



0068950

Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

06-AMCP-0144

MAR 09 2006

Ms. Jane Hedges, Program Manager
Nuclear Waste Program
State of Washington
Department of Ecology
3100 Port of Benton Boulevard
Richland, Washington 99354

RECEIVED
MAR 13 2006

EDMC

Dear Ms. Hedges:

TRANSMITTAL OF THE BURIAL GROUND SAMPLING AND ANALYSIS RESULTS FOR
OCTOBER-DECEMBER 2005

Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Milestone M-91-40, requirement 2, paragraph 3, requires quarterly reports of results from retrieval burial grounds sampling and analysis plan sampling activities. No sampling and analysis activities were conducted as part of the sampling and analysis plan for the 218-W-4C or 218-E 12B Burial Grounds during the October-December quarter so no analysis results for those burial grounds are provided.

Sampling of the 218-W-3A Burial Ground was initiated during the July-September 2005 quarter. Vapor samples were collected through existing vent risers in trenches T-05 and T-08 and analyzed for volatile organic compounds using field screening instruments. Results for the vapor samples submitted for laboratory analysis were received during the October-December quarter and are provided in this quarterly letter report. Preliminary action levels are not applicable to these vapor samples because there are no vapor cleanup levels for volatile organic compounds. No contaminant releases to the environment were documented as a result of the vent riser sampling.

If you have any questions, please contact me, or you may contact Greg Sinton of my staff, on (509) 373-7939.

Sincerely,

Matthew S. McCormick, Assistant Manager
for the Central Plateau

AMCP:GLS

Attachment

cc: See Page 2

Ms. Jane Hedges
06-AMCP-0144

-2-

MAR 09 2006

cc w/attach:

G. Bohnee, NPT

N. Ceto, EPA

L. J. Cusack, Ecology

S. Harris, CTUIR

R. Jim, YN

T. M. Martin, HAB

M. E. Mills, Ecology

K. Niles, ODOE

L. Seelatsee, Wanapum

D. G. Singleton, Ecology

R. Skinnarland, Ecology

J. B. Price, Ecology

D. A. Isom, Administrative Record (M-91), H6-08

Environmental Portal

cc w/o attach:

R. E. Piippo, FHI

V. J. Rohay, FHI

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS FOR OCTOBER – DECEMBER 2005

SUMMARY

Step I of the sampling design in DOE/RL-2004-71, *218-W-3A Burial Ground Sampling and Analysis Plan*, has been completed. Vapor samples were collected through existing vent risers in the sections of Trenches T-05 and T-08 that contain retrievably stored waste (RSW)¹ and were analyzed for volatile organic compounds (VOC) using field-screening instruments during the July - September 2005 quarter. Results for vapor samples submitted for laboratory analysis were received during this quarter (October – December 2005) and are provided in this quarterly letter report. Preliminary action levels are not applicable to these vapor samples. Other than incidental and unavoidable vapor releases to atmosphere associated with sampling at the vent risers, no contaminant releases to the environment were documented as a result of the vent riser vapor sampling.

Based on the sampling design in the sampling and analysis plan (SAP) for the 218-W-3A Burial Ground (DOE/RL-2004-71), Step II sampling is planned following retrieval of the RSW.

Step I of the sampling design in DOE/RL-2004-32, *218-E-12B Burial Ground Sampling and Analysis Plan*, was completed during the April – June 2005 quarter. No sampling and analysis activities were conducted as part of the sampling and analysis plan for the 218-E-12B Burial Ground during the October – December 2005 quarter. Therefore, there are no analysis results for the 218-E-12B Burial Ground to be provided for this period.

Based on the sampling design in the sampling and analysis plan for the 218-E-12B Burial Ground (DOE/RL-2004-32), Step II sampling is planned following retrieval of the RSW.

Step I of the sampling design in DOE/RL-2003-48, *218-W-4C Burial Ground Sampling and Analysis Plan*, was initiated during the October – December 2003 quarter and completed during the January – March 2004 quarter. No sampling and analysis activities were conducted as part of the sampling and analysis plan for the 218-W-4C Burial Ground during the October – December 2005 quarter. Therefore, there are no analysis results for the 218-W-4C Burial Ground to be provided for this period.

