	2.04	28,700
C3855/Z21A	B15BX9	9/12/2002	6:53	7:44	TMJ	5' - 6'	-	<1.0	<1.0	15,500
C3855/Z21A	B15BY0	9/12/2002	7:07	7:45	TMJ	14' - 15'	-	<1.0	< 1.0	17,600
C3855/Z21A	B15BY1	9/12/2002	7:22	7:46	TMJ	24' - 25'	-	<1.0	<1.0	16,600
C3855/Z21A	B15BY2	9/12/2002	7:39	7:47	TMJ	29' - 30'	-	<1.0	<1.0	18,500
C3856/Z17A	B15BY3	9/12/2002	11:45	13:32	TMJ	12' - 13'	-	<1.0	1.46	15,400
C3856/Z17A	B15BY4	9/12/2002	11:56	13:33	TMJ	14' - 15'	-	<1.0	2.09	15,800

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200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3856/Z17A	B15BY5	9/12/2002	12:35	13:34	TMJ	24' - 25'	-	<1.0	1.71	15,300
C3856/Z17A	B15CK1	9/12/2002	12:53	13:35	TMJ	29' - 30'	-	<1.0	1.93	15,300
C3856/Z17A	B15CK2	9/12/2002	13:19	13:36	TMJ	39' - 40'	-	<1.0	1.26	17,800
C3856/Z17A	B15CK3 Duplicate	9/12/2002	13:19	13:37	TMJ	39' - 40'	-	<1.0	1.27	17,700
C3857/Z17B	B15CK4	9/12/2002	14:19	15:38	TMJ	14' - 15'	-	<1.0	1.40	13,900
C3857/Z17B	B15CK5	9/12/2002	15:14	15:39	TMJ	24' - 25'	-	<1.0	2.48	19,500
C3857/Z17B	B15CK6	9/12/2002	15:38	15:40	TMJ	39' - 40'	-	<1.0	2.10	24,300
C3858/19B	B15CK7	9/13/2002	6:47	8:12	GST	14' - 15'	-	<1.0	1.21	12,000
C3858/19B	B15CK8	9/13/2002	7:00	8:13	GST	24' - 25'	-	<1.0	1.02	13,400
C3858/19B	B15CK9	9/13/2002	7:16	8:14	GST	32' - 33'	-	1.54	5.66	14,700
C3858/19B	B15CL0	9/13/2002	7:45	8:15	GST	49' - 50'	-	1.03	9.04	18,300
C3859/19C	B15CL1	9/13/2002	8:41	10:52	GST	14' - 15'	-	<1.0	< 1.0	14,100
C3859/19C	B15CL2	9/13/2002	9:02	10:53	GST	24' - 25'	-	<1.0	1.27	15,600
C3859/19C	B15CL3	9/13/2002	10:40	10:54	GST	27.8' - 28.8'	-	1.09	1.47	27,700
C3859/19C	B15CL4	9/13/2002	10:40	10:55	GST	27.8' - 28.8'	-	1.11	1.5	27,700
C3860/Z7B	B15CL5	9/13/2002	11:57	13:26	GST	5' - 6'	-	<1.0	1.63	16,800
C3860/Z7B	B15CL6	9/13/2002	12:09	13:27	GST	14' - 15'	-	<1.0	1.73	18,700
C3860/Z7B	B15CL7	9/13/2002	12:20	13:28	GST	24' - 25'	-	<1.0	1.61	19,300
C3860/Z7B	B15CL8	9/13/2002	12:45	13:29	GST	49' - 50'	-	<1.0	2.04	26,500

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3860/Z7B	B15CL9	9/13/2002	13:18	13:30	GST	60' - 61'		2.06	1.43	21,300
C3861/Z7A	B15CM0	9/13/2002	14:10	14:54	GST	8' - 9'		<1.0	1.65	20,800
C3861/Z7A	B15CM1	9/13/2002	14:21	14:55	GST	14' - 15'	-	<1.0	1.95	19,800
C3861/Z7A	B15CM2	9/16/2002	6:37	7:22	TMJ/GT	24' - 25'	-	<1.0	1.06	13,300
C3861/Z7A	B15CM3	9/16/2002	7:04	7:23	TMJ/GT	43' - 44'	-	<1.0	1.01	16,200
C3862/Z16A	B15CM4	9/16/2002	8:00	9:20	TMJ	14; - 15;	-	<1.0	1.03	14,800
C3862/Z16A	B15CM5	9/16/2002	8:13	9:21	TMJ	19' - 20'	-	<1.0	1.04	15,700
C3862/Z16A	B15CM6	9/16/2002	8:24	9:22	TMJ	24' - 25'	-	<1.0	1.21	16,500
C3862/Z16A	B15J17	9/16/2002	8:48	9:23	TMJ	49.2' - 50.2'	-	<1.0	1.35	18,700
C3862/Z16A	B15J18	9/16/2002	9:11	9:24	TMJ	59' - 60'	-	<1.0	1.13	20,700
C3863/Z16B	B15J19	9/16/2002	10:03	11:20	TMJ	14' - 15'	-	<1.0	<1.0	16,000
C3863/Z16B	B15J20	9/16/2002	10:14	11:21	TMJ	20' - 21'	-	<1.0	1.02	16,400
C3863/Z16B	B15J21	9/16/2002	10:23	11:22	TMJ	24' - 25'	-	<1.0	1.92	17,000
C3863/Z16B	B15J22	9/16/2002	10:49	11:23	TMJ	49' - 50'	-	<1.0	1.38	20,200
C3863/Z16B	B15J23	9/16/2002	11:14	11:24	TMJ	66' - 67'	-	<1.0	1.42	24,600
C3863/Z16B	B15J24 Duplicate	9/16/2002	11:14	11:25	TMJ	66' - 67'	-	<1.0	1.43	24,600
C3864/T19A	B15J25	9/16/2002	12:30	14:16	TMJ	14' - 15'	-	<1.0	1.99	15,300
C3864/T19A	B15J26	9/16/2002	12:42	14:17	TMJ	24' - 25'	-	<1.0	3.22	14,900
C3864/T19A	B15J27	9/16/2002	13:07	14:18	TMJ	35' - 36'	-	<1.0	4.60	17,300

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3864/T19A	B15J28	9/16/2002	13:32	14:19	TMJ	49' - 50'	-	<1.0	7.36	21,000
C3864/T19A	B15J29	9/16/2002	14:09	14:20	TMJ	69' - 70'	-	<1.0	11.5	27,500
C3865/Site 6	B15J30	9/16/2002	15:07	16:18	TMJ	4' - 5'	-	<1.0	<1.0	18,800
C3865/Site 6	B15J31	9/16/2002	15:18	16:19	TMJ	14' - 15'	-	<1.0	1.13	20,900
C3865/Site 6	B15J32	9/16/2002	15:26	16:20	TMJ	19' - 20'	-	<1.0	1.28	19,500
C3865/Site 6	B15J33	9/16/2002	15:35	16:21	TMJ	24' - 25'	-	3.49	1.90	21,600
C3865/Site 6	B15J34	9/16/2002	15:49	16:22	TMJ	36' - 37'	-	6.20	2.13	22,400
C3865/Site 6	B15J35	9/16/2002	16:12	16:23	TMJ	49' - 50'	-	1.95	1.73	27,900
C3865/Site 6	B15J36 Duplicate	9/16/2002	15:49	16:24	TMJ	36' - 37'	-	6.19	2.10	22,400
C3866/Site 2	B15J37	9/17/2002	8:38	9:24	TMJ	10'	-	<1.0	<1.0	10,400
C3866/Site 2	B15J38	9/17/2002	8:44	9:25	TMJ	13'	-	<1.0	<1.0	10,400
C3866/Site 2	B15J39	9/17/2002	8:48	9:26	TMJ	15'	-	<1.0	<1.0	10,100
C3866/Site 2	B15J40	9/17/2002	8:54	9:27	TMJ	20'	-	<1.0	<1.0	9,810
C3866/Site 2	B15J41	9/17/2002	8:59	9:28	TMJ	25'	-	<1.0	<1.0	9,890
C3866/Site 2	B15J42	9/17/2002	9:16	9:29	TMJ	33.5'	-	<1.0	<1.0	9,870
C3867/Site 2	B15J43	9/17/2002	11:03	11:45	TMJ	10'	-	45.8	9.53	16,100
C3867/Site 2	B15J44	9/17/2002	11:12	11:46	TMJ	13'	-	7.34	1.71	10,600
C3867/Site 2	B15J45	9/17/2002	11:19	11:47	TMJ	15'	-	14.9	3.64	13,100
C3867/Site 2	B15J46	9/17/2002	11:26	11:48	TMJ	20'	-	23.9	5.48	14,200

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3867/Site 2	B15J47	9/17/2002	11:32	11:49	TMJ	25'	-	35.8	8.30	18,900
C3867/Site 2	B15J48	9/17/2002	11:41	11:50	TMJ	35'	-	24.9	6.77	22,200
C3867/Site 2	B15J49 Duplicate	9/17/2002	11:03	11:51	TMJ	10'	-	47.6	9.59	15,700
C3868/Site 4	B15J50	9/17/2002	13:09	13:47	TMJ	7'	-	5.23	3.13	19,800
C3868/Site 4	B15J51	9/17/2002	13:14	13:48	TMJ	15'	-	3.95	3.98	22,100
C3868/Site 4	B15J52	9/17/2002	13:24	13:49	TMJ	20'	-	4.88	3.88	23,300
C3868/Site 4	B15J53	9/17/2002	13:30	13:50	TMJ	25'	-	7.26	4.24	21,000
C3868/Site 4	B15J54	9/17/2002	13:42	13:51	TMJ	32.1'	-	8.73	4.27	24,200
C3869/Site 1	B15J55	9/18/2002	7:30	8:10	TMJ	10'	-	9.61	3.12	13,400
C3869/Site 1	B15J56	9/18/2002	7:37	8:11	TMJ	15'	-	16.0	5.08	14,300
C3869/Site 1	B15J57	9/18/2002	7:44	8:12	TMJ	20'	-	12.9	4.40	14,700
C3869/Site 1	B15J58	9/18/2002	7:50	8:13	TMJ	25'	-	14.0	5.63	16,400
C3869/Site 1	B15J59	9/18/2002	8:02	8:14	TMJ	33'	-	11.3	4.75	15,800
C3870/Site 12	B15J60	9/18/2002	9:24	10:45	TMJ	11'	-	3.58	2.11	12,000
C3870/Site 12	B15J61	9/18/2002	9:44	10:46	TMJ	15'	-	5.13	2.99	11,800
C3870/Site 12	B15J62	9/18/2002	9:58	10:47	TMJ	20'	-	5.15	3.11	11,900
C3870/Site 12	B15J63	9/18/2002	10:11	10:48	TMJ	25'	-	6.37	3.67	12,300
C3870/Site 12	B15J64	9/18/2002	10:28	10:49	TMJ	33'	-	6.15	3.93	14,500
C3870/Site 12	B15J65 Duplicate	9/18/2002	10:28	10:50	TMJ	33'	-	6.12	3.71	14,400

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4038/P1-2	B15JJ4	9/24/2002	7:18	9:05	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	10,500
C4038/P1-2	B15JJ5	9/24/2002	7:41	9:06	TMJ	15.2' - 16.7'	-	< 1.0	< 1.0	12,100
C4038/P1-2	B15JJ6	9/24/2002	7:53	9:07	TMJ	10.2' - 11.0'	-	< 1.0	< 1.0	12,300
C4039/P1-3	B15JJ7	9/24/2002	8:24	9:08	TMJ	24.2' - 25.4'	-	< 1.0	2.35	15,400
C4039/P1-3	B15JJ8	9/24/2002	8:45	9:09	TMJ	15.2' - 15.8'	-	< 1.0	1.11	19,200
C4039/P1-3	B15JJ9	9/24/2002	8:57	9:10	TMJ	10.2' - 11.2'	-	< 1.0	1.03	23,600
C4040/P1-4	B15JK0	9/24/2002	9:33	11:13	TMJ	24.2' - 25.4'	-	< 1.0	3.35	14,900
C4040/P1-4	B15JK1	9/24/2002	9:49	11:14	TMJ	15.2' - 15.5'	-	< 1.0	2.87	15,700
C4040/P1-4	B15JK2	9/24/2002	9:59	11:15	TMJ	10.2' - 11.2'	-	< 1.0	2.52	16,500
C4041/P1-5	B15JK3	9/24/2002	10:38	11:16	TMJ	24.2' - 25.4'	-	< 1.0	1.67	20,600
C4041/P1-5	B15JK4	9/24/2002	10:56	11:17	TMJ	14.2' - 14.6'	-	< 1.0	< 1.0	24,700
C4041/P1-5	B15JK5	9/24/2002	11:05	11:18	TMJ	10.2' - 10.5'	-	< 1.0	< 1.0	26,400
C4042/P1-6	B15JK6	9/24/2002	11:40	13:49	TMJ	24.2' - 25.4'	-	< 1.0	1.72	11,800
C4042/P1-6	B15JK7	9/24/2002	12:03	13:50	TMJ	15.2' - 15.5'	-	< 1.0	1.82	11,900
C4042/P1-6	B15JK8	9/24/2002	12:15	13:51	TMJ	10.2' - 10.11'	-	< 1.0	1.03	13,000
C4043/P1-7	B15JK9	9/24/2002	13:18	13:52	TMJ	24.2' - 25.5'	-	< 1.0	2.06	17,300
C4043/P1-7	B15JL0	9/24/2002	13:33	13:53	TMJ	15.2' - 15.5'	-	< 1.0	1.73	21,200
C4043/P1-7	B15JL1	9/24/2002	13:44	13:54	TMJ	10.2' - 11.1'	-	< 1.0	< 1.0	23,100
C4044/P1-8	B15JL2	9/24/2002	14:46	15:22	TMJ	22.2' - 23.2'	-	< 1.0	1.36	18,200

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200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4044/P1-8	B15JL3	9/24/2002	15:05	15:23	TMJ	15.2' - 16.0'	-	< 1.0	< 1.0	20,300
C4044/P1-8	B15JL4	9/24/2002	15:15	15:24	TMJ	10.2' - 11.5'	-	< 1.0	< 1.0	24,600
C4044/P1-8	B15JL5 Duplicate	9/24/2002	14:46	15:25	TMJ	22.2' - 23.2'	-	< 1.0	1.27	17,700
C4045/P1-9	B15JL6	9/25/2002	7:16	9:12	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	9,340
C4045/P1-9	B15JL7	9/25/2002	7:35	9:13	TMJ	15.2' - 16.5'	-	< 1.0	< 1.0	9,980
C4045/P1-9	B15JL8	9/25/2002	7:51	9:14	TMJ	10.2' - 11.3'	-	< 1.0	< 1.0	11,500
C4046/P1-10	B15JL9	9/25/2002	8:29	9:15	TMJ	24.2' - 25.4'	-	1.32	< 1.0	15,600
C4046/P1-10	B15JM8	9/25/2002	8:45	9:16	TMJ	15.2' - 16.1'	-	1.05	< 1.0	18,000
C4046/P1-10	B15JM9	9/25/2002	8:56	9:17	TMJ	10.2' - 11.0'	-	< 1.0	< 1.0	18,400
C4047/P9-2	B15JN0	9/25/2002	10:15	11:57	TMJ	24.2' - 25.4'	-	< 1.0	1.49	11,600
C4047/P9-2	B15JN1	9/25/2002	10:33	11:58	TMJ	15.2' - 16.8'	-	< 1.0	< 1.0	12,300
C4047/P9-2	B15JN2	9/25/2002	10:45	11:59	TMJ	5.2' - 6.5'	-	< 1.0	< 1.0	7,230
C4048/P9-3	B15JN3	9/25/2002	11:20	12:00	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	18,300
C4048/P9-3	B15JN4	9/25/2002	11:36	12:01	TMJ	15.2' - 16.0'	-	< 1.0	< 1.0	21,300
C4048/P9-3	B15JN5	9/25/2002	11:53	12:02	TMJ	5.2' - 6.8'	-	< 1.0	< 1.0	25,300
C4048/P9-3	B15JN6 Duplicate	9/25/2002	11:53	12:03	TMJ	5.2' - 6.8'	-	< 1.0	< 1.0	25,200
C4049/P7-4	B15JN7	9/26/2002	7:10	8:56	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	8,560
C4049/P7-4	B15JN8	9/26/2002	7:28	8:57	TMJ	14.4' - 14.8'	-	< 1.0	< 1.0	9,200
C4049/P7-4	B15JN9	9/26/2002	7:42	8:58	TMJ	7.0' - 7.4'	-	< 1.0	< 1.0	9,720

0000015

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4050/P7-5	B15JP0	9/26/2002	8:23	8:59	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	12,200
C4050/P7-5	B15JP1	9/26/2002	8:36	9:00	TMJ	15.2' - 15.8'	-	< 1.0	< 1.0	13,200
C4050/P7-5	B15JP2	9/26/2002	8:47	9:01	TMJ	8.2' - 9.2'	-	< 1.0	< 1.0	14,300
C4051/P7-6	B15JP3	9/26/2002	9:23	11:01	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	12,000
C4051/P7-6	B15JP4	9/26/2002	9:39	11:02	TMJ	15.2' - 16.5'	-	< 1.0	1.09	12,500
C4051/P7-6	B15JP5	9/26/2002	9:50	11:03	TMJ	8.2' - 9.9'	-	< 1.0	< 1.0	12,800
C4052/P7-7	B15JP6	9/26/2002	10:28	11:04	TMJ	24.2' - 25.4'	-	< 1.0	1.22	15,700
C4052/P7-7	B15JP7	9/26/2002	10:46	11:05	TMJ	15.2' - 15.5'	-	< 1.0	< 1.0	17,600
C4052/P7-7	B15JP8	9/26/2002	10:56	11:06	TMJ	8.2' - 9.4'	-	< 1.0	< 1.0	19,600
C4053/P7-3	B15JP9	9/26/2002	11:40	13:43	TMJ	24.2' - 25.4'	-	< 1.0	1.52	11,600
C4053/P7-3	B15JR0	9/26/2002	11:57	13:44	TMJ	15.2' - 15.7'	-	< 1.0	1.27	13,000
C4053/P7-3	B15JR1	9/26/2002	12:09	13:45	TMJ	8.2' - 9.7'	-	< 1.0	1.42	13,100
C4054/P7-2	B15JR2	9/26/2002	13:10	13:46	TMJ	24.2' - 24.7'	-	< 1.0	1.39	19,900
C4054/P7-2	B15JR3	9/26/2002	13:26	13:47	TMJ	15.2' - 16.4'	-	< 1.0	1.31	22,100
C4054/P7-2	B15JR4	9/26/2002	13:37	13:48	TMJ	8.2' - 9.5'	-	< 1.0	< 1.0	24,000
C4055/P9-4	B15JR5	9/26/2002	14:15	14:53	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	18,700
C4055/P9-4	B15JR6	9/26/2002	14:31	14:54	TMJ	15.2' - 16.5'	-	< 1.0	< 1.0	18,800
C4055/P9-4	B15JR7	9/26/2002	14:47	14:55	TMJ	5.2' - 6.7'	-	< 1.0	< 1.0	20,700
C4055/P9-4	B15JR8 Duplicate	9/26/2002	14:15	14:56	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	24,300

0000016

TMJ Thomsen/Anderson 8-21-02 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Sampling and Analysis (HA2-010)

0600 Arrive at 200-PW-1 Plan of the Day. On-site for POD. 218-W-4C Burial Grounds sampling at Trench 1, 4 and 7 (between). On-site for POD
Geologists — Dave Weekes, Jess Hocking
RCT —— Larry Walkup and Steven Landsman
STR —— Jim Diebel
Drillers —— Bob Jones
I H —— Anthony Nelson

0730 Enter 218-W-4C Burial Grounds. Needed to wait for Operations people to let us in.
0831 Geologist begin pushing rods at Site C4011 (No. 1)
0848 Reach Depth. IH tech takes reading. Detected approximately 20 ppm Hydrogen but levels off at 5ppm. TMJ 8-21-02
(C4011 (#1)) 0920 Purge at ~~25.5~~ ~~24.4'~~ 4 ~~— 25'~~ 24' — 25.4' bgs (5 minutes) TMJ 8-21-02
0927 B154R0 Collect sample. ovm reading 3.2 ppm
0945 Purge at 15.2' — 16.1 bgs.
0950 B154R1 Collect sample. ovm reading 10.0 ppm.
0957 Return to 200-PW-1 to analyze samples.
1032 Geoprobe mobilized to next site C4012 (No. 2)
(C4012 (#2)) 1102 Purge at 25.4' — ~~25'~~ 24' bgs 5 minute purge. TMJ 8-21-02
1109 B154R2 Collect sample. ovm reading 20.0 ppm
1139 Purge at 15.2' - 15.8 bgs
1144 B154R3 Collect sample ovm reading 5.2 ppm
1150 Return to 200-PW-1 to analyze samples.
1303 Mobilize Geoprobe to C4013 (11).
(C4013 (#11)) 1327 Purge 25.4' — 25' bgs. (5 minute purge)
1334 B154R4 Collect sample.
1353 Purge 5 minutes at 16.7' - 15.7' bgs.
1358 B154R5 Collect sample.
1430 Returned to Burial Grounds. Discontinued Geoprobe activities due to the IH techs equipment problems.

TMJ 8/21/02

0000017

20/02

TMJ Thomsen/Anderson 8/21/02 Continuation Page 26 Reviewed L. G. Thomas/ Thomas 10/7/02

cont. from page 27

Thomas Jensen Jensen 8/21/02 HNF-N-3131

The Table below shows sampling results for all three locations. See the second table for locations

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v) "A"	Carbon Tetrachloride (ppm/v) "B"	Chloroform (ppm/v)	Water Vapor (ppm/v)
Blank	-	8/21/2002	-	10:06	TMJ	-	-	<1.0	<1.0	9,670
25.5 ppm std.	-	8/21/2002	-	10:07	TMJ	-	-	23.0	<1.0	8,340
C4011	B154R0	8/21/2002	9:27	10:08	TMJ	24.0' - 25.4'	-	6.91	2.07	14,500
C4011	B154R1	8/21/2002	9:50	10:09	TMJ	15.2' - 16.1'	-	10.5	2.80	17,500
Blank	-	8/21/2002	-	11:55	TMJ	-	-	<1.0	<1.0	9,940
C4012	B154R2	8/21/2002	11:07	11:56	TMJ	24.0' - 25.4'	-	15.6	4.10	15,700
C4012	B154R3	8/21/2002	11:44	11:57	TMJ	15.2' - 15.8'	-	7.25	2.32	19,500
Blank	-	8/21/2002	-	14:10	TMJ	-	-	<1.0	<1.0	10,100
C4013	B154R4	8/21/2002	13:34	14:11	TMJ	24.0' - 25.4'	-	<1.0	1.08	16,300
C4013	B154R5	8/21/2002	13:58	14:12	TMJ	15.7' - 16.7'	-	<1.0	<1.0	19,200
Blank	-	8/21/2002	-	14:23	TMJ	-	-	<1.0	<1.0	9,650
25.5 ppm std.	-	8/21/2002	-	14:24	TMJ	-	-	22.9	<1.0	10,200

Site 1 <
Site 2 <
Site 11 <

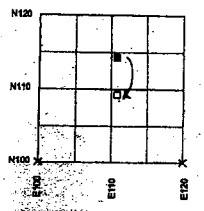
Note: Carbon Tetrachoride filter "A" is a high concentration filter for values above 100 ppm. The "B" filter is used for all concentrations under 100 ppm.

Data recoded real time using a loptop computer.

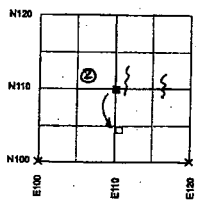
* NOTE: IH Pen. noted that at about 11' the OVM was reading approximately 160 ppm.

Thomas Jensen 8/21/02

Site # 2



Site # 3



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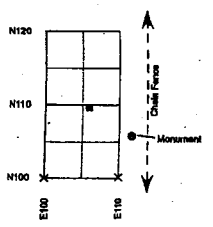
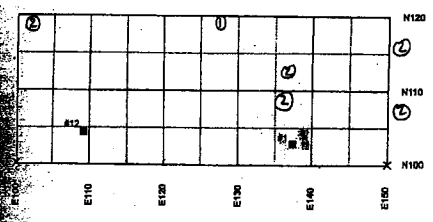
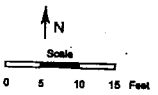


Thomas Jensen 8/21/02

Sites # 1 and 12





- Staked grid identifier
- Staked sample location
- Recommended sample location
- Excavation boundry
- Average depth to top of feature(s)
- Linear anomaly (Utility/pipeline?)
- Isolated Anomaly
- Isolated zone of buried material/debris that maybe masking deeper features
- Disturbed area with buried material/debris that may be masking features of interest

Questions: Contact TH Mitchell @ 372-0890 or Bill Hudson @ 375-3444 to review results prior to excavating.

Geophysical Investigation Results
218-W-4C Burial Ground
Sites 1, 2, 3, & 12
August 2002

Reviewed by GS Thomas Date 10/7/02

Thomas Jensen Jensen 8/21/02 Continued on page 29

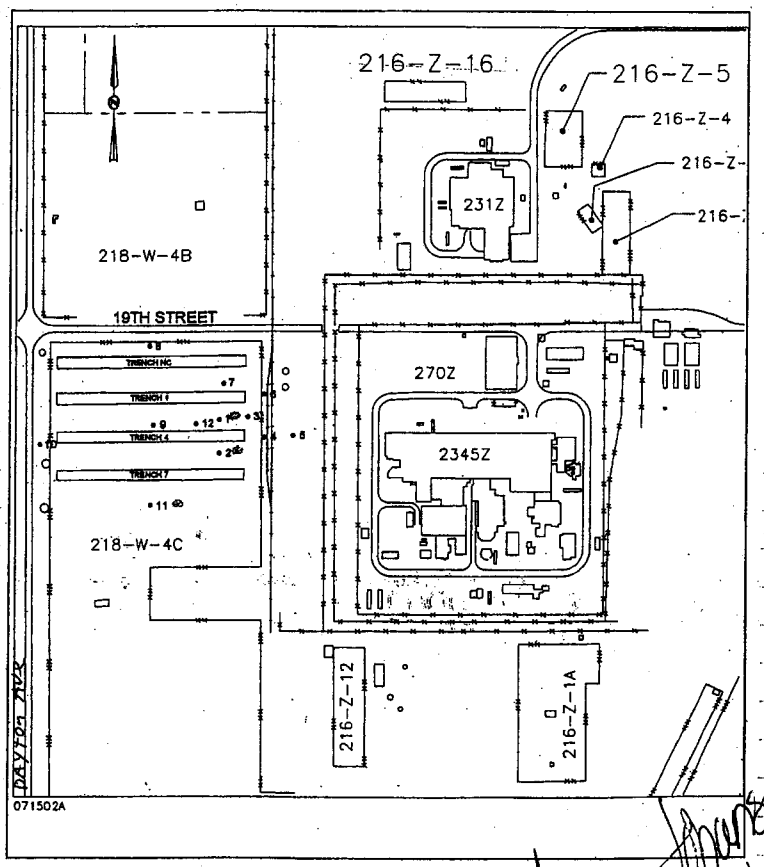
2-3131

Thomanson/Anderson 8/21/02

HNF-10-3131

The table below (Picture) shows the locations of the trenches in the burial grounds.

er Vapor pm/v)
,670
,340
,500
,500
940
,700
,500
,100
,300
,200
650
,200



Thomanson 8/21/02

Thomanson 8/21/02

Thomanson 8/21/02

Thomanson 8/21/02

TMJ 8/21/02

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ks
at
378-3444

Results

0000019

Thomanson/Anderson 8/21/02

Reviewed by
GS Thomas
Greg Thomas 10/7/02

Mjohansen/Gnothardsen 8/22/02 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis (FO2-010)

0600 Arrive at 200-PW-1 Plan of the Day (POD).
On-Site for POD:
Geologists: Jess Hocking and Dave Weekes
RCT: Larry Walkup
STR: Jim Diebel
Driller: Rob Jones not present, but will arrive later.
IH: Anthony Nelson. (Tony)

0710 Mobilize Geoprobe to 218-W-4C Burial Grounds Site C4014(4)
0727 Begin pushing Rods
0801 Purge 5 minutes at 24.2' – 23.2' bgs.
0806 B154R6 Collect sample
0831 Purge 5 minutes at 15.2' – 16.2' bgs.
0837 B154R7 Collect sample.
0910 Mobilize Geoprobe to C4015 (9)
NOTE: DOE and EPA representatives on site to observe Geoprobe and sampling Activities.
0922 Begin pushing the Geoprobe rod.
0948 Purge 5 minutes at 24.4' – 25.4' bgs.
0953 B154R8 Collect sample.
1000 Visitors leave Burial Grounds
1016 Purge 5 minutes at 16.8' – 15.8' bgs.
1023 B154R9 Collect sample.
1050 Mobilized Geoprobe to C4016 (12)
1125 Purge 5 minutes at 24.2' – 25.4' bgs.
1130 B154T0 Collect sample.
1148 Purge 5 minutes at 19.6' – 23.3' bgs. OVM reading 40 ppm.
1153 B154T1 Collect sample.
1203 OVM battery dies. Tony goes to retrieve replacement
1330 Back on site C4016 to resume sampling
1350 G. Cearlock on-site
1405 Purge 5 minutes 15.2' – 16.5' bgs.
1410 B154T2 Collect sample. mms 8/22/02
1430 Return to C4012 (2) to sample around the 10' interval
1455 B154T3 Collect 12.0 ~~14.4~~' – 13.4' bgs. OVM reading 50 ppm
1502 Geologists backfill casing. Remain on site as they

C4014 (#4)

C4015 (#9)

C4016 (#12)

C4012 (#2)

Mjohansen/Ambinnorsa 8/22/02 Cont. Page 31 Reviewed by GS Thomas / Greg Thomas 10/2/02

HOF-10-3131

cont. from page 30 TMJohansen/TMJohansen 8/22/02
backfill in case they encounter higher levels to take another sample.
- See the Table below for Sampling Results.

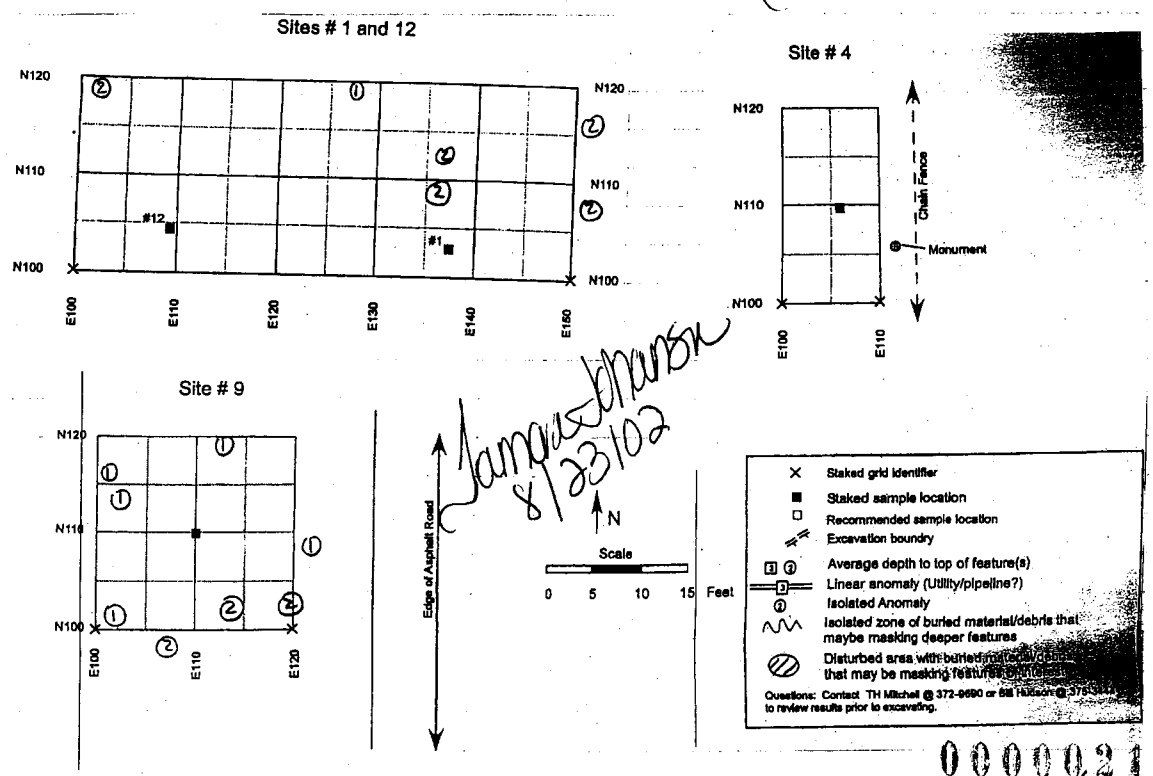
Location Identification	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v) "A"	Carbon Tetrachloride (ppm/v) "B"	Chloroform (ppm/v)	Water Vapor
Blank	-	8/22/2002	-	8:58	TMJ	-		< 1.0	< 1.0	12100
25.5 ppm std.	-	8/22/2002	-	8:59	TMJ	-	-	22.6	< 1.0	8,780
C4014	B154R6	8/22/2002	8:06	9:00	TMJ	23.2' - 24.2'	-	1.36	1.85	15,800
C4014	B154R7	8/22/2002	8:37	9:01	TMJ	15.2' - 16.2'	-	< 1.0	1.07	17,500
Blank	-	8/22/2002	-	8:58	TMJ	-		< 1.0	< 1.0	13700
C4015	B154R8	8/22/2002	9:53	12:23	TMJ	24.2' - 25.4'	-	< 1.0	2.31	14,100
C4015	B154R9	8/22/2002	10:23	12:24	TMJ	15.8' - 16.8'	-	<1.0	2.09	13,900
C4016	B154T0	8/22/2002	11:30	12:25	TMJ	24.2' - 25.4'	-	4.80	3.37	15,600
C4016	B154T1	8/22/2002	11:53	12:26	TMJ	19.6' - 23.3'	-	14.8	4.48	16,200
C4016	B154T4 (Duplicate)	8/22/2002	11:53	12:27	TMJ	19.6' - 23.3'	-	14.3	4.51	16,200
Blank	-	8/22/2002	-	15:15	TMJ	-		< 1.0	< 1.0	13400
C4016	B154T2	8/22/2002	14:10	15:16	TMJ	15.2' - 16.5'	-	12.7	5.77	14,000
C4012	B154T3	8/22/2002	14:55	15:17	TMJ	~~13.4' - 14.4'~~ 12.0 - 13.4	-	62.1	12.2	18,100
25.5 ppm std.	-	8/22/2002	-	15:18	TMJ	-	-	24.5	< 1.0	11,600

Note: Carbon Tetrachloride filter "A" is a high concentration filter for analysis above 100 ppm. The "B" filter is

Data recoded real time using a loptop computer.

DT 10/7/02

8/22/02 TMJohansen



TMJohansen 8/22/02

ppm.

000021

Reviewed 10/7/02
By GS Thomas

T.M. JOHANSEN/TMJohansen 8/22/02

10/7/02

TMathanson/JMathanson 8/23/02 HNF-N-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis (TO2-010)

0600 Arrive at 200-PW-1 POD on-site for POD.
Geologists — Charlene Martinez and Dave Weekes
RCT ——— Larry Walkup
SOR ——— Not on site, Driller Bob Jones will be acting in his place.
IH ——— Anthony Nelson
Driller ——— Bob Jones

C4017 (#3)
0715 Mobilize Geoprobe to 218-W-4C burial Grounds site C4017(3)
0758 Purge 5 minutes 24.2'-25.4' bgs.
0803 B154T5 Collect sample.
0824 Purge 5 minutes 15.2'-16.4' bgs.
0829 B154T6 Collect sample.
0835 Return to 200-PP-1 to analyze vapor samples.

C4018 (#7)
0855 Mobilize Geoprobe to site C4018(7)
0923 ~~B154T7~~ Purge 5 minutes 24.2'—25.4' bgs.
0928 B154T7 Collect sample.
0950 Purge 5 minutes 15.2'—16.5' bgs.
0955 B154T8 Collect sample.

C4019 (#5)
1032 Mobilize Geoprobe to site C4019(5)
1107 Purge 5 minutes 24.2'—25.4' bgs.
1112 B154T9 Collect sample.
1130 Purge 5 minutes 15.2'—16.5' bgs.
1135 B154V0 Collect sample.

NOTE: See page 33 for sample results and locations

TMT 8-23-02

Reviewed by: GS Thomas Gregg Stone 10/7/02

TMathanson/JMathanson 8/23/02

Continued on Page 33

HNF-10-3131

Tamara Johnson 8/23/02
continued from page 32

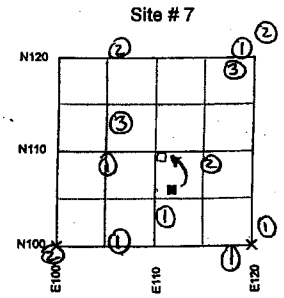
Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v)		Chloroform (ppm/v)	Water Vapor (ppm/v)
							"A"	"B"		
Blank	-	8/23/2002	-	8:41	TMJ	-	-	<1.0	<1.0	11200
25.5 ppm std.	-	8/22/2002	-	8:42	TMJ	-	-	<1.0	<1.0	10,900
C4017	B154T5	8/23/2002	8:03	8:43	TMJ	24.2' - 25.4'	-	<1.0	1.72	18,200
C4017	B154T6	8/23/2002	8:29	8:44	TMJ	15.2' - 16.4'	-	<1.0	1.41	19,700
Blank	-	8/23/2002	-	10:11	TMJ	-		<1.0	<1.0	12400
C4018	B154T7	8/23/2002	9:28	10:12	TMJ	24.2' - 25.4'	-	<1.0	1.50	17,200
C4018	B154T8	8/23/2002	9:55	10:13	TMJ	15.2' - 16.5'	-	<1.0	1.16	18,700
Blank	-	8/23/2002	-	12:10	TMJ	-		<1.0	<1.0	12600
C4019	B154T9	8/23/2002	11:12	12:11	TMJ	24.2' - 25.4'	-	<1.0	2.57	15,500
C4019	B154V0	8/23/2002	11:35	12:12	TMJ	15.2' - 16.5'	-	<1.0	1.55	17,900
Blank	-	8/23/2002	-	12:13	TMJ	-		<1.0	<1.0	12800
25.5 ppm std.	-	8/23/2002	-	12:14	TMJ	-	-	22.2	<1.0	11,900

Note: Carbon Tetrachloride filter "A" is a high concentration filter for analysis above 100 ppm. The "B" filter is used for all concentrations below 100 ppm.

Data recoded real time using a loptop computer.

Tamara Johnson 8-23-02

Site # 7



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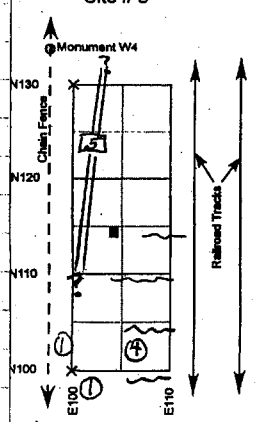

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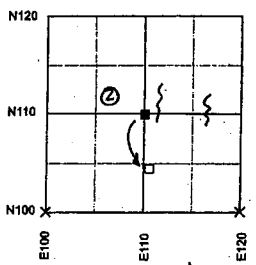


Tamara Johnson 8-23-02

Tamara Johnson 8-23-02

- Staked grid identifier
- Staked sample location
- Recommended sample location
- Excavation boundry
- Average depth to top of feature(s)
- Linear anomaly (Utility/pipeline?)
- Isolated Anomaly
- Isolated zone of buried material/debris that maybe masking deeper features
- Disturbed area with buried material/debris that may be masking features of interest

Questions: Contact TH Mitchell @ 372-9690 or Bill Hudson @ 375-3444 to review results prior to excavating.

Tamara Johnson 8-23-02

Tamara Johnson 8-23-02

Reviewed By GS Thomas/Greg Thomas 10/3/02

Matthanson/Matthanson 8/20/02 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis (PO2-010)

C4020 (#10) — MMS 8/20/02

0700 Arrive at 200-PW-1 (C4020(10). Drill rig set to depth 24.2' - 25.4' bgs.
0717 Purge 24.2' - 25.4' bgs 5 minutes.
0727 B154V1 Collect sample
0743 Purge at 15.2' - 16.7' bgs 5 minutes
0748 B154V2. Collect sample.

C4021 (#8)

0817 Mobilize Geoprobe to C4021 (8).
0843 Purge 5 minutes at 24.2' - 25.4' bgs.
0848 B154V3 Collect sample.
0908 Purge 5 minutes at 15.2' - 16.5' bgs.
0915 B154V4 collect sample.

C4022 (#16)

0935 Mobilize Geoprobe to C4022 (6).
1009 Purge 5 minutes at 24.2' - 25.4'
1014 B154V5 Collect sample.
NOTE: On-site for todays Geoprobe activities are
Geologists: Dave Weekes and Charlene Martinez
STR : Jim Diebel
TH : Anthony Nelson
Driller : Bob Jones
BCT : Larry Walkup.
37
MMS 8/20/02
1009 Purge 5 minutes at 15.2' - 16.7' bgs.
1042 B154V6 Collect sample.

C4023 (P6-13)

1155 Mobilize Geoprobe to C4023 (P6-13)
1219 Purge 5 minutes at 24.2' - 25.4' bgs
1224 B154V7 Collect sample.
1245 Purge 5 minutes at 15.2' - 16.8' bgs.
1250 B154V8 Collect sample.
1308 Purge 5 minutes at 5.2' - 6.3' bgs.
1313 B154V9 Collect sample.

C4024 (P6-12)

1327 Setup Geoprobe at C4024 (P6-12)
1348 Purge 5 minutes at 25.4' - 24.2' bgs.
1353 B154W0 Collect sample
1410 Purge 5 minutes at 15.2' - 15.5' bgs.
1415 B154W1 collect sample
1434 Purge 5 minutes at 5.2' - 6.5' bgs
1439 B154W2 collect sample

MMS 8/20/02 ~~Con~~ Matthanson/Matthanson 8/20/02

Continued on Page 35

Reviewed 10/7/02
By G S Thomas

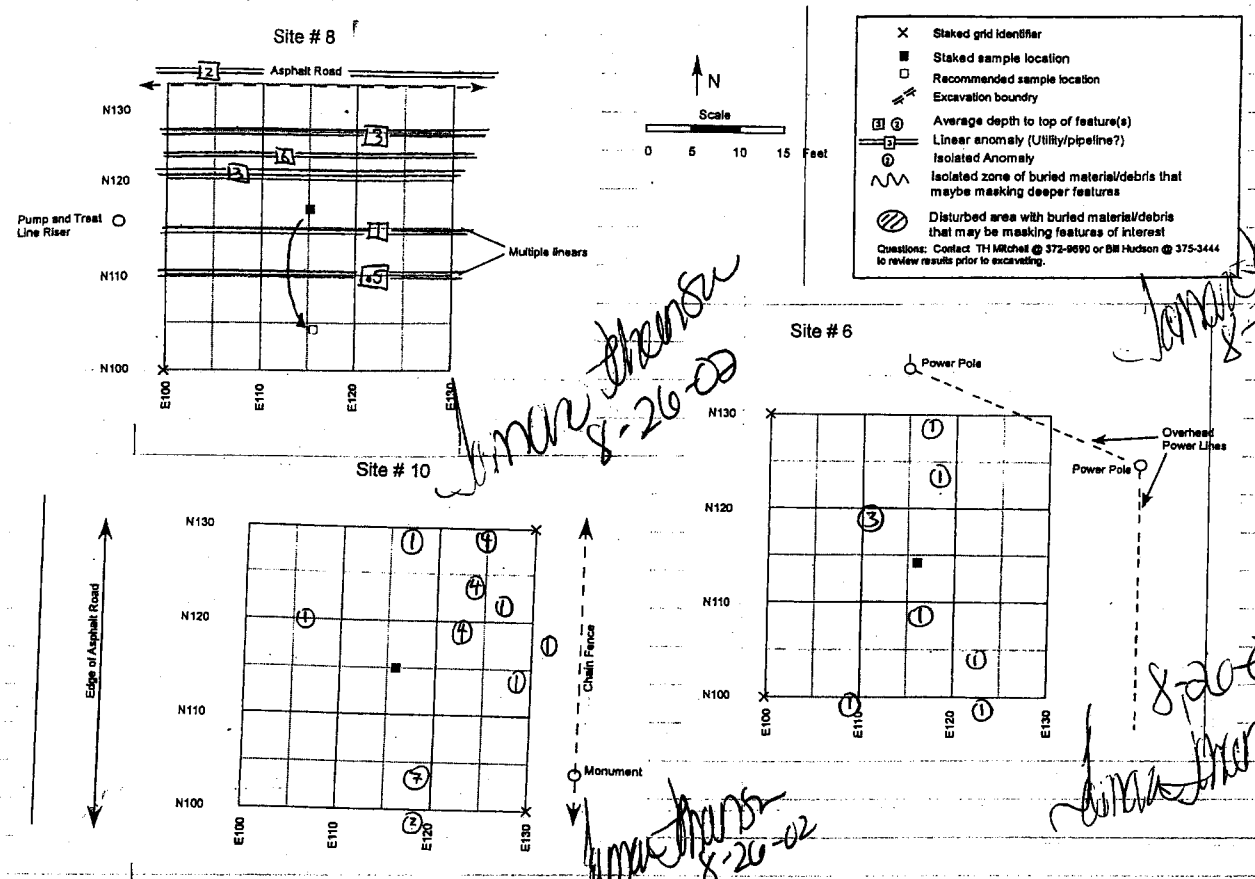
Pump and Treat Line Riser

Edge of Asphalt Road

KAT 10/7/02

HLDF-10-3137

Continued from Page 34



Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v) "A"	Carbon Tetrachloride (ppm/v) "B"	Chloroform (ppm/v)	Water Vapor (ppm/v)
Blank	-	8/26/2002	-	8:05	TMJ	-	-	<1.0	<1.0	12,000
25.5 ppm std.	-	8/26/2002	-	8:06	TMJ	-	-	21.2	<1.0	10,200
C4020	B154V1	8/26/2002	7:27	8:07	TMJ	24.2' - 25.4'	-	<1.0	1.52	16,600
C4020	B154V2	8/26/2002	7:47	8:08	TMJ	15.2' - 16.7'	-	<1.0	1.47	19,800
Blank	-	8/26/2002	-	9:27	TMJ	-		<1.0	<1.0	11,600
C4021	B154V3	8/26/2002	8:48	9:28	TMJ	24.2' - 25.4'	-	<1.0	1.83	17,700
C4021	B154V4	8/26/2002	9:15	9:29	TMJ	15.2' - 16.5'	-	<1.0	1.62	20,300
Blank	-	8/26/2002	-	11:00	TMJ	-		<1.0	<1.0	11,800
C4022	B154V5	8/26/2002	10:14	11:01	TMJ	24.2' - 25.4'	-	2.39	2.78	16,700
C4022	B154V6	8/26/2002	10:42	11:02	TMJ	15.2' - 16.7'	-	<1.0	1.56	19,000
Blank	-	8/26/2002	-	13:29	TMJ	-		<1.0	<1.0	12,300
C4023	B154V7	8/26/2002	12:24	13:30	TMJ	24.2' - 25.4'	-	<1.0	2.11	15,500
C4023	B154V8	8/26/2002	12:50	13:31	TMJ	15.2' - 16.8'	-	<1.0	1.87	17,300
C4023	B154V9	8/26/2002	13:13	13:32	TMJ	5.2' - 6.3'	-	<1.0	1.87	18,700
Blank	-	8/26/2002	-	15:00	TMJ	-		<1.0	<1.0	14,600
C4024	B154W0	8/26/2002	13:53	15:01	TMJ	24.2' - 25.4'	-	<1.0	3.81	15,800
C4024	B154W4 Duplicate	8/26/2002	13:53	15:02	TMJ	24.2' - 25.4'	-	<1.0	3.97	15,700
C4024	B154W1	8/26/2002	14:15	15:03	TMJ	15.2' - 15.5'	-	<1.0	2.38	16,900
C4024	B154W2	8/26/2002	14:39	15:04	TMJ	5.2' - 6.5'	-	<1.0	2.13	19,300
Blank	-	8/26/2002	-	15:05	TMJ	-	-	<1.0	<1.0	13,000
25.5 ppm std.	-	8/26/2002	-	15:06	TMJ	-	-	22.4	<1.0	10,200

000025

Mathiasen/Mathiasen 8-27-02 (F02-010) HWF-N-313,

0700 On-site C4003 (PG-21)
0702 Purge 5 minutes 24.2' - 25.4' bgs.
0707 B154W3 collect sample.
NOTE: Onsite for todays Geoprobe/Sampling
Geologists: Dave Weeks and Charles Martinez
Driller : Bob Jones
HCI : Larry Walkup
STR : Jim Diebel

C4003 (PG-21)

0725 Purge 5 minutes 15.2' - 16.7' bgs.
0730 B154W5 collect sample.
0747 Purge 5 minutes 5.2' - 6.8' bgs
0753 B154W6 Collect sample.
0817 Mobilize Geoprobe to (C4025) (PG-11)
0851 Purge 5 minutes at 24.2' - 25.4' bgs.
0856 B154W7 Collect sample.
0919 Purge 5 minutes at 15.2' - 16.8' bgs.
0927 B154W8 Collect sample.
0947 Purge 5 minutes at 5.2' - 6.5' bgs
0952 B154W9 Collect sample.

C4025 (PG-11)

1007 Mobilize Geoprobe to C4026 (PG-10)
1026 Purge 5 minutes 24.2' - 25.4' bgs.
1033 B154X0 Collect sample.
1048 Purge 5 minutes 15.2' - 16.5' bgs.
1053 B154X1 Collect sample.
1124 Purge 5 minutes 5.2' - 6.9' bgs.
1139 B154X2 Collect sample.

C4026 (PG-10)

1152 Mobilize Geoprobe to C4027 (PG-9)
1242 Purge 5 minutes at 24.2' - 25.2'
1247 B154X3 Collect sample.
1304 Purge 5 minutes at 15.2' - 16.5'
1309 B154X4 collect sample
1322 Purge 5 minutes at 5.2' - 6.8'
1327 B154X5 Collect sample.

C4027 (PG-9)

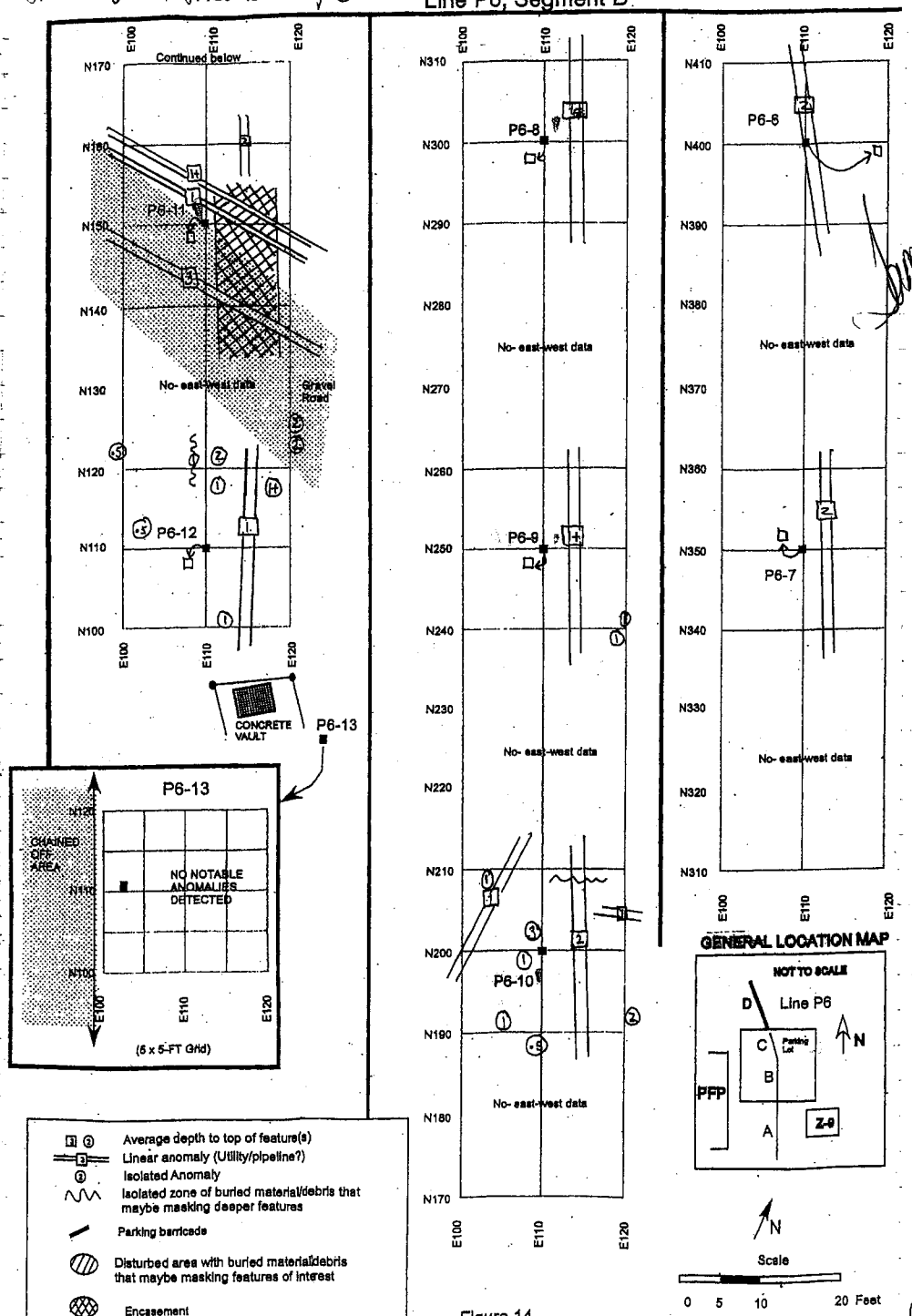
1339 Mobilize to C4028 (PG-8)
1357 B154X6 Collect sample.
1403 Purge 5 minutes at 24.2' - 24.9' bgs.
1419 Purge 5 minutes at 15.2' - 15.5' bgs
1424 B154X7 Collect sample.
1443 Purge 5 minutes at 5.2' - 6.5' bgs.
1448 B154X8 Collect sample.

C4028 PG-8

Mathiasen/Mathiasen Series continued on Page 37

Reviewed By G.S. Thomas 10/7/02

Line P6, Segment D



Average depth to top of feature(s)
Linear anomaly (Utility/pipeline?)
Isolated Anomaly
Isolated zone of buried material/debris that maybe masking deeper features
Parking barricade
Disturbed area with buried material/debris that maybe masking features of interest
Encasement
Proposed sample location
Recommended sample location

Questions: Contact TH Mitchell / KA Bergstrom @ 372-9680 or 372-9591 to review results prior to excavating.

Figure 14.

Geophysical Survey Results
200-PW-1
Line P6, Segment D
Sample Points P6-6 through P6-13
April 2002

0000027

Reviewed By GS Thomson 10/4/02

Continued on page 38

Continued from Page 37

Thomas Thomas 8/27/02 (F02-010)

HOF-10-313 1

Thomas Thomas 8/27/02

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v) "A"	Carbon Tetrachloride (ppm/v) "B"	Chloroform (ppm/v)	Water Vapor (ppm/v)
Blank	-	8/27/2002	-	10:10	TMJ	-	-	<1.0	<1.0	12,000
25.5 ppm std.	-	8/27/2002	-	10:11	TMJ	-	-	23.5	<1.0	10,200
C4003/P6-21	B154W3	8/27/2002	7:07	10:12	TMJ	24.2' - 25.4'	-	<1.0	1.59	11,700
C4003/P6-21	B154W5	8/27/2002	7:30	10:13	TMJ	15.2' - 16.7'	-	<1.0	1.64	11,800
C4003/P6-21	B154W6	8/27/2002	7:53	10:14	TMJ	5.2' - 6.8'	-	<1.0	2.64	11,900
C4025/P6-11	B154W7	8/27/2002	8:56	10:15	TMJ	24.2' - 25.4'	-	<1.0	2.01	15,400
C4025/P6-11	B154W8	8/27/2002	9:24	10:16	TMJ	15.2' - 16.8'	-	<1.0	1.29	16,200
C4025/P6-11	B154W9	8/27/2002	9:52	10:17	TMJ	5.2' - 6.5'	-	<1.0	1.55	16,700
Blank	-	8/27/2002	-	11:47	TMJ	-	-	<1.0	<1.0	12,800
C4026/P6-10	B154X0	8/27/2002	10:33	11:48	TMJ	24.2' - 25.4'	-	<1.0	1.80	14,800
C4026/P6-10	B154X1	8/27/2002	10:53	11:49	TMJ	15.2' - 16.5'	-	<1.0	1.40	15,300
C4026/P6-10	B154X2	8/27/2002	11:39	11:50	TMJ	5.2' - 6.9'	-	<1.0	<1.0	14,400
Blank	-	8/27/2002	-	13:40	TMJ	-	-	<1.0	<1.0	12,800
C4027/P6-9)	B154X3	8/27/2002	12:47	13:41	TMJ	24.2' - 25.2'	-	<1.0	1.79	15,400
C4027/P6-9)	B154X4	8/27/2002	13:09	13:42	TMJ	15.2' - 16.5'	-	<1.0	1.50	16,600
C4027/P6-9)	B154X5	8/27/2002	13:27	13:43	TMJ	5.2' - 6.8'	-	<1.0	<1.0	15,200
Blank	-	8/27/2002	-	15:00	TMJ	-		<1.0	<1.0	13,600
C4028/P6-8)	B154X6	8/27/2002	13:57	15:01	TMJ	24.2' - 24.9'	-	<1.0	1.8	15,000
C4028/P6-8)	B154X7	8/27/2002	14:24	15:02	TMJ	15.2' - 15.5'	-	<1.0	1.51	16,900
C4028/P6-8)	B154X8	8/27/2002	14:48	15:03	TMJ	5.2' - 6.5'	-	<1.0	1.47	16,700
Blank	-	8/27/2002	-	15:04	TMJ	-	-	<1.0	<1.0	14,000
25.5 ppm std.	-	8/27/2002	-	15:05	TMJ	-	-	23.5	<1.0	10,100

C4029 (P6-7)

C4030 (P6-6)

C4031 (P6-5)

C4032 (P6-4)

Note: Carbon Tetrachloride filter "A" is a high concentration filter for analysis above 100 ppm. The "B" filter is used for all concentrations below 100 ppm.

Data recoded real time using a loptop computer.

Thomas Thomas 8/27/02

TMJ 8/27/02

Reviewed By GS Thomas 10/7/02

Thomas Thomas 8/27/02

313 1

Mark Hansen / Mark Hansen 8/28/02 HNF-10-313 1

200 PW-1 Operable Unit Disposed Carbon Tetrachloride Vadose Zone Phase Sampling and Analysis (PO-010)

C4029 (P6-7)

0655 Arrive at 200-PW-1 C4029 (P6-7).
0658 Purge 5 minutes at 24.2'-25.4' bgs
0703 B156N6 Collect sample.
0721 Purge 5 minutes at 15.2'-15.5' bgs.
0726 B156N7 Collect sample.
0740 Purge 5 minutes at 5.2'-6.7' bgs.
0745 B156N8 Collect sample.

C4030 (P6-6)

0757 Set up Geoprobe at C4030 (P6-6)
0814 Purge 5 minutes at 24.2'-25.4' bgs.
0820 B156N9 Collect sample
0833 Purge 5 minutes at 15.2'-16.5' bgs.
0850 ~~B156PO Collect~~ Purge 5 minutes at 5.2'-6.5' bgs.
0855 B156POP1 Collect sample.
0838 B156PO Collect sample

C4031 (P6-5)

0905 Set up Geoprobe at C4031 (P6-5)
0924 Purge 5 minutes at 18.7'-19.8' bgs. Change in depth (Refusal at 19.8' bgs)
0929 B156P2 Collect sample.
0938 Purge 5 minutes at 15.2'-15.5' bgs.
0943 ~~B156P2~~ B156P3 Collect sample.
NOTE: On site for today Geoprobe/Sampling
Geologists: Dave Weeks and Charlene Matchinez
RCT: Larry Walkup
IH: N/A
SRL: Jim Drebel
Driller: Bob Jones

C4032 (P6-4)

0957 Purge 5 minutes at 5.2'-6.4' bgs.
1002 B156P34 Collect sample
1011 Set up Geoprobe at C4032 (P6-4)
1033 Purge 5 minutes at 24.2'-25.5' bgs
1043 B156P45 Collect sample.
1102 Purge 5 minutes at 15.2'-16.5' bgs.
1107 B156P56 Collect sample.
1123 Purge 5 minutes at 6.2'-7.5' bgs.
1128 B156P67 Collect sample.

NOTE: See page 37 for locations of P6-7 & P6-6

0000029

Reviewed By GS Thomas 10/7/02

Continued from 39 Thomsen/Smithsen 8-28-02 HNF-10-3131

C4033 (P6-3)

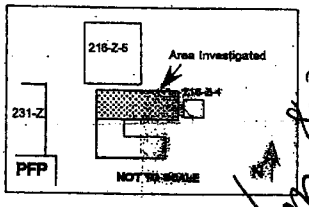
1141 Setting up Geoprobe at C4033 (P6-3)
1249 Purge 5 minutes at 24.2' - 24.9' bgs.
1256 B156P8 Collect sample.
1314 Purge 5 minutes at 15.2' - 16.8' bgs.
1319 B156P9 Collect sample.
1334 ~~1334~~ Purge 5 minutes at 6.2' - 7.7' bgs.
1339 B156R0 Collect sample.

C4034 (P6-2)

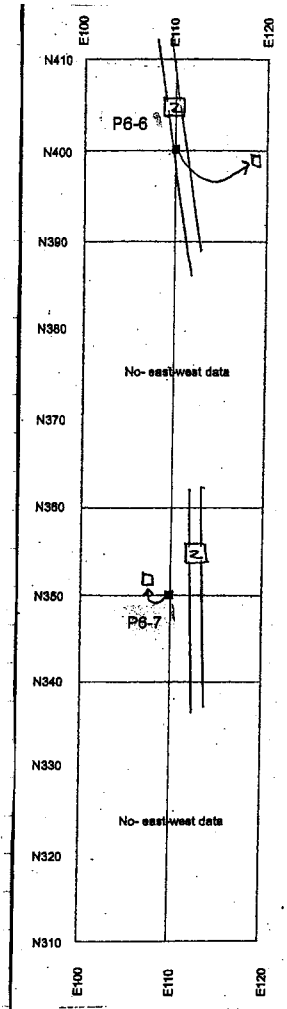
1353 Setting up Geoprobe at C4034 (P6-2)
1417 Purge 5 minutes at 24.2' - 25.3' bgs.
1422 B156R1 Collect sample.
1441 Purge 5 minutes at 16.8' - 15.2' bgs.
1446 B156R2 Collect sample.
1455 Purge 5 minutes at 8.2' - 9.5' bgs.
1500 B156R3 Collect sample.

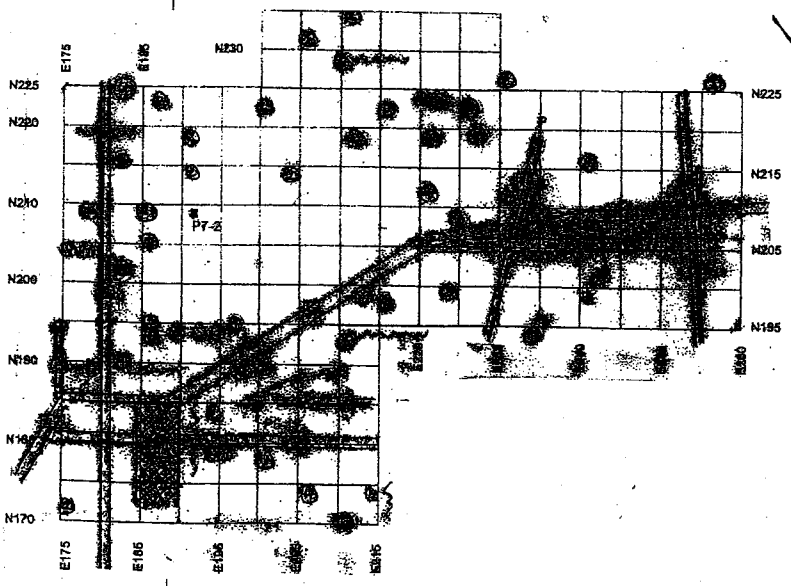
GMS 8-28-02

GENERAL LOCATION MAP



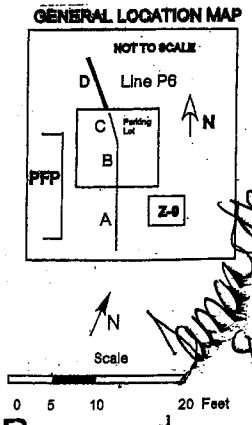
Thomsen 8-28-02





Thomsen 8-28-02

GENERAL LOCATION MAP



Thomsen 8-28-02

Location Identification	Hole Number
Blank	-
25.5 ppm std.	-
C4029/P6-7	B156N6
C4029/P6-7	B156N7
C4029/P6-7	B156N8
Blank	-
C4030/P6-6	B156N9
C4030/P6-6	B156P0
C4030/P6-6	B156P1
Blank	-
C4031/P6-5	B156P2
C4031/P6-5	B156P3
C4031/P6-5	B156P4
Blank	-
C4032/P6-4	B156P5
C4032/P6-4	B156P6
C4032/P6-4	B156P7
Blank	-
C4033/P6-3	B156P8
C4033/P6-3	B156P9
C4033/P6-3	B156R0
Blank	-
C4034/P6-2	B156R1
C4034/P6-2	B156R4 (Duplicate)
C4034/P6-2	B156R2
C4034/P6-2	B156R3
Blank	-
25.5 ppm std.	-

Note: Carbon Tetrachlorid used for all concentrations

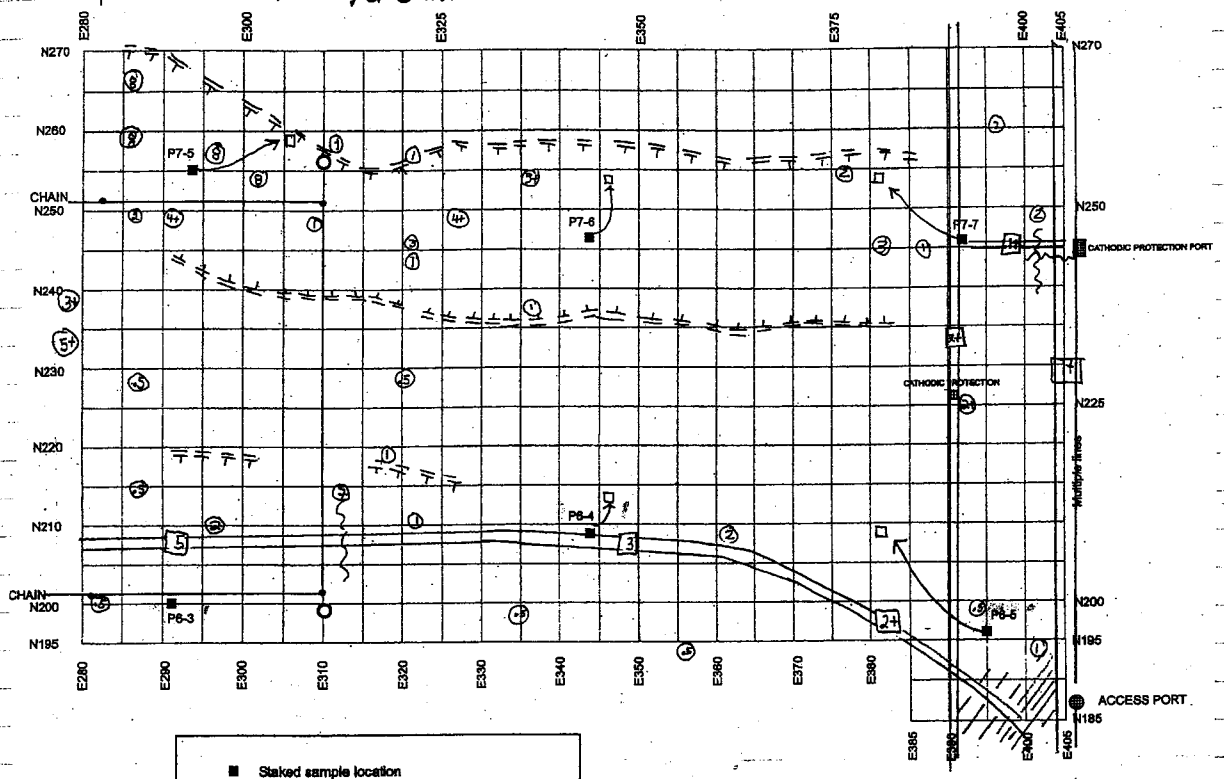
Data recorded real time as

Reviewed By GS Thomas 10/7/02

Thomsen/Smithsen 8/28/02

cont. on Page 41

Thomsen/Anderson 8-28-02 F02-010 HNF-10-3131



- Staked sample location
- Recommended sample location
- Burial Ground Monument
- Excavation boundry
- Average depth to top of feature(s)
- Linear anomaly (Utility/pipeline?)
- Isolated Anomaly
- Isolated zone of buried material/debris that maybe masking deeper features
- Disturbed area with buried material/debris that maybe masking features of interest

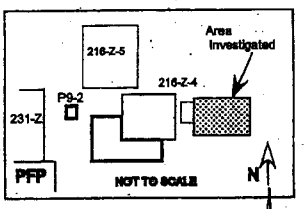
Questions: Contact TH Mitchell / KA Bergstrom @ 372-9690 or 372-9591 to review results prior to excavating.

N

Scale

0 5 10 15 Feet

GENERAL LOCATION MAP



Thomas Anderson 8-28-02

Location Identification	Hole Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppmv) "A"	Carbon Tetrachloride (ppmv) "B"	Chloroform (ppmv)	Water Vapor (ppmv)
Blank	-	8/28/2002	-	8:00	TMJ	-	-	<1.0	<1.0	12,800
25.5 ppm std.	-	8/28/2002	-	8:01	TMJ	-	-	23.5	<1.0	11,400
C4029/P6-7	B156N6	8/28/2002	7:93	8:02	TMJ	24.2' - 25.4'	-	<1.0	1.81	16,400
C4029/P6-7	B156N7	8/28/2002	7:28	8:03	TMJ	15.2' - 16.8'	-	<1.0	1.36	16,700
C4029/P6-7	B156N8	8/28/2002	7:45	8:04	TMJ	5.2' - 6.7'	-	<1.0	1.03	14,100
Blank	-	8/28/2002	-	8:10	TMJ	-	-	<1.0	<1.0	11,700
C4030/P6-6	B156N9	8/28/2002	8:20	8:11	TMJ	24.2' - 25.4'	-	<1.0	1.88	16,800
C4030/P6-6	B156P0	8/28/2002	8:38	8:12	TMJ	15.2' - 16.8'	-	<1.0	<1.0	17,400
C4030/P6-6	B156P1	8/28/2002	8:56	8:13	TMJ	5.2' - 6.6'	-	<1.0	<1.0	15,800
Blank	-	8/28/2002	-	10:10	TMJ	-	-	<1.0	<1.0	11,200
C4031/P6-5	B156P2	8/28/2002	9:29	10:11	TMJ	18.7' - 19.8'	-	<1.0	1.34	16,700
C4031/P6-5	B156P3	8/28/2002	9:43	10:12	TMJ	15.2' - 15.8'	-	<1.0	1.13	17,800
C4031/P6-5	B156P4	8/28/2002	10:02	10:13	TMJ	5.2' - 6.4'	-	<1.0	1.04	17,700
Blank	-	8/28/2002	-	11:48	TMJ	-	-	<1.0	<1.0	13,400
C4032/P6-4)	B156P5	8/28/2002	10:59	11:49	TMJ	24.2' - 25.5'	-	<1.0	2.15	14,400
C4032/P6-4)	B156P6	8/28/2002	11:00	11:50	TMJ	15.2' - 16.8'	-	<1.0	2.27	18,800
C4032/P6-4)	B156P7	8/28/2002	11:25	11:51	TMJ	5.2' - 7.8'	-	<1.0	2.58	19,000
Blank	-	8/28/2002	-	14:00	TMJ	-	-	<1.0	<1.0	12,300
C4033/P6-3)	B156P8	8/28/2002	12:58	14:01	TMJ	24.2' - 24.9'	-	<1.0	3.51	14,800
C4033/P6-3)	B156P9	8/28/2002	13:19	14:02	TMJ	15.2' - 16.8'	-	<1.0	2.23	16,400
C4033/P6-3)	B156R0	8/28/2002	13:39	14:03	TMJ	5.2' - 7.7'	-	<1.0	1.14	16,500
Blank	-	8/28/2002	-	15:07	TMJ	-	-	<1.0	<1.0	13,600
C4034/P6-2)	B156R1	8/28/2002	14:22	15:08	TMJ	24.2' - 24.9'	-	<1.0	4.22	14,300
C4034/P6-2) (Duplicate)	B156R4	8/28/2002	14:22	15:09	TMJ	24.2' - 25.3'	-	<1.0	4.43	14,300
C4034/P6-2)	B156R2	8/28/2002	14:46	15:10	TMJ	15.2' - 16.8'	-	<1.0	3.56	18,500
C4034/P6-2)	B156R3	8/28/2002	16:00	16:11	TMJ	5.2' - 9.5'	-	<1.0	2.47	22,400
Blank	-	8/28/2002	-	16:12	TMJ	-	-	<1.0	<1.0	14,000
25.5 ppm std.	-	8/28/2002	-	16:13	TMJ	-	-	22.4	<1.0	10,100

Note: Carbon Tetrachloride filter "A" is a high concentration filter for analyte above 100 ppm. The "B" filter is used for all concentrations below 100 ppm.

Data recorded real time using a laptop computer.

Thomas Anderson 8-28-02

0000031

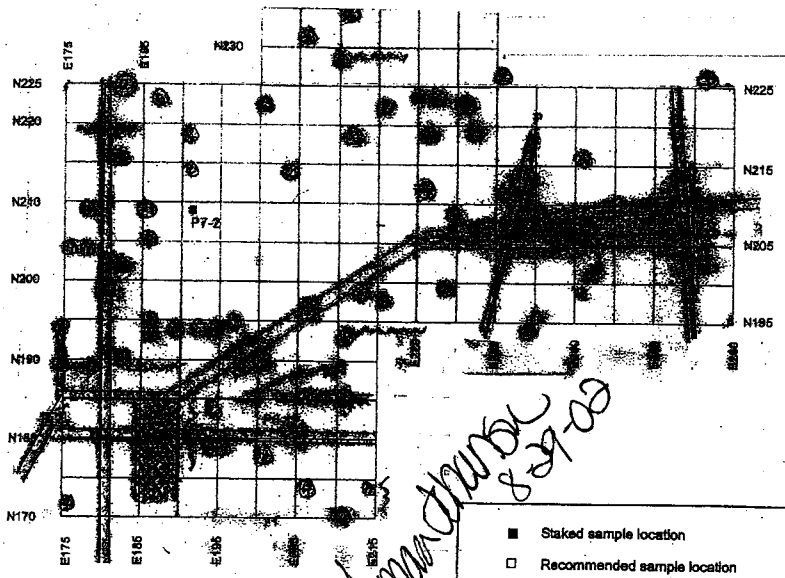
Reviewed By GS Thomas / Greg Thomas 10/7/02

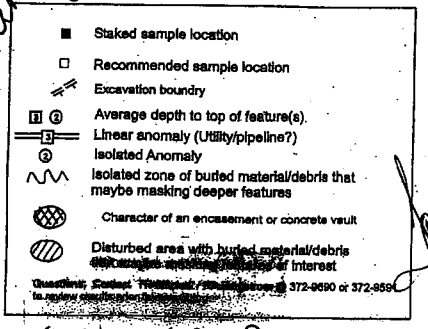
Thomsen/Ambrosen 8/29/02 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis (FO2-010)

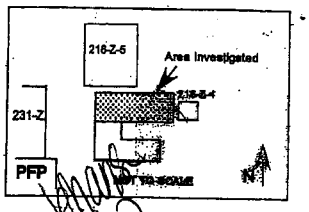
C4035 (P6-1)

0655 Arrive at 200-PW-1 C4035 (P6-1).
0710 Purge 5 minutes at 24.2' – 25.1' bgs.
0715 B15GR5 Collect sample. Background 3 Alpha, 201 Beta. 4308 Beta DPM, 5120 Alpha DPM ~ Contamination from a static count per probe area.
0748 RCT talking to Supervisor. RCT (Larry Walkup) checks cooler and bag.
0803 Suspected radon. 3790 dpm Alpha, 5832 dpm Beta.
0814 RCT gives the OK to backfill and add Bentonite.
0834 Purge 3 minutes at 15.2' – 16.4' bgs.
0839 B15GR6 collect sample.
0850 Purge 5 minutes at 7.7' – 9.1' bgs.
0855 B15GR7 Collect sample.





GENERAL LOCATION MAP



Reviewed By GS Thomas 10/8/02

Thomsen/Ambrosen 8-29-02

Continued on Page 43

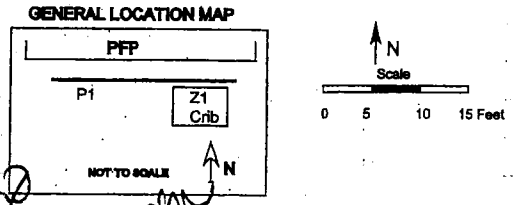
Thomsen/Thomsen 8/29/02 (F02-010) HNF-10-3131

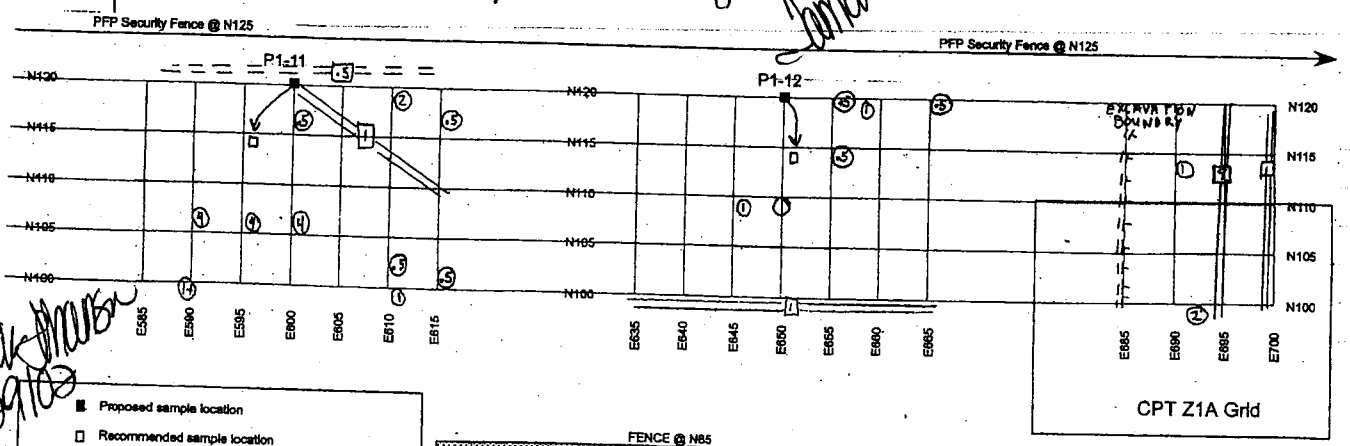
0922 Mobilize Geoprobe to C4036 (P1-12)
0953 Purge 5 minutes at 24.2' - 25.4' bgs.
0958 B156R8 collect sample.
1019 Purge 5 minutes at 15.2' - 16.7' bgs.
1024 B156R9 collect sample.
NOTE: The next interval will be at 10' bgs per conversation with Cris Cearlock.
Also on-site today for Geoprobe/sampling are:
Geologists — Dave Weekes and Charlene Martinez
OTR — Jim Diebel
Drillers — Bob Jones
HCT — Larry Walkup
1034 Purge 5 minutes at 10.2' - 11' bgs.
1039 B156T0 collect sample.
1055 Mobilize to C4037 (P1-11)
1118 Purge 5 minutes at 24.2' - 25.4' bgs.
1123 B156T1 collect sample.
1138 Purge 5 minutes at 15.2' - 16.2' bgs.
1143 B156T2 collect sample. ST 10/8/02
1154 Purge 5 minutes at (10.2' - 11.0' bgs)
1159 B156T3 collect sample.

P1-13 C4036

C4037 P1-11

GENERAL LOCATION MAP





- Proposed sample location
- Recommended sample location
- Average depth to top of feature(s)
- Linear anomaly (Utility/pipeline?)
- Isolated Anomaly
- Isolated zone of buried material/debris that maybe masking deeper features
- Disturbed area with buried material/debris that maybe masking features of interest

Questions: Contact TH Mitchell / KA Bergstrom @ 372-9690 or 372-9591 to review results prior to excavating.

0000033

Reviewed By GS Thomas 10/8/02

Thomsen/Thomsen 8/29/02

Continued on Page 44

TMJ/Thomas/Thomas 8/29/02 F02-010 HOF-10-3131

Continued from Page 43

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v)		Chloroform (ppm/v)	Water Vapor (ppm/v)
							"A"	"B"		
Blank	-	8/29/2002	-	9:13	TMJ	-	-	<1.0	<1.0	10,700
25.5 ppm std.	-	8/29/2002	-	9:14	TMJ	-	-	22.8	<1.0	5,300
C4035/P6-1	B156R5	8/29/2002	7:15	9:15	TMJ	24.2' - 25.1'	-	<1.0	1.54	14,000
C4035/P6-1	B156R6	8/29/2002	8:39	9:16	TMJ	15.2' - 16.4'	-	<1.0	1.24	13,900
C4035/P6-1	B156R7	8/29/2002	8:55	9:17	TMJ	7.7' - 9.1'	-	<1.0	<1.0	15,300
Blank	-	8/29/2002	-	10:50	TMJ	-	-	<1.0	<1.0	11,800
C4036/P1-12	B156R8	8/29/2002	9:58	10:51	TMJ	24.2' - 25.4'	-	<1.0	2.25	13,200
C4036/P1-12	B156R9	8/29/2002	10:24	10:52	TMJ	15.2' - 16.7'	-	<1.0	1.44	14,800
C4036/P1-12	B156T0	8/29/2002	10:39	10:53	TMJ	10.2' - ~~10.7'~~ *	-	<1.0	1.55	15,200
Blank	-	8/29/2002	-	12:10	TMJ	-	-	<1.0	<1.0	11,400
C4037/P1-11	B156T1	8/29/2002	11:23	12:11	TMJ	24.2' - 25.4'	-	3.63	3.09	13,600
C4037/P1-11	B156T2	8/29/2002	11:43	12:12	TMJ	15.2' - 16.2'	-	<1.0	2.08	14,500
C4037/P1-11	B156T3	8/29/2002	11:59	12:13	TMJ	10.2' - 11.0'	-	<1.0	2.28	18,500
Blank	-	8/29/2002	-	12:14	TMJ	-	-	<1.0	<1.0	14,000
25.5 ppm std.	-	8/29/2002	-	12:15	TMJ	-	-	22.9	<1.0	5,270

Note: Carbon Tetrachloride filter "A" is a high concentration filter for analysis above 100 ppm. The "B" filter is used for all concentrations below 100 ppm.

Data recoded real time using a loptop computer.

Tomas Thomas 8/29/02

* 11' ST 10/8/02

TMJ/Thomas 8/29/02

Reviewed By GS Thomas/[illegible] 10/8/02

TMJ/Thomas/Thomas 8/29/02

TMJohnson/KMJohnson 9/3/02 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis (F02-018)

0600 Arrive at 200-PW-1 Plan of the Day Conducted at Z-9 on the NE side of PFP. Contractor ARA Unable to get through gate due to security.

0745 Contractor arrives on site. POD has been moved to
On-site for POD are Virginia Bobay, Chris Gearlock, Charlene Martinez, Tony Nelson, Bob Jones, Jim Diebel, Larry Walkup, Eric Dryland, James Hall; Bryan Baeder, Ross Fable, Steven Landsman. This part of the sampling / Geoprobe project has 23 CPT holes

0845 ARA (Applied Research Associates Inc.) taking HSET and getting personal Dosimetry

1411 setting up rig at (55-57 ton mack truck) C3840 (Z18A)

1535 Pack up equipment and leave site. No samples collected

TMJ 9/3/02

0000035

TMJohnson/KMJohnson 9/3/02

Reviewed By GS Thomas

Thoothursen/Brothanson 9-4-02 HOF-10-3131

200-PU-1 Operable Unit Disposed Carbon Tetrachloride Vadose Zone Probe Sampling and Analysis (F02-010)

		Location ID
0600	Arrive on-site to set up for todays sampling event. Already set up on 216-Z-18 crib location ID 15 Z18A C3840	Blank
0725	Begin push	25.5ppm
0741	~~B15GT4~~ Purge sample TD@ 15' bgs	C3840/Z18
0749	B15GT4 Collect sample.	C3840/Z18
0800	Purge sample TD@ 25' bgs.	C3840/Z18
0813	B15GT5 Collect sample.	C3840/Z18
0835	Purge sample TD@ 50' bgs.	Blank
0844	B15GT6 Collect sample	C3841/Z18
0912	Purge sample TD@ 60.1' bgs.	C3841/Z18
0925	B15GT7 Collect sample.	C3841/Z18
1215	Start pushing at C3841 (Z18B)	~~C3841/Z18~~
1233	Purge sample TD@ 15.1' bgs.	~~C3841/Z18~~
1240	B15GT8 Collect sample.	C3841/Z18
1247	Purge sample TD@ 25' bgs.	Blank
1256	B15GT9 Collect sample	25.5
1317	Purge sample TD@ 50' bgs.	
1326	B15GV0 Collect sample.	
1335	Purge sample TD@ 75' bgs.	
1344	B15GV1 Collect sample.	
1408	Purge sample TD@ 91' bgs.	
1415	Return to 200-PU-1 to analyze samples.	

NOTE: When backpulling the Rods it was determined that a rod had been broken making the last two samples taken invalid.

MJ 9/4/02

Reviewed By GS Thomas 10/8/02

Thoothursen/Brothanson 9/4/02 Continued on Page 47

Matthanson/Smithmarsh — 9-4-02 (F02-010)
Continued from Page 46

TMJ 8-8-02
~~HNOF-10-313-10~~
HNOF-10-313 1

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst TMJ	Depth (ft) bgs	Carbon Tet. "A"	Carbon Tet. "B"	Chloroform	Water Vapor
Blank	—	9-4-02	—	0933	TMJ	—	—	<1.0	<1.0	6450
25.5 ppm std	—	9-4-02	—	0934	TMJ	—	—	21.6	<1.0	5960
C3840/218A	B156T4	9-4-02	0749	0935	TMJ	15'	—	<1.0	1.99	7920
C3840/218A	B156T5	9-4-02	0813	0936	TMJ	25'	—	<1.0	2.25	8550
C3840/218A	B156T6	9-4-02	0844	0937	TMJ	50'	—	<1.0	2.76	10600
C3840/218A	B156T7	9-4-02	0925	0938	TMJ	60.1'	—	<1.0	9.37	12300
Blank	—	9-4-02	—	1420	TMJ	—	—	<1.0	<1.0	9800
C3841/218B	B156T8	9-4-02	1242	1421	TMJ	15.1'	—	<1.0	16.2	7160
C3841/218B	B156T9	9-4-02	1256	TMJ 9-4-02 1422	TMJ	25'	—	<1.0	1.75	7170
C3841/218B	B156V0	9-4-02	~~1326~~ 1326	1423	TMJ	50'	—	<1.0	1.12	7290
~~C3841/218B~~	~~B156V1~~	~~9-4-02~~	~~1344~~	TMJ 9-4-02 ~~1424~~	~~TMJ~~	~~75'~~	~~—~~	~~<1.0~~	~~1.37~~	~~6990~~
~~C3841/218B~~	~~B156V2~~	~~9-4-02~~	~~1408~~	TMJ 9-4-02 ~~1425~~	~~TMJ~~	~~91'~~	~~—~~	~~<1.0~~	~~<1.0~~	~~6930~~
C3841/218B	B156V3	9-4-02	1242	1426	TMJ	15.1'	—	<1.0	16.4	6960
Blank	—	9-4-02	—	1427	TMJ	—	—	<1.0	<1.0	9830
25.5	—	9-4-02	—	1428	TMJ	—	—	22.3	<1.0	6990

TMJ 9/4/02

Matthanson/Smithmarsh 9/4/02

Reviewed By GS Thomas

0000037

Mortensen/Mortensen 9/5/02 HOF-10-313 1

200-PW-1 Operable Unit Dissolved Carbon Tetrachloride Plume Sampling and Analysis (CP02-010)

0600 Greg Thomas arrives at 200-PW-1 to set up for todays sampling. TMS 9/5/02
0742 Set up Rig at C3842 ~~(310~~ (212A)
0837 Project on hold to determine if vinyl tubing can be used. Per Chris, Virginia and Rich, Will pull tubing and use
NOTE: A sample was taken at 15' but will not be used due to tubing problems. / Vinyl coated
1010 Begin push again
1018 Purge 36 @ 15' bgs. (5 minute Purge)
1026 B156V2 Collect sample.
1038 Purge 25' bgs
1046 B156V3 collect sample.
1110 Purge 49.4' bgs. last sample because of Refusal.
1114 B156V4 Collect sample.
1320 Mobilize Geoprobe to C3843 (212B)
1444 Purge 15' bgs.
1448 B156V5 collect
1454 Purge 21' bgs.
1458 B156V6 collect
1506 Purge 35' bgs.
1509 B156V7 collect
1525 Purge 50' bgs.
1529 B156V8 collect. 2ppm Hydrogen suspected
1555 Purge 65' bgs. Last sample because of Refusal
1559 B156V9 Collect

Location ID
Blank
25.5 ppm Std
C3842 (212F
C3842 (212A
C3842 (212F
Blank
C3843 (212B
C3843 (212B
C3843 (212B
C3843 (212
C3843 (212
C3843 (212
C3843 (212
C3843 (212
25.5 Std

TMS 9-5-02

Reviewed By GS Thomas 10/8/02

Mortensen/Mortensen 9/5/02 Continued on Page 49

HNF-10-3131

TMJonnsen | JMJonnsen 9/5/02
Continued from Page 48

Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tet.	Chloroform	Water Vapor
Blank	—	9-5-02	—	1208	TMJ	—	<1.0	<1.0	7450
25.5 ppm Std.	—	9-5-02	—	1209	TMJ	—	22.3	<1.0	6890
C3842 (212A)	B156V2	9-5-02	1026	1210	TMJ	15'	<1.0	2.04	11300
C3842 (212A)	B156V3	9-5-02	1046	1211	TMJ	25'	<1.0	2.23	11900
Use C3842 (212A)	B156V4	9-5-02	1114	1213	TMJ	49.4'	8.04	1.88	14400
Blank	—	9-5-02	—	—	TMJ	—	<1.0	<1.0	8000
C3843 (212B)	B156V5	9-5-02	1448	~~1214~~ 1609	TMJ	15'	<1.0	1.35	11000
C3843 (212B)	B156V6	9-5-02	1458	1610	TMJ	21'	<1.0	1.91	13400
C3843 (212B)	B156V7	9-5-02	1509	1611	TMJ	25'	<1.0	~~2.00~~ 1.61	~~23400~~ 18000
C3843 (212B)	B156V8	9-5-02	1529	1612	TMJ	50'	<1.0	~~1.69~~ 1.60	12800
C3843 (212B)	B156V9	9-5-02	1559	1613	TMJ	65'	<1.0	2.00	23400
C3843 (212B)	B156W0	9-5-02	~~1539~~	~~1214~~ ~~1215~~ 1615	TMJ	49.4'	7.95	1.78	14200
C3843 (212B)	Duplicate	9-5-02	1114*	— *1215	—	—	—	—	—
25.5 Std	—	9-5-02	—	1614	TMJ	—	22.9	<1.0	7200

TMJ 9-5-02

0000039

TMJonnsen | JMJonnsen 9/5/02

Reviewed By GS Thomas / [signature] 10/8/02

Mathanson/Mathanson 9-6-02 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tet.
Plume Sampling and Analysis (F02-010)

0555 Greg Thomas arrives on site. Complete Concrete monument for C3843 (216-Z-12B)
0605 mobilize to next site C3844 (~~216-Z-12~~ 216-Z-1A
0653 Gearlock called during POP
0710 Mathanson arrives on site to take over sampling duties. On-site for today.
Geologist – Charlene Martinez
IH – Tony Nelson
STR – Bob Jones
PRA – Eric Dysland + Jim Hall
Drillers – "Howie" Gary Howell
0900 Purge 14.1'-15' bgs. Purge 3L at 2L a minute = 1.5 min
0904 B156W1 Collect sample
0914 Purge 24'-25' bgs. Purge 6L @ 2L min. = 3min
0918 B156W2 Collect sample.
0948 Purge 41-41.9 bgs. Purge 10L @ 2L min = 5min.
0954 B156W3 Collect sample. Last sample Refusal
1046 Setting up Rig at C3845 (21C)
1107 Purge 14'-15' bgs.
1110 B156W4 Collect sample.
1120 Purge 19'-20' bgs.
1125 B156W5 Collect sample.
1136 Purge 24'-25' bgs.
1141 B156W6 Collect sample.
1208 Purge 49'-50' bgs. ~~Refusal~~ TMJ 9/6/02
1214 B156W7 Collect sample. Refusal last sample.
NOTE: After removing the casing it was determined that the tip was plugged so we will resample the last interval.
1351 Purge 49'-50' bgs.
1356 B156W8 Collect sample. Determine that the tip is plugged
1530 Again so we pull casing and push down again. Purge 47.5'-48.8'
1536 B156W9 Collect sample

TMJ 9/6/02

Mathanson/Mathanson 9/6/02 Continued on Page 51

Reviewed By GS Thomas 10/10/02

HNF-10-3131

Tmcmurray/Jmcmurray 9-06-02
Continued from page 50

Jamar Hansen 9-6-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis (F02-010)

Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon (ppmV) Tetrachloride "A" Filter	Carbon (ppmV) Tetrachloride "B" Filter	Cholorform ppmV	Water Vapor ppmV
Blank	—	9/6/02	—	1005	TMJ	—	—	<1.0	<1.0	7110
25.5 ppm	—	9/6/02	—	1006	TMJ	—	—	21.9	<1.0	6420
C3844/21A	B1516W1	9/6/02	0904	1007	TMJ	14.1'-15'	—	<1.0	<1.0	13100
C3844/21A	B1516W2	9/6/02	0918	1008	TMJ	24'-25'	—	<1.0	1.16	14600
C3844/21A	B1516W3	9/6/02	0954	1009	TMJ	41'-41.9'	—	4.01	<1.0	18500
Blank	—	9/6/02	—	1239	TMJ	—	—	<1.0	<1.0	8430
C3845/21C	B1516W4	9/6/02	1107 (1000)	1240	TMJ	14'-15'	—	<1.0	<1.0	14000
C3845/21C	B1516W5	9/6/02	1120 (1000)	1241	TMJ	19'-20'	—	<1.0	<1.0	14900
C3845/21C	B1516W6	9/6/02	1141	1242	TMJ	24'-25'	—	4.5	57.8	17000
C3845/21C	B1516W7	9/6/02	1214	1243	TMJ	49'-50'	—	7.2	114	12600
C3845/21C	B1516W8	9/6/02	1358	1459	TMJ	49'-50'	—	<1.0	1.44	10100
Blank	—	9/6/02	—	1545	TMJ	—	—	<1.0	<1.0	8010
C3845/21C	B1516W9	9/6/02	1536	1546	TMJ	—	—	<1.0	3.03	21800
25.5 ppm	—	9/6/02	—	1547	TMJ	47.5'-48.8'	—	22.2	<1.0	7900

TMJ 9/6/02

Jamar Hansen 9/6/02

(*) BT 10/10/02

TMJ 9/6/02

0000041

Tmcmurray/Jmcmurray 9/6/02

Reviewed By GS Thomas/GS Thomas 10/10/02

Matthewson/Smithwick 9/9/02 F02-010 HUF-10-3131

0600 Sampler Greg Thomas arrives on Site for POD.
On-Site for POD:
Geologist — Jess Hocking ; RCT — Larry Walkup
STR — Bob Jones
HRA — Jim Hall + Eric Dysland
Driller — Gary Howell
- Site 216-Z-12C (3846 -
0705 Depth 48' Refusal Prepare for Sampling
0713 Start purging @ 48' bgs. Purge Rate 2L/min
0718 B15458 Collect sample
0811 Setting up rig (3847 (Z13)
0818 Begin pushing hole
0825 Begin purge 14'-15' bgs.
0834 B15459 Collect sample.
0841 Begin purge @ 24'-25' bgs.
0845 B15460 Collect sample.
0854 Begin purge @ 30'-31' bgs
0900 B15461 collect sample.
NOTE: After measuring it is determined that the tip is plugged. Modifications made to tip. Resample at the 30' depth in case the plug was there.
1224 Begin purge @ 30'-31' bgs
1229 B15462 Collect sample. mm 9-9-02
1239 Begin Purge @ 41.6-40.6 bgs.
1245 B15463 Collect sample.
1254 Begin purge @ 49'-50' bgs
1300 B15464 Collect sample.
1328 Begin purge @ 61.2'-62.2' bgs ~ Refusal last sample.
1336 B15465 Collect sample. mm 9/9/02
1435 Mobilize to C3848 ~~(DZ-18)~~ (DZ-1A)
1449 Purge @ 9'-10' bgs
1453 B15466 Collect sample.
1459 Purge @ 14'-15' bgs.
1503 B15467 Collect sample
1510 Purge @ 24'-25' bgs
1514 B15468 Collect sample.
1522 Purge @ 38'-39' bgs.
1527 B15469 Collect sample
1538 Purge @ 45.2'-44.2' ~ Refusal last sample

Collect Sample B15BT8 DT 10/10/02

Note all samples on this page are converted to different HEIS in Table on next page

Reviewed By GS Thomas 10/10/02 Greg Thomas

Matthewson/Smithwick 9/9/02 Cont. on Page 53

HEIS Number
B15BR1
B15BR
B15BR
B15BR
B15BT
B15BT
B15BT
B15BT
B15BT
B15BT
B15BT
B15BT
B15BT
B15BT
B15BT
B15BT9
mm 9/9/02

Continued from Page 52 9/9/02 F02-010 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis (F02-010)

Hels Number	Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor
	Blank	—	9/9/02	—	0728	TMT	—	—	<1.0	<1.0	6260
—	25.5ppm	—		—	0729		—	—	21.6	<1.0	6370
B15BR6	C3846/21A	B15458		0718	0730		47'-48'	—	<1.0	3.51	16800
—	Blank	—		—	1340		—	—	<1.0	<1.0	9190
B15BR7	C3847/21B	B15459		0834	1341		14'-15'	—	<1.0	1.06	11800
B15BR8	C3847/21B	B15460		0845	1342		24'-25'	—	<1.0	1.75	12000
B15BR9	C3847/21B	B15461		0900	1343		30'-31'	—	<1.0	1.92	12000
B15BT0	C3847/21B	B15462		1229	1344		30'-31'	—	<1.0	1.75	17300
B15BT1	C3847/21B	B15463		1245	1345		40.6'-41.6'	—	1.10	1.53	18000
B15BT2	C3847/21B	B15464		1300	1346		49'-50'	—	<1.0	1.49	17800
B15BT3	C3847/21B	B15465		1326	1347		61.2'-62.2'	—	<1.0	1.98	21000
B15BT4	C3848/21A	B15466		1453	1542		9'-10'	—	<1.0	1.33	19200
B15BT5	C3848/21A	B15467		1503	1543		14'-15'	—	<1.0	1.54	20800
B15BT6	C3848/21A	B15468		1514	1544		24'-25'	—	2.03	1.01	23100
B15BT7	C3848/21A	B15469		1523*	1545		38'-39'	—	2.94	1.01	25900
B15BT8	C3848/21A	B15470		1538	1546		45.2'-46.2'	—	1.64	1.17	25900
—	Blank	—		—	1548		—	—	<1.0	<1.0	14200
—	25.5ppm	—		—	1549		—	—	21.7	<1.0	16400
B15BT9	C3848/21A	B15471	9/9/02	1522	1547	TMT	38'-39'	—	2.88	1.15	23300

Hels Number

Tmt 9/9/02

Tmt 9/9/02

* ΔT 10/10/02

TMT 9/9/02

0000043

Tmt 9/9/02

10/10/02 Reviewed By GS Thomas

9/10/02 SAF # F02-010

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE System HOF-N-313 1

Sampler: Greg Thomas/~~Greg Thomas~~ Fluor Hanford

Site Personel

Bob Jones (STX), Jess Hocking (Geologist), (RCT) Larry Walkup, (ARA) Eric Dysland & Jim Hall, Gary Howell (Driller), (IH) Tony Nelson

Pump: Aircheck Sampler Model 224-PCXRB

6:00 Plan of the Day & Safety meeting

6:25 Mob to 216-Z-8 and setup. I mob to mobile Lab and start equipment

0655 start C3849 (216-Z-8)

0705 Purge 6 min at 15' bgs Flow rate 1 L in 4½ minutes OVM reading 0ppm

0715 Collect Sample.

Tip is found to be plugged.

0738 Back at 15'

0741 Begin Purging. Purge rate ~~2~~ 2L/min mrg 9-18-02 purge 7 Liters

0744 Collect Sample ~~B15471~~ B15BV0 Depth 14'-15'

~~Purge~~ ΔT 9/10/02

0751 Begin purging 20-21. Purge rate 2L/min high ~~200~~ 222 ppm on OVM

0754 Collect Sample mrg 9-18-02 ~~B15472~~ B15BV1 After purging 7 ppm

0754-0758 Let recover

0758 Purge for 30 second OVM stable at 12ppm

0758 Collect Sample mrg 9-18-02 ~~B15473~~ B15BV2

Collect next Sample with no purge time

800-900 Down time soil in tip. Per Bob Jones Sample at 21' again

9:00 Collect sample B15BV3 mrg 9-18-02 ~~B15474~~ with no purge from 20'-21'

9:05 Collect Sample B15BV4 mrg 9-18-02 ~~B15475~~ after 5 minutes of purge from 20'-21'

9:11 Collect ΔT 9/10/02 ~~500~~ one ½ Liter in 35 second OVM readings 0 ppm

9:17 Collect Sample B15BV5 mrg 9-18-02 ~~B15476~~ after 6 minutes of purge from 24'-25'

9:28 Collect 1 liter in 1 minute OVM reading 0ppm

9:33 Collect Sample B15BV6 mrg 9-18-02 ~~B15477~~ after 5 minutes of purge from 38'-39'

9:50 At 50' Drive head stuck in casing

1025 Mr Harper arrives on site to take over todays sampling and analysis.

1140 Purge sample 10 minutes at 48'-49'.

1153 mrg 9-18-02 ~~B15478~~ Collect sample. B15BV7

1237 Mobilize to C3850 (29A) - 216-Z-9 Crib

1301 Purge sample 14'-15' 4 minutes.

1306 mrg 9-18-02 ~~B15480~~ Collect sample B15BV8

1316 Purge sample 24'-25' bgs.

1324 mrg 9-18-02 ~~B15481~~ Collect sample. B15BV9

1332 Purge sample 32'-33' bgs.

Mr Harper Mr Thomas 9/10/02 Cont. on page 55

Reviewed By GS Thomas/~~Greg Thomas~~ 10/10/02

Cont from Page 54 TMJohansen/GTThomas 9/10/02 HLF-10-2131
1337 ~~B15482~~ Collect sample B15BW0
1346 Purge sample 39'-40'
1352 ~~B15483~~ Collect sample B15BW1
1409 Purge sample 43.52'-44.52' ~ Refusal
1414 ~~B15484~~ Collect sample B15BW2
TMJ 9-18-02

1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLER NAME: T. M. Johansen / GThomas
ANALYZER NAME: T. M. Johansen / GThomas

Tamara Johansen 9-10-02

STANDARD CONCENTRATION of 25.5 ppmv CCl4 analyzed as 22.1 ppmv at 07:43 (time).

STANDARD CONCENTRATION of 25.5 ppmv CCl4 analyzed as 23.1 ppmv at 14:18 (time).

Location Identification	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppmv)		Chloroform (ppmv)	Water Vapor (ppmv)
							A	B		
C3849/Z8	B15BV0	9/10/2002	7:44	10:20	GT	14' - 15'	-	<1.0	<1.0	11,700
C3849/Z8	B15BV1	9/10/2002	7:54	10:21	GT	20' - 21'	-	<1.0	9.80	12,400
C3849/Z8	B15BV2	9/10/2002	7:58	10:22	GT	20' - 21'	-	<1.0	8.72	12,200
C3849/Z8	B15BV3	9/10/2002	9:00	10:23	GT	20' - 21'	-	<1.0	3.86	13,400
C3849/Z8	B15BV4	9/10/2002	9:05	10:24	GT	20' - 21'	-	<1.0	<1.0	16,000
C3849/Z8	B15BV5	9/10/2002	9:17	10:25	GT	24' - 25'	-	<1.0	<1.0	16,000
C3849/Z8	B15BV6	9/10/2002	9:33	10:26	GT	38' - 39'	-	<1.0	<1.0	17,100
C3849/Z8	B15BV7	9/10/2002	11:53	12:00	TMJ	48' - 49'	-	<1.0	<1.0	21,000
C3850/Z9A	B15BV8	9/10/2002	13:06	14:13	TMJ	14' - 15'	-	<1.0	1.62	17,700
C3850/Z9A	B15BV9	9/10/2002	13:24	14:14	TMJ	24' - 25'	-	<1.0	1.86	14,400
C3850/Z9A	B15BW0	9/10/2002	13:37	14:15	TMJ	32' - 33'	-	<1.0	1.39	15,900
C3850/Z9A	B15BW1	9/10/2002	13:52	14:16	TMJ	39' - 40'	-	<1.0	16.8	17,200
C3850/Z9A	B15BW2	9/10/2002	14:14	14:17	TMJ	43.52' - 44.52'	-	<1.0	1.22	20,900

0ppm

Tamara Johansen 9/10/02

TMJ 9/10/02

0000045

10/10/02

Reviewed By GS Thomas 10/10/02

TM Johansen / GS Thomas 9/10/02

2000 PW-1 Vadose Zone Monitoring During Non-Operation of SVE System HNF-10-3131
Sampler - Greg Thomas
Fluor Hanford

Site Personnel
Bob Jones (STR), Jess Hocking (geologist), Byran Rader (RCT),
(ARA) Eric Dyblend & Jim Hall, Gary Howell (driller), Tony Nelson (LH)
Equipment AirCheck Sampler Model 224-PCXR8

0600 - 0620 Plan of Day and Safety meeting
0625 Drill to 15' Bgs at C3851 (216-29B)
0634 Begin purging for 14'-15' sample interval. Flow Rate 2L/min
0640 Collect sample ~~B15485~~ B15BW3 mm 9-18-02 at 14'-15' bgs OVM Reading 0 ppm
0647 Begin purging for 24'-25' sample interval. Flow Rate 2 L/min
0652 Collect sample ~~B15486~~ B15BW4 mm 9-18-02 at 24'-25' bgs.
0720 Purge 49'-50' bgs.
0725 ~~B15487~~ Collect sample B15BW5
0817 Mobilize to C3852 (221C)
0835 ~~B15488~~ Collect sample purged from 4'-5' B15BW6
0845 Purge 14'-15'
0848 ~~B15489~~ Collect sample B15BW67 mm 9-18-02
0909 Purge 18.66'-19.66' Refusal. ~~B15490~~ Collect sample B15BW8
0942 Mobilize to C3853 (221B).
0945 Standby waiting for new tip
1041 Purge @ 7'-8' bgs.
1044 ~~B15491~~ Collect sample B15BW89 mm 9-18-02
1050 Purge @ 14'-15' bgs
1054 ~~B15492~~ Collect sample B15BW~~89~~ XO mm 9-18-02
1108 Purge @ 24-25' bgs.
1111 ~~B15493~~ Collect sample ~~B15BW9~~ B15BX1 mm 9-18-02
1133 Purge @ 28.7'-27.7' Refusal
1138 ~~B15494~~ Collect sample ~~B15BX0~~ B15BX2 mm 9-18-02
1213 Mobilize to C3854 (29A-1) - Change back to CPT method
1305 Purge @ 15' bgs
1327 ~~B15495~~ Collect sample B15BX4 mm 9-18-02
1336 Purge @ 25' bgs.
1340 ~~B15496~~ Collect sample B15BX5 mm 9-18-02
1349 Purge @ 33' bgs
1349 ~~B15498~~ Collect sample B15BX~~3~~6 mm 9-18-02
1358 Purge @ 40' bgs
1403 ~~B15499~~ Collect sample B15BX~~4~~7 mm 9-18-02
1410 Purge @ 40.89'
1414 ~~B15400~~ Collect sample B15BX8 mm 9-18-02
Mobilized to Jim Marks 9/11/02 (cont. on Page 57)

Reviewed 10/10/02
By GS Thomas

TMJohansen/TMJohansen 9/11/02 F02-010 HNF-10-3131
Continued from Page 56

TMJohansen 9-11-02

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-010)

SAMPLER NAME:
T. M. Johansen
ANALYZER NAME:
T. M. Johansen

STANDARD CONCENTRATION of 25.5 ppmv CCl4 analyzed as ___22.6_ ppmv at __07:42_(time).

STANDARD CONCENTRATION of 25.5 ppmv CCl4 analyzed as ___21.7_ ppmv at __14:20__ (time).

Location Identification	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppmv)		Chloroform (ppmv)	Water Vapor (ppmv)
							A	B		
C3851/Z9B	B15BW3	9/11/2002	6:40	7:43	TMJ	14' - 15'	-	<1.0	<1.0	12,700
C3851/Z9B	B15BW4	9/11/2002	6:52	7:44	TMJ	24' - 25'	-	<1.0	< 1.0	14,400
C3851/Z9B	B15BW5	9/11/2002	7:25	7:45	TMJ	49' - 50'	-	<1.0	1.14	16,100
C3852/Z21C	B15BW6	9/11/2002	8:35	9:18	TMJ	4' - 5'	-	<1.0	<1.0	18,000
C3852/Z21C	B15BW7	9/11/2002	8:48	9:19	TMJ	14' - 15'	-	<1.0	1.27	19,500
C3852/Z21C	B15BW8	9/11/2002	9:09	9:20	TMJ	18.7' - 19.7'	-	<1.0	1.17	21,700
C3853/Z21B	B15BW9	9/11/2002	10:44	11:45	TMJ	7' - 8'	-	<1.0	1.07	16,900
C3853/Z21B	B15BX0	9/11/2002	10:54	11:46	TMJ	14' - 15'	-	<1.0	1.56	18,200
C3853/Z21B	B15BX1	9/11/2002	11:11	11:47	TMJ	24' - 25'	-	<1.0	1.55	20,400
C3853/Z21B	B15BX2	9/11/2002	11:38	11:48	TMJ	27.7' - 28.7'	-	<1.0	1.30	25,300
C3853/Z21B	B15BX3 Duplicate	9/11/2002	11:38	11:49	TMJ	27.7' - 28.7'	-	<1.0	1.32	25,300
C3854/Z9A-1	B15BX4	9/11/2002	13:27	14:15	TMJ	15'	-	<1.0	1.59	20,000
C3854/Z9A-1	B15BX5	9/11/2002	13:40	14:16	TMJ	25'	-	<1.0	2.83	24,100
C3854/Z9A-1	B15BX6	9/11/2002	13:49	14:17	TMJ	33'	-	<1.0	2.78	23,300
C3854/Z9A-1	B15BX7	9/11/2002	14:03	14:18	TMJ	40'	-	<1.0	2.74	27,500
C3854/Z9A-1	B15BX8	9/11/2002	14:14	14:19	TMJ	40.89'	-	<1.0	2.04	28,700

B15BW8

TMJohansen
9-11-02 ~~9-11-02~~
TMJ 9-11-02

TMJ 9/11/02

0000047

10/10/02

Reviewed By GS Thursday

10/10/02

TMJohansen/TMJohansen 9/11/02

Thomas Thomas 9/12/02 HNOF-N-313 1

200-PW-1 Vadose Zone Dissolved Carbon Tetrachloride Phase Sampling and Analysis (FD-010)

0600 Thomas arrives onsite for PRD. Onsite are

STR — Bob Jones
ARA — Eric Dysland + Jim Hall
IH — Tony Nelson Survey# 02-2853
RCI — Larry Walker
Geologist — Jess Hocking

0630 C3855 (221A) ~ Prepare to sample. Drillers set up over the hole the day before.
0648 Purge @ 5'-6' bgs.
0653 ~~B15BT~~ Collect sample B15BX9
0704 Purge @ 14'-15' bgs.
0707 ~~B15BT2~~ Collect sample. B15BY0
0717 Purge @ 24-25' bgs
0722 ~~B15BT3~~ Collect sample B15BY1
0734 Purge @ 29'-30' bgs.
0739 ~~B15BT4~~ Collect sample. B15BY2
0837 Mobilize to C3856 (217A)
1142 Purge @ 12'-13' bgs.
1145 ~~B15BT5~~ Collect sample B15BY3
1150 Purge @ 14'-15' bgs
1156 ~~B15BT6~~ Collect sample B15BY4
NOTE: Drillers tip dropped. Bring up casing and remove drills.
1230 Purge @ 24'-25' bgs.
1235 ~~B15BT7~~ Collect sample B15BY5
1248 Purge @ 29'-30'
1253 ~~B15BT8~~ Collect sample ~~B15BY6~~ B15CK1
1314 Purge @ 39'-40'
1319 ~~B15BT9~~ Collect sample. Refusal last sample B15CK2
1353 Mobilize to C3857 (217B)
1416 Purge @ 14'-15'
1419 ~~B15BT~~ Collect sample B15CK4
NOTE: Drillers tip dropped. Bring up casing
1510 Purge @ 24-25
1514 ~~B15BT~~ Collect sample B15CK5

Thomas Thomas 9-12-02 CMT. M 59

Reviewed 10/10/02
By GS Thomas

Location ID	Nu
Blank	
5 ppm std	
C3855/221A	B15
C3855/221A	B15
C3855/221A	B15
C3855/221A	B15
C3856/217A	B15
C3856/217A	B15
C3856/217A	B15
C3856/217A	B15
C3856/217A	B15
C3856/217A	B15
C3857/217B	B15
C3857/217B	B15
C3857/217B	B15
0.5 Std	-

Purge Volume Calcu
1in = .08ft
V = 3.142r2
V = 3.142(.04ft)2
V = 3.142(0.0016ft2)
V = 0.0050 ft2

Continued from 58 — Thomas/Thomas — HNF-10-3131

1533 Purge @ 39'-40' bgs (F02-010)

1538 ~~B154C3~~ min 9 gal Collect sample.

B15CK6

Lamar Thomas 9-12-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis (F02-010)

Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor	HEIS number
Blank	—	9-12-02	—	0742	TMJ	—	—	<1.0	<1.0	6820	—
25.5 ppm std	—	9-12-02	—	0743	TMJ	—	—	21.6	<1.0	7030	—
(3855/221A	B154B1	9-12-02	0653	0744	TMJ	5'-6'	—	<1.0	<1.0	15500	B15BX9
(3855/221A	B154B2	9-12-02	0707	0745	TMJ	14'-15'	—	<1.0	<1.0	17600	B15BY0
(3855/221A	B154B3	9-12-02	0722	0746	TMJ	24'-25'	—	<1.0	<1.0	16200	B15BY1
(3855/221A	B154B4	9-12-02	0739	0747	TMJ	29'-30'	—	<1.0	<1.0	18500	B15BY2
(3856/217A	B154B5	9-12-02	1145	1332	TMJ	12'-13'	—	<1.0	1.46	15400	B15BY3
(3856/217A	B154B6	9-12-02	1156	1333	TMJ	14'-15'	—	<1.0	2.09	15800	B15BY4
(3856/217A	B154B7	9-12-02	1235	1334	TMJ	24'-25'	—	<1.0	1.71	15300	B15BY5
(3856/217A	B154B8	9-12-02	1253	1335	TMJ	29'-30'	—	<1.0	1.93	15300	B15CK1
(3856/217A	B154B9	9-12-02	1319	1336	TMJ	39'-40'	—	<1.0	1.26	17800	B15CK2
(3856/217A	B154C0	9-12-02	1319	1337	TMJ	39'-40'	—	<1.0	1.27	17700	B15CK3
(3857/217B	B154C1	9-12-02	1419	1538	TMJ	14'-15'	—	<1.0	1.40	13900	B15CK4
(3857/217B	B154C2	9-12-02	1514	1539	TMJ	24'-25'	—	<1.0	2.48	19500	B15CK5
(3857/217B	B154C3	9-12-02	1538	1540	TMJ	39'-40'	—	<1.0	2.10	24300	B15CK6
25.5 std	—	9-12-02	—	1541	TMJ	—	—	21.5	<1.0	7000	—

Purge Volume Calculation for 1" casing:	Purge Volume Calculation for 1/8" tubing:	Purge Volume for Sample Intervals:
1in = .08ft	V = 3.142r2	15ft - 0.0050ft2(15ft) + 0.013ft3 = 0.088ft3(28.32)= 2.49L/2min = **1.25 min**
V = 3.142r2	V = 3.142(.0052ft)2	25ft - 0.0050ft2(20ft) +0.0.13ft3 =0.113ft3(28.32) = 3.9L/2min = **1.95 min**
V = 3.142(.04ft)2	V = 3.142(0.000027ft2)	40ft - 0.0050ft2(40ft) + 0.013ft3 = 0.213ft3(28.32)= 6.03L/2min= **3.02 min**
V = 3.142(0.0016ft2)	V = 0.000085ft2(150ft of tubing)	50ft - 0.0050ft2(50ft) + 0.013ft3 =0.263ft3(28.32)=7.45L/2min= **3.73 min**
V = 0.0050 ft2	V = 0.013 ft3	

Lamar Thomas 9-12-02

See HEIS numbers on previous page & Right side of table. JT 10/10/02

TMJ 9-12-02

0000049

Thomas/Thomas 9-12-02

Reviewed By GS Thomas 10/10/02

9/13/02 SAF # F02-010

200-PW-1 Vadose Zone Monitoring During non-operation of SVE System HNF-N-313 1

Sampler Greg Thomas/~~Greg Thomas~~ Fluor

Site Personnel: Bob Jones (STR), Jess Hocking (Geologist), Traci Rudd (RCT), (ARA) Eric Dysland & Jim Hall, Gary Howell (driller), Tony Nelson (IH).

Equipment: Airclock Sampler Model 224-PCXR8, INNOVA 1312 PhotoAcoustic Mult-Gas Monitor, tedlar bags

C3861

0600-0610 set up rig. Sampler Mobs to Mobile Lab to turn on INNOVA & picks up sampler.

*AT 9/13/02

0610-0630 Plan of day and safety plan. Talk About possible radiation at 30'-45' bgs and what to do if we hit contamination.

C3858

0630 Start Pushing at C3858 (216-T-19B)

0645 start purging at 14'-15' bgs. Flow rate 2L/m. Purge 4 liters

0647 Collect Sample ~~B154C4~~ BIBCK7 OVM - 0ppm

0658 Start purging at 24'-25' bgs. Flow rate 2L/m. Purge 4 liters

0700 Collect Sample ~~B154C5~~ BIBCK8 OVM - 0 ppm

0713 Start purging at 32'-33' bgs. Flow rate 2L/m. Purge 6 liters

0716 Collect Sample ~~B154C6~~ BIBCK9 OVM - 0ppm

0741 Start Purging at 49'-50' bgs. Flow rate 2L/M. Purge 8 Liters

0745 Collect Sample ~~B154C7~~ BIBCL0 OVM - 0 ppm

0747 Mob to Mobile lab to Analyze Samples. See table for Analysis time and results.

C3859

0828 Start Pushing at C3859 (216-T-19C)

0840 Start purging at 14'-15' bgs. Flow rate 2L/m. Purge 3 liters

0841 Collect Sample ~~B154C8~~ ~~B154C0~~ BIBCL6 OVM - 0.4 ppm

0900 Start Purging at 24'-25' bgs. Flow rate ≈ 2L/m. Purge 4 liters

0902 Collect Sample ~~B154C9~~ BIBCL2 OVM - 0ppm

Start purging at 33'-34' bgs. Equipment Failure. Drive head seperates.

0905-1037 work casing out. Put Geoprobe tip on end of casing and drive for sample. Only able to get 28.8' bgs.

1038 Start purging at 27.8' to 28.8'. Flow rate 2L/m. Purge 4 liters

1040 Collect Sample ~~B154D0~~ BIBCL3 OVM - 0ppm. Duplicate Sample B154D1 Analyzed -

C3860

1150 Start pushing at C3860 (216-2-7B)

1155 Start purging at 5'-6' bgs. Flow rate 1L/m. ~~Flow~~ Pump cutting out Purge ≈ 2 Liters

1157 Collect Sample ~~B154D2~~ BIBCL5 OVM - 0ppm

1207 Start purging at 14'-15' bgs. Flow rate 2L/m. Purge 3 liters

1209 Collect Sample ~~B154D3~~ BIBCL6 OVM - 0ppm

1218 Start purging at 24'-25'. Flow rate 2L/m. Purge 4 liters

1220 Collect Sample ~~B154D4~~ BIBCL7 OVM - 0 ppm

1241 Start purging at 49'-50'. Flow rate 2L/m. Purge 8 Liters

1245 Collect sample ~~B154D5~~ BIBCL8 OVM - 0 ppm

Greg Thomas/~~Greg Thomas~~ 9/13/02

Reviewed By

9/13

BIBCM0

BIBCM1

Continue on page 61

Continue from page 60

9/13/02 SAF # F02-010

200-PW-1 Vadose Zone Monitoring During Non-Operation of SVE System HNF-N-313.1

Cont. from page 60

Sampler Greg Thomas/Greg Thomas Fluor

1313 Start purging at 60'-61' bgs. Flow rate 2L/m. Purge 10 liters

1318 Collect Sample ~~B154D6~~ B15CL9 rmj 9-18-02. OVM - 0 ppm

1321 Mob to Mobile Lab to Analyze Samples. See table for Analysis time & results

C3861 1405 Start pushing at C3861 (216-Z-7A)

1408 Start Purging at 8'-9' bgs. Flow rate 2L/m. Purge 3 liters

1416 Collect Sample ~~B154D7~~ B15CM0 rmj 9-18-02. OVM - 0 ppm

*GST 9/13/02 1419 Start Purging at ~~14'-15'~~ 15'-16' bgs. Flow rate 2L/m. Purge 3 liters

1421 Collect Sample ~~B154D8~~ B15CM1 rmj 9-18-02. OVM - 0 ppm

Start Purging at 24'-25' bgs. Drive head stuck in and of casing. Pull casing

1449 Sampler Mob to mobile lab to Analyze Samples. See table for Analysis time & results.

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis (F02-010)

Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor	
Blank	—	9/13/02	9/13/02 ~~0759~~ GST	0810	GST	—	—	<1	<1	8,030	HELS
25.5 ppm std	—	9/13/02	9/13/02 ~~0800~~ GST	0811	GST	—	—	21.2	<1	6,760	NUMBERS
C3858/19B	B154C4	9/13/02	0647	0812	GST	14'-15'	—	<1	1.21	12,000	B15CK7
C3858/19B	B154C5	9/13/02	0700	0813	GST	24'-25'	—	<1	1.02	13,400	B15CK8
C3858/19B	B154C6	9/13/02	0716	0814	GST	32'-33'	—	1.54	5.66	14,700	B15CK9
C3858/19B	B154C7	9/13/02	0745	0815	GST	49'-50'	—	1.03	9.04	18,300	B15CL0
C3859/19C	B154C8	9/13/02	0841	1052	GST	14'-15'	—	<1	<1	14,100	B15CL1
C3859/19C	B154C9	9/13/02	0902	1053	GST	24'-25'	—	<1	1.27	15,600	B15CL2
C3859/19C	B154D0	9/13/02	1040	1054	GST	27.8'-28.8'	—	1.09	1.47	27,700	B15CL3
C3859/19C	B154D1	9/13/02	1040	1055	GST	27.8'-28.8'	—	1.11	1.50	27,700	B15CL4
C3860/27B	B154D2	9/13/02	1157	1326	GST	5'-6'	—	<1	1.63	16,800	B15CL5
C3860/27B	B154D3	9/13/02	1209	1327	GST	14'-15'	—	<1	1.73	18,700	B15CL6
C3860/27B	B154D4	9/13/02	1220	1328	GST	24'-25'	—	<1	1.61	19,300	B15CL7
C3860/27B	B154D5	9/13/02	1245	1329	GST	49'-50'	—	<1	2.04	26,500	B15CL8
C3860/27B	B154D6	9/13/02	1318	1330	GST	60'-61'	—	2.06	1.43	21,300	B15CL9

Purge Volume Calculation for 1" casing:	Purge Volume Calculation for 1/8" tubing:	Purge Volume for Sample Intervals:
1in = .08ft	V = 3.142r2	15ft - 0.0050ft2(15ft) + 0.013ft3 = 0.088ft3(28.32)= 2.49L/2min = 1.25 min
V = 3.142r2	V = 3.142(.0052ft)2	25ft - 0.0050ft2(20ft) +0.0.13ft3 =0.113ft3(28.32) = 3.9L/2min = 1.95 min
V = 3.142(.04ft)2	V = 3.142(0.000027ft2)	40ft - 0.0050ft2(40ft) + 0.013ft3 = 0.213ft3(28.32)= 6.03L/2min= 3.02 min
V = 3.142(0.0016ft2)	V = 0.000085ft2(150ft of tubing)	50ft - 0.0050ft2(50ft) + 0.013ft3 =0.263ft3(28.32)=7.45L/2min= 3.73 min
V = 0.0050 ft2	V = 0.013 ft3	

9/13/02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis (F02-010)

Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor
Blank										
25.5 ppm std	—	9/13/02	—	1456	GST	—	—	20.1	1.07	9,350
B15CM0 C3861/27A	B154D7	9/13/02	1410	1454	GST	8'-9'	—	<1	1.65	20,800
B15CM1 C3861/27A	B154D8	9/13/02	1421	1455	GST	14'-15'	—	<1	1.95	19,800

Greg Thomas 9/13/02 Greg Thomas/Greg Thomas

0000051

Reviewed By MMinton/JMathews

9/16/02 SAF# F02-010

200-PW-1 Vadose Zone Monitoring During Non-Operational of SVE System HNF-N-313.1

Sampler Greg Thomas/Greg Thomas Fluor

Site Personnel: Bob Jones (STR), Charlene Martinez (Geologist), Byron Rader (RCT), Eric Dysland & Jim Hall (AVA), Gary Howell (Driller), Tony Nelson (IA)

Equipment: Aircheck Sampler Model 224-PCXR8, INNOVA 1312 Photoacoustic Multi-Gas Monitor, Tedlar bags

0600-0620 Plan of the day and Safety Plan.

C3861 0620 lower casing at C3861 (216-Z-7A) to 25' sample interval

0635 Start Purging 24'-25' bgs. Flow rate 2L/min. Purged 4L

0637 Collect Sample ~~B154D9~~ B15CM2 0VM - 0ppm B15CM2 AT 10/10/02

0701 Start Purging 43'-44' bgs. Flow rate 2L/m. Purged 6L

0704 Collect Sample ~~B154F0~~ B15CM3 ~~Flow rate~~ AT 9/16/02 0VM - 0ppm B15CM3 AT 10/10/02

0705 Mobilize armes onsite.

0757 Purge @ 14'-15' bgs

0800 ~~B154F1~~ Collect Sample B15CM4

0808 Purge @ 19'-20' bgs

0813 ~~B154F2~~ Collect Sample B15CM5

0819 Purge @ 24'-25' bgs

0824 ~~B154F3~~ Collect sample B15CM6

0845 Purge @ 49.2'-50.2' bgs.

0848 ~~B154F4~~ Collect Sample. B15J17

0904 Purge @ 59-60' bgs

0911 ~~B154F5~~ Collect Sample. Refusal B15J18

Note: OVM reading - 0ppm on all samples unless otherwise stated.

0945 Mobilize to C3863/216B

1000 Purge @ 14'-15' bgs

1003 ~~B154F6~~ Collect Sample. B15J19

1020 09 Purge @ 20'-21' bgs

1014 ~~B154F7~~ Collect Sample. B15J20

1025 1020 Purge @ 24'-25' bgs.

1023 ~~B154F8~~ Collect Sample. B15J21

1042 Purge @ 49'-50' bgs.

1049 ~~B154F9~~ Collect sample. B15J22

1109 Purge @ 66'-67

1114 ~~B154H0~~ Collect sample. Refusal B15J23

1205 Mobilize to C3864/719A

1225 Purge @ 14'-15' bgs

1230 ~~B154H2~~ Collect sample. B15J25

1238 Purge @ 24'-25' bgs

1242 ~~B154H3~~ Collect sample. B15J26

Note: hitting something hard at 27'

Thomas/Thomas 9/16/02

Cont. on Page 63

Reviewed By GS Thomas/Greg Thomas 10/10/02

Mathansen/Anderson F02-010 HUF-10-3131

Cont. from Page 62

1303 Purge @ 35'-36' bgs.
1307 ~~B154H4~~ Collect sample. B15J27
1326 Purge @ 49'-50' bgs
1332 ~~B154H5~~ Collect Sample B15J28
1402 Purge @ ~~66'-67'~~ MJ 9-16-02 69'-70' bgs. Refusal
1409 ~~B154H6~~ Collect sample B15J29
1455 Mobilize to C3865 Site #6
1505 Purge @ 4'-5' bgs.
1507 ~~B154H7~~ Collect sample B15J30
1514 Purge @ 14'-15' bgs.
1518 ~~B154H8~~ Collect Sample B15J31
1523 Purge @ 19'-20' bgs.
1526 ~~B154H9~~ Collect Sample B15J32
1531 Purge @ 24'-25' bgs. ~OVM reading 0.7
1535 ~~B154J0~~ Collect sample B15J33
1546 Purge @ 36'-37' bgs ~OVM reading 1.9
1549 ~~B154J1~~ Collect sample B15J34
1607 Purge @ 49'-50' bgs. Refusal OVM reading 1.4
1612 ~~B154J2~~ Collect sample B15J35

MJ 9/16/02

0000053

Mathansy/Anderson 9/16/02 Continued on Page 64

Reviewed By 10/10/02

Thomsen/Thomsen 9/16/02
Cont. from Page 63

HNF-N-3131

James Thomsen 9-16-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis (F02-010)

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor	HGLS Number
blank	—	9-16-02	—	0720	TMJ	—	—	<1.0	<1.0	7850	—
5.5 ppm std	—	9-16-02	—	0721		—	—	22.6	<1.0	1230	—
3861/27A	B154D9	9-16-02	0637	0722		24'-25'	—	<1.0	1.06	13300	B15CM2
3861/27A	B154F0	9-16-02	0704	0723		43'-44'	—	<1.0	1.01	16200	B15CM3
3862/216A	B154F1	9-16-02	0800	0920		14'-15'	—	<1.0	1.03	14800	B15CM4
3862/216A	B154F2	9-16-02	0813	0921		19'-20'	—	<1.0	1.04	15700	B15CM5
3862/216A	B154F3	9-16-02	0824	0922		24'-25'	—	<1.0	1.21	16500	B15CM6
3862/216A	B154F4	9-16-02	0848	0923		49.2'-50.2'	—	<1.0	1.35	18700	B15J17
3862/216A	B154F5	9-16-02	0911	0924		59'-60'	—	<1.0	1.13	20700	B15J18
3863/216B	B154F6	9-16-02	1003	1120		14'-15'	—	<1.0	<1.0	16000	B15J19
3863/216B	B154F7	9-16-02	1014	1121		20'-21'	—	<1.0	1.02	16400	B15J20
3863/216B	B154F8	9-16-02	1023	1122		24'-25'	—	<1.0	1.92	17000	B15J21
3863/216B	B154F9	9-16-02	1049	1123		49'-50'	—	<1.0	1.38	20200	B15J22
3863/216B	B154H0	9-16-02	1114	1124		66'-67'	—	<1.0	1.62	24600	B15J23
3863/216B	B154H1	9-16-02	1114	1125		66'-67'	—	<1.0	1.43	24600	B15J24
3864/T19A	B154H2	9-16-02	1230	14:16	TMJ	14'-15'	—	<1.0	1.99	15300	B15J25
3864/T19A	B154H3	9-16-02	1242	14:17	TMJ	24'-25'	—	<1.0	3.22	14900	B15J26
3864/T19A	B154H4	9-16-02	1307	14:18	TMJ	35'-36'	—	<1.0	4.60	17300	B15J27
3864/T19A	B154H5	9-16-02	1332	14:19	TMJ	49'-50'	—	<1.0	7.36	21000	B15J28
3864/T19A	B154H6	9-16-02	1409	14:20	TMJ	69'-70'	—	<1.0	11.5	27500	B15J29
5/Site#6	B154H7	9-16-02	1507	16:18	TMJ	4'-5'	—	<1.0	<1.0	18800	B15J30
65/SHL#6	B154H8	9-16-02	1518	16:19	TMJ	14'-15'	—	<1.0	1.13	20900	B15J31
65/SHL#6	B154H9	9-16-02	1526	16:20	TMJ	19'-20'	—	<1.0	1.28	19500	B15J32
65/SHL#6	B154J0	9-16-02	1535	16:21	TMJ	24'-25'	—	3.49	1.90	21600	B15J33
3865/SHL#6	B154J1	9-16-02	1549	1622	TMJ	36'-37'	—	6.20	2.13	22400	B15J34
3865/SHL#6	B154J2	9-16-02	1612	1623	TMJ	49'-50'	—	1.95	1.73	27900	B15J35
		~~9-16-02~~	~~1612~~	~~1624~~	~~TMJ~~	~~49'-50'~~	TMJ	9-16-02			—
3865/SHL#6	B154J3	9-16-02	1549	1624	TMJ	36'-37'		6.19	2.10	22400	B15J36
2615H1	—	9-16-02	—	1625	TMJ	—		22.6	<1.0	1240	—

Purge Volume Calculation for 1" casing:	Purge Volume Calculation for 1/8" tubing:	Purge Volume for Sample Intervals:
lin = .08ft	V = 3.142r2	15ft - 0.0050ft2(15ft) + 0.013ft3 = 0.088ft3(28.32)= 2.49L/2min = 1.25 min
/ = 3.142r2	V = 3.142(.0052ft)2	25ft - 0.0050ft2(20ft) +0.0.13ft3 =0.113ft3(28.32) = 3.9L/2min = 1.95 min
/ = 3.142(.04ft)2	V = 3.142(0.000027ft2)	40ft - 0.0050ft2(40ft) + 0.013ft3 = 0.213ft3(28.32)= 6.03L/2min= 3.02 min
/ = 3.142(0.0016ft2)	V = 0.000085ft2(150ft of tubing)	50ft - 0.0050ft2(50ft) + 0.013ft3 =0.263ft3(28.32)=7.45L/2min= 3.73 min
/ = 0.0050 ft2	V = 0.013 ft3	

James Thomsen 9-16-02

TMJ 9-17-02

TMJ 9-17-02

James Thomsen 9/16/02

Thomsen/Thomsen 9/16/02

Reviewed 10/1/02
By GS Thomas/Greg Thomas

AT 10/10/02

Mohansen/Mohansen 9/17/02 HNF-N-3131

300-PW-1 Vadose Zone Dispersed Carbon Tetrachloride Plume Sampling and Analysis (FOD-010)

0730 ~~0800~~ Mohansen arrive onsite for FOD. on-site are
SM - Bob Jones
BRA - Eric Dysland and Jim Hall
IH - Tony Nelson
RCT - Larry Walkup
Geologist - Charlene Martinez

0800 Mobilize inside tank farm Site #2 C38866
0834 Purge 1L at 10' bgs. Purge Rate 1.5L a min.
0838 ~~B15454~~ Collect sample B15537
Note: Using the CDT tip for sample collection. See purge volume for 1/8" tubing at bottom of Results Sheet V= 0.013ft3 (28.32) = 0.37L to purge the line.
0841 Purge 1L at 13' bgs
0844 ~~B15455~~ Collect sample. B15538
0845 Purge 1L at 15' bgs ~ No Readings on the OVM ~
0848 ~~B15456~~ Collect sample ~~B15538~~ B15539
0850 Purge 1L at 20' bgs
0854 ~~B15457~~ Collect sample. B15540
0856 Purge 1L at 25' bgs.
0859 ~~B15458~~ Collect sample B15541
0912 Purge 1L at 33.5' bgs.
0916 ~~B15457~~ Collect sample. B15542
1040 Move ~~reading~~ rock ball about 5' on the
~~1051~~ other side of the hole. C38867 Site 2
1054 Purge 1L at 10' bgs. ~ OVM reading 67.6 ppm.
1103 ~~B15462~~ Collect sample B15543
1106 Purge 1L at 13' bgs. ~ OVM reading 30.2
1112 ~~B15463~~ Collect sample. B15544
~~1119~~ 1115 Purge 1L at 15' bgs. ~ OVM reading 70.0 ppm
1119 ~~B15464~~ Collect sample. B15545
1122 Purge 1L at 20' bgs. ~ OVM reading 103 ppm
1126 ~~B15465~~ Collect sample. B15546
1129 Purge 1L at 25' bgs ~ OVM reading 30 ppm
1132 ~~B15466~~ Collect sample. B15547
1139 Purge 1L at 35' bgs refusal ~ OVM reading 2 ppm
1141 ~~B15467~~ Collect sample. B15548

Mohansen/Mohansen Cont. on Page 66

Reviewed By GS Thomas 10/10/02

0000055

min = 1.25 min
n = 1.95 min
min = 3.02 min
n = 3.73 min

10/10/02

Thatcher/Greenhanson 9/17/02 HOF-N-3131
continued from Page 65

1241 Mobilize to C3868 Site #4
1305 Purge IL at 7' bgs.
1309 ~~B15K9~~ MO 9-18-02 Collect Sample B15J50
1312 Purge IL at 15' bgs.
1314 ~~B15L0 at 20' bgs.~~ MO 9-18-02 B15J51
1319 Purge IL at 20' bgs OVM = 2.3
1324 ~~B15L1~~ MO 9-18-02 Collect sample B15J52
1327 Purge IL at 25' bgs OVM = 2.8~3.0
1330 ~~B15L2~~ MO 9-18-02 Collect sample. B15J53
1339 Purge IL at 32.1' bgs Refusal
1342 ~~B15L3~~ MO 9-18-02 Collect Sample. OVM = 3.7 B15J54

MT 9-17-02

Thatcher/Greenhanson 9/17/02 Cont. on Page 67.

Reviewed By G S Thomas/ 10/10/02

TMJ Thomas/Thomas 9/17/02
Continued from Page 66

HNF-10-8131

Lana Thomas 9/17/02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis (F02-010)

Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor	Hels Number
Blank	—	9/17/02	—	0922	TMJ	—	—	<1.0	<1.0	7920	—
25.5 ppm std	—	9/17/02	—	0923		—	—	22.3	<1.0	8030	—
C38066/Site 2	~~B154J4~~	9/17/02	0838	0924		10'	—	<1.0	<1.0	10400	B15J37
C38066/Site 2	~~B154J5~~	9/17/02	0844	0925		13'	—	<1.0	<1.0	10400	B15J38
C38066/Site 2	~~B154J6~~	9/17/02	0848	0926		15'	—	<1.0	<1.0	10100	B15J39
C38066/Site 2	~~B154J7~~	9/17/02	0854	0927		20'	—	<1.0	<1.0	9810	B15J40
C38066/Site 2	~~B154J8~~	9/17/02	0859	0928		25'	—	<1.0	<1.0	9890	B15J41
C38066/Site 2	~~B154J9~~	9/17/02	0916	0929		33.5'	—	<1.0	<1.0	9870	B15J42
C38067/Site 2	B154K2	9/17/02	1103	1145		10'	—	45.8	9.52	16100	B15J43
C38067/Site 2	B154K3	9/17/02	1112	1146		13'	—	7.34	1.71	10600	B15J44
C38067/Site 2	B154K4	9/17/02	1119	1147		15'	—	14.9	3.04	13100	B15J45
C38067/Site 2	B154K5	9/17/02	1126	1148		20'	—	23.9	5.48	14200	B15J46
C38067/Site 2	B154K6	9/17/02	1132	1149		25'	—	35.8	8.30	18900	B15J47
C38067/Site 2	B154K7	9/17/02	1141	1150		35'	—	24.9	6.77	22200	B15J48
C38067/Site 2	B154K8	9/17/02	1103	1151		10'	—	47.6	9.59	15700	B15J49
C38068/Site 4	B154K9	9/17/02	1309	1347	TMJ	7'	—	5.23	3.13	19800	B15J50
C38068/Site 4	B154L0	9/17/02	1314	1348		15'	—	3.95	3.98	22100	B15J51
C38068/Site 4	B154L1	9/17/02	1324	1349		20'	—	4.88	3.88	23300	B15J52
C38068/Site 4	B154L2	9/17/02	1330	1350		25'	—	7.26	4.24	21000	B15J53
C38068/Site 4	B154L3	9/17/02	1342	1351		32.1'	—	8.73	4.27	24200	B15J54
25.5ppm	—	9/17/02	—	1352	TMJ	—	—	22.4	<1.0	8000	~~B~~ TMJ 9-18-02

TMJ 9-17-02

Lana Thomas 9/17/02

Purge Volume Calculation for 1/8" tubing:
V = 3.142r2
V = 3.142(.0052ft)2
V = 3.142(0.000027ft2)
V = 0.000085ft2(150ft of tubing)
V = 0.013 ft3

V = 0.013ft3(28.32) = 0.37 L
Purge Rate 2L a minute

10/10/02

0000057

10/10/02

Reviewed By GS Thomas/Thomas

TMJ Thomas/Thomas 9/17/02

Mathursen/Smithers 9/18/02 HWF-W-3131

200-PW-1 Vadose Zone Dissolved Carbon Tetrachloride Plume Sampling and Analysis (FD-010)

0730 TMJ 7-18-02 Mathursen arrives on site already mobilized to C3869 Site #1.

0719 Purge 1L @ 10' bgs. OVM = 11 ppm
0730 ~~B15LL4~~ Collect sample. B15555
0732 Purge 1L @ 15' bgs
0737 ~~B15LL5~~ Collect sample OVM = 20.4 ppm B15556
0739 Purge 1L @ 20' bgs
0744 ~~B15LL6~~ Collect sample OVM = 20.1 ppm B15557
0746 Purge 1L @ 25' bgs.
0750 ~~B15LL7~~ Collect sample OVM = 19.8 ppm B15558
0757 Purge 1L @ 33' bgs. Refusal at 33.5
0802 ~~B15LL8~~ Collect sample. OVM = 19.0 ppm B15559
0858 Mobilize to C3870 Site #12
0915 Purge 1L @ 11' bgs.
0924 ~~B15LL9~~ Collect sample. OVM = 11.4 ppm B15560
0935 Purge 1L @ 15' bgs B15561
0944 ~~B15LM0~~ Collect sample. OVM = 7.5 ppm to 8.0 ppm
0948 Purge 1L @ 20' bgs
0958 ~~B15LM1~~ Collect sample. OVM = 6.7 ppm B15562
1001 Purge 1L @ 25' bgs.
1011 ~~B15LM2~~ Collect sample. OVM = 7.5 - 7.7 ppm B15563
1017 Purge 1L @ 33' bgs. ~ Refusal
1028 ~~B15LM3~~ Collect sample OVM = 7.5 ppm B15564

NOTE: the CPT team will now mobilize to do well completion. No sampling is required.

TMJ 9-18-02

Reviewed By GS Thomas/Greg Thomas 10/10/02

TMJ Jensen/Jim Thomas 9/18/02
Cont. from Page 68

HNF-N-3131

Jim Thomas 9/18/02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis (F02-010)

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor	Heis Number
Blank	—	9/18/02	—	0808	TMJ	—	—	<1.0	<1.0	8930	—
25.5 ppm std	—	9/18/02	—	0809	TMJ	—	—	21.9	<1.0	7900	—
C3869/Site1	~~B15441~~	9/18/02	0730	0810	TMJ	10'	—	9.61	3.12	13400	B15555
C3869/Site1	~~B15445~~	9/18/02	0737	0811	TMJ	15'	—	16.0	5.08	14300	B15556
C3869/Site1	B15446	9/18/02	0744	0812	TMJ	20'	—	12.9	4.40	14700	B15557
C3869/Site1	B15447	9/18/02	0750	0813	TMJ	25'	—	14.0	5.63	16400	B15558
C3869/Site1	B15448	9/18/02	0802	0814	TMJ	33'	—	11.3	4.75	15800	B15559
C3870/Site12	B15449	9/18/02	0924	1045	TMJ	11'	—	3.58	2.11	12000	B15560
C3870/Site12	B154m0	9/18/02	0944	1046	TMJ	15'	—	5.13	2.99	11800	B15561
C3870/Site12	B154m1	9/18/02	0958	1047	TMJ	20'	—	5.15	3.11	11900	B15562
C3870/Site12	B154m2	9/18/02	1011	1048	TMJ	25'	—	6.37	3.67	12300	B15563
C3870/Site12	B154m3	9/18/02	1028	1049	TMJ	33'	—	6.15	3.93	14500	B15564
C3870/Site12	B154m4	9/18/02	1028	1050	TMJ	33'	—	6.12	3.71	14400	B15565
Blank	—	9/18/02	—	1051	TMJ	—	—	<1.0	<1.0	8410	~~B15566~~ TMJ 9-18-02
25.5 Std.	—	9/18/02	—	1052	TMJ	—	—	23.1	<1.0	7160	~~B15567~~ TMJ 9-18-02

TMJ 9-18-02

Jim Thomas 9/18/02

Purge Volume Calculation for 1/8" tubing:
V = 3.142r2
V = 3.142(.0052ft)2
V = 3.142(0.000027ft2)
V = 0.000085ft2(150ft of tubing)
V = 0.013 ft3

V = 0.013 ft3 (28.32) = 0.37L

Purge Rate 2L a minute

TMJ 9/18/02

0000059

10/10/02

Reviewed By GS Thomas / Greg Thomas

TMJ/Jim Thomas 9/18/02

Thomsen/Smithsen 9/24/02 HNF-N-383-N

200-PW-1 Vadose Zone Plume Sampling and Analysis (TCD-010)

0700 Arrive on site for Geoprobe pushes. Geoprobe pushed to 25' at site C4038 (PI-2)
0715 Purge at 25'. 24.2'-25.4' bgs
0718 B15J54 Collect sample.
Note: Continue to use 1" casing and 1/8" tubing tubing length of 30'.
0737 Purge at 10.7-15.2' bgs
0741 B15J55 Collect sample.
0748 Purge at 10.5-11' bgs
0753 B15J56 Collect sample.
0800 Mobilize Geoprobe C4039 (PI-3)
0821 Purge @ 24.2'-25.4' bgs
0824 B15J57 Collect sample.
0840 Purge @ 15.2'-15.8' bgs.
0845 B15J58 Collect sample.
0853 Purge @ 10.2'-11.2' bgs
0857 B15J59 Collect sample.
0905 Mobilize Geoprobe to C4040 (PI-4)
0929 ~~B15K0 Collect sample~~ Purge @ 24.2'-25.4' bgs.
0933 B15K0 Collect sample.
0945 Purge @ 15.2'-15.5' bgs.
0949 B15K1 Collect sample.
0955 Purge @ 10.2'-11.2' bgs.
0959 B15K2 Collect sample.
1010 Mobilize Geoprobe to C4041 (PI-5)
1034 Purge @ 24.2'-25.4' bgs
1038 B15K3 Collect sample.
1052 Purge @ 14.2'-14.6' bgs
1056 B15K4 Collect sample.
1102 Purge @ 10.2'-10.5' bgs
1105 B15K5 Collect sample.
1120 Mobilize Geoprobe to C4042 (PI-6)
1138 Purge @ 24.2'-25.4' bgs.
1140 B15K6 Collect sample.
1159 Purge @ 15.2'-15.5' bgs.
1203 B15K7 Collect sample.

Thomsen/Smithsen Continued on Page 71

Reviewed 10/10/02
By G.S. Thomas

-313 N

Mathiansen/Smithers 9/24/02 (P02-010) HNF-10-313.1

Continued from Page 70

1210 Purge @ 10.2'-11' bgs.
1215 B15K8 Collect sample.
1255 Mobilize equipment to C4043 (P1-7)
1314 Purge @ 24.2'-25.5' bgs.
1318 B15K9 Collect sample.
1331 Purge @ 15.2'-15.5' bgs
1333 B15L0 Collect sample.
1341 Purge @ 10.2'-11.1' bgs.
1344 B15L1 Collect sample.
1410 Mobilize equipment to C4044 (P1-8)
1440 Purge @ 22.2-23.2' bgs.
1446 B15L2 Collect sample
1502 Purge @ 15.2'-16.0' bgs.
1505 B15L3 Collect sample.
1511 Purge @ 10.2'-11.5' bgs
1515 B15L4 Collect sample

Purge Volume Calculation for 1" Casing:

1 in = 0.08 ft
$V = 3.14 r^2$
$V = 3.142 (.04 ft)^2$
$V = 3.142 (0.0016 ft)^2$
$V = 0.0050 ft^2$

Purge Volume Calc. 1/8" tubing:

$V = 3.142 r^2$
$V = 3.142 (0.0052 ft)^2$
$V = 3.142 (0.000027 ft^2)$
$V = 0.000085 ft^2 (30 ft)$
$V = 0.0255 ft^3$

Purge volume for Sample intervals:

$V = 0.0050 ft^2 (25 ft) + 0.0255 ft^3 = 1.0255 ft^3 (28.32) = 2.87 L$

Purge Rate: 2L per minute $2.87 L \left(\frac{1 min}{2 L}\right) = 1.43 min$

TMJ 9-24-02

0000061

bz

10/10/02

Reviewed By GS Thomas

Mathiansen/Smithers Cont. on Page 72

Continued from page 71 9-24-02

HOF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis (F02-010)

Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor
Blank	—	9-24-02	—	0903	TMT	—	—	<1.0	<1.0	8200
25.5 ppm std	—	9-24-02	—	0904	TMT	—	—	22.5	<1.0	6180
C4038/P1-2	B15JJ4	9-24-02	0718	0905	TMT	24.2'-25.4'	—	<1.0	<1.0	10500
C4038/P1-2	B15JJ5	9-24-02	0741	0906	TMT	15.2'-16.7'	—	<1.0	<1.0	12100
C4038/P1-2	B15JJ6	9-24-02	0753	0907	TMT	10.2'-11.0'	—	<1.0	<1.0	12300
C4039/P1-3	B15JJ7	9-24-02	0824	0908	TMT	24.2'-25.4'	—	<1.0	2.35	15400
C4039/P1-3	B15JJ8	9-24-02	0845	0909	TMT	15.2'-15.8'	—	<1.0	1.11	19200
C4039/P1-3	B15JJ9	9-24-02	0857	0910	TMT	10.2'-11.2'	—	<1.0	1.03	23400
C4040/P1-4	B15JK0	9-24-02	0933	1113	TMT	24.2'-25.4'	—	<1.0	3.35	14900
C4040/P1-4	B15JK1	9-24-02	0949	1114	TMT	15.2'-15.5'	—	<1.0	2.87	15700
C4040/P1-4	B15JK2	9-24-02	0959	1115	TMT	10.2'-11.2'	—	<1.0	2.52	16500
C4041/P1-5	B15JK3	9-24-02	1038	1116	TMT	24.2'-25.4'	—	1.18	1.67	20600
C4041/P1-5	B15JK4	9-24-02	1056	1117	TMT	14.2'-14.6'	—	<1.0	<1.0	24700
C4041/P1-5	B15JK5	9-24-02	1105	1118	TMT	10.2'-10.5'	—	<1.0	<1.0	26400
C4042/P1-6	B15JK6	9-24-02	1140	1349	TMT	24.2'-25.4'	—	<1.0	1.72	11800
C4042/P1-6	B15JK7	9-24-02	1203	1350	TMT	15.2'-15.5'	—	<1.0	1.82	11900
C4042/P1-6	B15JK8	9-24-02	1215	1351	TMT	10.2'-11.0'	—	<1.0	1.03	13000
C4043/P1-7	B15JK9	9-24-02	1318	1352	TMT	24.2'-25.5'	—	<1.0	2.06	17300
C4043/P1-7	B15JL0	9-24-02	1333	1353	TMT	15.2'-15.5'	—	<1.0	1.73	21200
C4043/P1-7	B15JL1	9-24-02	1344	1354	TMT	10.2'-11.1'	—	<1.0	<1.0	23100
C4044/P1-8	B15JL2	9-24-02	1446	1522	TMT	22.2'-23.2'	—	<1.0	1.36	18200
C4044/P1-8	B15JL3	9-24-02	1505	1523	TMT	15.2'-16.0'	—	<1.0	<1.0	20300
C4044/P1-8	B15JL4	9-24-02	1515	1523	TMT	10.2'-11.5'	—	<1.0	<1.0	24600
C4044/P1-8	B15JL6	9-24-02	1446	1524	TMT	22.2'-23.2'	—	<1.0	1.27	17200
25.5 Std	TMT 9-24-02 5	9-24-02	—	1525	TMT	—	—	22.8	<1.0	6200

TMT 9/24/02

Reviewed By GS Thomas 10/10/02

Mathiansen/Grathanse 9-25-02 MOF-10-313,
200-PW-1 Vadose Zone Dispersed Carbon
Tetrachloride Plume Sampling and Analysis (FOD-010)

0705 Arrive on site for Geoprobe pushes at C4045 (P1-9).
0712 Purge @ 24.2' - 25.4' bgs.
0716 B55L7 Collect sample.
0738 Purge @ 15.2' - 16.5' bgs
0735 B55L8 Collect sample.
0747 Purge @ 10.2' - 11.3' bgs.
0751 B55L9 Collect sample.
0805 Mobilize Geoprobe to C4046 (P1-10) south of PFP fence along P1 line.
0825 Purge @ 24.2' - 25.4' bgs.
0829 B55L9 Collect sample.
0840 Purge @ 15.2' - 16.1' bgs
0845 B55M8 Collect sample.
0852 Purge @ 10.2' - 11.0' bgs.
0856 B55M9 Collect sample.
0949 Arrive on site for Geoprobe to C4047 (P9-2) North of PFP.
1011 Purge @ 24.2' - 25.4' bgs.
1015 B55N0 Collect sample.
1028 Purge @ 15.2' - 16.8' bgs.
1033 B55N1 Collect sample.
1043 Purge @ 5.2' - 6.5' bgs.
1045 B55N2 Collect sample.
1058 Mobilize to C4048 (P9-3)
1117 Purge @ 24.2' - 25.4' bgs.
1120 B55N3 Collect sample.
1133 Purge @ 15.2' - 16.0' bgs.
1136 B55N4 Collect sample.
1150 Purge @ 5.2' - 6.8' bgs.
1153 B55N5 Collect sample
1200 Discontinue field activities for the day to attend PFP Geoprobe meeting at 271-U

TMT 9-25-02

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10/10/02

Reviewed
By G.S. Thomas

Mathiansen/Grathanse 9-25-02
Continued on page 74

Mathenson/Anderson
Continued from page 73

HNF-10-3131

Tamara Thomas 9-25-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis (F02-010)

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor
Blank	—	9-25-02	—	0910	TMJ	—	—	<1.0	<1.0	10850
25.5 ppm std	—	9-25-02	—	0911	TMJ	—	—	22.7	<1.0	10320
C4045 P1-9	B15JL6	9-25-02	0716	0912	TMJ	24.2'-25.4'	—	<1.0	<1.0	9840
C4045 P1-9	B15JL7	9-25-02	0735	0913	TMJ	15.2'-16.5'	—	<1.0	<1.0	9980
C4045 P1-9	B15JL8	9-25-02	0751	0914	TMJ	10.2'-11.3'	—	<1.0	<1.0	11500
C4046 P1-10	B15JL9	9-25-02	0829	0915	TMJ	24.2'-25.4'	—	1.32	<1.0	15100
C4046 P1-10	B15JM8	9-25-02	0845	0916	TMJ	15.2'-16.1'	—	1.05	<1.0	18000
C4046 P1-10	B15JM9	9-25-02	0856	0917	TMJ	10.2'-11.0'	—	<1.0	<1.0	18400
C4047 P9-2	B15JN0	9-25-02	1015	1157	TMJ	24.2'-25.4'	—	<1.0	1.49	11600
C4047 P9-2	B15JN1	9-25-02	1033	1158	TMJ	15.2'-16.8'	—	<1.0	<1.0	12300
C4047 P9-2	B15JN2	9-25-02	1045	1159	TMJ	5.2'-6.5'	—	<1.0	<1.0	7230
C4048 P9-3	B15JN3	9-25-02	1120	1200	TMJ	24.2'-25.4'	—	<1.0	<1.0	18300
C4048 P9-3	B15JN4	9-25-02	1130	1201	TMJ	15.2'-16.0	—	<1.0	<1.0	21300
C4048 P9-3	B15JN5	9-25-02	1153	1202	TMJ	5.2'-6.8'	—	<1.0	<1.0	25300
C4048 P9-3	B15JN6	9-25-02	1153	1203	TMJ	5.2'-6.8'	—	<1.0	<1.0	25200
25.5 Std.	—	9-25-02	—	1204	TMJ	—	—	23.2	<1.0	16940

Tamara Thomas 9-25-02

TMJ 9-25

Purge Volume 1" Casing
1in = 0.08 ft
$V = 3.142 r^2$
$V = 3.142 (0.04)^2$
$V = 0.0050 ft^2$

Purge 1/8" tubing
$V = 3.142 r^2$
$V = 3.142 (0.0052 ft)^2 (30 ft)$
$V = 0.0255 ft^3$

Purge Volume Sample Interval:

$V = 0.0050 ft^2 (25 ft) + 0.0255 ft^3 = 2.87 L$

Purge Rate = 2L per minute

TMJ 9/25/02

Mathenson/Anderson 9/25/02

Reviewed By G S Thomas 10/10/02

Matthewson/Anderson 9-26-02 HNF-N-313 1

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis (FO2-010)

0700 Arrive on Site for Geoprobe Pushes. C4049 (P7-4)
0707 Purge @ 24.2'-25.0' bgs.
0710 B15N07 Collect Sample.
0724 Purge @ 14.4'-14.8' bgs.
0728 B15N08 Collect sample.
0738 Purge @ 7.0'-7.4' bgs.
0742 B15N09 collect sample.
0755 Mobilize to C4050 (P7-5) North of PFP
0820 Purge @ 24.2'-25.4' bgs.
0823 B15P0 Collect sample.
0833 Purge @ 15.2'-15.8' bgs.
0836 B15P1 Collect sample.
0844 Purge @ 8.2'-9.2' bgs.
0847 B15P2 Collect sample.
mb 9-26 0809a Mobilize to C4051 (P7-6) North of PFP
0919 Purge @ 24.2'-25.4' bgs.
0923 B15P3 Collect Sample.
0936 Purge @ 15.2'-16.5' bgs.
0939 B15P4 Collect Sample.
0947 Purge @ 8.2'-9.9' bgs.
0950 B15P5 Collect Sample.
1000 Mobilize to C4052 (P7-7) North of PFP.
1025 Purge @ 24.2'-25.4' bgs.
1028 B15P6 Collect Sample.
1043 Purge @ 15.2'-15.5' bgs.
1046 B15P7 Collect Sample
1053 Purge @ 8.2'-9.4' bgs.
1056 B15P8 Collect Sample.
1110 Mobilize Geoprobe to C4053 P7-3. RCI full support. Larry walkup onsite.
1138 Purge @ 24.2'-25.4' bgs
1140 B15P9 Collect Sample.
1155 Purge @ 15.2'-15.7' bgs.
1157 B15R0 Collect sample.
1207 Purge @ 8.2'-9.7' bgs.
1209 B15R1 Collect Sample.
1220 Mobilize Geoprobe to C4054 P7-2. RCI full support.

mb 9-25-02

0000065

Reviewed

Transmans/Transmans F02-010 9-26-02 HUF-N-313)
continued from page 75

1307 Purge @ 24.2' - 24.7' bgs.
1310 B155R2 Collect sample.
1323 Purge @ 15.2' - 16.4' bgs.
1326 B155R3 Collect sample.
1334 Purge @ 8.2' - 9.5' bgs.
1337 B155R4 Collect sample.
1350 Mobilize Geoprobe to C4055 (P9-4)
1413 Purge @ 24.2' - 25.4' bgs
1415 B155R5 Collect sample.
1429 Purge @ 15.2' - 16.5' bgs.
1431 B155R6 Collect sample.
1444 Purge @ 5.2' - 6.7' bgs.
1447 B155R7 Collect sample.

TMT 9/26/02

Transmans/Transmans
Continued on Page 77

Reviewed By GS Thomas/GS Thomas 10/10/02

3)

Mechanson / Smithans 9-26-02

Continued from page 76

HWF-10-3131

Lamar Johnson 9-26-02

Lamar Johnson 9-26-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis (F02-010)

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor
Blank	-	9-26-02	-	0854	TMJ	-	-	<1.0	<1.0	5970
25.5 ppm std	-	9-26-02	-	0855	TMJ	-	-	22.1	<1.0	5410
C4049/P7-4	B15JW7	9-26-02	0710	0856	TMJ	24.2'-25.0'	-	<1.0	<1.0	8500
C4049/P7-4	B15JW8	9-26-02	0728	0857	TMJ	14.0'-14.8'	-	<1.0	<1.0	9200
C4049/P7-4	B15JW9	9-26-02	0742	0858	TMJ	7.0'-7.4'	-	<1.0	<1.0	9720
C4050/P7-5	B15JP0	9-26-02	0823	0859	TMJ	24.2'-25.4'	-	<1.0	<1.0	12200
C4050/P7-5	B15JP1	9-26-02	0836	0900	TMJ	15.2'-15.8'	-	<1.0	<1.0	13200
C4050/P7-5	B15JP2	9-26-02	0847	0901	TMJ	8.2'-9.2'	-	<1.0	<1.0	14300
C4051/P7-6	B15JP3	9-26-02	0923	1101	TMJ	24.2'-25.4'	-	<1.0	1.09	12000
C4051/P7-6	B15JP4	9-26-02	0939	1102	TMJ	15.2'-16.5'	-	<1.0	<1.0	12500
C4051/P7-6	B15JP5	9-26-02	0955	1103	TMJ	8.2'-9.9'	-	<1.0	<1.0	12800
C4052/P7-7	B15JP6	9-26-02	1028	1104	TMJ	24.2'-25.4'	-	<1.0	1.22	15700
C4052/P7-7	B15JP7	9-26-02	1046	1105	TMJ	15.2'-15.5'	-	<1.0	<1.0	17600
C4052/P7-7	B15JP8	9-26-02	1056	1106	TMJ	8.2'-9.4'	-	<1.0	<1.0	19600
C4053/P7-3	B15JP9	9-26-02	1140	1343	TMJ	24.2'-25.4'	-	<1.0	1.52	11600
C4053/P7-3	B15JR0	9-26-02	1157	1344	TMJ	15.2'-15.7'	-	<1.0	1.27	13000
C4053/P7-3	B15JR1	9-26-02	1209	1345	TMJ	8.2'-9.7'	-	<1.0	1.42	13100
C4054/P7-2	B15JR2	9-26-02	1310	1346	TMJ	24.2'-24.7'	-	<1.0	1.39	19900
C4054/P7-2	B15JR3	9-26-02	1326	1347	TMJ	15.2'-16.4'	-	<1.0	1.31	22100
C4054/P7-2	B15JR4	9-26-02	1337	1348	TMJ	8.2'-9.5'	-	<1.0	<1.0	24000
C4055/P9-4	B15JR5	9-26-02	1415	1453	TMJ	24.2'-25.4'	-	<1.0	<1.0	18700
C4055/P9-4	B15JR6	9-26-02	1431	1454	TMJ	15.2'-16.5'	-	<1.0	<1.0	18800
C4055/P9-4	B15JR7	9-26-02	1447	1455	TMJ	5.2'-6.7'	-	<1.0	<1.0	20700
25.5 Std.	-	9-26-02	-	1457	TMJ	-	-	22.9	<1.0	7900

Purge Volume Calculation for 1" casing:	Purge Volume Calculation for 1/8" tubing:
1in = .08ft	V = 3.142r2
V =.3.142r2	V = 3.142(.0052ft)2
V = 3.142(.04ft)2	V = 3.142(0.000027ft2)
V = 3.142(0.0016ft2)	V = 0.000085ft2(30ft of tubing)
V = 0.0050 ft2	V = 0.00255 ft3

Purge Volume for Sample Intervals:

25ft - 0.0050ft2(25ft) +0.00255ft3 =0.13800ft3(28.32) = 3.9L/2min = 1.95 min

Note: tubing length does not change only casing depth.

Lamar Johnson 9-26-02

Continued

C4055/ DUP/P9-4	B15JR8	9-26-02	1415	1456	TMJ	24.2'-25.4'	-	<1.0	<1.0	24300

0000067

10/10/02

Reviewed By GS Thomas / Gary Thomas

Mechanson / Smithans 9/26/02

ORIGINAL Dayes

SDR #: F03-003
Revision #: 0
Date Initiated: 10/29/02

SAMPLE DISPOSITION RECORD

SAF: F02-011
OU: 200-PW-1
Project ID: CPP 200 Area
Task ID: 4
Sampling Event: 200-PW-1 Carbon Tetrachloride

Laboratory: Field Analysis Activities

Task Manager: VJ Rohay

Sampling Information:
Number of Samples: 4
ID Numbers: B15WC9, B15WD0, B15WD1, B15WD2
Matrix: Gaseous
Collection Date: 09/06/02

Issue Background:
Class: ☒ Project Data Use ☐ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction
Type: Other
Description: Sample Numbers Used Twice

Disposition:

Description: Sample numbers B156W6, B156W7, B156W8, and B156W9 were originally assigned to SAF/FSR C02-045 and used for groundwater samples collected under this SAF/FSR. Later, these same sample numbers were assigned to SAF/FSR F02-011 and used again. As a result, new sample numbers where assigned to samples collected under SAF/FSR F02-011 that used the duplicated numbers. The assignment follows:

Old Sample Number	New Sample Number
B156W6	B15WC9
B156W7	B15WD0
B156W8	B15WD1
B156W9	B15WD2

Justification: The same sample numbers cannot be assigned to two different SAF/FSRs and used for two different samples.

Approval Signatures:

SJ Trent — 1/15/03
Project Coordinator (Print/Sign Name) — Date

VJ Rohay — 1/20/03
Task Manager (Print/Sign Name) — Date

BHI-EE-109 (02/99)

ORIGINAL Dayes

SDR #: F03-008
Revision #: 0
Date Initiated: 10/15/02

SAMPLE DISPOSITION RECORD

SAF: F02-011
OU: 200-PW-1
Project ID: CPP 200 Area
Task ID: 4
Sampling Event: 200-PW-1 Carbon Tetrachloride

Laboratory: Field Analysis Activities

Task Manager: VJ Rohay

Sampling Information:
Number of Samples: 52
ID Numbers: See Attachment
Matrix: Gaseous
Collection Date: 09/12/02 – 09/25/02

Issue Background:
Class: ☒ Project Data Use ☐ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction
Type: Other
Description: Sample Numbers Used Twice

Disposition:

Description: Sample numbers listed in the attachment were originally assigned to SAF/FSR F02-010 and used for samples collected under this SAF/FSR. Later, these same sample numbers were assigned to SAF/FSR F02-011 and used again. As a result, new sample numbers where assigned to samples collected under SAF/FSR F02-011 that used the duplicated numbers. The attachment lists the new sample number assignment.

Justification: The same sample numbers cannot be assigned to two different SAF/FSRs and used for two different samples.

Approval Signatures:

SJ Trent — 1/15/03
Project Coordinator (Print/Sign Name) — Date

VJ Rohay — 1/20/03
Task Manager (Print/Sign Name) — Date

Attachment
SDR Control Number: F03-008 Revision #: 0

Old Sample Number	New Sample Number	Old Sample Number	New Sample Number
B15CK2	B15CK2-A	B15JJ9	B15JJ9-A
B15CK3	B15CK3-A	B15JK0	B15JK0-A
B15CK5	B15CK5-A	B15JK1	B15JK1-A
B15CK6	B15CK6-A	B15JK2	B15JK2-A
B15CK7	B15CK7-A	B15JK3	B15JK3-A
B15CK8	B15CK8-A	B15JK4	B15JK4-A
B15CK9	B15CK9-A	B15JK6	B15JK6-A
B15CL0	B15CL0-A	B15JL0	B15JL0-A
B15CL1	B15CL1-A	B15JL1	B15JL1-A
B15CL2	B15CL2-A	B15JL2	B15JL2-A
B15CL3	B15CL3-A	B15JL3	B15JL3-A
B15CL4	B15CL4-A	B15JL5	B15JL5-A
B15CL5	B15CL5-A	B15JL6	B15JL6-A
B15CL6	B15CL6-A	B15JL7	B15JL7-A
B15CL7	B15CL7-A	B15JL8	B15JL8-A
B15CL8	B15CL8-A	B15JL9	B15JL9-A
B15CM0	B15CM0-A	B15JK5	B15JK5-A
B15CM1	B15CM1-A	B15JK9	B15JK9-A
B15CM3	B15CM3-A	B15JL4	B15JL4-A
B15CM4	B15CM4-A	B15CK4	B15CK4-A
B15CM5	B15CM5-A	B15CL9	B15CL9-A
B15CM6	B15CM6-A	B15JJ6	B15JJ6-A
B15JJ4	B15JJ4-A	B15JK7	B15JK7-A
B15JJ5	B15JJ5-A	B15CK1	B15CK1-A
B15JJ7	B15JJ7-A	B15CM2	B15CM2-A
B15JJ8	B15JJ8-A	B15JK8	B15JK8-A

FIELD SCREENING
FINAL DATA DELIVERABLE COVER SHEET

Date: **Friday, December 13, 2002**

Sample Authorization Form (SAF) Number: F02-011

SDG Number (assigned by Sample Management): FP0030 Revision 1

Attachments (check all that apply or N/A):

Dayes 12/23/02

X	Test Results
N/A	Narrative Summary
N/A	Chain of Custody(s)
X	Logbook Pages
N/A	Anomaly Report

Total number of pages (including cover sheet): ~~69~~ 68 Dayes 1/22/03

Comments:
200-PW-1 Vadose Zone Monitoring

THESE TESTS WERE CONDUCTED USING QC-2

JAN 2003
RECEIVED

Analyst Signature — Date 12/13/02

Reviewer's Signature — Date 1/20/03

Distribution: CPP Sample Management A0-21
Project (Specify)

Requires distribution to listed project personnel by Sample Management (check if applicable)

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems (SAF F02-011)

SAMPLERS NAME:
T. M. Johansen/G. Thomas

ANALYZERS NAME:
T. M. Johansen/G. Thomas

B&K SERIAL NUMBER: 010-019

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4011/Site 1	Blank	8/21/2002	-	10:06	TMJ	-	-	< 1.0	< 1.0	9,670
C4011/Site 1	B154R0	8/21/2002	9:27	10:08	TMJ	24.0' - 25.4'	-	6.91	2.07	14,500
C4011/Site 1	B154R1	8/21/2002	9:50	10:09	TMJ	15.2' - 16.1'	-	10.50	2.80	17,500
C4012/ Site 2	Blank	8/21/2002	-	11:55	TMJ	-	-	< 1.0	< 1.0	9,940
C4012/ Site 2	B154R2	8/21/2002	11:07	11:56	TMJ	24.0' - 25.4'	-	15.60	4.10	15,700
C4012/ Site 2	B154R3	8/21/2002	11:44	11:57	TMJ	15.2' - 15.8'	-	7.25	2.32	19,500
C4013/Site 11	Blank	8/21/2002	-	14:10	TMJ	-	-	< 1.0	< 1.0	10,100
C4013/Site 11	B154R4	8/21/2002	13:34	14:11	TMJ	24.0' - 25.4'	-	< 1.0	1.08	16,300
C4013/Site 11	B154R5	8/21/2002	13:58	14:12	TMJ	15.7' - 16.7'	-	< 1.0	< 1.0	19,200
C4014/ Site 4	Blank	8/22/2002	-	8:58	TMJ	-	-	< 1.0	< 1.0	13,700
C4014/ Site 4	B154R6	8/22/2002	8:06	9:00	TMJ	23.2' - 24.2'	-	1.36	1.85	15,800
C4014/ Site 4	B154R7	8/22/2002	8:37	9:01	TMJ	15.2' - 16.2'	-	< 1.0	1.07	17,500
C4015/ Site 9	Blank	8/22/2002	-	12:22	TMJ	-	-	< 1.0	< 1.0	13,700
C4015/ Site 9	B154R8	8/22/2002	9:53	12:23	TMJ	24.2' - 25.4'	-	< 1.0	2.31	14,100
C4015/ Site 9	B154R9	8/22/2002	10:23	12:24	TMJ	15.8' - 16.8'	-	<1.0	2.09	13,900
C4016/ Site 12	B154T0	8/22/2002	11:30	12:25	TMJ	24.2' - 25.4'	-	4.80	3.37	15,600
C4016/ Site 12	B154T1	8/22/2002	11:53	12:26	TMJ	19.6' - 23.3'	-	14.80	4.48	16,200
C4016/ Site 12	B154T4 Duplicate	8/22/2002	11:53	12:27	TMJ	19.6' - 23.3'	-	14.30	4.51	16,200
C4016/ Site 12	Blank	8/22/2002	-	15:15	TMJ	-	-	< 1.0	< 1.0	13,400

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4016/ Site 12	B154T2	8/22/2002	14:10	15:16	TMJ	15.2' - 16.5'	-	12.70	5.77	14,000
C4012/ Site 2	B154T3	8/22/2002	14:55	15:17	TMJ	12.0' - 13.4'	-	62.10	12.20	18,100
C4017/ Site 3	Blank	8/23/2002	-	8:41	TMJ	-	-	< 1.0	< 1.0	11,200
C4017/ Site 3	B154T5	8/23/2002	8:03	8:43	TMJ	24.2' - 25.4'	-	<1.0	1.72	18,200
C4017/ Site 3	B154T6	8/23/2002	8:29	8:44	TMJ	15.2' - 16.4'	-	<1.0	1.41	19,700
C4018/ Site 7	Blank	8/23/2002	-	10:11	TMJ	-	-	< 1.0	< 1.0	12,400
C4018/ Site 7	B154T7	8/23/2002	9:28	10:12	TMJ	24.2' - 25.4'	-	<1.0	1.50	17,200
C4018/ Site 7	B154T8	8/23/2002	9:55	10:13	TMJ	15.2' - 16.5'	-	<1.0	1.16	18,700
C4019/ Site 5	Blank	8/23/2002	-	12:10	TMJ	-	-	< 1.0	< 1.0	12,600
C4019/ Site 5	B154T9	8/23/2002	11:12	12:11	TMJ	24.2' - 25.4'	-	<1.0	2.57	15,500
C4019/ Site 5	B154V0	8/23/2002	11:35	12:12	TMJ	15.2' - 16.5'	-	<1.0	1.55	17,900
C4020/ Site 10	Blank	8/26/2002	-	8:05	TMJ	-	-	< 1.0	< 1.0	12,000
C4020/ Site 10	B154V1	8/26/2002	7:27	8:07	TMJ	24.2' - 25.4'	-	<1.0	1.52	16,600
C4020/ Site 10	B154V2	8/26/2002	7:43	8:08	TMJ	15.2' - 16.7'	-	<1.0	1.47	19,800
C4021/ Site 8	Blank	8/26/2002	-	9:27	TMJ	-	-	< 1.0	< 1.0	11,600
C4021/ Site 8	B154V3	8/26/2002	8:48	9:28	TMJ	24.2' - 25.4'	-	<1.0	1.83	17,700
C4021/ Site 8	B154V4	8/26/2002	9:15	9:29	TMJ	15.2' - 16.5'	-	<1.0	1.62	20,300
C4022/ Site 6	Blank	8/26/2002	-	11:00	TMJ	-	-	< 1.0	< 1.0	11,800
C4022/ Site 6	B154V5	8/26/2002	10:14	11:01	TMJ	24.2' - 25.4'	-	2.39	2.78	16,700
C4022/ Site 6	B154V6	8/26/2002	10:42	11:02	TMJ	15.2' - 16.7'	-	<1.0	1.56	19,000
C4023/P6-13	Blank	8/26/2002	-	13:29	TMJ	-	-	< 1.0	< 1.0	12,300
C4023/P6-13	B154V7	8/26/2002	12:24	13:30	TMJ	24.2' - 25.4'	-	<1.0	2.11	15,500

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4023/P6-13	B154V8	8/26/2002	12:50	13:31	TMJ	15.2' - 16.8'	-	<1.0	1.87	17,300
C4023/P6-13	B154V9	8/26/2002	13:13	13:32	TMJ	5.2' - 6.3'	-	<1.0	1.87	18,700
C4024/P6-12	Blank	8/26/2002	-	15:00	TMJ	-	-	< 1.0	< 1.0	14,600
C4024/P6-12	B154W0	8/26/2002	13:53	15:01	TMJ	24.2' - 25.4'	-	<1.0	3.81	15,800
C4024/P6-12	B154W4 Duplicate	8/26/2002	13:53	15:02	TMJ	24.2' - 25.4'	-	<1.0	3.97	15,700
C4024/P6-12	B154W1	8/26/2002	14:15	15:03	TMJ	15.2' - 15.5'	-	<1.0	2.38	16,900
C4024/P6-12	B154W2	8/26/2002	14:39	15:04	TMJ	5.2' - 6.5'	-	<1.0	2.13	19,300
C4003/P6-21	Blank	8/27/2002	-	10:10	TMJ	-	-	< 1.0	< 1.0	12,000
C4003/P6-21	B154W3	8/27/2002	7:07	10:12	TMJ	24.2' - 25.4'	-	<1.0	1.59	11,700
C4003/P6-21	B154W5	8/27/2002	7:30	10:13	TMJ	15.2' - 16.7'	-	<1.0	1.64	11,800
C4003/P6-21	B154W6	8/27/2002	7:53	10:14	TMJ	5.2' - 6.8'	-	<1.0	2.64	11,900
C4025/P6-11	B154W7	8/27/2002	8:56	10:15	TMJ	24.2' - 25.4'	-	<1.0	2.01	15,400
C4025/P6-11	B154W8	8/27/2002	9:24	10:16	TMJ	15.2' - 16.8'	-	<1.0	1.29	16,200
C4025/P6-11	B154W9	8/27/2002	9:52	10:17	TMJ	5.2' - 6.5'	-	<1.0	1.55	16,700
C4026/P6-10	Blank	8/27/2002	-	11:47	TMJ	-	-	< 1.0	< 1.0	12,800
C4026/P6-10	B154X0	8/27/2002	10:33	11:48	TMJ	24.2' - 25.4'	-	<1.0	1.80	14,800
C4026/P6-10	B154X1	8/27/2002	10:53	11:49	TMJ	15.2' - 16.5'	-	<1.0	1.40	15,300
C4026/P6-10	B154X2	8/27/2002	11:39	11:50	TMJ	5.2' - 6.9'	-	<1.0	<1.0	14,400
C4027/P6-9	Blank	8/27/2002	-	13:40	TMJ	-	-	< 1.0	< 1.0	12,800
C4027/P6-9	B154X3	8/27/2002	12:47	13:41	TMJ	24.2' - 25.2'	-	<1.0	1.79	15,400
C4027/P6-9	B154X4	8/27/2002	13:09	13:42	TMJ	15.2' - 16.5'	-	<1.0	1.50	16,600
C4027/P6-9	B154X5	8/27/2002	13:27	13:43	TMJ	5.2' - 6.8'	-	<1.0	<1.0	15,200

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Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4028/P6-8	Blank	8/27/2002	-	15:00	TMJ	-	-	< 1.0	< 1.0	13,600
C4028/P6-8	B154X6	8/27/2002	13:57	15:01	TMJ	24.2' - 24.9'	-	<1.0	1.80	15,000
C4028/P6-8	B154X7	8/27/2002	14:24	15:02	TMJ	15.2' - 15.5'	-	<1.0	1.51	16,900
C4028/P6-8	B154X8	8/27/2002	14:48	15:03	TMJ	5.2' - 6.5'	-	<1.0	1.47	16,700
C4029/P6-7	Blank	8/28/2002	-	8:00	TMJ	-	-	< 1.0	< 1.0	12,800
C4029/P6-7	B156N6	8/28/2002	7:03	8:02	TMJ	24.2' - 25.4'	-	<1.0	1.51	15,400
C4029/P6-7	B156N7	8/28/2002	7:26	8:03	TMJ	15.2' - 15.5'	-	<1.0	1.36	16,700
C4029/P6-7	B156N8	8/28/2002	7:45	8:04	TMJ	5.2' - 6.7'	-	<1.0	1.03	14,100
C4030/P6-6	Blank	8/28/2002	-	9:10	TMJ	-	-	< 1.0	< 1.0	11,700
C4030/P6-6	B156N9	8/28/2002	8:20	9:11	TMJ	24.2' - 25.4'	-	<1.0	1.68	16,800
C4030/P6-6	B156P0	8/28/2002	8:38	9:12	TMJ	15.2' - 16.5'	-	<1.0	<1.0	17,400
C4030/P6-6	B156P1	8/28/2002	8:55	9:13	TMJ	5.2' - 6.5'	-	<1.0	<1.0	15,500
C4031/P6-5	Blank	8/28/2002	-	10:10	TMJ	-	-	< 1.0	< 1.0	11,200
C4031/P6-5	B156P2	8/28/2002	9:29	10:11	TMJ	18.7' - 18.8'	-	<1.0	1.34	16,700
C4031/P6-5	B156P3	8/28/2002	9:43	10:12	TMJ	15.2' - 15.5'	-	<1.0	1.13	17,600
C4031/P6-5	B156P4	8/28/2002	10:02	10:13	TMJ	5.2' - 6.4'	-	<1.0	1.04	17,700
C4032/P6-4	Blank	8/28/2002	-	11:48	TMJ	-	-	< 1.0	< 1.0	13,400
C4032/P6-4	B156P5	8/28/2002	10:02	11:49	TMJ	24.2' - 25.5'	-	<1.0	2.15	14,400
C4032/P6-4	B156P6	8/28/2002	10:43	11:50	TMJ	15.2' - 16.5'	-	<1.0	2.27	18,500
C4032/P6-4	B156P7	8/28/2002	11:28	11:51	TMJ	6.2' - 7.5'	-	<1.0	2.58	19,000
C4033/P6-3	Blank	8/28/2002	-	14:00	TMJ	-	-	< 1.0	< 1.0	12,300
C4033/P6-3	B156P8	8/28/2002	12:56	14:01	TMJ	24.2' - 24.9'	-	<1.0	3.51	14,800

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4033/P6-3	B156P9	8/28/2002	13:19	14:02	TMJ	15.2' - 16.8'	-	<1.0	2.23	16,400
C4033/P6-3	B156R0	8/28/2002	13:39	14:03	TMJ	6.2' - 7.7'	-	<1.0	1.14	16,500
C4034/P6-2	Blank	8/28/2002	-	15:07	TMJ	-	-	< 1.0	< 1.0	13,600
C4034/P6-2	B156R1	8/28/2002	14:22	15:08	TMJ	24.2' - 25.3'	-	<1.0	4.22	14,300
C4034/P6-2	B156R4 Duplicate	8/28/2002	14:22	15:09	TMJ	24.2' - 25.3'	-	<1.0	4.43	14,300
C4034/P6-2	B156R2	8/28/2002	14:46	15:10	TMJ	15.2' - 16.8'	-	<1.0	3.56	18,500
C4034/P6-2	B156R3	8/28/2002	15:00	15:11	TMJ	8.2' - 9.5'	-	<1.0	2.47	22,400
C4035/P6-1	Blank	8/29/2002	-	9:13	TMJ	-	-	< 1.0	< 1.0	10,700
C4035/P6-1	B156R5	8/29/2002	7:15	9:15	TMJ	24.2' - 25.1'	-	<1.0	1.54	14,000
C4035/P6-1	B156R6	8/29/2002	8:39	9:16	TMJ	15.2' - 16.4'	-	<1.0	1.24	13,900
C4035/P6-1	B156R7	8/29/2002	8:55	9:17	TMJ	7.7' - 9.1'	-	<1.0	<1.0	15,300
C4036/P1-12	Blank	8/29/2002	-	10:50	TMJ	-	-	< 1.0	< 1.0	11,800
C4036/P1-12	B156R8	8/29/2002	9:58	10:51	TMJ	24.2' - 25.4'	-	<1.0	2.25	13,200
C4036/P1-12	B156R9	8/29/2002	10:24	10:52	TMJ	15.2' - 16.7'	-	<1.0	1.44	14,800
C4036/P1-12	B156T0	8/29/2002	10:39	10:53	TMJ	10.2' - 16.7'	-	<1.0	1.55	15,200
C4037/P1-11	Blank	8/29/2002	-	12:10	TMJ	-	-	< 1.0	< 1.0	11,400
C4037/P1-11	B156T1	8/29/2002	11:23	12:11	TMJ	24.2' - 25.4'	-	3.63	3.09	13,600
C4037/P1-11	B156T2	8/29/2002	11:43	12:12	TMJ	15.2' - 16.2'	-	<1.0	2.08	14,500
C4037/P1-11	B156T3	8/29/2002	11:59	12:13	TMJ	10.2' - 11.0'	-	<1.0	2.28	18,500
C3840/Z18A	Blank	9/4/2002	-	9:33	TMJ	-	-	< 1.0	< 1.0	6,450
C3840/Z18A	B156T4	9/4/2002	7:49	9:35	TMJ	15'	-	<1.0	1.99	7,920
C3840/Z18A	B156T5	9/4/2002	8:13	9:36	TMJ	25'	-	<1.0	2.25	8,550

000065

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3840/Z18A	B156T6	9/4/2002	8:44	9:37	TMJ	50'	-	<1.0	2.76	10,600
C3840/Z18A	B156T7	9/4/2002	9:25	9:38	TMJ	60.1'	-	<1.0	9.37	12,300
C3841/Z18B	Blank	9/4/2002	-	14:20	TMJ	-	-	< 1.0	< 1.0	9,800
C3841/Z18B	B156T8	9/4/2002	12:42	14:21	TMJ	15.1'	-	<1.0	16.20	7,160
C3841/Z18B	B156V1 Duplicate	9/4/2002	12:42	14:26	TMJ	15.1'	-	<1.0	16.40	6,960
C3841/Z18B	B156T9	9/4/2002	12:56	14:22	TMJ	25'	-	<1.0	1.75	7,170
C3841/Z18B	B156V0	9/4/2002	13:26	14:23	TMJ	50'	-	<1.0	1.12	7,290
C3842/Z12A	Blank	9/5/2002	-	12:08	TMJ	-	-	< 1.0	< 1.0	7,450
C3842/Z12A	B156V2	9/5/2002	10:26	12:11	TMJ	15'	-	<1.0	2.04	11,300
C3842/Z12A	B156V3	9/5/2002	10:46	12:12	TMJ	25'	-	<1.0	2.23	11,900
C3842/Z12A	B156V4	9/5/2002	11:14	12:13	TMJ	49.4'	-	8.04	1.88	14,400
C3842/Z12A	B156W0 Duplicate	9/5/2002	11:14	12:15	TMJ	49.4'	-	7.95	1.78	14,200
C3843/Z12B	Blank	9/5/2002	-	16:08	TMJ	-	-	< 1.0	< 1.0	8,000
C3843/Z12B	B156V5	9/5/2002	14:48	16:09	TMJ	15'		<1.0	1.35	11,000
C3843/Z12B	B156V6	9/5/2002	14:58	16:10	TMJ	21'	-	<1.0	1.91	13,400
C3843/Z12B	B156V7	9/5/2002	15:09	16:11	TMJ	25'	-	<1.0	1.50	10,000
C3843/Z12B	B156V8	9/5/2002	15:29	16:12	TMJ	50'	-	<1.0	1.64	12,800
C3843/Z12B	B156V9	9/5/2002	15:59	16:13	TMJ	65'	-	<1.0	2.00	23,400
C3844/Z1A	Blank	9/6/2002	-	10:05	TMJ	-	-	< 1.0	< 1.0	7,110
C3844/Z1A	B156W1	9/6/2002	9:04	10:06	TMJ	14.1' - 15'	-	<1.0	<1.0	13,100
C3844/Z1A	B156W2	9/6/2002	9:14	10:07	TMJ	24' - 25'	-	<1.0	1.16	14,600
C3844/Z1A	B156W3	9/6/2002	9:48	10:08	TMJ	41' - 41.9'	-	4.01	<1.0	18,500

0000007

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3845/Z1C	Blank	9/6/2002	-	12:39	TMJ	-	-	< 1.0	< 1.0	8,430
C3845/Z1C	B156W4	9/6/2002	11:07	12:40	TMJ	14' - 15'	-	<1.0	<1.0	14,000
C3845/Z1C	B156W5	9/6/2002	11:20	12:41	TMJ	19' - 20'	-	<1.0	<1.0	14,900
C3845/Z1C	B15WC9	9/6/2002	11:41	12:42	TMJ	24' - 25'	-	4.50	57.80	17,000
C3845/Z1C	B15WD0	9/6/2002	12:14	12:43	TMJ	49' - 50'	-	7.20	114.00	12,600
C3845/Z1C	B15WD1	9/6/2002	13:58	14:58	TMJ	49' - 50'	-	<1.0	1.44	10,100
C3845/Z1C	B15WD2	9/6/2002	15:36	15:46	TMJ	47.5' - 48.8'	-	<1.0	3.03	21,800
C3846/Z12C	Blank	9/9/2002	-	7:28	TMJ	-	-	< 1.0	< 1.0	6,260
C3846/Z12C	B15BR6	9/9/2002	7:18	7:30	TMJ	47' - 48'	-	<1.0	3.51	16,800
C3847/Z1B	Blank	9/9/2002	-	13:40	TMJ	-	-	< 1.0	< 1.0	9,190
C3847/Z1B	B15BR7	9/9/2002	8:34	13:41	TMJ	14' - 15'	-	<1.0	1.06	11,800
C3847/Z1B	B15BR8	9/9/2002	8:45	13:42	TMJ	24' - 25'	-	<1.0	1.75	12,000
C3847/Z1B	B15BR9	9/9/2002	9:00	13:43	TMJ	30' - 31'	-	<1.0	1.92	12,000
C3847/Z1B	B15BT0	9/9/2002	12:29	13:44	TMJ	30' - 31'	-	<1.0	1.75	17,300
C3847/Z1B	B15BT1	9/9/2002	12:45	13:45	TMJ	40.6' - 41.6'	-	1.10	1.53	18,000
C3847/Z1B	B15BT2	9/9/2002	13:00	13:46	TMJ	49' - 50'	-	<1.0	1.49	17,800
C3847/Z1B	B15BT3	9/9/2002	13:36	13:47	TMJ	61.2' - 62.2'	-	<1.0	1.98	21,000
C3848/DZ1A	Blank	9/9/2002	-	15:48	TMJ	-	-	< 1.0	< 1.0	14,200
C3848/DZ1A	B15BT4	9/9/2002	14:53	15:42	TMJ	9' - 10'	-	<1.0	1.33	19,200
C3848/DZ1A	B15BT5	9/9/2002	15:03	15:43	TMJ	14' - 15'	-	<1.0	1.54	20,800
C3848/DZ1A	B15BT6	9/9/2002	15:14	15:44	TMJ	24' - 25'	-	2.03	1.01	23,100
C3848/DZ1A	B15BT7	9/9/2002	15:27	15:45	TMJ	38' - 39'	-	2.94	1.01	25,900

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3848/DZ1A	B15BT8	9/9/2002	15:38	15:46	TMJ	44.2' - 45.2'	-	1.64	1.17	25,900
C3848/DZ1A	B15BT9 Duplicate	9/9/2002	15:27	15:47	TMJ	38' - 39'	-	2.88	1.15	23,300
C3849/Z8	Blank	9/10/2002	-	10:19	GST	-	-	<1.0	<1.0	10,300
C3849/Z8	B15BV0	9/10/2002	7:44	10:20	GST	14' - 15'	-	<1.0	<1.0	11,700
C3849/Z8	B15BV1	9/10/2002	7:54	10:21	GST	20' - 21'	-	<1.0	9.80	12,400
C3849/Z8	B15BV2	9/10/2002	7:58	10:22	GST	20' - 21'	-	<1.0	8.72	12,200
C3849/Z8	B15BV3	9/10/2002	9:00	10:23	GST	20' - 21'	-	<1.0	3.66	13,400
C3849/Z8	B15BV4	9/10/2002	9:05	10:24	GST	20' - 21'	-	<1.0	<1.0	15,000
C3849/Z8	B15BV5	9/10/2002	9:17	10:25	GST	24' - 25'	-	<1.0	<1.0	16,000
C3849/Z8	B15BV6	9/10/2002	9:33	10:26	GST	38' - 39'	-	<1.0	<1.0	17,100
C3849/Z8	B15BV7	9/10/2002	11:53	12:00	TMJ	48' - 49'	-	<1.0	<1.0	21,000
C3850/Z9A	B15BV8	9/10/2002	13:06	14:13	TMJ	14' - 15'	-	<1.0	1.62	17,700
C3850/Z9A	B15BV9	9/10/2002	13:24	14:14	TMJ	24' - 25'	-	<1.0	1.86	14,400
C3850/Z9A	B15BW0	9/10/2002	13:37	14:15	TMJ	32' - 33'	-	<1.0	1.39	15,900
C3850/Z9A	B15BW1	9/10/2002	13:52	14:16	TMJ	39' - 40'	-	<1.0	16.80	17,200
C3850/Z9A	B15BW2	9/10/2002	14:14	14:17	TMJ	43.52' - 44.52'	-	<1.0	1.22	20,900
C3851/Z9B	B15BW3	9/11/2002	6:40	7:43	TMJ	14' - 15'	-	<1.0	<1.0	12,700
C3851/Z9B	B15BW4	9/11/2002	6:52	7:44	TMJ	24' - 25'	-	<1.0	< 1.0	14,400
C3851/Z9B	B15BW5	9/11/2002	7:25	7:45	TMJ	49' - 50'	-	<1.0	1.14	16,100
C3852/Z21C	B15BW6	9/11/2002	8:35	9:18	TMJ	4' - 5'	-	<1.0	<1.0	18,000
C3852/Z21C	B15BW7	9/11/2002	8:48	9:19	TMJ	14' - 15'	-	<1.0	1.27	19,500
C3852/Z21C	B15BW8	9/11/2002	9:09	9:20	TMJ	18.7' - 19.7'	-	<1.0	1.2	21,700

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Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3853/Z21B	B15BW9	9/11/2002	10:44	11:45	TMJ	7' - 8'	-	<1.0	1.07	16,900
C3853/Z21B	B15BX0	9/11/2002	10:54	11:46	TMJ	14' - 15'	-	<1.0	1.56	18,200
C3853/Z21B	B15BX1	9/11/2002	11:11	11:47	TMJ	24' - 25'	-	<1.0	1.55	20,400
C3853/Z21B	B15BX2	9/11/2002	11:38	11:48	TMJ	27.7' - 28.7'	-	<1.0	1.30	25,300
C3853/Z21B	B15BX3 Duplicate	9/11/2002	11:38	11:49	TMJ	27.7' - 28.7'	-	<1.0	1.3	25,300
C3854/Z9A-1	B15BX4	9/11/2002	13:27	14:15	TMJ	15'	-	<1.0	1.59	20,000
C3854/Z9A-1	B15BX5	9/11/2002	13:40	14:16	TMJ	25'	-	<1.0	2.83	24,100
C3854/Z9A-1	B15BX6	9/11/2002	13:49	14:17	TMJ	33'	-	<1.0	2.78	23,300
C3854/Z9A-1	B15BX7	9/11/2002	14:03	14:18	TMJ	40'	-	<1.0	2.74	27,500
C3854/Z9A-1	B15BX8	9/11/2002	14:14	14:19	TMJ	40.89'	-	<1.0	2.04	28,700
C3855/Z21A	Blank	9/12/2002	-	7:42	TMJ	-	-	< 1.0	< 1.0	6,820
C3855/Z21A	B15BX9	9/12/2002	6:53	7:44	TMJ	5' - 6'	-	<1.0	<1.0	15,500
C3855/Z21A	B15BY0	9/12/2002	7:07	7:45	TMJ	14' - 15'	-	<1.0	< 1.0	17,600
C3855/Z21A	B15BY1	9/12/2002	7:22	7:46	TMJ	24' - 25'	-	<1.0	<1.0	16,600
C3855/Z21A	B15BY2	9/12/2002	7:39	7:47	TMJ	29' - 30'	-	<1.0	<1.0	18,500
C3856/Z17A	B15BY3	9/12/2002	11:45	13:32	TMJ	12' - 13'	-	<1.0	1.46	15,400
C3856/Z17A	B15BY4	9/12/2002	11:56	13:33	TMJ	14' - 15'	-	<1.0	2.09	15,800
C3856/Z17A	B15BY5	9/12/2002	12:35	13:34	TMJ	24' - 25'	-	<1.0	1.71	15,300
C3856/Z17A	B15CK1-a	9/12/2002	12:53	13:35	TMJ	29' - 30'	-	<1.0	1.93	15,300
C3856/Z17A	B15CK2-a	9/12/2002	13:19	13:36	TMJ	39' - 40'	-	<1.0	1.26	17,800
C3856/Z17A	B15CK3-a Duplicate	9/12/2002	13:19	13:37	TMJ	39' - 40'	-	<1.0	1.27	17,700
C3857/Z17B	B15CK4-a	9/12/2002	14:19	15:38	TMJ	14' - 15'	-	<1.0	1.40	13,900

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Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3857/Z17B	B15CK5-a	9/12/2002	15:14	15:39	TMJ	24' - 25'	-	<1.0	2.48	19,500
C3857/Z17B	B15CK6-a	9/12/2002	15:38	15:40	TMJ	39' - 40'	-	<1.0	2.10	24,300
C3858/19B	Blank	9/13/2002	-	8:10	TMJ	-	-	< 1.0	< 1.0	8,030
C3858/19B	B15CK7-a	9/13/2002	6:47	8:12	GST	14' - 15'	-	<1.0	1.21	12,000
C3858/19B	B15CK8-a	9/13/2002	7:00	8:13	GST	24' - 25'	-	<1.0	1.02	13,400
C3858/19B	B15CK9-a	9/13/2002	7:16	8:14	GST	32' - 33'	-	1.54	5.66	14,700
C3858/19B	B15CL0-a	9/13/2002	7:45	8:15	GST	49' - 50'	-	1.03	9.04	18,300
C3859/19C	B15CL1-a	9/13/2002	8:41	10:52	GST	14' - 15'	-	<1.0	< 1.0	14,100
C3859/19C	B15CL2-a	9/13/2002	9:02	10:53	GST	24' - 25'	-	<1.0	1.27	15,600
C3859/19C	B15CL3-a	9/13/2002	10:40	10:54	GST	27.8' - 28.8'	-	1.09	1.47	27,700
C3859/19C	B15CL4-a Duplicate	9/13/2002	10:40	10:55	GST	27.8' - 28.8'	-	1.11	1.50	27,700
C3860/Z7B	B15CL5-a	9/13/2002	11:57	13:26	GST	5' - 6'	-	<1.0	1.63	16,800
C3860/Z7B	B15CL6-a	9/13/2002	12:09	13:27	GST	14' - 15'	-	<1.0	1.73	18,700
C3860/Z7B	B15CL7-a	9/13/2002	12:20	13:28	GST	24' - 25'	-	<1.0	1.61	19,300
C3860/Z7B	B15CL8-a	9/13/2002	12:45	13:29	GST	49' - 50'	-	<1.0	2.04	26,500
C3860/Z7B	B15CL9-a	9/13/2002	13:18	13:30	GST	60' - 61'		2.06	1.43	21,300
C3861/Z7A	B15CM0-a	9/13/2002	14:10	14:54	GST	8' - 9'		<1.0	1.65	20,800
C3861/Z7A	B15CM1-a	9/13/2002	14:21	14:55	GST	14' - 15'	-	<1.0	1.95	19,800
C3861/Z7A	Blank	9/16/2002	-	7:20	TMJ	-	-	<1.0	<1.0	7,850
C3861/Z7A	B15CM2-a	9/16/2002	6:37	7:22	TMJ/GT	24' - 25'	-	<1.0	1.06	13,300
C3861/Z7A	B15CM3-a	9/16/2002	7:04	7:23	TMJ/GT	43' - 44'	-	<1.0	1.01	16,200
C3862/Z16A	Blank	9/16/2002	-	12:37	TMJ	-	-	< 1.0	< 1.0	9,570

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3862/Z16A	B15CM4-a	9/16/2002	8:00	9:20	TMJ	14; - 15;	-	<1.0	1.03	14,800
C3862/Z16A	B15CM5-a	9/16/2002	8:13	9:21	TMJ	19' - 20'	-	<1.0	1.04	15,700
C3862/Z16A	B15CM6-a	9/16/2002	8:24	9:22	TMJ	24' - 25'	-	<1.0	1.21	16,500
C3862/Z16A	B15J17	9/16/2002	8:48	9:23	TMJ	49.2' - 50.2'	-	<1.0	1.35	18,700
C3862/Z16A	B15J18	9/16/2002	9:11	9:24	TMJ	59' - 60'	-	<1.0	1.13	20,700
C3863/Z16B	B15J19	9/16/2002	10:03	11:20	TMJ	14' - 15'	-	<1.0	<1.0	16,000
C3863/Z16B	B15J20	9/16/2002	10:14	11:21	TMJ	20' - 21'	-	<1.0	1.02	16,400
C3863/Z16B	B15J21	9/16/2002	10:23	11:22	TMJ	24' - 25'	-	<1.0	1.92	17,000
C3863/Z16B	B15J22	9/16/2002	10:49	11:23	TMJ	49' - 50'	-	<1.0	1.38	20,200
C3863/Z16B	B15J23	9/16/2002	11:14	11:24	TMJ	66' - 67'	-	<1.0	1.42	24,600
C3863/Z16B	B15J24 Duplicate	9/16/2002	11:14	11:25	TMJ	66' - 67'	-	<1.0	1.43	24,600
C3864/T19A	B15J25	9/16/2002	12:30	14:16	TMJ	14' - 15'	-	<1.0	1.99	15,300
C3864/T19A	B15J26	9/16/2002	12:42	14:17	TMJ	24' - 25'	-	<1.0	3.22	14,900
C3864/T19A	B15J27	9/16/2002	13:07	14:18	TMJ	35' - 36'	-	<1.0	4.60	17,300
C3864/T19A	B15J28	9/16/2002	13:32	14:19	TMJ	49' - 50'	-	<1.0	7.36	21,000
C3864/T19A	B15J29	9/16/2002	14:09	14:20	TMJ	69' - 70'	-	<1.0	11.50	27,500
C3865/Site 6	B15J30	9/16/2002	15:07	16:18	TMJ	4' - 5'	-	<1.0	<1.0	18,800
C3865/Site 6	B15J31	9/16/2002	15:18	16:19	TMJ	14' - 15'	-	<1.0	1.13	20,900
C3865/Site 6	B15J32	9/16/2002	15:26	16:20	TMJ	19' - 20'	-	<1.0	1.28	19,500
C3865/Site 6	B15J33	9/16/2002	15:35	16:21	TMJ	24' - 25'	-	3.49	1.90	21,600
C3865/Site 6	B15J34	9/16/2002	15:49	16:22	TMJ	36' - 37'	-	6.2	2.13	22,400
C3865/Site 6	B15J35	9/16/2002	16:12	16:23	TMJ	49' - 50'	-	1.95	1.73	27,900

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Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3865/Site 6	B15J36 Duplicate	9/16/2002	15:49	16:24	TMJ	36' - 37'	-	6.19	2.10	22,400
C3866/Site 2	Blank	9/17/2002	-	9:22	TMJ	-	-	< 1.0	< 1.0	7,920
C3866/Site 2	B15J37	9/17/2002	8:38	9:24	TMJ	10'	-	<1.0	<1.0	10,400
C3866/Site 2	B15J38	9/17/2002	8:44	9:25	TMJ	13'	-	<1.0	<1.0	10,400
C3866/Site 2	B15J39	9/17/2002	8:48	9:26	TMJ	15'	-	<1.0	<1.0	10,100
C3866/Site 2	B15J40	9/17/2002	8:54	9:27	TMJ	20'	-	<1.0	<1.0	9,810
C3866/Site 2	B15J41	9/17/2002	8:59	9:28	TMJ	25'	-	<1.0	<1.0	9,890
C3866/Site 2	B15J42	9/17/2002	9:16	9:29	TMJ	33.5'	-	<1.0	<1.0	9,870
C3867/Site 2	B15J43	9/17/2002	11:03	11:45	TMJ	10'	-	45.8	9.53	16,100
C3867/Site 2	B15J44	9/17/2002	11:12	11:46	TMJ	13'	-	7.34	1.71	10,600
C3867/Site 2	B15J45	9/17/2002	11:19	11:47	TMJ	15'	-	14.9	3.64	13,100
C3867/Site 2	B15J46	9/17/2002	11:26	11:48	TMJ	20'	-	23.9	5.48	14,200
C3867/Site 2	B15J47	9/17/2002	11:32	11:49	TMJ	25'	-	35.8	8.30	18,900
C3867/Site 2	B15J48	9/17/2002	11:41	11:50	TMJ	35'	-	24.9	6.77	22,200
C3867/Site 2	B15J49 Duplicate	9/17/2002	11:03	11:51	TMJ	10'	-	47.6	9.59	15,700
C3868/Site 4	B15J50	9/17/2002	13:09	13:47	TMJ	7'	-	5.23	3.13	19,800
C3868/Site 4	B15J51	9/17/2002	13:14	13:48	TMJ	15'	-	3.95	3.98	22,100
C3868/Site 4	B15J52	9/17/2002	13:24	13:49	TMJ	20'	-	4.88	3.88	23,300
C3868/Site 4	B15J53	9/17/2002	13:30	13:50	TMJ	25'	-	7.26	4.24	21,000
C3868/Site 4	B15J54	9/17/2002	13:42	13:51	TMJ	32.1'	-	8.73	4.27	24,200
C3869/Site 1	Blank	9/18/2002	-	8:08	TMJ	-	-	< 1.0	< 1.0	8,930
C3869/Site 1	B15J55	9/18/2002	7:30	8:10	TMJ	10'	-	9.61	3.12	13,400

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C3869/Site 1	B15J56	9/18/2002	7:37	8:11	TMJ	15'	-	16	5.08	14,300
C3869/Site 1	B15J57	9/18/2002	7:44	8:12	TMJ	20'	-	12.9	4.40	14,700
C3869/Site 1	B15J58	9/18/2002	7:50	8:13	TMJ	25'	-	14	5.63	16,400
C3869/Site 1	B15J59	9/18/2002	8:02	8:14	TMJ	33'	-	11.3	4.75	15,800
C3870/Site 12	B15J60	9/18/2002	9:24	10:45	TMJ	11'	-	3.58	2.11	12,000
C3870/Site 12	B15J61	9/18/2002	9:44	10:46	TMJ	15'	-	5.13	2.99	11,800
C3870/Site 12	B15J62	9/18/2002	9:58	10:47	TMJ	20'	-	5.15	3.11	11,900
C3870/Site 12	B15J63	9/18/2002	10:11	10:48	TMJ	25'	-	6.37	3.67	12,300
C3870/Site 12	B15J64	9/18/2002	10:28	10:49	TMJ	33'	-	6.15	3.93	14,500
C3870/Site 12	B15J65 Duplicate	9/18/2002	10:28	10:50	TMJ	33'	-	6.12	3.71	14,400
C4038/P1-2	Blank	9/24/2002	-	9:03	TMJ	-	-	< 1.0	< 1.0	8,260
C4038/P1-2	B15JJ4-a	9/24/2002	7:18	9:05	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	10,500
C4038/P1-2	B15JJ5-a	9/24/2002	7:41	9:06	TMJ	15.2' - 16.7'	-	< 1.0	< 1.0	12,100
C4038/P1-2	B15JJ6-a	9/24/2002	7:53	9:07	TMJ	10.2' - 11.0'	-	< 1.0	< 1.0	12,300
C4039/P1-3	B15JJ7-a	9/24/2002	8:24	9:08	TMJ	24.2' - 25.4'	-	< 1.0	2.35	15,400
C4039/P1-3	B15JJ8-a	9/24/2002	8:45	9:09	TMJ	15.2' - 15.8'	-	< 1.0	1.11	19,200
C4039/P1-3	B15JJ9-a	9/24/2002	8:57	9:10	TMJ	10.2' - 11.2'	-	< 1.0	1.03	23,600
C4040/P1-4	B15JK0-a	9/24/2002	9:33	11:13	TMJ	24.2' - 25.4'	-	< 1.0	3.35	14,900
C4040/P1-4	B15JK1-a	9/24/2002	9:49	11:14	TMJ	15.2' - 15.5'	-	< 1.0	2.87	15,700
C4040/P1-4	B15JK2-a	9/24/2002	9:59	11:15	TMJ	10.2' - 11.2'	-	< 1.0	2.52	16,500
C4041/P1-5	B15JK3-a	9/24/2002	10:38	11:16	TMJ	24.2' - 25.4'	-	< 1.0	1.67	20,600
C4041/P1-5	B15JK4-a	9/24/2002	10:56	11:17	TMJ	14.2' - 14.6'	-	< 1.0	< 1.0	24,700

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Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4041/P1-5	B15JK5-a	9/24/2002	11:05	11:18	TMJ	10.2' - 10.5'	-	< 1.0	< 1.0	26,400
C4042/P1-6	B15JK6-a	9/24/2002	11:40	13:49	TMJ	24.2' - 25.4'	-	< 1.0	1.72	11,800
C4042/P1-6	B15JK7-a	9/24/2002	12:03	13:50	TMJ	15.2' - 15.5'	-	< 1.0	1.82	11,900
C4042/P1-6	B15JK8-a	9/24/2002	12:15	13:51	TMJ	10.2' - 10.11'	-	< 1.0	1.03	13,000
C4043/P1-7	B15JK9-a	9/24/2002	13:18	13:52	TMJ	24.2' - 25.5'	-	< 1.0	2.06	17,300
C4043/P1-7	B15JL0-a	9/24/2002	13:33	13:53	TMJ	15.2' - 15.5'	-	< 1.0	1.73	21,200
C4043/P1-7	B15JL1-a	9/24/2002	13:44	13:54	TMJ	10.2' - 11.1'	-	< 1.0	< 1.0	23,100
C4044/P1-8	B15JL2-a	9/24/2002	14:46	15:22	TMJ	22.2' - 23.2'	-	< 1.0	1.36	18,200
C4044/P1-8	B15JL3-a	9/24/2002	15:05	15:23	TMJ	15.2' - 16.0'	-	< 1.0	< 1.0	20,300
C4044/P1-8	B15JL4-a	9/24/2002	15:15	15:24	TMJ	10.2' - 11.5'	-	< 1.0	< 1.0	24,600
C4044/P1-8	B15JL5-a Duplicate	9/24/2002	14:46	15:25	TMJ	22.2' - 23.2'	-	< 1.0	1.27	17,700
C4045/P1-9	Blank	9/25/2002	-	9:10	TMJ	-	-	< 1.0	< 1.0	6,850
C4045/P1-9	B15JL6-a	9/25/2002	7:16	9:12	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	9,340
C4045/P1-9	B15JL7-a	9/25/2002	7:35	9:13	TMJ	15.2' - 16.5'	-	< 1.0	< 1.0	9,980
C4045/P1-9	B15JL8-a	9/25/2002	7:51	9:14	TMJ	10.2' - 11.3'	-	< 1.0	< 1.0	11,500
C4046/P1-10	B15JL9-a	9/25/2002	8:29	9:15	TMJ	24.2' - 25.4'	-	1.32	< 1.0	15,600
C4046/P1-10	B15JM8	9/25/2002	8:45	9:16	TMJ	15.2' - 16.1'	-	1.05	< 1.0	18,000
C4046/P1-10	B15JM9	9/25/2002	8:56	9:17	TMJ	10.2' - 11.0'	-	< 1.0	< 1.0	18,400
C4047/P9-2	B15JN0	9/25/2002	10:15	11:57	TMJ	24.2' - 25.4'	-	< 1.0	1.49	11,600
C4047/P9-2	B15JN1	9/25/2002	10:33	11:58	TMJ	15.2' - 16.8'	-	< 1.0	< 1.0	12,300
C4047/P9-2	B15JN2	9/25/2002	10:45	11:59	TMJ	5.2' - 6.5'	-	< 1.0	< 1.0	7,230
C4048/P9-3	B15JN3	9/25/2002	11:20	12:00	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	18,300

000015

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform	Water Vapor
							"A"	"B"	(ppmv)	(ppmv)
C4048/P9-3	B15JN4	9/25/2002	11:36	12:01	TMJ	15.2' - 16.0'	-	< 1.0	< 1.0	21,300
C4048/P9-3	B15JN5	9/25/2002	11:53	12:02	TMJ	5.2' - 6.8'	-	< 1.0	< 1.0	25,300
C4048/P9-3	B15JN6 Duplicate	9/25/2002	11:53	12:03	TMJ	5.2' - 6.8'	-	< 1.0	< 1.0	25,200
C4049/P7-4	Blank	9/26/2002	-	8:54	TMJ	-	-	< 1.0	< 1.0	5,970
C4049/P7-4	B15JN7	9/26/2002	7:10	8:56	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	8,560
C4049/P7-4	B15JN8	9/26/2002	7:28	8:57	TMJ	14.4' - 14.8'	-	< 1.0	< 1.0	9,200
C4049/P7-4	B15JN9	9/26/2002	7:42	8:58	TMJ	7.0' - 7.4'	-	< 1.0	< 1.0	9,720
C4050/P7-5	B15JP0	9/26/2002	8:23	8:59	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	12,200
C4050/P7-5	B15JP1	9/26/2002	8:36	9:00	TMJ	15.2' - 15.8'	-	< 1.0	< 1.0	13,200
C4050/P7-5	B15JP2	9/26/2002	8:47	9:01	TMJ	8.2' - 9.2'	-	< 1.0	< 1.0	14,300
C4051/P7-6	B15JP3	9/26/2002	9:23	11:01	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	12,000
C4051/P7-6	B15JP4	9/26/2002	9:39	11:02	TMJ	15.2' - 16.5'	-	< 1.0	1.09	12,500
C4051/P7-6	B15JP5	9/26/2002	9:50	11:03	TMJ	8.2' - 9.9'	-	< 1.0	< 1.0	12,800
C4052/P7-7	B15JP6	9/26/2002	10:28	11:04	TMJ	24.2' - 25.4'	-	< 1.0	1.22	15,700
C4052/P7-7	B15JP7	9/26/2002	10:46	11:05	TMJ	15.2' - 15.5'	-	< 1.0	< 1.0	17,600
C4052/P7-7	B15JP8	9/26/2002	10:56	11:06	TMJ	8.2' - 9.4'	-	< 1.0	< 1.0	19,600
C4053/P7-3	Blank	9/26/2002	-	8:54	TMJ	-	-	< 1.0	< 1.0	5,970
C4053/P7-3	B15JP9	9/26/2002	11:40	13:43	TMJ	24.2' - 25.4'	-	< 1.0	1.52	11,600
C4053/P7-3	B15JR0	9/26/2002	11:57	13:44	TMJ	15.2' - 15.7'	-	< 1.0	1.27	13,000
C4053/P7-3	B15JR1	9/26/2002	12:09	13:45	TMJ	8.2' - 9.7'	-	< 1.0	1.42	13,100
C4054/P7-2	B15JR2	9/26/2002	13:10	13:46	TMJ	24.2' - 24.7'	-	< 1.0	1.39	19,900
C4054/P7-2	B15JR3	9/26/2002	13:26	13:47	TMJ	15.2' - 16.4'	-	< 1.0	1.31	22,100

000016

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft)	Carbon Tetrachloride (ppmv)		Chloroform (ppmv)	Water Vapor (ppmv)
							"A"	"B"		
C4054/P7-2	B15JR4	9/26/2002	13:37	13:48	TMJ	8.2' - 9.5'	-	< 1.0	< 1.0	24,000
C4055/P9-4	B15JR5	9/26/2002	14:15	14:53	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	18,700
C4055/P9-4	B15JR6	9/26/2002	14:31	14:54	TMJ	15.2' - 16.5'	-	< 1.0	< 1.0	18,800
C4055/P9-4	B15JR7	9/26/2002	14:47	14:55	TMJ	5.2' - 6.7'	-	< 1.0	< 1.0	20,700
C4055/P9-4	B15JR8 Duplicate	9/26/2002	14:15	14:56	TMJ	24.2' - 25.4'	-	< 1.0	< 1.0	24,300

Martinson/Anderson 8-21-02 F02-011 HNF-N-3131

200 PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Sampling and Analysis (F02-010)

0600 Arrive at 200-PW-1 Plan of the Day. On-site for FOD. 218-W-4C Burial Grounds sampling at Trench 1, 4 and 7 (between). On-site for FOD
Geologists — Dave Weekes, Jess Hocking
RCT — Larry Walkup and Steven Landsman
STR — Jim Diebel
Drillers — Bob Jones
IH — Anthony Nelson

0730 Enter 218-W-4C Burial Grounds. Needed to wait for Operations people to let us in.
0831 Geologist begin pushing rods at Site C4011 (No. 1)
0848 Reach Depth. IH tech takes reading. Detected approximately 20 ppm Hydrogen but levels off at 5ppm. TMS 8-21-02

C4011 (#1)
0920 Purge at ~~25.5~~ ~~25.4'~~ ~~25'~~ 24' — 25.4' bgs (5 minutes) TMS 8-21-02
0927 B154R0 Collect Sample. OVM reading 3.2 ppm
0945 Purge at 15.2' — 16.1 bgs.
0950 B154R1 Collect sample. OVM reading 10.0 ppm.
0957 Return to 200-PW-1 to Analyze samples.
1032 Geoprobe mobilized to next site C4012 (No. 2)

C4012 (#2)
1102 Purge at 25.4' — ~~25'~~ 24' bgs TMS 8-21-02 5 minute purge.
1107 B154R2 Collect Sample. OVM reading 20.0 ppm
1139 Purge at 15.2' - 15.8 bgs
1144 B154R3 Collect sample OVM reading 5.2 ppm
1150 Return to 200-PW-1 to analyze samples.

C4013 (#11)
1303 Mobilize Geoprobe to C4013 (11).
1327 Purge 25.4' — 25' bgs. (5 minute Purge)
1334 B154R4 Collect sample.
1353 Purge 5 minutes at 16.7' - 15.7' bgs.
1358 B154R5 Collect sample.
1430 Returned to Burial Grounds. Discontinued Geoprobe activities due to the IH techs equipment problems.

TMS 8/21/02

0000018

Martinson/Anderson 8/21/02 Continued on Page 28

Reviewed by GS Thomas/GS Thomas 10/7/02

cont from page 27

Tmanansen/Jmthomas 8/21/02 F02-011 HNF-12-3131

The Table below shows sampling results for all three locations. See the second table for locations

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v) "A"	Carbon Tetrachloride (ppm/v) "B"	Chloroform (ppm/v)	Water Vapor (ppm/v)
Blank	-	8/21/2002	-	10:06	TMJ	-	-	<1.0	<1.0	9,670
25.5 ppm std.	-	8/21/2002	-	10:07	TMJ	-	-	23.0	<1.0	8,340
C4011	B154R0	8/21/2002	9:27	10:08	TMJ	24.0' - 25.4'	-	6.91	2.07	14,500
C4011	B154R1	8/21/2002	9:50	10:09	TMJ	15.2' - 16.1'	-	10.5	2.80	17,500
Blank	-	8/21/2002	-	11:55	TMJ	-	-	<1.0	<1.0	9,940
C4012	B154R2	8/21/2002	11:07	11:56	TMJ	24.0' - 25.4'	-	15.6	4.10	15,700
C4012	B154R3	8/21/2002	11:44	11:57	TMJ	15.2' - 15.8'	-	7.25	2.32	19,500
Blank	-	8/21/2002	-	14:10	TMJ	-	-	<1.0	<1.0	10,100
C4013	B154R4	8/21/2002	13:34	14:11	TMJ	24.0' - 25.4'	-	<1.0	1.08	16,300
C4013	B154R5	8/21/2002	13:58	14:12	TMJ	15.7' - 16.7'	-	<1.0	<1.0	19,200
Blank	-	8/21/2002	-	14:23	TMJ	-	-	<1.0	<1.0	9,650
25.5 ppm std.	-	8/21/2002	-	14:24	TMJ	-	-	22.9	<1.0	10,200

Site 1 <
Site 2 <
Site 11 <

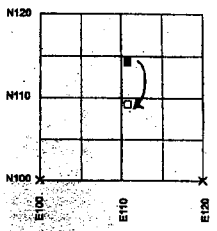
Note: Carbon Tetrachoride filter "A" is a high concentration filter for values above 100 ppm. The "B" filter is used for all concentrations under 100 ppm.

Data recoded real time using a loptop computer.

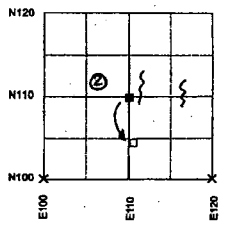
* NOTE: IH Rep. noted that at about 11' the OVM was reading approximately 160 ppm.

Jmanansen 8/21/02

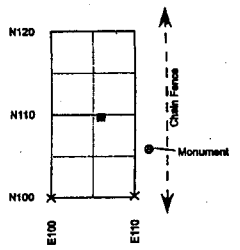
Site # 2



Site # 3

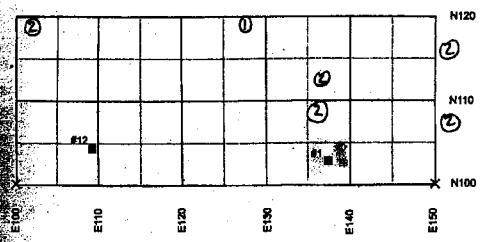


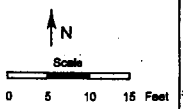
Site # 4



Jmanansen 8/21

Sites # 1 and 12





- Staked grid identifier
- Staked sample location
- Recommended sample location
- Excavation boundry
- Average depth to top of feature(s)
- Linear anomaly (Utility/pipeline?)
- Isolated Anomaly
- Isolated zone of buried material/debris that maybe masking deeper features
- Disturbed area with buried material/debris that may be masking features of interest

Questions: Contact: TH Mitchell @ 372-8690 or Bill Hudson @ 376-3444 to review results prior to excavating.

Geophysical Investigation Results
218-W-4C Burial Ground
Sites 1, 2, 3, 4 & 12
August 2002

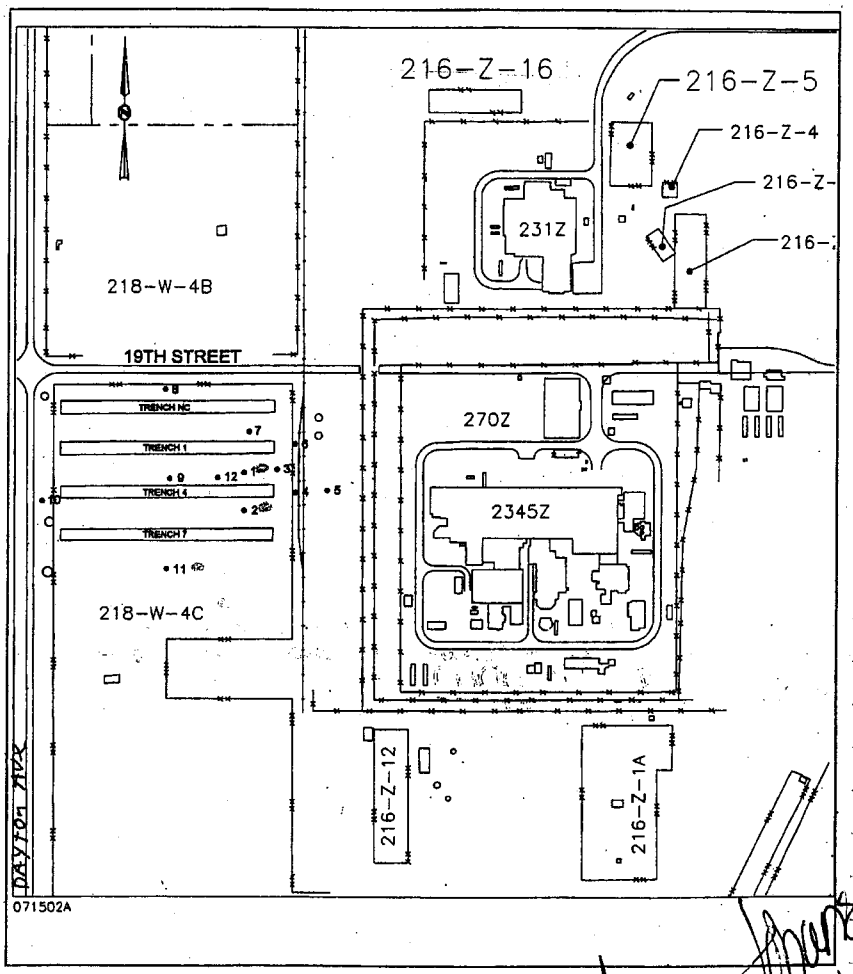
Reviewed by GS Thomas 10/7/02

0000019

Tmanansen/Jmthomas 8/21/02 Continued on page 29

Thomanson/Brockmann 8/21/02 F02-011 HNF-IN-3131

The table below (Picture) shows the locations of the trenches in the burial grounds.



Thomanson 8/21/02

TMJ 8/21/02

0000020

Thomanson/Brockmann 8/21/02

Reviewed by GS Thomas / Greg Thomas 10/7/02

TMJohansen/AMJohansen 8/22/02 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis (~~F02-010~~) F02-011 TMJ 10-18-02

0600 Arrive at 200-PW-1 Plan of the Day (POD).
On-site for POD:
Geologists: Jess Hocking and Dave Weekes
RCT: Larry Walkup
STR: Jim Diebel
Driller: Bob Jones not present, but will arrive later.
IH: Anthony Nelson. (Tony)

C4014 (#4)
0710 Mobilize Geoprobe to 218-W-4C Burial Grounds Site C4014(4)
0727 Begin pushing Rods
0801 Purge 5 minutes at 24.2'-23.2' bgs.
0806 B154R6 Collect sample
0831 Purge 5 minutes at 15.2'-16.2' bgs.
0837 B154R7 Collect sample.
0910 Mobilize Geoprobe to C4015 (9)

NOTE: DOE and EPA representatives on site to observe Geoprobe and sampling activities.

C4015 (#9)
0920 Begin pushing the Geoprobe rod
0948 Purge 5 minutes at 24.4'—25.4' bgs.
0953 B154R8 Collect sample.
1000 Visitors leave Burial Grounds
1016 Purge 5 minutes at 16.8'—15.8' bgs.
1023 B154R9 Collect sample.
1050 Mobilized Geoprobe to C4016 (12)

C4016 (#12)
1125 Purge 5 minutes at 24.2'-25.4' bgs.
1130 B154T0 Collect sample.
1148 Purge 5 minutes at 19.6'—23.3' bgs. OVM reading 40 ppm.
1153 B154T1 Collect sample.
1203 OVM battery dies. Tony goes to retrieve replacement
1330 Back on site C4016 to resume sampling
1350 C. Cearlock on-site
1405 Purge 5 minutes 15.2'-16.5' bgs.
1410 B154T2 Collect sample. TMJ 8/22/02
1430 Return to C4012(2) to sample around the 10' interval

C4012 (#2)
1455 B154T3 Collect 12.0-14.4'—13.4' bgs. OVM reading 50 ppm
1502 Geologists backfill casing. Remain on site as they

TMJohansen/AMJohansen 8/22/02 Cont. Page 31 Reviewed by GS Thomas / Greg Thomas 10/2/02

Cont. from Page 30 TMJohansen/TMJohansen 8/22/02 F02-011 HDF-10-3131
backfill in case they encounter higher levels to take another sample.
– See the Table below for Sampling Results.

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (PPm1v) "A"	Carbon Tetrachloride (PPm1v) "B"	Chloroform (ppm/v)	Water Vapor
Blank	-	8/22/2002	-	8:58	TMJ	-		< 1.0	< 1.0	12100
25.5 ppm std.	-	8/22/2002	-	8:59	TMJ	-	-	22.6	< 1.0	8,780
C4014	B154R6	8/22/2002	8:06	9:00	TMJ	23.2' - 24.2'	-	1.36	1.85	15,800
C4014	B154R7	8/22/2002	8:37	9:01	TMJ	15.2' - 16.2'	-	< 1.0	1.07	17,500
Blank	-	8/22/2002	-	8:58	TMJ	-		< 1.0	< 1.0	13700
C4015	B154R8	8/22/2002	9:53	12:23	TMJ	24.2' - 25.4'	-	< 1.0	2.31	14,100
C4015	B154R9	8/22/2002	10:23	12:24	TMJ	15.8' - 16.8'	-	<1.0	2.09	13,900
C4016	B154T0	8/22/2002	11:30	12:25	TMJ	24.2' - 25.4'	-	4.80	3.37	15,600
C4016	B154T1	8/22/2002	11:53	12:26	TMJ	19.6' - 23.3'	-	14.8	4.48	16,200
C4016	B154T4 (Duplicate)	8/22/2002	11:53	12:27	TMJ	19.6' - 23.3'	-	14.3	4.51	16,200
Blank	-	8/22/2002	-	15:15	TMJ	-		< 1.0	< 1.0	13400
C4016	B154T2	8/22/2002	14:10	15:16	TMJ	15.2' - 16.5'	-	12.7	5.77	14,000
C4012	B154T3	8/22/2002	14:55	15:17	TMJ	~~13.4' - 14.4'~~ 12.0 - 13.4	-	62.1	12.2	18,100
25.5 ppm std.	-	8/22/2002	-	15:18	TMJ	-	-	24.5	< 1.0	11,600

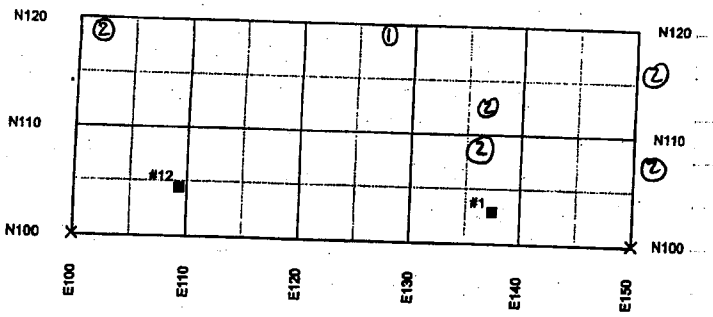
Note: Carbon Tetrachloride filter "A" is a high concentration filter for analysis above 100 ppm. The "B" filter is

Data recoded real time using a loptop computer.

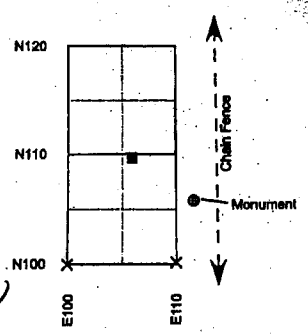
DT 10/7/02

8/22/02 TMJohansen

Sites # 1 and 12



Site # 4



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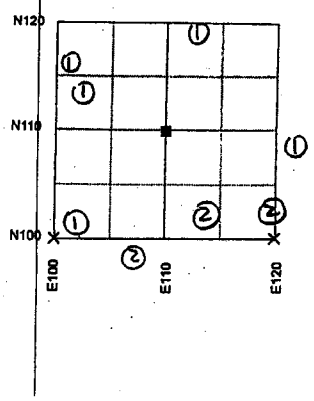
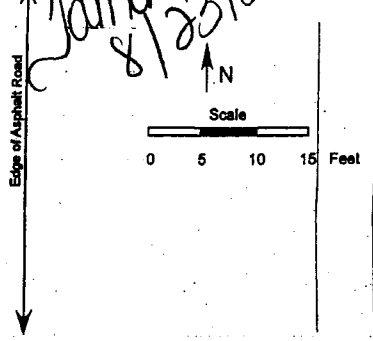


TMJohansen 8/22/02



- Staked grid identifier
- Staked sample location
- Recommended sample location
- Excavation boundry
- Average depth to top of feature(s)
- Linear anomaly (Utility/pipeline?)
- Isolated Anomaly
- Isolated zone of buried material/debris that maybe masking deeper features
- Disturbed area with buried material/debris that may be masking features of interest

Questions: Contact TH Michel @ 372-9690 or Bill Hudson @ 375-3444 to review results prior to excavating.

0000022

T.M. JOHANSEN/TMJohansen 8/22/02

Reviewed 10/7/02
By GS Thomas

TMJohnson/JMJohnson 8/23/02 HNF-N-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis ~~(F02-010)~~ F02-011
TMJ 10-18-02

0600 Arrive at 200-PW-1 POD on-site for POD.
Geologists — Charlene Martinez and Dave Weekes
RCT ——— Larry Walkup
SR ——— Not on site, Driller Bob Jones will be acting in his place.
IH ——— Anthony Nelson
Driller ——— Bob Jones

C4017 (#3)
0715 Mobilize Geoprobe to 218-W-4C burial Grounds site C4017(3)
0758 Purge 5 minutes 24.2'-25.4' bgs.
0803 B154T5 Collect sample.
0824 Purge 5 minutes 15.2'-16.4' bgs.
0829 B154T6 Collect sample.
0835 Return to 200-PP-1 to analyze vapor samples.

C4018 (#7)
0855 Mobilize Geoprobe to site C4018(7)
0923 TMJ 8-23-02 B154T7 Purge 5 minutes 24.2'—25.4' bgs.
0928 B154T7 Collect sample.
0950 Purge 5 minutes 15.2'—16.5' bgs.
0955 B154T8 Collect sample.

C4019 (#5)
1032 Mobilize Geoprobe to site C4019(5)
1107 Purge 5 minutes 24.2'—25.4' bgs.
1112 B154T9 Collect sample.
1130 Purge 5 minutes 15.2'—16.5' bgs.
1135 B154V0 Collect sample.

NOTE: See page 33 for sample results and locations

TMJ 8-23-02

Reviewed by: GS Thomas Greg Thomas 10/7/02

0000023

TMJohnson/JMJohnson 8/23/02

Continued on Page 33

Tamara Johnson/Brad Thomas 8/23/02 F02-011 HNF-10-3131
continued from page 32

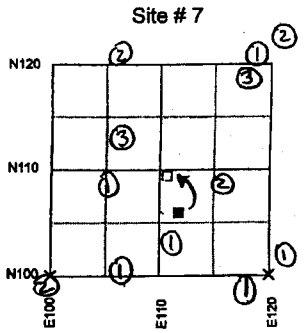
Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v)		Chloroform (ppm/v)	Water Vapor (ppm/v)
							"A"	"B"		
Blank	-	8/23/2002	-	8:41	TMJ	-	-	<1.0	<1.0	11200
25.5 ppm std.	-	8/22/2002	-	8:42	TMJ	-	-	<1.0	<1.0	10,900
C4017	B154T5	8/23/2002	8:03	8:43	TMJ	24.2' - 25.4'	-	<1.0	1.72	18,200
C4017	B154T6	8/23/2002	8:29	8:44	TMJ	15.2' - 16.4'	-	<1.0	1.41	19,700
Blank	-	8/23/2002	-	10:11	TMJ	-		<1.0	<1.0	12400
C4018	B154T7	8/23/2002	9:28	10:12	TMJ	24.2' - 25.4'	-	<1.0	1.50	17,200
C4018	B154T8	8/23/2002	9:55	10:13	TMJ	15.2' - 16.5'	-	<1.0	1.16	18,700
Blank	-	8/23/2002	-	12:10	TMJ	-		<1.0	<1.0	12600
C4019	B154T9	8/23/2002	11:12	12:11	TMJ	24.2' - 25.4'	-	<1.0	2.57	15,500
C4019	B154V0	8/23/2002	11:35	12:12	TMJ	15.2' - 16.5'	-	<1.0	1.55	17,900
Blank	-	8/23/2002	-	12:13	TMJ	-		<1.0	<1.0	12800
25.5 ppm std.	-	8/23/2002	-	12:14	TMJ	-	-	22.2	<1.0	11,900

Note: Carbon Tetrachloride filter "A" is a high concentration filter for analysis above 100 ppm. The "B" filter is used for all concentrations below 100 ppm.

Data recoded real time using a loptop computer.

Tamara Johnson 8-23-02

Site # 7



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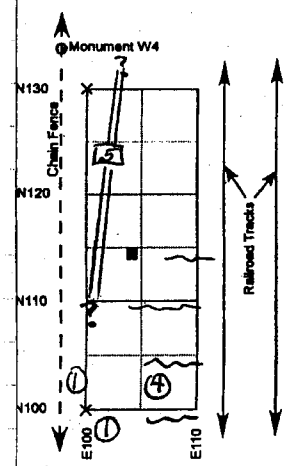

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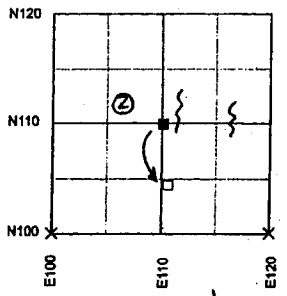


Tamara Johnson 8-23-02

Tamara Johnson 8-23-02

- Staked grid identifier
- Staked sample location
- Recommended sample location
- Excavation boundry
- Average depth to top of feature(s)
- Linear anomaly (Utility/pipeline?)
- Isolated Anomaly
- Isolated zone of buried material/debris that maybe masking deeper features
- Disturbed area with buried material/debris that may be masking features of interest

Questions: Contact TH Mitchell @ 372-9690 or Bill Hudson @ 375-3444 to review results prior to excavating.

Tamara Johnson 8-23-02

Tamara Johnson/Brad Thomas 8-23-02

0000024

Reviewed By GS Thomas/Brad Thomas 10/7/02

Matthanson/Matthanson 8/26/02 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Probe Sampling and Analysis ~~(F02-010)~~ F02-011

TMJ 10-18-02

C4020 (#10) TMJ 8/26/02

0700 Arrive at 200-PW-1 (4020 (10). Drill rig set to depth 24.2' - 25.4' bgs.
0717 Purge 24.2' - 25.4' bgs 5 minutes.
0727 B154V1 Collect Sample
0743 Purge at 15.2' - 16.7' bgs 5 minutes
0748 B154V2. Collect sample.
0817 Mobilize Geoprobe to C4021 (8).

C4021 (#8)

0843 Purge 5 minutes at 24.2' - 25.4' bgs.
0848 B154V3 Collect Sample.
0908 Purge 5 minutes at 15.2' - 16.5' bgs.
0915 B154V4 collect sample.
0935 Mobilize Geoprobe to C4022 (6).

C4022 (#6)

1009 Purge 5 minutes at 24.2' - 25.4'
1014 B154V5 Collect Sample.
NOTE: On-site for todays Geoprobe activities are
Geologists: Dave Weekes and Charlene Martinez
STR : Jim Diebel
TH : Anthony Nelson
Driller : Bob Jones
37 BCT : Larry Walkup.
TMJ 8/26/02 1009 Purge 5 minutes at 15.2' - 16.7' bgs.
1042 B154V6 Collect Sample.
1155 Mobilize Geoprobe to C4023 (P6-13)

C4023 (P6-13)

1219 Purge 5 minutes at 24.2' - 25.4' bgs.
1224 B154V7 Collect Sample.
1245 Purge 5 minutes at 15.2' - 16.8' bgs.
1250 B154V8 Collect sample.
1308 Purge 5 minutes at 5.2' - 6.3' bgs.
1313 B154V9 Collect Sample.
1327 Set up Geoprobe at C4024 (P6-12)

C4024 (P6-12)

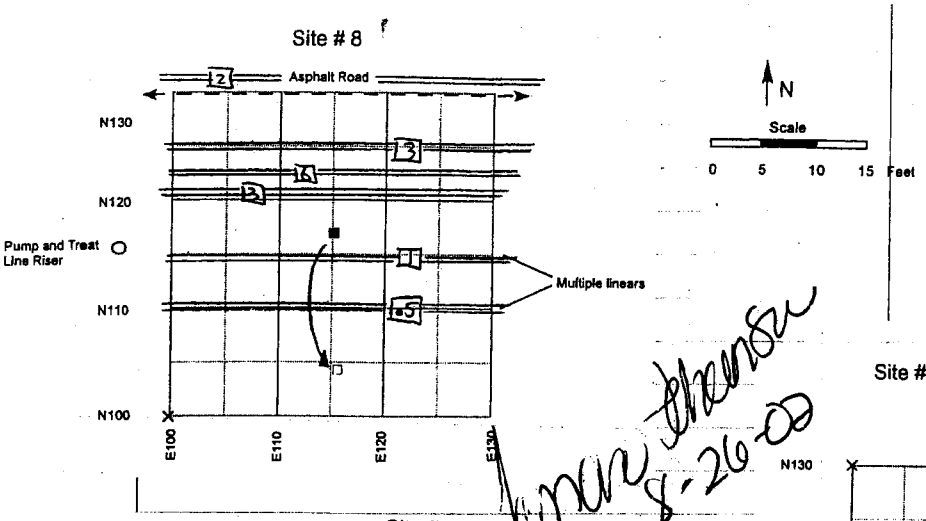
1348 Purge 5 minutes at 25.4' - 24.2' bgs.
1353 B154W0 Collect Sample
1410 Purge 5 minutes at 15.2' - 15.5' bgs.
1415 B154W1 collect sample
1434 Purge 5 minutes at 5.2' - 6.5' bgs
1439 B154W2 collect sample

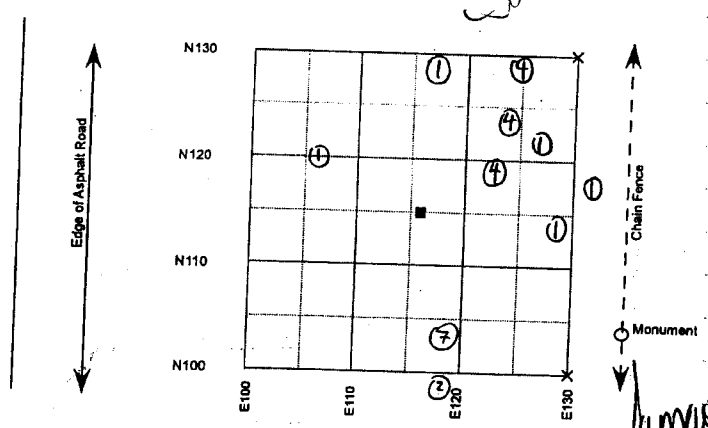
Reviewed 10/7/02
By G S Thomas

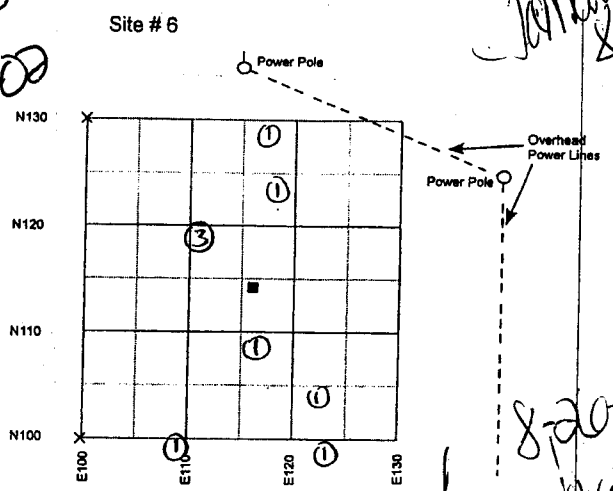
TMJ 8/26/02 ~~Cont~~ Matthanson/Matthanson 8/26/02

Continued on Page 35

Continued from Page C34 TM Larsen/Brethauer 8-26-02 F02-011HNOF-10-3137







Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v) "A"	Carbon Tetrachloride (ppm/v) "B"	Chloroform (ppm/v)	Water Vapor (ppm/v)
Blank	-	8/26/2002	-	8:05	TMJ	-	-	<1.0	<1.0	12,000
25.5 ppm std.	-	8/26/2002	-	8:06	TMJ	-	-	21.2	<1.0	10,200
C4020	B154V1	8/26/2002	7:27	8:07	TMJ	24.2' - 25.4'	-	<1.0	1.52	16,600
C4020	B154V2	8/26/2002	7:48	8:08	TMJ	15.2' - 16.7'	-	<1.0	1.47	19,800
Blank	-	8/26/2002	-	9:27	TMJ	-		<1.0	<1.0	11,600
C4021	B154V3	8/26/2002	8:48	9:28	TMJ	24.2' - 25.4'	-	<1.0	1.83	17,700
C4021	B154V4	8/26/2002	9:15	9:29	TMJ	15.2' - 16.5'	-	<1.0	1.62	20,300
Blank	-	8/26/2002	-	11:00	TMJ	-		<1.0	<1.0	11,800
C4022	B154V5	8/26/2002	10:14	11:01	TMJ	24.2' - 25.4'	-	2.39	2.78	16,700
C4022	B154V6	8/26/2002	10:42	11:02	TMJ	15.2' - 16.7'	-	<1.0	1.56	19,000
Blank	-	8/26/2002	-	13:29	TMJ	-		<1.0	<1.0	12,300
C4023	B154V7	8/26/2002	12:24	13:30	TMJ	24.2' - 25.4'	-	<1.0	2.11	15,500
C4023	B154V8	8/26/2002	12:50	13:31	TMJ	15.2' - 16.8'	-	<1.0	1.87	17,300
C4023	B154V9	8/26/2002	13:13	13:32	TMJ	5.2' - 6.3'	-	<1.0	1.87	18,700
Blank	-	8/26/2002	-	15:00	TMJ	-		<1.0	<1.0	14,600
C4024	B154W0	8/26/2002	13:53	15:01	TMJ	24.2' - 25.4'	-	<1.0	3.81	15,800
C4024	B154W4 Duplicate	8/26/2002	13:53	15:02	TMJ	24.2' - 25.4'	-	<1.0	3.97	15,700
C4024	B154W1	8/26/2002	14:15	15:03	TMJ	15.2' - 15.5'	-	<1.0	2.38	16,900
C4024	B154W2	8/26/2002	14:39	15:04	TMJ	5.2' - 6.5'	-	<1.0	2.13	19,300
Blank	-	8/26/2002	-	15:05	TMJ	-	-	<1.0	<1.0	13,000
25.5 ppm std.	-	8/26/2002	-	15:06	TMJ	-	-	22.4	<1.0	10,200

*BT 10/1/02

TM Larsen 8/26/02 Reviewed by GS Thomas/Mac T... 10/1/02

8-26-02 TM Larsen

000026

Mathiasen/Anderson 8-27-02 ~~(F02-010)~~ HWF-N-313, F02-011 MD10-18-02

0700 On-site C4003 (PG-21)
0703 Purge 5 minutes 24.2' - 25.4' bgs.
0707 B154W3 collect sample.
NOTE: Onsite for todays Geoprobe/Sampling
Geologists: Dave Weeks and Charles Martinez
Driller : Bob Jones
HCT : Larry Walkup
STR : Jim Diebel

C4003 (PG-21)

0725 Purge 5 minutes 15.2' - 16.7' bgs.
0730 B154W5 collect sample.
0747 Purge 5 minutes 5.2' - 6.8' bgs
0753 B154W6 Collect sample.
0817 Mobilize Geoprobe to (C4025)(PG-11)
0851 Purge 5 minutes at 24.2' - 25.4 bgs.
0856 B154W7 Collect sample.
0919 Purge 5 minutes at 15.2' - 16.8' bgs.
0924 B154W8 Collect sample.
0947 Purge 5 minutes at 5.2' - 6.5' bgs
0952 B154W9 Collect sample.

C4025 (PG-11)

1007 Mobilize Geoprobe to C4026 (PG-10)
1026 Purge 5 minutes 24.2' - 25.4' bgs.
1033 B154X0 Collect sample.
1048 Purge 5 minutes 15.2' - 16.5' bgs.
1053 B154X1 Collect sample.
1124 Purge 5 minutes 5.2' - 6.9' bgs.
1139 B154X2 Collect sample.

C4026 (PG-10)

1152 Mobilize Geoprobe to C4027 (PG-9)
1242 Purge 5 minutes at 24.2' - 25.2'
1247 B154X3 Collect sample.
1304 Purge 5 minutes at 15.2' - 16.5'
1309 B154X4 collect sample
1322 Purge 5 minutes at 5.2' - 6.8'
1327 B154X5 Collect sample.

C4027 (PG-9)

1339 Mobilize to C4028 (PG-8)
1357 B154X6 Collect sample.
1403 Purge 5 minutes at 24.2' - 24.9' bgs.
1419 Purge 5 minutes at 15.2' - 15.5' bgs
1424 B154X7 Collect sample.
1443 Purge 5 minutes at 5.2' - 6.5' bgs
1448 B154X8 Collect sample.

C4028 PG-8

Mathiasen/Anderson Sheet continued on Page 37

Reviewed By GS Thomas 10/7/02

continued from Pg 36 8-27-02 ~~(F02-010)~~ (F02-011) 37
MTJ 10-18-01
HNF-10-3131

Line P6, Segment D

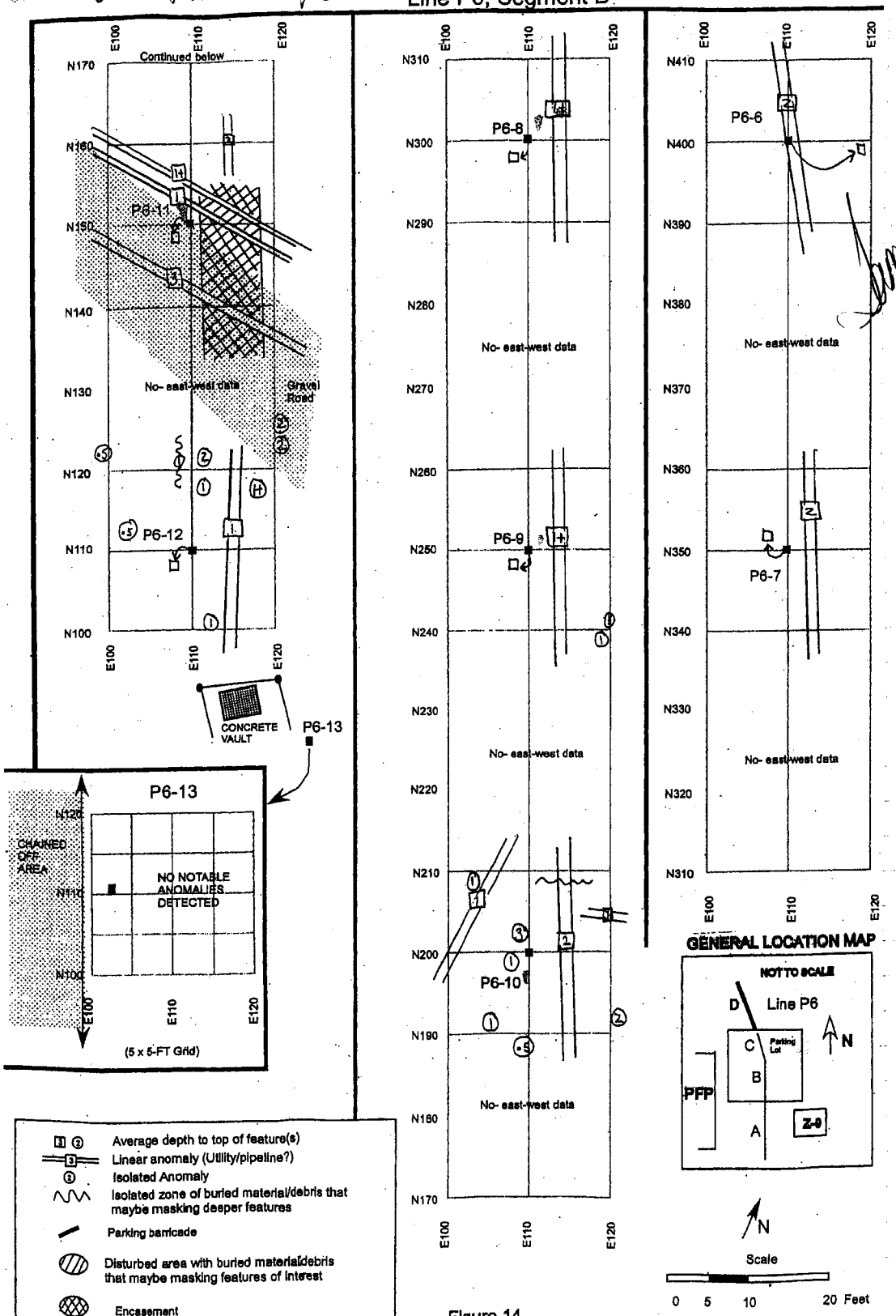


Figure 14.

Geophysical Survey Results
200-PW-1
Line P6, Segment D
Sample Points P6-6 through P6-13
April 2002

8-27-02

0000028

Reviewed By GS Thomas 10/4/02

TH Mitchell KA Bergstrom 8/27/02

continued on page 38

Continued from Page 37

Thomas Jones/Thomas 8/27/02 ~~(F02-010)~~ TMJ 10-18-02 F02-011 HOF-10-313 1

Thomas Jones 8/27/02

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v) "A"	Carbon Tetrachloride (ppm/v) "B"	Chloroform (ppm/v)	Water Vapor (ppm/v)
Blank	-	8/27/2002	-	10:10	TMJ	-	-	<1.0	<1.0	12,000
25.5 ppm std.	-	8/27/2002	-	10:11	TMJ	-	-	23.5	<1.0	10,200
C4003/P6-21	B154W3	8/27/2002	7:07	10:12	TMJ	24.2' - 25.4'	-	<1.0	1.59	11,700
C4003/P6-21	B154W5	8/27/2002	7:30	10:13	TMJ	15.2' - 16.7'	-	<1.0	1.64	11,800
C4003/P6-21	B154W6	8/27/2002	7:53	10:14	TMJ	5.2' - 6.8'	-	<1.0	2.64	11,900
C4025/P6-11	B154W7	8/27/2002	8:56	10:15	TMJ	24.2' - 25.4'	-	<1.0	2.01	15,400
C4025/P6-11	B154W8	8/27/2002	9:24	10:16	TMJ	15.2' - 16.8'	-	<1.0	1.29	16,200
C4025/P6-11	B154W9	8/27/2002	9:52	10:17	TMJ	5.2' - 6.5'	-	<1.0	1.55	16,700
Blank	-	8/27/2002	-	11:47	TMJ	-	-	<1.0	<1.0	12,800
C4026/P6-10	B154X0	8/27/2002	10:33	11:48	TMJ	24.2' - 25.4'	-	<1.0	1.80	14,800
C4026/P6-10	B154X1	8/27/2002	10:53	11:49	TMJ	15.2' - 16.5'	-	<1.0	1.40	15,300
C4026/P6-10	B154X2	8/27/2002	11:39	11:50	TMJ	5.2' - 6.9'	-	<1.0	<1.0	14,400
Blank	-	8/27/2002	-	13:40	TMJ	-	-	<1.0	<1.0	12,800
C4027/P6-9)	B154X3	8/27/2002	12:47	13:41	TMJ	24.2' - 25.2'	-	<1.0	1.79	15,400
C4027/P6-9)	B154X4	8/27/2002	13:09	13:42	TMJ	15.2' - 16.5'	-	<1.0	1.50	16,600
C4027/P6-9)	B154X5	8/27/2002	13:27	13:43	TMJ	5.2' - 6.8'	-	<1.0	<1.0	15,200
Blank	-	8/27/2002	-	15:00	TMJ	-		<1.0	<1.0	13,600
C4028/P6-8)	B154X6	8/27/2002	13:57	15:01	TMJ	24.2' - 24.9'	-	<1.0	1.8	15,000
C4028/P6-8)	B154X7	8/27/2002	14:24	15:02	TMJ	15.2' - 15.5'	-	<1.0	1.51	16,900
C4028/P6-8)	B154X8	8/27/2002	14:48	15:03	TMJ	5.2' - 6.5'	-	<1.0	1.47	16,700
Blank	-	8/27/2002	-	15:04	TMJ	-	-	<1.0	<1.0	14,000
25.5 ppm std.	-	8/27/2002	-	15:05	TMJ	-	-	23.5	<1.0	10,100

Note: Carbon Tetrachloride filter "A" is a high concentration filter for analysis above 100 ppm. The "B" filter is used for all concentrations below 100 ppm.

Data recoded real time using a loptop computer.

Thomas Jones 8/27/02

TMJ 8/27/02

Reviewed By GS Thomas 10/7/02

Thomas Jones/Thomas 8/27/02

Mathiansen/Mathiansen 8/28/02 HNF-10-313 1

200-PW-1 Operable Unit Disposed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis ~~(HO 010)~~ FO2-011 TMJ 10-18-02

C4029 (P6-7)

0655 Arrive at 200-PW-1 C4029 (P6-7).
0658 Purge 5 minutes at 24.2'-25.4' bgs
0703 B156N6 Collect sample.
0721 Purge 5 minutes at 15.2'-15.5' bgs.
0726 B156N7 Collect sample.
0740 Purge 5 minutes at 5.2'-6.7' bgs.
0745 B156N8 Collect sample.

C4030 (P6-6)

0757 Set up GeoProbe at C4030 (P6-6)
0814 Purge 5 minutes at 24.2'-25.4' bgs.
0820 B156N9 Collect sample
0833 Purge 5 minutes at 15.2'-16.5' bgs.
0850 ~~B156P0 Collect~~ TMJ 8-28-02 Purge 5 minutes at 5.2'-6.5' bgs.
0855 B156P0 P1 Collect sample.
0838 B156P0 Collect sample

C4031 (P6-5)

0905 Set up GeoProbe at C4031 (P6-5)
0924 Purge 5 minutes at 18.7'-19.8' bgs. Change in depth (Refusal at 19.8' bgs).
0929 B156P2 Collect sample.
0938 Purge 5 minutes at 15.2'-15.5' bgs.
0943 → ~~B156P3~~ Collect sample.
B156P3 ~~AT~~ 10/7/02 NOTE: On site for today GeoProbe Sampling
Geologists: Dave Weeks and Charlene Martinez
RCT: Larry Walkup
IH: N/A
SRL: Jim Driebel
Drillers: Bob Jones

C4032 (P6-4)

0957 Purge 5 minutes at 5.2'-6.4' bgs.
1002 ~~AT~~ 10/7/02 B156P34 Collect sample
1011 Set up GeoProbe at C4032 (P6-4)
1033 Purge 5 minutes at 24.2'-25.5' bgs
1043 TMJ 8-28-02 B156P45 Collect sample.
1102 Purge 5 minutes at 15.2'-16.5' bgs.
1107 B156P36 Collect sample.
1123 Purge 5 minutes at 6.2'-7.5' bgs.
1128 B156P67 Collect sample.

NOTE: See page 37 for locations of P6-7 & P6-6

Initiating / Initiating 8/28/02 (Cont. on page 40)

0000030

Reviewed By GS Thompson / [signature] 10/7/02

Continued from 39 JMathiasen/JMathiasen 8-28-02 F02-011 HNF-10-3131

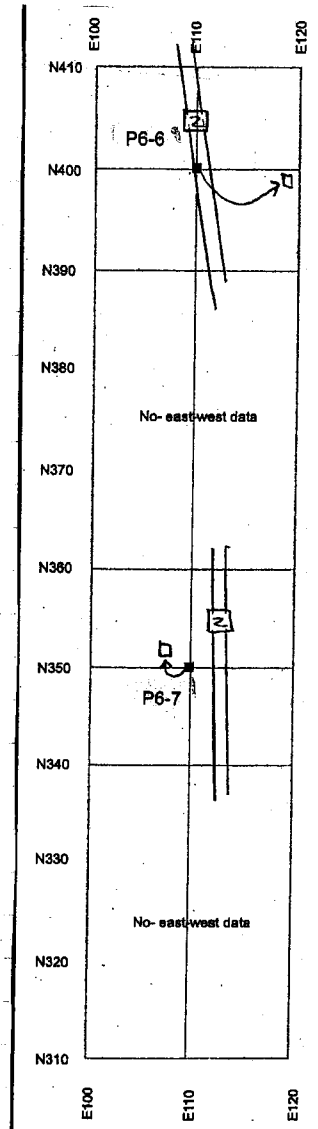
C4033 (P6-3)

1141 Setting up Geoprobe at C4033 (P6-3)
1249 Purge 5 minutes at 24.2' - 24.9' bgs.
1256 B156P8 Collect sample.
1314 Purge 5 minutes at 15.2' - 16.8' bgs.
1319 B156P9 Collect sample.
1334 ~~1334~~ Purge 5 minutes at 6.2' - 7.7' bgs.
1339 B156R0 Collect sample.

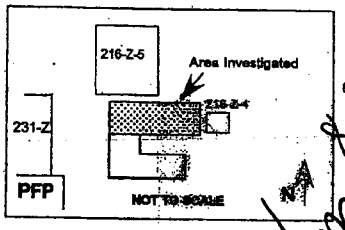
JMM 8-28-02

C4034 (P6-2)

1353 Setting up Geoprobe at C4034 (P6-2)
1417 Purge 5 minutes at 24.2' - 25.3' bgs.
1422 B156R1 Collect sample.
1441 Purge 5 minutes at 16.8' - 15.2' bgs.
1446 B156R2 Collect sample.
1455 Purge 5 minutes at 8.2' - 9.5' bgs.
1500 B156R3 Collect sample.

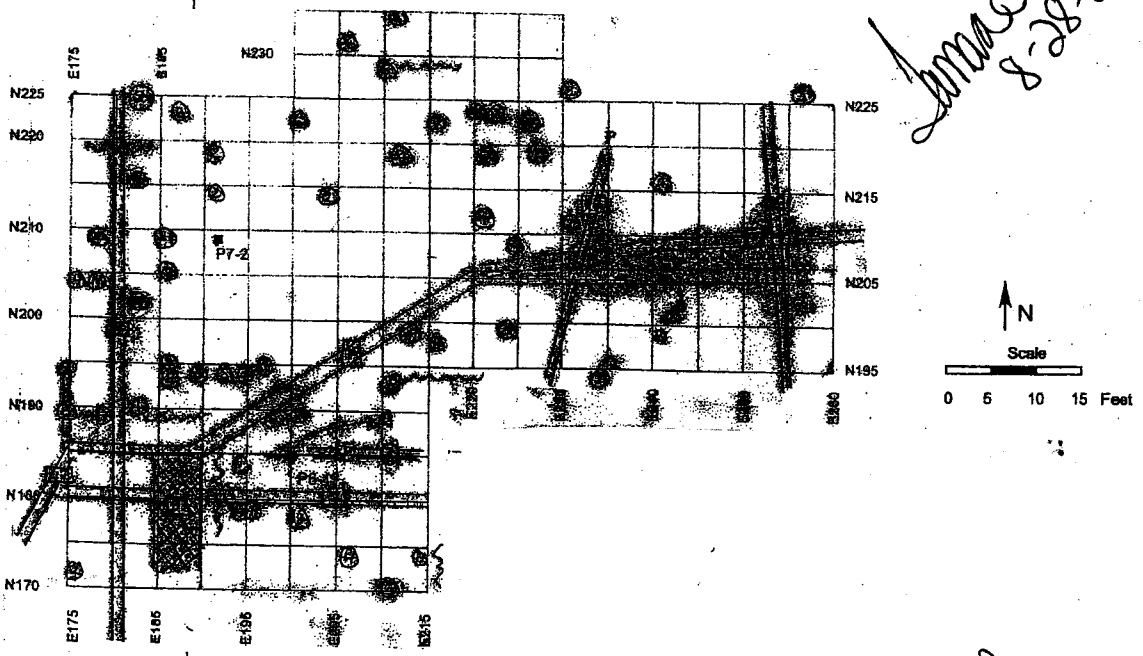


GENERAL LOCATION MAP

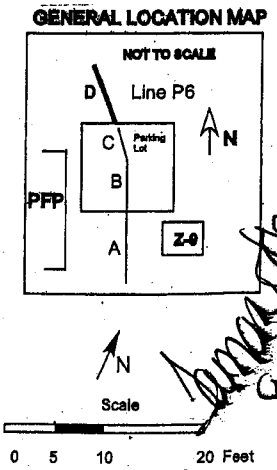


JMathiasen 8-28-02

JMathiasen 8-28-02



GENERAL LOCATION MAP



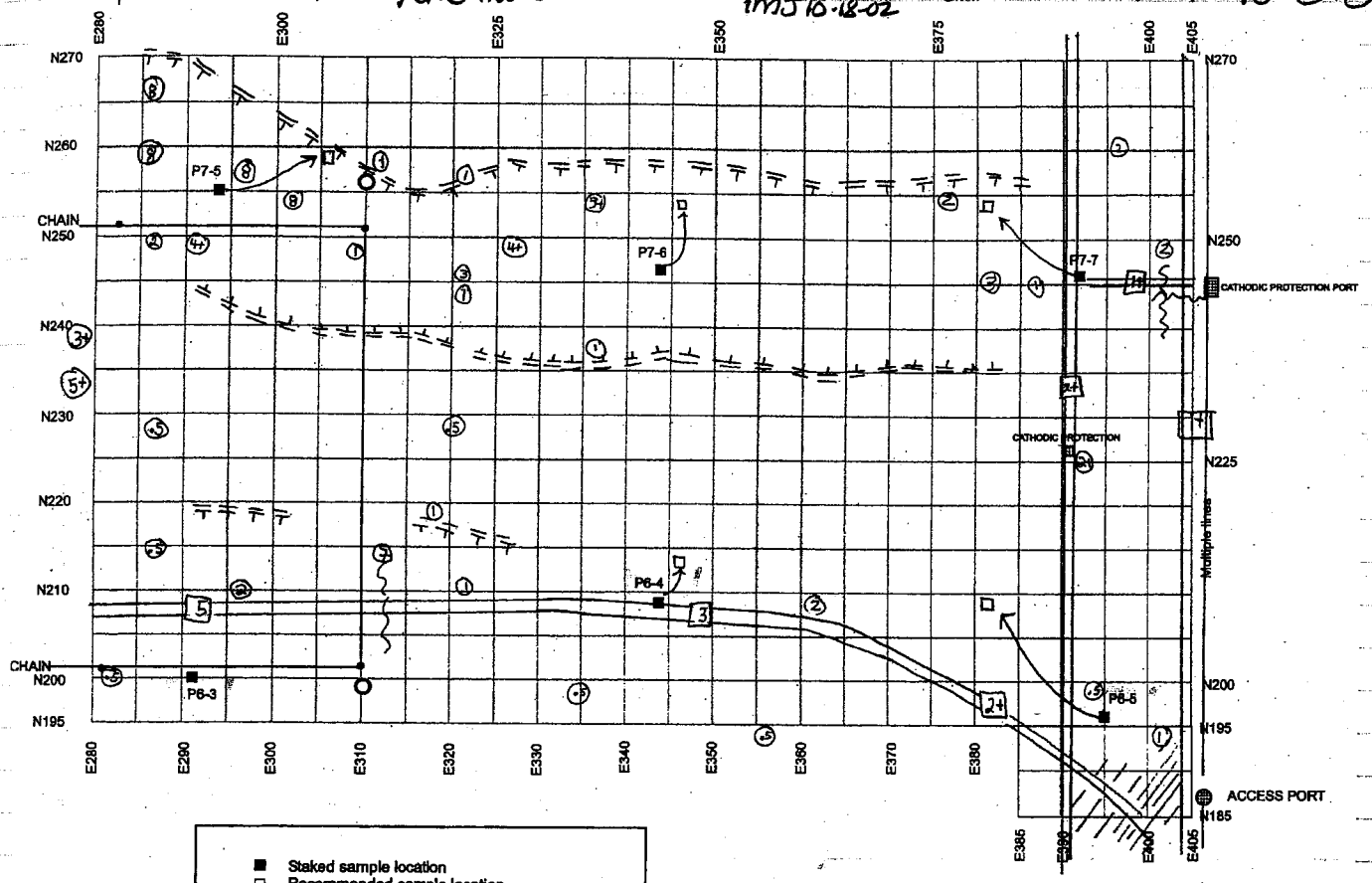
JMathiasen 8-28-02

JMathiasen 8-28-02

Reviewed By GS Thomas 10/7/02

Cont. on Page 41

[illegible] 8-28-02 ~~F02-010~~ F02-011 HNF-N-3131
MJ 10-18-02



- Staked sample location
- Recommended sample location
- Burial Ground Monument
- Excavation boundry
- Average depth to top of feature(s)
- Linear anomaly (Utility/pipeline?)
- Isolated Anomaly
- Isolated zone of buried material/debris that maybe masking deeper features
- Disturbed area with buried material/debris that maybe masking features of interest

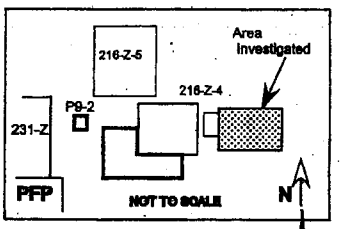
Questions: Contact TH Mitchell / KA Bergstrom @ 372-9690 or 372-9591 to review results prior to excavating.

N

Scale

0 5 10 15 Feet

GENERAL LOCATION MAP



Tamara Thanson 8-28-02

Tamara Thanson 8-28-02

Location Identification	Hole Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppmv) "A"	Carbon Tetrachloride (ppmv) "B"	Chloroform (ppmv)	Water Vapor (ppmv)
Blank	-	8/28/2002	-	8:00	TMJ	-	-	<1.0	<1.0	12,800
25.5 ppm std.	-	8/28/2002	-	8:01	TMJ	-	-	23.5	<1.0	11,400
C4029/P6-7	B156N6	8/28/2002	7:05	8:02	TMJ	24.2' - 25.4'	-	<1.0	1.51	15,400
C4029/P6-7	B156N7	8/28/2002	7:26	8:03	TMJ	15.2' - 15.5'	-	<1.0	1.38	18,700
C4029/P6-7	B156N8	8/28/2002	7:45	8:04	TMJ	5.2' - 6.7'	-	<1.0	1.03	14,100
Blank	-	8/28/2002	-	9:10	TMJ	-	-	<1.0	<1.0	11,700
C4030/P6-6	B156N9	8/28/2002	8:20	9:11	TMJ	24.2' - 25.4'	-	<1.0	1.68	16,800
C4030/P6-6	B156P0	8/28/2002	8:38	9:12	TMJ	15.2' - 16.5'	-	<1.0	<1.0	17,400
C4030/P6-6	B156P1	8/28/2002	8:55	9:13	TMJ	5.2' - 6.5'	-	<1.0	<1.0	15,500
Blank	-	8/28/2002	-	10:10	TMJ	-	-	<1.0	<1.0	11,200
C4031/P6-5	B156P2	8/28/2002	9:29	10:11	TMJ	18.7' - [illegible]	-	<1.0	1.34	16,700
C4031/P6-5	B156P3	8/28/2002	9:43	10:12	TMJ	15.2' - 15.5'	-	<1.0	1.13	17,600
C4031/P6-5	B156P4	8/28/2002	10:02	10:13	TMJ	5.2' - 6.4'	-	<1.0	1.04	17,700
Blank	-	8/28/2002	-	11:48	TMJ	-	-	<1.0	<1.0	13,400
C4032/P6-4)	B156P5	8/28/2002	[illegible]	11:49	TMJ	24.2' - 25.5'	-	<1.0	2.15	14,400
C4032/P6-4)	B156P6	8/28/2002	[illegible]	11:50	TMJ	15.2' - 16.5'	-	<1.0	2.27	18,500
C4032/P6-4)	B156P7	8/28/2002	11:28	11:51	TMJ	6.2' - 7.5'	-	<1.0	2.56	19,000
Blank	-	8/28/2002	-	14:00	TMJ	-	-	<1.0	<1.0	12,300
C4033/P6-3)	B156P8	8/28/2002	12:58	14:01	TMJ	24.2' - 24.9'	-	<1.0	3.51	14,800
C4033/P6-3)	B156P9	8/28/2002	13:19	14:02	TMJ	15.2' - 16.8'	-	<1.0	2.23	16,400
C4033/P6-3)	B156R0	8/28/2002	13:39	14:03	TMJ	6.2' - 7.7'	-	<1.0	1.14	16,500
Blank	-	8/28/2002	-	15:07	TMJ	-	-	<1.0	<1.0	13,800
C4034/P6-2)	B156R1	8/28/2002	14:22	15:08	TMJ	24.2' - [illegible]	-	<1.0	4.22	14,300
C4034/P6-2)	B156R4 (Duplicate)	8/28/2002	14:22	15:09	TMJ	24.2' - 25.3'	-	<1.0	4.43	14,300
C4034/P6-2)	B156R2	8/28/2002	14:46	15:10	TMJ	15.2' - 16.8'	-	<1.0	3.56	18,500
C4034/P6-2)	B156R3	8/28/2002	15:00	15:11	TMJ	6.2' - 9.5'	-	<1.0	2.47	22,400
Blank	-	8/28/2002	-	15:12	TMJ	-	-	<1.0	<1.0	14,000
25.5 ppm std.	-	8/28/2002	-	15:13	TMJ	-	-	22.4	<1.0	10,100

DMJ 8-28-02
* 19.8' ST 10/7/02
③ ST 10/7/02

8-28-02

Note: Carbon Tetrachloride filter "A" is a high concentration filter for analysis above 100 ppm. The "B" filter is used for all concentrations below 100 ppm.

Data recorded real time using a laptop computer.

Tamara Thanson 8-28-02

0000032

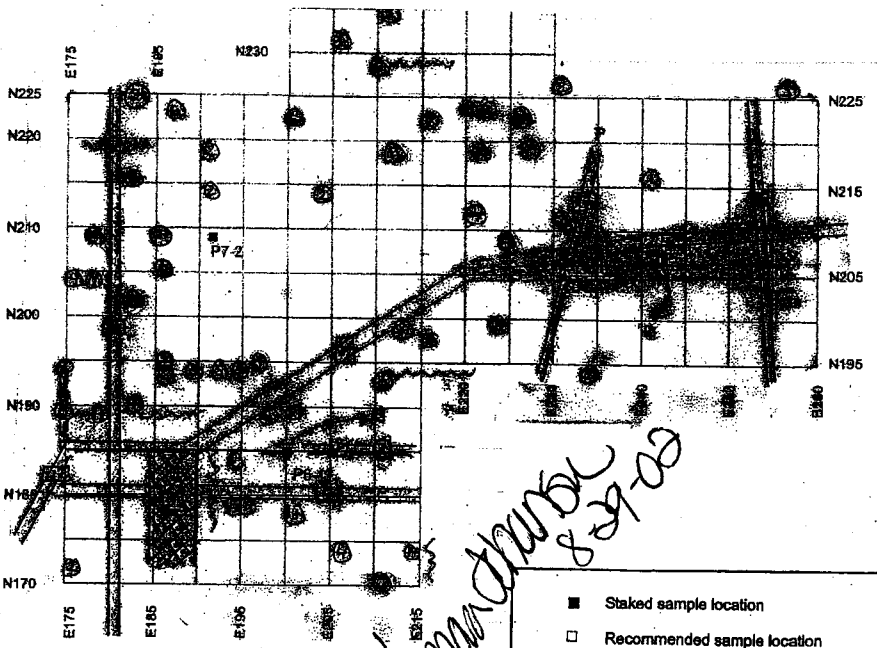
Reviewed By GS Thomas / Greg Thomas 10/7/02

Thomason/Thomason 8/29/02 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis
~~(F02-010)~~ F02-011 TMS 10-18-02

C4035 (PL6-1)

0655 Arrive at 200-PW-1 C4035 (PL6-1).
0710 Purge 5 minutes at 24.2' – 25.1' bgs.
0715 B156R5 Collect sample. Background 3 Alpha, 201 Beta. 4308 Beta DPM, 5120 Alpha DPM ~ Contamination from a static count per probe area.
0748 RCT talking to supervisor. RCT (Larry Walkup) checks cooler and bag.
0803 Suspected radon. 3790 dpm Alpha, 5832 dpm Beta.
0814 RCT gives the OK to backpull and add Bentonite.
0834 Purge 5 minutes at 15.2' – 16.4' bgs.
0839 B156R6 collect sample.
0850 Purge 5 minutes at 7.7' – 9.1' bgs.
0855 B156R7 collect sample.

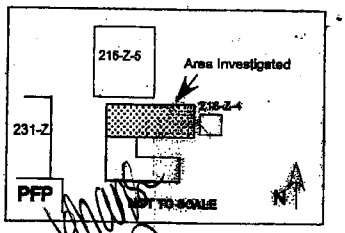


Thomason 8-29-02

N
Scale
0 5 10 15 Feet

Thomason 8-29-02

GENERAL LOCATION MAP



Staked sample location
Recommended sample location
Excavation boundry
Average depth to top of feature(s).
Linear anomaly (Utility/pipeline?)
Isolated Anomaly
Isolated zone of buried material/debris that maybe masking deeper features
Character of an encasement or concrete vault
Disturbed area with buried material/debris that might be masking features of interest
Questions: Contact [illegible] @ 372-9690 or 372-9590 to review results prior to excavating.

Thomason 8-29-02

Thomason 8-29-02

Reviewed By GS Thomas 10/8/02

Thomason/Thomason 8-29-02

Continued on Page 43

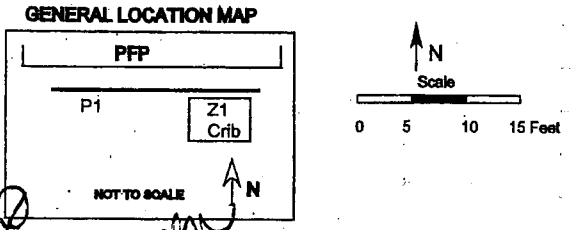
TMathansen/DMathansen 8/29/02 ~~(F02-010)~~ F02-011 HNF-10-3131
TMJ 10-18-02

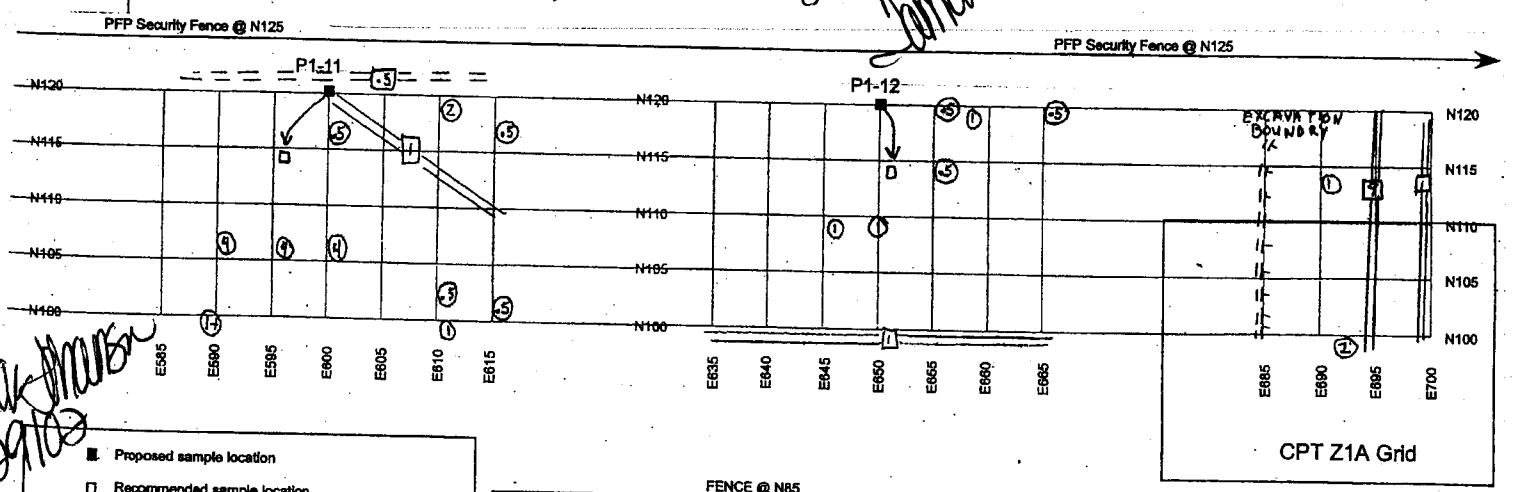
0922 Mobilize Geoprobe to C4036 (P1-12)
0953 Purge 5 minutes at 24.2' - 25.4' bgs.
0958 B156R8 collect sample.
1019 Purge 5 minutes at 15.2' - 16.7' bgs.
1024 B156R9 collect sample.
NOTE: The next interval will be at 10' bgs per conversation with Cris Cearlock.
Also on-site today for Geoprobe/Sampling are:
Geologists — Dave Weekes and Charlene Martinez
SSR — Jim Diebel
Driller — Bob Jones
RCT — Larry Walkup
1034 Purge 5 minutes at 10.2' - 11' bgs.
1039 B156T0 collect sample.
1055 Mobilize to C4037 (P1-11)
1118 Purge 5 minutes at 24.2' - 25.4' bgs.
1123 B156T1 collect sample.
1138 Purge 5 minutes at 15.2' - 16.2' bgs.
1143 B156T2 collect sample. AT 10/8/02
1154 Purge 5 minutes at (10.2' - 11.0' bgs)
1159 B156T3 collect sample.

P1-12 (0830)
P1-11 (1037)

8-29-02 Tamara Thomas

GENERAL LOCATION MAP





Tamara Thomas 8/29/02

- Proposed sample location
- Recommended sample location
- Average depth to top of feature(s)
- Linear anomaly (Utility/pipeline?)
- Isolated Anomaly
- Isolated zone of buried material/debris that maybe masking deeper features
- Disturbed area with buried material/debris that maybe masking features of interest

Questions: Contact TH Mitchell / KA Bergstrom @ 372-9690 or 372-9591 to review results prior to excavating.

Tamara Thomas 8-29-02

0000034

Reviewed By GS Thomas / [illegible] 10/8/02

TMathansen/DMathansen 8/29/02

Continued on Page 44

TMJ/Thomas/Thomas 8/29/02 ~~F02-010~~ F02-011 HNOF-10-3131
Continued from Page 43
TMJ 10-18-02

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppm/v)		Chloroform (ppm/v)	Water Vapor (ppm/v)
							"A"	"B"		
Blank	-	8/29/2002	-	9:13	TMJ	-	-	<1.0	<1.0	10,700
25.5 ppm std.	-	8/29/2002	-	9:14	TMJ	-	-	22.8	<1.0	5,300
C4035/P6-1	B156R5	8/29/2002	7:15	9:15	TMJ	24.2' - 25.1'	-	<1.0	1.54	14,000
C4035/P6-1	B156R6	8/29/2002	8:39	9:16	TMJ	15.2' - 16.4'	-	<1.0	1.24	13,900
C4035/P6-1	B156R7	8/29/2002	8:55	9:17	TMJ	7.7' - 9.1'	-	<1.0	<1.0	15,300
Blank	-	8/29/2002	-	10:50	TMJ	-	-	<1.0	<1.0	11,800
C4036/P1-12	B156R8	8/29/2002	9:58	10:51	TMJ	24.2' - 25.4'	-	<1.0	2.25	13,200
C4036/P1-12	B156R9	8/29/2002	10:24	10:52	TMJ	15.2' - 16.7'	-	<1.0	1.44	14,800
C4036/P1-12	B156T0	8/29/2002	10:39	10:53	TMJ	10.2' - ~~16.7'~~ *	-	<1.0	1.55	15,200
Blank	-	8/29/2002	-	12:10	TMJ	-	-	<1.0	<1.0	11,400
C4037/P1-11	B156T1	8/29/2002	11:23	12:11	TMJ	24.2' - 25.4'	-	3.63	3.09	13,600
C4037/P1-11	B156T2	8/29/2002	11:43	12:12	TMJ	15.2' - 16.2'	-	<1.0	2.08	14,500
C4037/P1-11	B156T3	8/29/2002	11:59	12:13	TMJ	10.2' - 11.0'	-	<1.0	2.28	18,500
Blank	-	8/29/2002	-	12:14	TMJ	-	-	<1.0	<1.0	14,000
25.5 ppm std.	-	8/29/2002	-	12:15	TMJ	-	-	22.9	<1.0	5,270

Note: Carbon Tetrachloride filter "A" is a high concentration filter for analysis above 100 ppm. The "B" filter is used for all concentrations below 100 ppm.

Data recoded real time using a loptop computer.

Lamar Thomas 8/29/02

* 11' JT 10/8/02

TMJ/Thomas 8/29/02

Reviewed By GS Thomas/Greg Lamb 10/8/02

TMJ/Thomas/Thomas 8/29/02

TM Johansen/TM Johansen 9/3/02 HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis
~~(F02-018)~~ F02-011 TMJ 10-18-02

0600 Arrive at 200-PW-1 Plan of the Day Conducted at Z-9 on the NE side of PFP. Contractor ARA Unable to get through gate due to security.

0745 Contractor arrives on site. POD has been moved to
On-site for POD are Virginia Bohay, Chris Clearlock, Charlene Martinez, Tony Nelson, Bob Jones, Jim Diebel, Larry Walkup, Eric Drysdale, James Hall, Bryan Raeder, Ross Fable, Steven Landsman. This part of the sampling / Geoprobe project has 23 CPT probes

0845 ARA (Applied Research Associates Inc.) taking HGET and getting personal Dosimetry

1411 setting up rig at (55-57 ton mack truck) C3840 (Z18A)

1535 Pack up equipment and leave site. No samples collected

TMJ 9/3/02

0000036

TM Johansen/TM Johansen 9/3/02

Reviewed By GS Thomas/GS Thomas 10/10/02

Thoorhuysen/Smithanson 9-4-02 HOF-10-3131

200-PU-1 Operable Unit Disposed Carbon Tetrachloride Vadose Zone Plume Sampling and Analysis ~~(F02-010)~~ F02-011 TMS 10-18-02

0600 Arrive on-site to set up for todays sampling event. Already set up on 216-Z-18 crib location ID 15 Z18A C3840

0725 Begin push

0741 TMS 9-4-02 ~~B15GT4~~ Purge sample TD@ 15' bgs

0749 B15GT4 Collect sample.

0800 Purge sample TD@ 25' bgs.

0813 B15GT5 Collect sample.

0835 Purge sample TD@ 50' bgs

0844 B15GT6 Collect sample

0912 Purge sample 60.1' bgs

0925 B15GT7 Collect sample.

1215 Start pushing at C3841 (Z18B)

1233 TMS 9-4-02 Purge sample TD@ 15.1' bgs.

1240 B15GT8 Collect sample.

1247 Purge sample TD@ 25' bgs.

1256 B15GT9 Collect sample

1317 Purge sample TD@ 50' bgs.

1326 B15GV0 Collect sample.

1335 Purge sample TD@ 75' bgs

1344 B15GV1 Collect sample.

1408 Purge sample TD@ 91' bgs TMS 9-4-02

1415 Return to 200-PU-1 to analyze samples.

NOTE: When backpulling the Rods it was determined that a rod had been broken making the last two samples taken invalid.

TMS 9/4/02

Reviewed By GS Thomas 10/8/02

Thoorhuysen/Smithanson 9/4/02 Continued on Page 47

TMJ 8-8-02

Thomason/Thomason 9-4-02 (~~F02-010~~) F02-011 ~~HNF-10-313-10~~
Continued from Page 46 TMJ 10-18-02 HNF-10-313 1

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tet. "A"	Carbon Tet. "B"	Chloroform	Water Vapor
Blank	—	9-4-02	—	0933	TMJ	—	—	<1.0	<1.0	6450
25.5ppm std	—	9-4-02	—	0934	TMJ	—	—	21.6	<1.0	5960
C3840/218A	B156T4	9-4-02	0749	0935	TMJ	15'	—	<1.0	1.99	7920
C3840/218A	B156T5	9-4-02	0813	0936	TMJ	25'	—	<1.0	2.25	8550
C3840/218A	B156T6	9-4-02	0844	0937	TMJ	50'	—	<1.0	2.76	10600
C3840/218A	B156T7	9-4-02	0925	0938	TMJ	60.1'	—	<1.0	9.37	12300
Blank	—	9-4-02	—	1420	TMJ	—	—	<1.0	<1.0	9800
C3841/218B	B156T8	9-4-02	1242	1421	TMJ	15.1'	—	<1.0	16.2	7160
C3841/218B	B156T9	9-4-02	1256	TMJ 9-4-02 1422	TMJ	25'	—	<1.0	1.75	7170
C3841/218B	B156V0	9-4-02	~~1326~~ 1236	1423	TMJ	50'	—	<1.0	1.12	7290
~~C3841/218B~~	~~B156V1~~	~~9-4-02~~	~~1344~~	TMJ 9-4-02 ~~1424~~	~~TMJ~~	~~75'~~	~~—~~	~~<1.0~~	~~1.37~~	~~6990~~
~~C3841/218B~~	~~B156V2~~	~~9-4-02~~	~~1408~~	TMJ 9-4-02 ~~1425~~	~~TMJ~~	~~91'~~	~~—~~	~~<1.0~~	~~<1.0~~	~~6930~~
C3841/218B	B156V3	9-4-02	1242	1426	TMJ	15.1'	—	<1.0	16.4	6960
Blank	—	9-4-02	—	1427	TMJ	—	—	<1.0	<1.0	9830
25.5	—	9-4-02	—	1428	TMJ	—	—	22.3	<1.0	6990

TMJ 9/4/02

Thomason/Thomason 9/4/02

Reviewed By GS Thomas / Thomas 10/8/02

0000038

Tmoenursen/Gmoenursen 9/5/02 HOF-10-313 1

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride
Home Sampling and Analysis ~~(F02-010)~~ F02-011
TMO 10-18-02

0600 Greg Thomas arrives at 200-PW-1 to set up for todays sampling. TMT 9/5/02
0742 Set up Rig at C3842 ~~(310)~~ (212A)
0837 Project on hold to determine if vinyl tubing can be used. Per Chris, Virginia and Rich, Wells. Pull tubing and use vinyl coated
NOTE: A sample was taken at 15', but will not be used due to tubing problems.
1010 Begin push again
1018 Purge 36 @ 15' bgs. (5 minute Purge)
1026 B156V2 Collect sample.
1038 Purge 25' bgs
1046 B156V3 collect sample.
1110 Purge 49.4 bgs. last sample because of Refusal.
1114 B156V4 Collect sample.
1320 Mobilize Geoprobe to C3843 (212B)
1444 Purge 15' bgs.
1448 B156V5 collect
1454 Purge 21' bgs.
1458 B156V6 collect
1506 Purge 25' bgs.
1509 B156V7 collect
1525 Purge 50' bgs.
1529 B156V8 collect. 2PPm Hydrogen suspected
1555 Purge 65' bgs. Last sample because of Refusal
1559 B156V9 Collect

TMT 9-5-02

Tmoenursen/Gmoenursen 9/5/02 Continued on Page 49

Reviewed By GS Thomas 10/8/02

TMJ/TMJ 9/5/02 F02-011 HWF-10-3131
Continued from Page 48

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tet.	Chloroform	Water Vapor
Blank	—	9-5-02	—	1208	TMJ	—	<1.0	<1.0	7450
25.5 ppm Std.	—	9-5-02	—	1209	TMJ	—	22.3	<1.0	6890
C3842 (212A)	B156V2	9-5-02	1026	1210	TMJ	15'	<1.0	2.04	11300
C3842 (212A)	B156V3	9-5-02	1046	1211	TMJ	25'	<1.0	2.23	11900
C3842 (212A)	B156V4	9-5-02	1114	1213	TMJ	49.4'	8.04	1.88	14400
Blank	—	9-5-02	—	—	TMJ	—	<1.0	<1.0	8000
C3843 (212B)	B156V5	9-5-02	1448	~~1214~~ 1609 TMJ 10/8/02	TMJ	15'	<1.0	1.35	11000
C3843 (212B)	B156V6	9-5-02	1458	1610	TMJ	21'	<1.0	1.91	13400
C3843 (212B)	B156V7	9-5-02	1509	1611	TMJ	25'	<1.0 TMJ 9-5-02	~~2.00~~ 1.61 TMJ 9-5-02	~~23400~~ 18000
C3843 (212B)	B156V8	9-5-02	1529	1612	TMJ	50'	<1.0 TMJ 9-5-02	~~1.69~~ 1.69	12800
C3843 (212B)	B156V9	9-5-02	1559	1613 TMJ 10/8/02	TMJ	65'	<1.0	2.00	23400
C3843 (212B)	B156W0	9-5-02	~~1529~~	TMJ 9-5-02 ~~1214~~ ~~1615~~ 1615	TMJ	49.4'	7.95	1.78	14200
C3843 (212B	Duplicate	9-5-02	1114*	— 1215	—	—	—	—	—
25.5 Std	—	9-5-02	—	TMJ 10/8/02 1614	TMJ	—	22.9	<1.0	7200

TMJ 9-5-02

0000040

TMJ/TMJ 9/5/02

Reviewed By GS Thomas / [signature] 10/8/02

Trathanson/Trathanson 9-6-02 HNF-N-3131

200-PW-1 Operable Unit Dispersed Carbon Tet.
Plume Sampling and Analysis ~~(F02-010)~~ F02-011
TMJ 10-18-02

0555 Greg Thomas arrives on site. Complete Concrete monument for C3843 (216-Z-12B)
0605 Mobilize to next site C3844 (~~216-Z-12~~ 216-Z-1A
0653 Gearlock Called during POD
0710 Trathanson arrives on site to take over Sampling duties. On-Site for today.
Geologist – Charlene Martinez
IH – Tony Nelson
STR – Bob Jones
ARA – Erik Dysland + Jim Hall
Drillers – "Hoozie" Gary Howell
0900 Purge 14.1'-15' bgs. Purge 3L at 2L a minute = 1.5 min
0904 B15W1 Collect sample
0914 Purge 24'-25' bgs. Purge 6L @ 2L min. = 3min
0918 B15W2 Collect sample.
0948 Purge 41-41.9 bgs. Purge 10L @ 2L min = 5min.
0954 B15W3 Collect sample. Last sample Refusal
1046 Setting up Rig at C3845 (21C)
1107 Purge 14'-15' bgs.
1110 B15W4 Collect sample.
1120 Purge 19'-20' bgs.
1125 B15W5 Collect sample.
1136 Purge 24'-25' bgs.
1141 TMJ 12/13/02 ~~B15W6a~~ Collect sample. B15WC9
1208 Purge 49'-50' bgs. ~~Refusal~~ TMJ 9/6/02
1214 TMJ 12-13-02 ~~B15W7a~~ Collect sample. Refusal last sample. B15WD0
NOTE: After removing the casing it was determined that the tip was plugged so we will resample the last interval.
1351 Purge 49'-50' bgs. B15WD1
1358 TMJ 12-13-02 ~~B15W8a~~ Collect sample. Determine that the tip is plugged
1530 again so we pull casing and push down again. Purge 47.5'-48.8'
1536 TMJ 12-13-02 ~~B15W9a~~ Collect sample B15WD2
TMJ 9/6/02

Trathanson/Trathanson 9/6/02 Continued on Page 51

Reviewed By GS Thomas 10/10/02

HNF-10-3131

Tmthomsen/Tmthomsen 9-06-02
Continued from page 50

Tamara Thomsen 9-6-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis ~~(F02-010)~~ F02-011

TMT 10-18-02

	Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon (ppmV) Tetrachloride "A" Filter	Carbon (ppmV) Tetrachloride "B" Filter	Cholorform ppmV	Water Vapor ppmV	
	Blank	—	9/6/02	—	1005	TMT	—	—	<1.0	<1.0	7110	
	25.5 ppm	—	9/6/02	—	1006	TMT	—	—	21.9	<1.0	6420	
	C3844/21A	B15GW01	9/6/02	0904	1007	TMT	14.1'-15'	—	<1.0	<1.0	13100	
	C3844/21A	B15GW02	9/6/02	0918	1008	TMT	24'-25'	—	<1.0	1.16	14600	
	C3844/21A	B15GW03	9/6/02	0954	1009	TMT	41'-41.9'	—	4.01	<1.0	18500	
	Blank	—	9/6/02	—	1239	TMT	—	—	<1.0	<1.0	8430	
	C3845/21C	B15GW04	9/6/02	1107 (*)	1240	TMT	14'-15'	—	<1.0	<1.0	14000	*
	C3845/21C	B15GW05	9/6/02	1128 (*)	1241	TMT	19'-20'	—	<1.0	<1.0	14900	*
B15WC9	C3845/21C	~~B15GW06~~	9/6/02	1141	1242	TMT	24'-25'	—	4.5	57.8	17000	
B15WD0	C3845/21C	~~B15GW07~~	9/6/02	1214	1243	TMT	49'-50'	—	7.2	114	12600	
B15WD1	C3845/21C	~~B15GW08~~	9/6/02	1358	1459	TMT	49'-50'	—	<1.0	1.44	10100	
	Blank	—	9/6/02	—	1545	TMT	—	—	<1.0	<1.0	8010	
B15WD2	C3845/21C	~~B15GW09~~	9/6/02	1536	1546	TMT	—	—	<1.0	3.03	21800	
	25.5 ppm	—	9/6/02	—	1547	TMT	47.5'-48.8	—	22.2	<1.0	7900	

TMT 9/6/02

Tamara Thomsen 9/6/02

(*) BT 10/10/02

TMT 9/6/02

0000042

Tmthomsen/Tmthomsen 9/6/02

Reviewed By GS Thomas/Greg Thomas 10/10/02

TMJ Hansen TMJ Hansen 9/9/02 ~~F02-010~~ F02-011 HUF-10-3131
TMJ 10-18-02

0600 Sampler Greg Thomas arrives on Site for POD.
On-Site for POD:
Geologist — Jess Hocking ; PCT — Larry Walkup
STR — Bob Jones
ARA — Jim Hall + Eric Dysland
Driller — Gary Howell
- Site 216-Z-12C (3846 -
0705 Depth 48' Refusal Prepare for Sampling
0713 Start purging @ 48' bgs. Purge Rate 2L/min
0718 B15458 Collect sample
0811 Setting up rig (3847 (Z1B)
0818 Begin pushing hole
0825 Begin purge 14'-15' bgs.
0834 B15459 Collect sample.
0841 Begin purge @ 24'-25' bgs.
0845 B15460 Collect sample.
0854 Begin purge @ 30'-31' bgs
0900 B15461 Collect sample.
NOTE: After measuring it is determined that the tip is plugged. Modifications made to tip.
Resample at the 30' depth in case the plug was there.
1224 Begin purge @ 30'-31' bgs
1229 B15462 Collect sample.
TMJ 9-9-02
1239 Begin purge @ 41.6 - 40.6 bgs.
1245 B15463 Collect sample.
1254 Begin purge @ 49'-50' bgs
1300 B15464 Collect sample.
1328 Begin purge @ 61.2'-62.2' bgs ~ Refusal last sample.
1330 B15465 Collect sample.
1435 Mobilize to (3848 ~~(DZ-18)~~ TMJ 9/9/02 (DZ-1A)
1449 Purge @ 9'-10' bgs
1453 B15466 Collect sample.
1459 Purge @ 14'-15' bgs.
1503 B15467 Collect sample
1510 Purge @ 24'-25' bgs
1514 B15468 Collect sample.
1522 Purge @ 38'-39' bgs.
1527 B15469 Collect sample
1538 Purge @ 46.2' — 44.2' ~ Refusal last sample
TMJ Hansen TMJ Hansen 9/9/02 Cont. on Page 53

Collect Sample B15 BT 8 DT 10/10/02
Note all samples on this page are converted to different HEIS in Table on next page

Reviewed By GS Thomas 10/10/02 Greg Thomas

Continued from Page 52 9/9/02 ~~F02-010~~ HNF-10-3131 F02-011 TMT 10-18-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(F02-010)~~ F02-011 TMT 10-18-02

Heis Number	Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor
	Blank	—	9/9/02	—	0728	TMT	—	—	<1.0	<1.0	6260
—	25.5ppm	—		—	0729		—	—	21.6	<1.0	6370
B15BR6	C3846/B2C	B15458		0718	0730		47'-48'	—	<1.0	3.51	16800
—	Blank	—		—	1340		—	—	<1.0	<1.0	9190
B15BR7	C3847/21B	B15459		0834	1341		14'-15'	—	<1.0	1.06	11800
B15BR8	C3847/21B	B15460		0845	1342		24'-25'	—	<1.0	1.75	12000
B15BR9	C3847/21B	B15461		0900	1343		30'-31'	—	<1.0	1.92	12000
B15BT0	C3847/21B	B15462		1229	1344		30'-31'	—	<1.0	1.75	17300
B15BT1	C3847/21B	B15463		1245	1345		40.6'-41.6'	—	1.10	1.53	18000
B15BT2	C3847/21B	B15464		1300	1346		49'-50'	—	<1.0	1.49	17800
B15BT3	C3847/21B	B15465		1326	1347		61.2'-62.2'	—	<1.0	1.98	21000
B15BT4	C3848/D21A	B15466		1453	1542		9'-10'	—	<1.0	1.33	19200
B15BT5	C3848/D21A	B15467		1503	1543		14'-15'	—	<1.0	1.54	20800
B15BT6	C3848/D21A	B15468		1514	1544		24'-25'	—	2.03	1.01	23100
B15BT7	C3848/D21A	B15469		1523*	1545		38'-39'	—	2.94	1.01	25900
B15BT8	C3848/D21A	B15470		1538	1546		45.2'-44.2'	—	1.64	1.17	25900
—	Blank	—		—	1548		—	—	<1.0	<1.0	14200
—	25.5ppm	—		—	1548		—	—	21.7	<1.0	16400
B15BT9	C3848/D21A	B15471	9/9/02	1522	1547	TMT	38'-39'	—	2.88	1.15	23300

9/9/02

9/9/02

* ΔT 10/10/02

TMT 9/9/02

9/9/02

10/10/02 Reviewed By GS Thomas

9/10/02 SAF # ~~F02-010~~ F02-011

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE System — mmo 10-18-02 HNF-N-313 1

Sampler: Greg Thomas / ~~Greg Thomas~~ Fluor Hanford

Site Personel

Bob Jones (STR), Jess Hocking (geologist), (RCT) Larry Walkup, (ARA) Eric Dysland & Jim Hall, Gary Howell (Driller), (LH) Tony Nelson

Pump: Aircheck Sampler Model 224-PCXRB

6:00 Plan of the DAY & Safety meeting

6:25 Mob to 216-2-8 and setup. I mob to mobile Lab and start equipment

0655 Start C3849 (216-2-8)

0705 Purge 6 min at 15' bgs Flow rate 1 L in 4½ minutes OVM reading 0ppm

0715 Collect Sample.

Tip is found to be plugged.

0738 Back at 15'

0741 Begin Purging. Purge rate ≈2L/min purge 7 Liters

0744 Collect Sample ~~B15479~~ mmo 9-18-02 B15BV0 Depth 14'-15'

~~Purge~~ AT 9/10/02

0751 Begin purging 20-21. Purge rate 2L/min high ~~200~~ 222 ppm on OVM

0754 Collect Sample ~~B15472~~ mmo 9-18-02 B15BV1 after purging 7 ppm

0754 - 0758 Let recover

0758 Purge for 30 second OVM stable at 12ppm

0758 Collect Sample ~~B15473~~ mmo 9-18-02 B15BV2

Collect next Sample with no purge time

800-900 Down time soil in tip. Per Bob Jones Sample at 21' again

9:00 Collect sample ~~B15474~~ B15BV3 mmo 9-18-02 with no purge from 20'-21'

9:05 Collect Sample ~~B15475~~ B15BV4 mmo 9-18-02 after 5 minutes of purge from 20'-21'

9:11 Collect ~~Sam.~~ AT 9/10/02 one ½ Liter in 35 second OVM readings 0 ppm

9:17 Collect Sample ~~B15476~~ B15BV5 mmo 9-18-02 after 6 minutes of purge from 24'-25'

9:28 Collect 1 liter in 1 minute OVM reading 0ppm

9:33 Collect Sample ~~B15477~~ B15BV6 mmo 9-18-02 after 5 minutes of purge from 38'-39'

9:50 At 50' Drive head stuck in Casing

1025 Mcnamara arrives on site to take over todays Sampling and analysis.

1140 Purge Sample 6 minutes at 48'-49'.

1153 ~~B15478~~ mmo 9-18-02 Collect Sample. B15BV7

1237 Mobilize to C3850 (29A) - 216-2-9 Crib

1301 Purge Sample 14'-15' 4 minutes.

1306 ~~B15480~~ mmo 9-18-02 Collect sample B15BV8

1316 Purge Sample 24'-25' bgs.

1324 ~~B15481~~ mmo 9-18-02 Collect Sample. B15BV9

1332 Purge Sample 32'-33' bgs.

mmcnamara mcnamara 9/10/02 Cont. on page 55

Reviewed By GS Thomas / Greg Thomas 10/10/02

Cont from Page 54 TMJ 9-18-02 TMJohansen/TMJohansen 9/10/02 HLF-10-3131
1337 ~~B15482~~ TMJ 9-18-02 Collect sample B15BW0
1346 Purge sample 39-40
1352 ~~B15483~~ TMJ 9-18-02 Collect sample B15BW1
1409 Purge sample 43.52-44.52 ~ Refusal
1414 ~~B15484~~ TMJ 9-18-02 Collect sample B15BW2

-1 Vadose Zone Monitoring During Non-operation of SVE Systems ~~(OAP T02-040)~~ F02-011 TMJ 10-18-02

SAMPLER NAME: T. M. Johansen / GThomas
ANALYZER NAME: T. M. Johansen / GThomas

Tamara Johansen 9-10-02

STANDARD CONCENTRATION of 25.5 ppmv CCl4 analyzed as ___22.1_ ppmv at __07:43_(time).

STANDARD CONCENTRATION of 25.5 ppmv CCl4 analyzed as 23.1 ppmv at 14:18 (time).

Location Identification	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppmv)		Chloroform (ppmv)	Water Vapor (ppmv)
							A	B		
C3849/Z8	B15BV0	9/10/2002	7:44	10:20	GT	14' - 15'	-	<1.0	<1.0	11,700
C3849/Z8	B15BV1	9/10/2002	7:54	10:21	GT	20' - 21'	-	<1.0	9.80	12,400
C3849/Z8	B15BV2	9/10/2002	7:58	10:22	GT	20' - 21'	-	<1.0	8.72	12,200
C3849/Z8	B15BV3	9/10/2002	9:00	10:23	GT	20' - 21'	-	<1.0	3.66	13,400
C3849/Z8	B15BV4	9/10/2002	9:05	10:24	GT	20' - 21'	-	<1.0	<1.0	15,000
C3849/Z8	B15BV5	9/10/2002	9:17	10:25	GT	24' - 25'	-	<1.0	<1.0	16,000
C3849/Z8	B15BV6	9/10/2002	9:33	10:26	GT	38' - 39'	-	<1.0	<1.0	17,100
C3849/Z8	B15BV7	9/10/2002	11:53	12:00	TMJ	48' - 49'	-	<1.0	<1.0	21,000
C3850/Z9A	B15BV8	9/10/2002	13:06	14:13	TMJ	14' - 15'	-	<1.0	1.62	17,700
C3850/Z9A	B15BV9	9/10/2002	13:24	14:14	TMJ	24' - 25'	-	<1.0	1.86	14,400
C3850/Z9A	B15BW0	9/10/2002	13:37	14:15	TMJ	32' - 33'	-	<1.0	1.39	15,900
C3850/Z9A	B15BW1	9/10/2002	13:52	14:16	TMJ	39' - 40'	-	<1.0	16.8	17,200
C3850/Z9A	B15BW2	9/10/2002	14:14	14:17	TMJ	43.52' - 44.52'	-	<1.0	1.22	20,900

Tamara Johansen 9/10/02

TMJ 9/10/02

0000046

Reviewed By GS Thomas 10/10/02

TMJohansen/TMJohansen 9/10/02

9/11/02 SAF # ~~F02-010~~ MMJ 10-18-02
F02-011

2000 PW-1 Vadose Zone Monitoring During Non-Operation of SVE System HNF-10-3131
Sampler - Greg Thomas / Greg Thomas
Fluor Hanford

Site Personnel
Bob Jones (STR), Jess Hocking (geologist), Byran Rader (RCT),
(ARA) Eric Dysland & Jim Hall, Gary Howell (driller), Tony Nelson (LH)
Equipment Air Check Sampler Model 224-PCXR8

0600 - 0620 Plan of Day and Safety Meeting
0625 Drill to 15' Bgs at C3851 (216-29B)
0634 Begin purging for 14'-15' Sample interval. Flow Rate 2L/min
0640 Collect Sample ~~B15485~~ B15BW3 MMJ 9-18-02 at 14'-15' bgs OVM Reading 0 ppm
0647 Begin purging for 24'-25' Sample interval. Flow Rate 2 L/min
0652 Collect Sample ~~B15486~~ B15BW4 MMJ 9-18-02 at 24'-25' bgs.
0720 Purge 49'-50' bgs.
0725 MMJ ~~B15487~~ Collect Sample B15BW5
0817 Mobilize to C3852 (221C)
0835 MMJ 9-18-02 ~~B15488~~ Collect Sample purged from 4'-5' B15BW6
0845 Purge 14'-15'
0848 MMJ 9-18-02 ~~B15489~~ Collect Sample B15BW67 MMJ 9-18-02
0909 Purge 18.66'-19.66' Refusal. ~~B15490~~ Collect Sample B15BW8
0942 Mobilize to C3853 (221B).
0945 Standby waiting for new hp
1041 Purge @ 7'-8' bgs.
1044 MMJ 9-18-02 ~~B15491~~ Collect Sample B15BW~~8~~9 MMJ 9-18-02
1050 Purge @ 14'-15' bgs
1054 MMJ 9-18-02 ~~B15492~~ Collect Sample B15B~~W8~~9 MMJ 9-18-02 X0
1108 Purge @ 24'-25' bgs.
1111 MMJ 9-18-02 ~~B15493~~ Collect Sample ~~B15BW9~~ MMJ 9-18-02 B15BX1
1133 Purge @ 28.7' - 27.7' Refusal
1138 MMJ 9-18-02 ~~B15494~~ Collect Sample ~~B15BX0~~ MMJ 9-18-02 B15BX2
1213 Mobilize to C3854 (291A-1) - Change Back to CPT method
1305 Purge @ 15' bgs
1327 MMJ 9-18-02 ~~B15495~~ 96 Collect Sample B15BX4
1336 Purge @ 25' bgs.
1340 MMJ 9-18-02 ~~B15496~~ 97 Collect Sample B15BX5
1347 Purge @ 33' bgs
1349 MMJ 9-18-02 ~~B15498~~ Collect Sample B15BX~~3~~6 MMJ 9-18-02
1358 Purge @ 40' bgs
1403 MMJ 9-18-02 ~~B15499~~ Collect Sample B15BX~~4~~7 MMJ 9-18-02
1410 Purge @ 40.89'
1414 MMJ 9-18-02 ~~B15400~~ Collect Sample B15BX8

Mobilized to 300 Area 9/11/02 (Cont. on Page 57)

Reviewed By GS Thomas / Greg Thomas 10/10/02

TMJohansen/TMJohansen 9/11/02 ~~F02-010~~ HWF-10-3131
Continued from page 56 F02-011 TMJ 10-18-02

TMJohansen 9-11-02

200-PW-1 Vadose Zone Monitoring During Non-operation of SVE Systems ~~(GAF F02-010)~~ TMJ 10-18-02 F02-011

SAMPLER NAME:
T. M. Johansen

ANALYZER NAME:
T. M. Johansen

STANDARD CONCENTRATION of 25.5 ppmv CCl4 analyzed as ___22.6_ ppmv at __07:42_(time).

STANDARD CONCENTRATION of _25.5 ppmv CCl4 analyzed as ___21.7_ ppmv at __14:20__ (time).

Location Identification	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride (ppmv)		Chloroform (ppmv)	Water Vapor (ppmv)
							A	B		
C3851/Z9B	B15BW3	9/11/2002	6:40	7:43	TMJ	14' - 15'	-	<1.0	<1.0	12,700
C3851/Z9B	B15BW4	9/11/2002	6:52	7:44	TMJ	24' - 25'	-	<1.0	< 1.0	14,400
C3851/Z9B	B15BW5	9/11/2002	7:25	7:45	TMJ	49' - 50'	-	<1.0	1.14	16,100
C3852/Z21C	B15BW6	9/11/2002	8:35	9:18	TMJ	4' - 5'	-	<1.0	<1.0	18,000
C3852/Z21C	B15BW7	9/11/2002	8:48	9:19	TMJ	14' - 15'	-	<1.0	1.27	19,500
C3852/Z21C	B15BW8	9/11/2002	9:09	9:20	TMJ	18.7' - 19.7'	-	<1.0	1.17	21,700
C3853/Z21B	B15BW9	9/11/2002	10:44	11:45	TMJ	7' - 8'	-	<1.0	1.07	16,900
C3853/Z21B	B15BX0	9/11/2002	10:54	11:46	TMJ	14' - 15'	-	<1.0	1.56	18,200
C3853/Z21B	B15BX1	9/11/2002	11:11	11:47	TMJ	24' - 25'	-	<1.0	1.55	20,400
C3853/Z21B	B15BX2	9/11/2002	11:38	11:48	TMJ	27.7' - 28.7'	-	<1.0	1.30	25,300
C3853/Z21B	B15BX3 Duplicate	9/11/2002	11:38	11:49	TMJ	27.7' - 28.7'	-	<1.0	1.32	25,300
C3854/Z9A-1	B15BX4	9/11/2002	13:27	14:15	TMJ	15'	-	<1.0	1.59	20,000
C3854/Z9A-1	B15BX5	9/11/2002	13:40	14:16	TMJ	25'	-	<1.0	2.83	24,100
C3854/Z9A-1	B15BX6	9/11/2002	13:49	14:17	TMJ	33'	-	<1.0	2.78	23,300
C3854/Z9A-1	B15BX7	9/11/2002	14:03	14:18	TMJ	40'	-	<1.0	2.74	27,500
C3854/Z9A-1	B15BX8	9/11/2002	14:14	14:19	TMJ	40.89'	-	<1.0	2.04	28,700

TMJohansen 9-11-02 ~~9-11-02~~ TMJ 9-11-02

TMJ 9/11/02

0000048

10/10/02

Reviewed By GS Thomas/Greg Thomas

TMJohansen/TMJohansen 9/11/02

Thomas Thomas 9/12/02 HNF-N-313 1

200-PW-1 Vadose Zone Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(P02-010)~~ P02-011
JMT 10-18-02

0600 Thomas arrives onsite for POD. Onsite are
STR – Bob Jones
ARA – Eric Dysland + Jim Hall
IH – Tony Nelson survey # 02-2853
RCI – Larry Walker
Geologist – Jess Hocking

0630 C3855 (Z 21A) ~ Prepare to sample. Drillers set up over the hole the day before.
0648 Purge @ 5'-6' bgs.
0653 ~~B154B7~~ Collect sample B15BX9
0704 Purge @ 14'-15' bgs.
0707 ~~B154B2~~ Collect sample. B15BY0
0717 Purge @ 24'-25' bgs
0722 ~~B154B3~~ Collect sample B15BY1
0734 Purge @ 29'-30' bgs.
0739 ~~B154B4~~ Collect sample. B15BY2
0837 Mobilize to C3856 (Z 17A)
1142 Purge @ 12'-13' bgs.
1145 ~~B154B5~~ Collect sample B15BY3
1150 Purge @ 14'-15' bgs
1156 ~~B154B6~~ Collect sample B15BY4
Note: Drillers tip plugged. Bring up casing and remove debris.
1230 Purge @ 24'-25' bgs.
1235 ~~B154B7~~ Collect sample B15BY5
1248 Purge @ 29'-30'
1253 ~~B154B8~~ Collect sample ~~B15BY6~~ B15CK1-a
1314 Purge @ 39'-40'
1319 ~~B154B9~~ Collect sample. Refusal last sample B15CK2-a
1353 Mobilize to C3857 (Z 17B)
1416 Purge @ 14'-15'
1419 ~~B154C1~~ Collect sample B15CK4-a
Note: Drillers tip plugged. Bring up casing
1510 Purge @ 24-25
1514 ~~B154C2~~ Collect sample B15CK5-a

Thomas Thomas 9-12-02 CMT. M 59

Reviewed By GS Thomas 10/10/02

Continued from 58 — Mathews/Mathews — HNF-10-3131

1533 Purge @ 39'-40' bgs (F02-011)

1538 ~~B154C3~~ 3min purge collect sample.

B15CK6-a

Lamar Thomas 9-12-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis ~~(F02-010)~~ F02-011

TMJ 10-18-02

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor	HEIS Number
Blank	—	9-12-02	—	0742	TMJ	—	—	<1.0	<1.0	6820	—
.5 ppm std	—	9-12-02	—	0743	TMJ	—	—	21.6	<1.0	7030	—
855/221A	B154B1	9-12-02	0653	0744	TMJ	5'-6'	—	<1.0	<1.0	15500	B15BX9
855/221A	B154B2	9-12-02	0707	0745	TMJ	14'-15'	—	<1.0	<1.0	17600	B15BY0
855/221A	B154B3	9-12-02	0722	0746	TMJ	24'-25'	—	<1.0	<1.0	16600	B15BY1
855/221A	B154B4	9-12-02	0739	0747	TMJ	29'-30'	—	<1.0	<1.0	18500	B15BY2
856/217A	B154B5	9-12-02	1145	1332	TMJ	12'-13'	—	<1.0	1.46	15400	B15BY3
856/217A	B154B6	9-12-02	1156	1333	TMJ	14'-15'	—	<1.0	2.09	15800	B15BY4
856/217A	B154B7	9-12-02	1235	1334	TMJ	24'-25'	—	<1.0	1.71	15300	B15BY5
856/217A	B154B8	9-12-02	1253	1335	TMJ	29'-30'	—	<1.0	1.93	15300	B15CK1-a
856/217A	B154B9	9-12-02	1319	1336	TMJ	39'-40'	—	<1.0	1.26	17800	B15CK2-a
856/217A	B154C0	9-12-02	1319	1337	TMJ	39'-40'	—	<1.0	1.27	17700	B15CK3-a
857/217B	B154C1	9-12-02	1419	1538	TMJ	14'-15'	—	<1.0	1.40	13900	B15CK4-a
857/217B	B154C2	9-12-02	1514	1539	TMJ	24'-25'	—	<1.0	2.48	19500	B15CK5-a
857/217B	B154C3	9-12-02	1538	1540	TMJ	39'-40'	—	<1.0	2.10	24300	B15CK6-a
5.5 Std	—	9-12-02	—	1541	TMJ	—	—	21.5	<1.0	7000	—

Purge Volume Calculation for 1" casing:	Purge Volume Calculation for 1/8" tubing:	Purge Volume for Sample Intervals:
= .08ft	V = 3.142r2	15ft - 0.0050ft2(15ft) + 0.013ft3 = 0.088ft3(28.32)= 2.49L/2min = 1.25 min
3.142r2	V = 3.142(.0052ft)2	25ft - 0.0050ft2(20ft) +0.0.13ft3 =0.113ft3(28.32) = 3.9L/2min = 1.95 min
3.142(.04ft)2	V = 3.142(0.000027ft2)	40ft - 0.0050ft2(40ft) + 0.013ft3 = 0.213ft3(28.32)= 6.03L/2min= 3.02 min
3.142(0.0016ft2)	V = 0.000085ft2(150ft of tubing)	50ft - 0.0050ft2(50ft) + 0.013ft3 =0.263ft3(28.32)=7.45L/2min= 3.73 min
0.0050 ft2	V = 0.013 ft3	

Lamar Thomas 9-12-02

See HEIS numbers on previous page & Right side of table. GT 10/10/02

TMJ 9-12-02

0000050

Mathews/Mathews 9-12-02

Reviewed By GS Thomas 10/10/02

9/13/02 SAF # ~~F02-010~~ F02-011
mjo 10-18-02

200-PW-1 Vadose zone Monitoring During non-operation of SVE System HNF-N-313 1
Sampler Greg Thomas/~~Greg Thomas~~ Fluor

Site Personnel: Bob Jones (STR), Jess Hocking (Geologist), Traci Rudd (RCT), (ARA) Eric Dysland & Jim Hall, Gary Howell (driller), Tony Nelson (IH).
Equipment: Airlock Sampler Model 224-PCXR8, INNOVA 1312 Photoacoustic Multi-Gas Monitor, tedlar bags

0600-0610 Set up rig. Sampler mobs to mobile lab to turn on INNOVA & picks up sampler.
0610-0630 Plan of day and safety plan. Talk about possible radiation at 30'-45' bgs and what to do if we hit contamination.

C3858
0630 Start Pushing at C3858 (216-T-19B)
0645 Start purging at 14'-15' bgs. Flow rate 2L/m. Purge 4 liters
0647 Collect Sample ~~B154C4~~ mjo 9-18-02 B15CKT-a OVM - 0ppm
0658 Start purging at 24'-25' bgs. Flow rate 2L/m. Purge 4 liters
0700 Collect Sample ~~B154C5~~ mjo 9-18-02 B15CK8-a OVM - 0ppm
0713 Start purging at 32'-33' bgs. Flow rate 2L/m. Purge 6 liters
0716 Collect Sample ~~B154C6~~ mjo 9-18-02 B15CK9-a OVM - 0ppm
0741 Start Purging at 49'-50' bgs. Flow rate 2L/M. Purge 8 Liters
0745 Collect Sample ~~B154C7~~ mjo 9-18-02 B15CKG-a OVM - 0ppm
0747 Mob to Mobile lab to Analyze Samples. See table for Analysis time and results.

C3859
0828 Start Pushing at C3859 (216-T-19C)
0840 Start purging at 14'-15' bgs. Flow rate 2L/m. Purge 3 liters
0841 Collect Sample ~~B154C8 B15CL0~~ mjo 9-18-02 B15CL6-a OVM - 0.4 ppm
0900 Start purging at 24'-25' bgs. Flow rate ≈ 2L/m. Purge 4 liters
0902 Collect Sample ~~B154C9~~ mjo 9-18-02 B15CL7-a OVM - 0ppm
Start purging at 33'-34' bgs. Equipment Failure. Drive head seperates.
0905-1037 Work casing out. Put Geoprobe tip on end of casing and drive for sample. Only able to get 28.8' bgs.
1038 Start purging at 27.8' to 28.8'. Flow rate 2L/m. Purge 4 liters
1040 Collect Sample ~~B154D0~~ mjo 9-18-02 B15CL3-a OVM - 0ppm. Duplicate Sample ~~B154D1~~ Analyzed - B15CL4-a

C3860
1150 Start pushing at C3860 (216-2-7B)
1155 Start purging at 5'-6' bgs. Flow rate 1L/m. ~~Flow~~ Pump cutting out Purge ≈ 2 Liters
1157 Collect Sample ~~B154D2~~ B15CL5-a mjo 9-18-02 OVM - 0ppm
1207 Start purging at 14'-15' bgs. Flow rate 2L/m. Purge 3 liters
1209 Collect Sample ~~B154D3~~ B15CL6-a mjo 9-18-02 OVM - 0ppm
1218 Start purging at 24'-25'. Flow rate 2L/m. Purge 4 liters
1220 Collect Sample ~~B154D4~~ B15CL7-a mjo 9-18-02 OVM - 0 ppm
1241 Start purging at 49'-50'. Flow rate 2L/m. Purge 8 Liters
1245 Collect sample ~~B154D5~~ B15CL8-a mjo 9-18-02 OVM - 0 ppm

Greg Thomas/~~Greg Thomas~~ 9/13/02 Reviewed By mjo 9-18-02

Continue on page 61

Continue from page 60

9/13/02 SAF # ~~F02-010~~ F02-011
TMJ 10-18-02

200-PW-1 Vadose Zone Monitoring During Non-Operation of SVE System HNF-N-313.1
Cont. from Page 60 Sampler Greg Thomas/Greg Thomas Fluor

1313 Start purging at 60'-61' bgs. Flow rate 2L/m. Purge 10 liters
1318 Collect Sample ~~B154D6~~ B15CL9-a TMJ 9-18-02. OVM - 0 ppm
1321 Mob to Mobile Lab to Analyze Samples. See table for Analysis time & results
C3861 1405 Start pushing at C3861 (216-Z-7A)
1408 Start Purging at 8'-9' bgs. Flow rate 2L/m. Purge 3 liters
1410 Collect Sample ~~B154D7~~ B15CM0-a TMJ 9-18-02. OVM - 0 ppm
KGT 9/13/02 1419 Start Purging at ~~14'-15'~~ 15'-16' bgs. Flow rate 2L/m. Purge 3 liters
1421 Collect Sample ~~B154D8~~ B15CM1-a TMJ 9-18-02. OVM - 0 ppm.
Start Purging at 24'-25' bgs. Drive head stuck in end of casing. Pull casing
1449 Sampler Mob to mobile lab to Analyze Samples. See table for Analysis time & results.

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(F02-010)~~ F02-011
TMJ 10-18-02

Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor	
Blank	—	9/13/02	9/13/02 ~~0797~~ 0810	0797	GST	—	—	<1	<1	8,030	Hels
25.5 ppm std	—	9/13/02	9/13/02 ~~0800~~ 0811	0800	GST	—	—	21.2	<1	6,760	Numbers
C3858/19B	B154C4	9/13/02	0647	0812	GST	14'-15'	—	<1	1.21	12,000	B15CK7-a
C3858/19B	B154C5	9/13/02	0700	0813	GST	24'-25'	—	<1	1.02	13,400	B15CK8-a
C3858/19B	B154C6	9/13/02	0716	0814	GST	32'-33'	—	1.54	5.66	14,700	B15CK9-a
C3858/19B	B154C7	9/13/02	0745	0815	GST	49'-50'	—	1.03	9.04	18,300	B15CL0-a
C3859/19C	B154C8	9/13/02	0841	1052	GST	14'-15'	—	<1	<1	14,100	B15CL1-a
C3859/19C	B154C9	9/13/02	0902	1053	GST	24'-25'	—	<1	1.27	15,600	B15CL2-a
C3859/19C	B154D0	9/13/02	1040	1054	GST	27.8'-28.8'	—	1.09	1.47	27,700	B15CL3-a
C3859/19C	B154D1	9/13/02	1040	1055	GST	27.8'-28.8'	—	1.11	1.50	27,700	B15CL4-a Duplicate
C3860/27B	B154D2	9/13/02	1157	1326	GST	5'-6'	—	<1	1.63	16,800	B15CL5-a
C3860/27B	B154D3	9/13/02	1209	1327	GST	14'-15'	—	<1	1.73	18,700	B15CL6-a
C3860/27B	B154D4	9/13/02	1220	1328	GST	24'-25'	—	<1	1.61	19,300	B15CL7-a
C3860/27B	B154D5	9/13/02	1245	1329	GST	49'-50'	—	<1	2.04	26,500	B15CL8-a
C3860/27B	B154D6	9/13/02	1318	1330	GST	60'-61'	—	2.06	1.43	21,300	B15CL9-a

Purge Volume Calculation for 1" casing:	Purge Volume Calculation for 1/8" tubing:	Purge Volume for Sample Intervals:
1in = .08ft	V = 3.142r2	15ft - 0.0050ft2(15ft) + 0.013ft3 = 0.088ft3(28.32)= 2.49L/2min = 1.25 min
V = 3.142r2	V = 3.142(.0052ft)2	25ft - 0.0050ft2(20ft) +0.0.13ft3 =0.113ft3(28.32) = 3.9L/2min = 1.95 min
V = 3.142(.04ft)2	V = 3.142(0.000027ft2)	40ft - 0.0050ft2(40ft) + 0.013ft3 = 0.213ft3(28.32)= 6.03L/2min= 3.02 min
V = 3.142(0.0016ft2)	V = 0.000085ft2(150ft of tubing)	50ft - 0.0050ft2(50ft) + 0.013ft3 =0.263ft3(28.32)=7.45L/2min= 3.73 min
V = 0.0050 ft2	V = 0.013 ft3	

9/13/02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis (F02-010)

Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor
Blank										
25.5 ppm std	—	9/13/02	—	1456	GST	—	—	20.1	1.07	9,350
B15CM0-a C3861/27A	~~B154D7~~	9/13/02	1410	1457	GST	8'-9'	—	<1	1.65	20,800
B15CM1-a C3861/27A	B154D8	9/13/02	1421	1455	GST	14'-15'	—	<1	1.95	19,800

9/13/02
Greg Thomas/Greg Thomas

Reviewed By MMMinten/MMMinten

9/13/02

0000052

9/16/02 SAF# ~~F02-010~~ F02-011 TMJ 10-18-02

200-PW-1 Vadose Zone Monitoring During Non-Operational of SVE System HNF-N-313 1

Sampler Greg Thomas/Greg Thomas Fluor

Site Personnel: Bob Jones (STR), Charlene Martinez (Geologist), Byron Ruder (RCT), Eric Dysland & Jim Hall (AVA), Gary Howell (Driller), Tony Nelson (IA)

Equipment: Aircheck Sampler Model 224-PCXR8, INNOVA 1312 Photoacoustic Multi-Gas Monitor, Tedlar bags

0600-0620 Plan of the day and Safety Plan.

C3861 0620 lower casing at C3861 (216-Z-7A) to 25' sample interval

0635 Start Purging 24'-25' bgs. Flow rate 2L/min. Purged 4L

0637 Collect Sample ~~B154D9~~ TMJ 9-18-02 B15CM2 OVM - 0ppm B15CM2-a AT 10/10/02

0701 Start Purging 43'-44' bgs. Flow rate 2L/M. Purged 6L

0704 Collect Sample ~~B154F0~~ TMJ 9-18-02 B15CM3 ~~Flow rate~~ AT 9/16/02 OVM - 0ppm B15CM3-a AT 10/10/02

0705 Technicians arrives onsite.

0757 Purge @ 14'-15' bgs

0800 ~~B154F1~~ TMJ 9-18-02 Collect Sample B15CM4-a

0808 Purge @ 19'-20' bgs

0813 ~~B154F2~~ TMJ 9-18-02 Collect Sample B15CM5-a

0819 Purge @ 24'-25' bgs

0824 ~~B154F3~~ TMJ 9-18-02 Collect Sample B15CM6-a Note:

0845 Purge @ 49.2'-50.2' bgs. OVM reading - 0ppm

0848 ~~B154F4~~ TMJ 9-18-02 Collect Sample. B15J17 on all samples unless

0904 Purge @ 59-60' bgs otherwise stated.

0911 ~~B154F5~~ TMJ 9-18-02 Collect Sample. Refusal B15J18

0945 Mobilize to C3863/216B

1000 Purge @ 14'-15' bgs

1003 ~~B154F6~~ TMJ 9-18-02 Collect Sample. B15J19

1020 09 Purge @ 20'-21' bgs.

1014 ~~B154F7~~ TMJ 9-18-02 Collect Sample. B15J20

~~1025~~ 1020 Purge @ 24'-25' bgs.

1023 ~~B154F8~~ TMJ 9-18-02 Collect Sample. B15J21

1042 Purge @ 49'-50' bgs.

1049 ~~B154F9~~ TMJ 9-18-02 Collect Sample. B15J22

1109 Purge @ 66'-67'

1114 ~~B154H0~~ TMJ 9-18-02 Collect Sample. Refusal B15J23

1205 Mobilize to C3864/T19A

1225 Purge @ 14'-15' bgs

1230 ~~B154H2~~ TMJ 9-18-02 Collect Sample. B15J25

1238 Purge @ 24'-25' bgs

1242 ~~B154H3~~ TMJ 9-18-02 Collect Sample. B15J26

Note: hitting something hard at 27'

Technicians/ Technicians 9/16/02

Cont. on Page 63

Reviewed By GS Thomas/Greg Thomas 10/10/02

Mathansen/Mathansen ~~F02-010~~ F02-011 HNF-10-3131
Cont. from Page 62 TMJ 10-18-02
1303 Purge @ 35'-36' bgs.
1307 ~~B154114~~ Collect sample. B15J27
1326 Purge @ 49'-50' bgs
1332 ~~B154115~~ Collect Sample B15J28
1402 Purge @ ~~66'-67'~~ TMJ 9-16-02 69'-70' bgs. Refusal
1409 ~~B154116~~ Collect sample B15J29
1455 Mobilize to C38165 Site #6
1505 Purge @ 4'-5' bgs.
1507 ~~B154117~~ Collect sample B15J30
1514 Purge @ 14'-15' bgs.
158 ~~B154118~~ Collect Sample B15J31
1523 Purge @ 19'-20' bgs.
1526 ~~B154119~~ collect sample B15J32
1531 Purge @ 24'-25' bgs. ~ OVM reading 0.7
1535 ~~B154120~~ Collect sample B15J33
1546 Purge @ 36'-37' bgs. ~ OVM reading 1.9
1549 ~~B154121~~ Collect sample B15J34
1607 Purge @ 49'-50' bgs. Refusal OVM reading 1.4
1612 ~~B154122~~ Collect sample B15J35

TMJ 9/16/02

0000054

Mathansy/Mathansen 9/16/02 Continued on Page 64

Reviewed 10/10/02
By GS Thomas/Mike Thomas

Thomsen/Thomsen 9/16/02
Cont. from Page 63

HNF-N-313,

James Thomsen 9-16-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(F02-010)~~ F02-011

TMJ 10-18-02

Location ID	Hels Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor	HELS Number
Blank	—	9-16-02	—	0720	TMJ	—	—	<1.0	<1.0	7850	—
25.5 ppm std	—	9-16-02	—	0721		—	—	22.6	<1.0	1230	—
C3861/27A	B154D9	9-16-02	0637	0722		24'-25'	—	<1.0	1.06	13300	B15CM2
C3861/27A	B154F0	9-16-02	0704	0723		43'-44'	—	<1.0	1.01	16200	B15CM3
C3862/216A	B154F1	9-16-02	0806	0920		14'-15'	—	<1.0	1.03	14800	B15CM4
C3862/216A	B154F2	9-16-02	0813	0921		19'-20'	—	<1.0	1.04	15700	B15CM5
C3862/216A	B154F3	9-16-02	0824	0922		24'-25'	—	<1.0	1.21	16500	B15CM6
C3862/216A	B154F4	9-16-02	0848	0923		49.2'-50.2'	—	<1.0	1.35	18700	B15J17
C3862/216A	B154F5	9-16-02	0911	0924		59'-60'	—	<1.0	1.13	20700	B15J18
C3863/216B	B154F6	9-16-02	1003	1120		14'-15'	—	<1.0	<1.0	16000	B15J19
C3863/216B	B154F7	9-16-02	1014	1121		20'-21'	—	<1.0	1.02	16400	B15J20
C3863/216B	B154F8	9-16-02	1023	1122		24'-25'	—	<1.0	1.92	17000	B15J21
C3863/216B	B154F9	9-16-02	1049	1123		49'-50'	—	<1.0	1.38	20200	B15J22
C3863/216B	B154H0	9-16-02	1114	1124		66'-67'	—	<1.0	~~1.62~~ 1.42	24600	B15J23
C3863/216B	B154H1	9-16-02	1114	1125	↓	66'-67'	—	<1.0	1.43	24600	B15J24
C3864/T19A	B154H2	9-16-02	1230	14:16	TMJ	14'-15'	—	<1.0	1.99	15300	B15J25
C3864/T19A	B154H3	9-16-02	1242	14:17	TMJ	24'-25'	—	<1.0	3.22	14900	B15J26
C3864/T19A	B154H4	9-16-02	1307	14:18	TMJ	35'-36'	—	<1.0	4.60	17300	B15J27
C3864/T19A	B154H5	9-16-02	1332	14:19	TMJ	49'-50'	—	<1.0	7.36	21000	B15J28
C3864/T19A	B154H6	9-16-02	1409	14:20	TMJ	69'-70'	—	<1.0	11.5	27500	B15J29
65/Site#6	B154H7	9-16-02	1507	16:18	TMJ	4'-5'	—	<1.0	<1.0	18800	B15J30
65/Site#6	B154H8	9-16-02	1518	16:19	TMJ	14'-15'	—	<1.0	1.13	20900	B15J31
65/Site#6	B154H9	9-16-02	1526	16:20	TMJ	19'-20'	—	<1.0	1.28	19500	B15J32
65/Site#6	B154J0	9-16-02	1535	16:21	TMJ	24'-25'	—	3.49	1.90	21600	B15J33
65/Site#6	B154J1	9-16-02	1549	1622	TMJ	36'-37'	—	6.20	2.13	22400	B15J34
65/Site#6	B154J2	9-16-02	1612	1623	TMJ	49'-50'	—	1.95	1.73	27900	B15J35
		~~9-16-02~~	~~1612~~	~~1624~~	~~TMJ~~	~~49'-50'~~	TMJ	9-16-02			—
C3865/Site#6	B154J3	9-16-02	1549	1624	TMJ	36'-37'		6.19	2.10	22400	B15J36
25.5 std	—	9-16-02	—	1625	TMJ	—		22.6	<1.0	1240	—

James Thomsen 9-16-02

Purge Volume Calculation for 1" casing:	Purge Volume Calculation for 1/8" tubing:	Purge Volume for Sample Intervals:
1in = .08ft	V = 3.142r2	15ft - 0.0050ft2(15ft) + 0.013ft3 = 0.088ft3(28.32)= 2.49L/2min = 1.25 min
V = 3.142r2	V = 3.142(.0052ft)2	25ft - 0.0050ft2(20ft) +0.0.13ft3 =0.113ft3(28.32) = 3.9L/2min = 1.95 min
V = 3.142(.04ft)2	V = 3.142(0.000027ft2)	40ft - 0.0050ft2(40ft) + 0.013ft3 = 0.213ft3(28.32)= 6.03L/2min= 3.02 min
V = 3.142(0.0016ft2)	V = 0.000085ft2(150ft of tubing)	50ft - 0.0050ft2(50ft) + 0.013ft3 =0.263ft3(28.32)=7.45L/2min= 3.73 min
V = 0.0050 ft2	V = 0.013 ft3	

Thomsen/Thomsen 9/16/02

James Thomsen 9/16/02

Reviewed By GS Thomas/Greg Thomas 10/10/02

AT 10/10/02

Mathansen/Mathansen 9/17/02 HNF-N-3131

200-PW-1 Vadose Zone Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~FOD-010~~ FOD-011
JMO 10-18-02

0730 ~~0700~~ Mathansen arrive onsite for FOD. on-site crew
SML - Bob Jones
BRA - Eric Dysland and Jim Hall
IH - Tony Nelson
RCT - Larry Walkup
Geologist - Charlene Martinez

0800 Mobilize inside tank farm Site #2 C3866
0834 Purge 1L at 10' bgs. Purge Rate 1.5L a min.
0838 ~~B15534~~ Collect sample B15537
Note: Using the CPT tip for sample collection. See purge volume for 1/8" tubing at bottom of Results Sheet V= 0.013743 (28.32) = 0.37 L to purge the line.
0841 Purge 1L at 13' bgs
0844 ~~B15535~~ Collect sample. B15538
0845 Purge 1L at 15' bgs ~ NO Readings on the OVM ~
0848 ~~B15536~~ Collect sample ~~B15538~~ B15539
0850 Purge 1L at 20' bgs
0854 ~~B15537~~ Collect sample. B15540
0856 Purge 1L at 25' bgs.
0859 ~~B15540~~ Collect sample B15541
0912 Purge 1L at 33.5' bgs.
0916 ~~B15541~~ Collect sample. B15542
1040 Move ~~reading~~ rock back about 5' on the
JMO 9-17-02 ~~1051~~ other side of the hole. C3867 Site 2
1054 Purge 1L at 10' bgs. ~ OVM reading 67.6 ppm.
1103 ~~B15542~~ Collect sample B15543
1106 Purge 1L at 13' bgs. ~ OVM reading 30.2
1112 ~~B15543~~ Collect sample B15544
JMO 9-17-02 ~~1119~~ 1115 Purge 1L at ~~15'~~ 16' bgs. ~ OVM reading 70.0 ppm
1119 ~~B15544~~ Collect sample. B15545
1122 Purge 1L at 20' bgs. ~ OVM reading 103 ppm
1126 ~~B15545~~ Collect sample. B15546
1129 Purge 1L at 25' bgs ~ OVM reading 30 ppm
1132 ~~B15546~~ Collect sample. B15547
1139 Purge 1L at 35' bgs refusal ~ OVM reading 25 ppm
1141 ~~B15547~~ Collect sample. B15548

Mathansen/Mathansen Cont. on Page 66

Reviewed By GS Thomas/Greg Thomas 10/10/02

Marthans/Grathanson 9/17/02 F02-011 HOF-N-3131
continued from Page 65

1241 Mobilize to C3868 Site #4
1305 Purge 1L at 7' bgs.
1309 ~~B154K9~~ MMJ 9-18-02 Collect Sample B15J50
1312 Purge 1L at 15' bgs.
1314 ~~B154L0 at 20' bgs.~~ MMJ 9-18-02 MMJ 9-17-02 B15J51
1319 Purge 1L at 20' bgs OVM = 2.3
1324 ~~B154L1~~ MMJ 9-18-02 Collect sample B15J52
1327 Purge 1L at 25' bgs OVM = 2.8~3.0
1330 ~~B154L2~~ MMJ 9-18-02 Collect sample. B15J53
1339 Purge 1L at 32.1 bgs Refusal
1342 ~~B154L3~~ MMJ 9-18-02 Collect sample. OVM = 3.7 B15J54

MMJ 9-17-02

Marthans/Grathanson 9/17/02 Cont. on Page 67

10/10/02
Reviewed By G S Thomas/Greg Thomas

TMJ Johnson / [illegible] 9/17/02
Continued from Purge log

HNF-10-313.1

[illegible] 9/17/02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(F02-010)~~ F02-011

TMJ 10-18-02

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor	Heis Number
Blank	—	9/17/02	—	0922	TMJ	—	—	<1.0	<1.0	7920	—
25.5 ppm std	—	9/17/02	—	0923		—	—	22.3	<1.0	8030	—
C38606/Site 2	~~B154J4~~	9/17/02	0838	0924		10'	—	<1.0	<1.0	10400	B15J37
C38606/Site 2	~~B154J5~~	9/17/02	0844	0925		13'	—	<1.0	<1.0	10400	B15J38
C38606/Site 2	~~B154J6~~	9/17/02	0848	0926		15'	—	<1.0	<1.0	10100	B15J39
C38606/Site 2	~~B154J7~~	9/17/02	0854	0927		20'	—	<1.0	<1.0	9810	B15J40
C38606/Site 2	~~B154J8~~	9/17/02	0859	0928		25'	—	<1.0	<1.0	9890	B15J41
C38606/Site 2	B154J9	9/17/02	0916	0929		33.5'	—	<1.0	<1.0	9870	B15J42
C38607/Site 2	B154K2	9/17/02	1103	1145		10'	—	45.8	9.52	16100	B15J43
C38607/Site 2	B154K3	9/17/02	1112	1146		13'	—	7.34	1.71	10600	B15J44
C38607/Site 2	B154K4	9/17/02	1119	1147		15'	—	14.9	3.64	13100	B15J45
C38607/Site 2	B154K5	9/17/02	1126	1148		20'	—	23.9	5.48	14200	B15J46
C38607/Site 2	B154K6	9/17/02	1132	1149		25'	—	35.8	8.30	18900	B15J47
C38607/Site 2	B154K7	9/17/02	1141	1150		35'	—	24.9	6.77	22200	B15J48
C38607/Site 2	B154K8	9/17/02	1103	1151		10'	—	47.6	9.59	15700	B15J49
C38608/Site 4	B154K9	9/17/02	1309	1347	TMJ	7'	—	5.23	3.13	19800	B15J50
C38608/Site 4	B154L0	9/17/02	1314	1348		15'	—	3.95	3.98	22100	B15J51
C38608/Site 4	B154L1	9/17/02	1324	1349		20'	—	4.88	3.88	23300	B15J52
C38608/Site 4	B154L2	9/17/02	1330	1350		25'	—	7.26	4.24	21000	B15J53
C38608/Site 4	B154L3	9/17/02	1342	1351		32.1'	—	8.73	4.27	24200	B15J54
25.5ppm	—	9/17/02	—	1352	TMJ	—	—	22.4	<1.0	8000	~~B~~ TMJ 9-40

TMJ 9-17-02

[illegible] 9/17/02

Purge Volume Calculation for 1/8" tubing:
V = 3.142r2
V = 3.142(.0052ft)2
V = 3.142(0.000027ft2)
V = 0.000085ft2(150ft of tubing)
V = 0.013 ft3

V = 0.013ft3(28.32) = 0.37 L
Purge Rate 2L a minute

0000058

10/10/02

Reviewed By GS Thomas / [illegible]

TMJ Johnson / [illegible] 9/17/02

Mathiesen/Mathiesen 9/18/02 HOF-N-3131

200-PW-1 Vadose Zone Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(FD010)~~ F02-011

00 TMJ 7-18-02 TMJ 10-18-02

0730 Mathiesen arrives on site already mobilized to C3869 Site #1.

0719 Purge IL @ 10' bgs. OVM = 11ppm

0730 TMJ 9-18-02 ~~B154L4~~ Collect sample. B15555

0732 Purge IL @ 15' bgs

0737 TMJ 9-18-02 ~~B154L5~~ Collect sample OVM = 20.4 ppm B15556

0739 Purge IL @ 20' bgs

0744 TMJ 9-18-02 ~~B154L6~~ Collect sample OVM = 20.1 ppm B15557

0746 Purge IL @ 25' bgs.

0750 TMJ 9-18-02 ~~B154L7~~ Collect sample OVM = 19.8 ppm B15558

0757 Purge IL @ 33' bgs. Refusal at 33.5

0802 TMJ 9-18-02 ~~B154L8~~ Collect sample. OVM = 19.0 ppm B15559

0858 Mobilize to C3870 Site #12

0915 Purge IL @ 11' bgs.

0924 TMJ 9-18-02 ~~B154L9~~ Collect sample. OVM = 11.4 ppm B15560

0935 Purge IL @ 15' bgs B15561

0944 TMJ 9-18-02 ~~B154M0~~ Collect sample. OVM = 7.5 ppm to 8.0 ppm

0948 Purge IL @ 20' bgs

0958 TMJ 9-18-02 ~~B154M1~~ Collect sample. OVM = 6.7 ppm B15562

1001 Purge IL @ 25' bgs.

1011 TMJ 9-18-02 ~~B154M2~~ Collect sample. OVM = 7.5 - 7.7 ppm B15563

1017 Purge IL @ 33' bgs. ~ Refusal

1028 TMJ 9-18-02 ~~B154M3~~ Collect sample OVM = 7.5 ppm B15564

NOTE: the CPT team will now mobilize to do well completion. No sampling is required.

TMJ 9-18-02

Reviewed By GS Thomas/GS Thomas 10/10/02

T.M. Jensen/[illegible] 9/18/02
Cont. from Page 68

HNF-N-313

[illegible] 9/18/02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analyis ~~(F02-010)~~ F02-011 TMJ 10-18-02											
Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor	Heis Number
Blank	—	9/18/02	—	0808	TMJ	—	—	<1.0	<1.0	8930	—
25.5 ppm std	—	9/18/02	—	0809	TMJ	—	—	21.9	<1.0	7900	—
(3869/Site1	~~B15445~~	9/18/02	0730	0810	TMJ	10'	—	9.61	3.12	13400	B15555
(3869/Site1	~~B15446~~	9/18/02	0737	0811	TMJ	15'	—	16.0	5.08	14300	B15556
(3869/Site1	B15446	9/18/02	0744	0812	TMJ	20'	—	12.9	4.40	14700	B15557
(3869/Site1	B15447	9/18/02	0750	0813	TMJ	25'	—	14.0	5.63	16400	B15558
(3869/Site1	B15448	9/18/02	0802	0814	TMJ	33'	—	11.3	4.75	15800	B15559
(3870/Site12	B15449	9/18/02	0924	1045	TMJ	11'	—	3.58	2.11	12000	B15560
(3870/Site12	B15450	9/18/02	0944	1046	TMJ	15'	—	5.13	2.99	11800	B15561
(3870/Site12	B15451	9/18/02	0958	1047	TMJ	20'	—	5.15	3.11	11900	B15562
(3870/Site12	B15452	9/18/02	1011	1048	TMJ	25'	—	6.37	3.67	12300	B15563
(3870/Site12	B15453	9/18/02	1028	1049	TMJ	33'	—	6.15	3.93	14500	B15564
(3870/Site12	B15454	9/18/02	1028	1050	TMJ	33'	—	6.12	3.71	14400	B15565
Blank	—	9/18/02	—	1051	TMJ	—	—	<1.0	<1.0	8410	~~B15566~~ TMJ 9-18-02
25.5 Std.	—	9/18/02	—	1052	TMJ	—	—	23.1	<1.0	7160	~~B15567~~ TMJ 9-18-02

TMJ 9-18-02

[illegible] 9/18/02

Purge Volume Calculation for 1/8" tubing:
V = 3.142r2
V = 3.142(.0052ft)2
V = 3.142(0.000027ft2)
V = 0.000085ft2(150ft of tubing)
V = 0.013 ft3

V = 0.013 ft3 (28.32) = 0.37L
Purge Rate 2L a minute

TMJ 9/18/02

0000060

10/10/02

Reviewed By G S Thomas / [illegible]

T.M. Jensen/[illegible] 9/18/02

Thalmarzen/Smithanson 9/24/02 HNF-N-313 N

200 PW-1 Vadose zone Plume sampling and analysis ~~(F02-010)~~ (F02-011)
TMJ 10-18-02

0700 Arrive on site for Geoprobe pushes. Geoprobe pushed to 25' at site C4038 (PI-2)
0715 Purge at 25'. 24.2' - 25.4' bgs
0718 B15554-a Collect sample.
Note: Continue to use 1" casing and 1/8" tubing tubing length of 30'.
0737 Purge at 16.7' - 15.2' bgs
0741 B15555-a Collect sample.
0748 Purge at 10.2' - 11' bgs
0753 B15556-a Collect sample.
0800 Mobilize Geoprobe C4039 (PI-3)
0821 Purge @ 24.2' - 25.4' bgs
0824 B15557-a Collect sample.
0840 Purge @ 15.2' - 15.8' bgs.
0845 B15558-a Collect sample.
0853 Purge @ 10.2' - 11.2' bgs
0857 B15559-a Collect sample.
0905 Mobilize Geoprobe to C4040 (PI-4)
0929 ~~B15560 Collect sample~~ Purge @ 24.2' - 25.4' bgs.
0933 B15560-a Collect sample.
0945 Purge @ 15.2' - 15.5' bgs.
0949 B15561-a Collect sample.
0955 Purge @ 10.2' - 11.2' bgs.
0959 B15562-a Collect sample.
1010 Mobilize Geoprobe to C4041 (PI-5)
1034 Purge @ 24.2' - 25.4' bgs
1038 B15563-a Collect sample.
1052 Purge @ 14.2' - 14.6' bgs
1056 B15564-a Collect sample.
1102 Purge @ 10.2' - 10.5' bgs
1105 B15565-a Collect sample.
1120 Mobilize Geoprobe to C4042 (PI-6)
1138 Purge @ 24.2' - 25.4' bgs.
1140 B15566-a Collect sample.
1159 Purge @ 15.2' - 15.5' bgs.
1203 B15567-a Collect sample.

Thalmarzen/Smithanson Continued on Page 71

10/10/02
Reviewed By G.S. Thompson

Matthanson/Matthanson 9/24/02 ~~(F02-010)~~ TMJ 10-18-02 HNF-10-3131
(F02-011)
Continued from Page 70

1210 Purge @ 10.2'-11' bgs.
1215 B15JK8-a Collect sample.
1255 Mobilize Geoprobe to C4043 (P1-7)
1314 Purge @ 24.2'-25.5' bgs.
1318 B15JK9-a Collect sample.
1331 Purge @ 15.2'-15.5' bgs
1333 B15JL0-a Collect sample.
1341 Purge @ 10.2'-11.1' bgs.
1344 B15JL1-a Collect sample.
1410 Mobilize Geoprobe to C4044 (P1-8)
1440 Purge @ 22.2'-23.2' bgs.
1446 B15JL2-a Collect sample
1502 Purge @ 15.2'-16.0' bgs.
1505 B15JL3-a Collect sample.
1511 Purge @ 10.2'-11.5' bgs
1515 B15JL4-a Collect sample

Purge Volume Calculation for 1" Casing:

1 in = 0.08 ft
$V = 3.142r^2$
$V = 3.142(.04ft)^2$
$V = 3.142(0.0016 ft)^2$
$V = 0.0050 ft^2$

Purge Volume Calc. 1/8" tubing:

$V = 3.142r^2$
$V = 3.142(0.0052 ft)^2$
$V = 3.142(0.000027 ft^2)$
$V = 0.000085 ft^2 (30 ft)$
$V = 0.0255 ft^3$

Purge Volume for Sample intervals:

$V = 0.0050 ft^2 (25 ft) + 0.0255 ft^3 = 1.0255 ft^3 (28.32) = 2.87 L$

Purge Rate: 2L per minute $2.87 L \left(\frac{1 min}{2 L}\right) = 1.43 min$

TMJ 9-24-02

0000062

10/10/02

Reviewed By GS Thomas

Matthanson/Matthanson Cont. on Page 72

Continued from page 71 9-24-02

HNF-10-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(F02-010)~~ F02-011

TMJ 10-18-02

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor
Blank	—	9-24-02	—	0903	TMJ	—	—	<1.0	<1.0	8260
25.5 ppm std	—	9-24-02	—	0904	TMJ	—	—	22.5	<1.0	6180
C4038/P1-2	B15JJ4	9-24-02	0718	0905	TMJ	24.2'-25.4'	—	<1.0	<1.0	10500
C4038/P1-2	B15JJ5	9-24-02	0741	0906	TMJ	15.2'-16.7'	—	<1.0	<1.0	12100
C4038/P1-2	B15JJ6	9-24-02	0753	0907	TMJ	10.2'-11.0'	—	<1.0	<1.0	12300
C4039/P1-3	B15JJ7	9-24-02	0824	0908	TMJ	24.2'-25.4'	—	<1.0	2.35	15400
C4039/P1-3	B15JJ8	9-24-02	0845	0909	TMJ	15.2'-15.8'	—	<1.0	1.11	19200
C4039/P1-3	B15JJ9	9-24-02	0857	0910	TMJ	10.2'-11.2'	—	<1.0	1.03	23600
C4040/P1-4	B15JK0	9-24-02	0933	1113	TMJ	24.2'-25.4'	—	<1.0	3.35	14900
C4040/P1-4	B15JK1	9-24-02	0949	1114	TMJ	15.2'-15.5'	—	<1.0	2.87	15700
C4040/P1-4	B15JK2	9-24-02	0959	1115	TMJ	10.2'-11.2'	—	<1.0	2.52	16500
C4041/P1-5	B15JK3	9-24-02	1038	1116	TMJ	24.2'-25.4'	—	1.18	1.67	20600
C4041/P1-5	B15JK4	9-24-02	1056	1117	TMJ	14.2'-14.6'	—	<1.0	<1.0	24700
C4041/P1-5	B15JK5	9-24-02	1105	1118	TMJ	10.2'-10.5'	—	<1.0	<1.0	26400
C4042/P1-6	B15JK6	9-24-02	1140	1349	TMJ	24.2'-25.4'	—	<1.0	1.72	11800
C4042/P1-6	B15JK7	9-24-02	1203	1350	TMJ	15.2'-15.5'	—	<1.0	1.82	11900
C4042/P1-6	B15JK8	9-24-02	1215	1351	TMJ	10.2'-11.0'	—	<1.0	1.03	13000
C4043/P1-7	B15JK9	9-24-02	1318	1352	TMJ	24.2'-25.5'	—	<1.0	2.06	17300
C4043/P1-7	B15JL0	9-24-02	1333	1353	TMJ	15.2'-15.5'	—	<1.0	1.73	21200
C4043/P1-7	B15JL1	9-24-02	1344	1354	TMJ	10.2'-11.1'	—	<1.0	<1.0	23100
C4044/P1-8	B15JL2	9-24-02	1446	1522	TMJ	22.2'-23.2'	—	<1.0	1.36	18200
C4044/P1-8	B15JL3	9-24-02	1505	1523	TMJ	15.2'-16.0'	—	<1.0	<1.0	20300
C4044/P1-8	B15JL4	9-24-02	~~1545~~ 1505	1523	TMJ	10.2'-11.5'	—	<1.0	<1.0	24600
C4044/P1-8	B15JL6	9-24-02	1446	1524	TMJ	22.2'-23.2'	—	<1.0	1.27	17700
25.5 Std	TMJ 9-24-02	9-24-02	—	1525	TMJ	—	—	22.8	<1.0	6200

TMJ 9/24/02

9-24-02

TMJ 9-24-02

9-24-02

Reviewed By GS Thomas 10/10/02

Thomsen/Gustafson 9-25-02 HNF-10-313
200-PW-1 Vadose Zone Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(F02-010)~~ TMT 10-15-02
F02-011

0705 Arrive on site for Geoprobe pushes at C4045 (P1-9).
0712 Purge @ 24.2' – 25.4' bgs.
0716 B15JL7 collect sample.
0730 Purge @ 15.2' – 16.5' bgs.
0735 B15JL8 collect sample.
0747 Purge @ 10.2' – 11.3' bgs.
0751 B15JL9 collect sample.
0805 Mobilize Geoprobe to C4045 (P1-10) south of PFP fence along P1 line.
0825 Purge @ 24.2' – 25.4' bgs.
0829 B15L9 collect sample.
0840 Purge @ 15.2' – 16.1' bgs.
0845 B15M8 collect sample.
0852 Purge @ 10.2' – 11.0' bgs.
0856 B15M9 collect sample.
0949 Arrive on site for Geoprobe to C4047 (P9-2) North of PFP.
1011 Purge @ 24.2' – 25.4' bgs.
1015 B15N0 collect sample.
1028 Purge @ 15.2' – 16.8' bgs.
1033 B15N1 collect sample.
1043 Purge @ 5.2' – 6.5' bgs.
1045 B15N2 collect sample.
1058 Mobilize to C4048 (P9-3)
1117 Purge @ 24.2' – 25.4' bgs.
1120 B15N3 collect sample.
1133 Purge @ 15.2' – 16.0' bgs.
1136 B15N4 collect sample.
1150 Purge @ 5.2' – 6.8' bgs.
1153 B15N5 collect sample.
1200 Discontinue field activities for the day to attend PFP Geoprobe meeting at 271-U

TMT 9-25-02

0000064

10/10/02

Reviewed
By GS Thomas

Thomsen/Gustafson 9-25-02
Continued on page 74

Mathenson/Anderson
Continued from page 73

HNF-10-3131

Tamara Jones 9-25-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(F02-010)~~ F02-011

TMJ 10-18-02

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor
Blank	—	9-25-02	—	0910	TMJ	—	—	<1.0	<1.0	16850
25.5 ppm std	—	9-25-02	—	0911	TMJ	—	—	22.7	<1.0	16320
C4045 P1-9	B15JL6-a	9-25-02	0716	0912	TMJ	24.2'-25.4'	—	<1.0	<1.0	9340
C4045 P1-9	B15JL7-a	9-25-02	0735	0913	TMJ	15.2'-16.5'	—	<1.0	<1.0	9980
C4045 P1-9	B15JL8-a	9-25-02	0751	0914	TMJ	10.2'-11.3'	—	<1.0	<1.0	11500
C4046 P1-10	B15JL9-a	9-25-02	0829	0915	TMJ	24.2'-25.4'	—	1.32	<1.0	15100
C4046 P1-10	B15JM8	9-25-02	0845	0916	TMJ	15.2'-16.1'	—	1.05	<1.0	18000
C4046 P1-10	B15JM9	9-25-02	0856	0917	TMJ	10.2'-11.0'	—	<1.0	<1.0	18400
C4047 P9-2	B15JN0	9-25-02	1015	1157	TMJ	24.2'-25.4'	—	<1.0	1.49	11600
C4047 P9-2	B15JN1	9-25-02	1033	1158	TMJ	15.2'-16.8'	—	<1.0	<1.0	12300
C4047 P9-2	B15JN2	9-25-02	1045	1159	TMJ	5.2'-6.5'	—	<1.0	<1.0	7230
C4048 P9-3	B15JN3	9-25-02	1120	1200	TMJ	24.2'-25.4'	—	<1.0	<1.0	18300
C4048 P9-3	B15JN4	9-25-02	1130	1201	TMJ	15.2'-16.0'	—	<1.0	<1.0	21300
C4048 P9-3	B15JN5	9-25-02	1153	1202	TMJ	5.2'-6.8'	—	<1.0	<1.0	25300
C4048 P9-3	B15JN6	9-25-02	1153	1203	TMJ	5.2'-6.8'	—	<1.0	<1.0	25200
25.5 Std.	—	9-25-02	—	1204	TMJ	—	—	23.2	<1.0	16940

Tamara Jones 9-25-02

Purge Volume 1" Casing
1in = 0.08 ft
$V = 3.142 r^2$
$V = 3.142 (0.04)^2$
$V = 0.0050 ft^2$

Purge 1/8" tubing
$V = 3.142 r^2$
$V = 3.142 (0.0052 ft)^2 (30 ft)$
$V = 0.0255 ft^3$

Purge Volume Sample Interval:

$V = 0.0050 ft^2 (25 ft) + 0.0255 ft^3 = 2.87 L$

Purge Rate = 2L per minute

TMJ 9/25/02

Mathenson/Anderson 9/25/02

Reviewed 10/10/02
By G S Thomas

Matthewson/Anderson 9-26-02 HNF-N-3131

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(F02-010)~~ F02-011
MJS 10-18-02

0700 Arrive on site for Geoprobe Pushes. C4049 (P7-4)
0707 Purge @ 24.2' – 25.0' bgs.
0710 B15J07 Collect sample.
0724 Purge @ 14.4' – 14.8' bgs.
0728 B15J08 Collect sample.
0738 Purge @ 7.0' – 7.4' bgs.
0742 B15J09 Collect sample.
0755 Mobilize to C4050 (P7-5) North of PFP
0820 Purge @ 24.2' – 25.4' bgs.
0823 B15JP0 Collect sample.
0833 Purge @ 15.2' – 15.8' bgs.
0836 B15JP1 Collect sample.
0844 Purge @ 8.2' – 9.2' bgs.
0847 B15JP2 Collect sample.
MJS 9-26-02 0809(?) Mobilize to C4051 (P7-6) North of PFP
0919 Purge @ 24.2' – 25.4' bgs.
0923 B15JP3 Collect sample.
0936 Purge @ 15.2' – 16.5' bgs.
0939 B15JP4 Collect sample.
0947 Purge @ 8.2' – 9.9' bgs.
0952 B15JP5 Collect sample.
1005 Mobilize to C4052 (P7-7) North of PFP.
1025 Purge @ 24.2' – 25.4' bgs.
1028 B15JP6 Collect sample.
1043 Purge @ 15.2' – 15.5' bgs.
1046 B15JP7 Collect sample
1053 Purge @ 8.2' – 9.4' bgs.
1056 B15JP8 Collect sample.
1110 Mobilize Geoprobe to C4053 P7-3. RCT full support.
Larry Walkup onsite.
1138 Purge @ 24.2' – 25.4' bgs
1140 B15JP9 Collect sample.
1155 Purge @ 15.2' – 15.7' bgs.
1157 B15JR0 Collect sample.
1207 Purge @ 8.2' – 9.7' bgs.
1209 B15JR1 Collect sample.
1220 Mobilize Geoprobe to C4054 P7-2. RCT full support.
Matthewson/Anderson 9-26-02 Cont on page 76

0000066

Reviewed
By

TMJ Inc. / TMJ Inc. ~~F02-010~~ 9-26-02 (HLF-N-313)
Continued from page 75 F02-011 TMJ 10-18-02

1307 Purge @ 24.2' - 24.7' bgs.
1310 B155R2 Collect sample.
1323 Purge @ 15.2' - 16.4' bgs.
1326 B155R3 Collect sample.
1334 Purge @ 8.2' - 9.5' bgs.
1337 B155R4 Collect sample.
1350 Mobilize Geoprobe to C4055 (P9-4)
1413 Purge @ 24.2' - 25.4' bgs
1415 B155R5 Collect sample.
1429 Purge @ 15.2' - 16.5' bgs.
1431 B155R6 Collect sample.
1444 Purge @ 5.2' - 6.7' bgs.
1447 B155R7 Collect sample.

TMJ 9/26/02

TMJ Inc. / TMJ Inc.
Continued on page 77

Reviewed 10/10/02
By GS Thomas / Greg Thomas

Mechanson / Mechanson 9-26-02
Continued from Page 76

HWF-10-3131

Tamara Thomas 9-26-02

Tamara Thomas 9-26-02

200-PW-1 Operable Unit Dispersed Carbon Tetrachloride Plume Sampling and Analysis ~~(F02-010)~~ F02-011

TMJ 10-18-02

Location ID	Heis Number	Date	Sample Time	Analysis Time	Analyst	Depth (ft) bgs	Carbon Tetrachloride "A" Filter	Carbon Tetrachloride "B" Filter	Cholorform	Water Vapor
Blank	-	9-26-02	-	0854	TMJ	-	-	<1.0	<1.0	5970
25.5 ppm std	-	9-26-02	-	0855	TMJ	-	-	22.1	<1.0	5410
C4049/P7-4	B15JR07	9-26-02	0710	0856	TMJ	24.2'-25.0'	-	<1.0	<1.0	8500
C4049/P7-4	B15JR08	9-26-02	0728	0857	TMJ	14.0'-14.8'	-	<1.0	<1.0	9200
C4049/P7-4	B15JR09	9-26-02	0742	0858	TMJ	7.0'-7.4'	-	<1.0	<1.0	9720
C4050/P7-5	B15JP0	9-26-02	0823	0859	TMJ	24.2'-25.4'	-	<1.0	<1.0	12200
C4050/P7-5	B15JP1	9-26-02	0836	0900	TMJ	15.2'-15.8'	-	<1.0	<1.0	13200
C4050/P7-5	B15JP2	9-26-02	0847	0901	TMJ	8.2'-9.2'	-	<1.0	<1.0	14300
C4051/P7-6	B15JP3	9-26-02	0923	1101	TMJ	24.2'-25.4'	-	<1.0	1.09	12000
C4051/P7-6	B15JP4	9-26-02	0939	1102	TMJ	15.2'-16.5'	-	<1.0	<1.0	12500
C4051/P7-6	B15JR5	9-26-02	0955	1103	TMJ	8.2'-9.9'	-	<1.0	<1.0	12800
C4052/P7-7	B15JP6	9-26-02	1028	1104	TMJ	24.2'-25.4'	-	<1.0	1.22	15700
C4052/P7-7	B15JP7	9-26-02	1046	1105	TMJ	15.2'-15.5'	-	<1.0	<1.0	17600
C4052/P7-7	B15JP8	9-26-02	1056	1106	TMJ	8.2'-9.4'	-	<1.0	<1.0	19600
C4053/P7-3	B15JP9	9-26-02	1140	1343	TMJ	24.2'-25.4'	-	<1.0	1.52	11600
C4053/P7-3	B15JR0	9-26-02	1157	1344	TMJ	15.2'-15.7'	-	<1.0	1.27	13000
C4053/P7-3	B15JR1	9-26-02	1209	1345	TMJ	8.2'-9.7'	-	<1.0	1.42	13100
C4054/P7-2	B15JR2	9-26-02	1310	1346	TMJ	24.2'-24.7'	-	<1.0	1.39	19900
C4054/P7-2	B15JR3	9-26-02	1326	1347	TMJ	15.2'-16.4	-	<1.0	1.31	22100
C4054/P7-2	B15JR4	9-26-02	1337	1348	TMJ	8.2'-9.5'	-	<1.0	<1.0	24000
C4055/P9-4	B15JR5	9-26-02	1415	1453	TMJ	24.2'-25.4'	-	<1.0	<1.0	18700
C4055/P9-4	B15JR6	9-26-02	1431	1454	TMJ	15.2'-16.5'	-	<1.0	<1.0	18800
C4055/P9-4	B15JR7	9-26-02	1447	1455	TMJ	5.2'-6.7'	-	<1.0	<1.0	20700
25.5 Std.	-	9-26-02	-	1457	TMJ	-	-	22.9	<1.0	7900

Purge Volume Calculation for 1" casing:	Purge Volume Calculation for 1/8" tubing:
1in = .08ft	V = 3.142r2
V = 3.142r2	V = 3.142(.0052ft)2
V = 3.142(.04ft)2	V = 3.142(0.000027ft2)
V = 3.142(0.0016ft2)	V = 0.000085ft2(30ft of tubing)
V = 0.0050 ft2	V = 0.00255 ft3

Purge Volume for Sample Intervals:

25ft - 0.0050ft2(25ft) +0.00255ft3 =0.13800ft3(28.32) = 3.9L/2min = 1.95 min

Note: tubing length does not change only casing depth.

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Continued

C4055/ P9-4	B15JR8	9-26-02	1415	1456	TMJ	24.2'-25.4'	-	<1.0	<1.0	24300

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Reviewed By GS Thomas / Gary Thomas 10/10/02