Based on the sampling design in the sampling and analysis plan for the 218-W-4C Burial Ground (DOE/RL-2003-48), Step II sampling is planned following retrieval of the RSW.

1.0 INTRODUCTION

This quarterly letter report has been prepared in response to *Hanford Federal Facility Agreement and Consent Order* (Tri-Party Agreement) (Ecology et al. 1989) Interim Milestone M-91-40,

¹ Retrievably stored for purposes of the *Atomic Energy Act of 1954*.

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS FOR OCTOBER – DECEMBER 2005

Requirement 2, paragraph 3. This letter report covers the quarter from October through December 2005.

The sampling and analysis activities summarized in this quarterly letter report were conducted in accordance with DOE/RL-2004-71. Draft A of this SAP was submitted to the State of Washington Department of Ecology (Ecology) on August 29, 2005.

Vapor sampling is required at all of the vent risers in the 218-W-3A Burial Ground, in support of the dispersed carbon tetrachloride vadose-zone plume remedial investigation for the 200-PW-1 Operable Unit (OU). The SAP for the 200-PW-1 OU investigation was approved in 2004 (DOE/RL-2001-01, *Plutonium/Organic-Rich Process Condensate/Process Waste Group Operable Unit RI/FS Work Plan: Includes the 200-PW-1, 200-PW-3 and 200-PW-6 Operable Units*, Appendix D). Vent riser vapor sampling was conducted in the 218-W-3A Burial Ground in support of the 200-PW-1 OU investigation in August and September 2005. In accordance with an agreement between Ecology and the U.S. Department of Energy, Richland Operations Office (RL), the field-screening results for the vent risers that are in the portions of Trenches T-05 and T-08 that contain RSW will be used to meet the data needs for field-screening results in Step I of the 218-W-3A Burial Ground SAP.

The 218-W-3A Burial Ground SAP was developed to determine whether contaminants have been released to the vadose zone from RSW in the 218-W-3A Burial Ground in the 200 West Area of the Hanford Site. In the 218-W-3A Burial Ground, Trenches T-9S, T-6S, T-01, T-04, T-05, T-06, T-08, T-10, T-15, T-17, T-23, T-30, T-32, and T-34 contain suspect TRU² RSW (Figure 1). Vent risers are present in the portions of Trenches T-05 and T-08 that contain RSW. In these trenches, the RSW typically is contained in 208 L (55-gal) drums. The drums are assumed to be arranged in modules with plywood and a plastic cover over each module. A schematic cross section of a retrievable storage trench containing vent risers is shown in Figure 2.

The 218-W-3A Burial Ground sampling design consists of three steps. Step I is vapor sampling through vent risers in the trenches before waste retrieval. Step II and Step III are conducted following waste retrieval. Step II includes sampling the surface of the trench floor. Step III involves assessing the data collected in Step I and Step II, leading to potential characterization of the substrate soils beneath the trench floor.

The Step I sampling in the 218-W-3A Burial Ground and the field screening analysis of the samples were completed during the July – September 2005 quarter and were described in the letter report for July – September 2005 (FH-0402233.5, "Transmittal of the Burial Ground Sampling and Analysis Results for July-September 2005"). Laboratory analysis of the Step I samples was completed during the October-December 2005 quarter and is described in this quarterly letter report. As specified in the 218-W-3A SAP, the Step II and Step III sampling to

² Transuranic (waste materials contaminated with 100 nCi/g of transuranic materials having half-lives longer than 20 years).

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS FOR OCTOBER – DECEMBER 2005

characterize the substrate soils will be conducted when the entire RSW portion of the trench has become accessible and sampling activities will not interfere with waste-retrieval operations. The results of the Step I sampling will be used to focus the Step II sampling.

2.0 SAMPLING METHODOLOGY

Nine vent risers are present in the portions of Trenches T-05 and T-08 that contain RSW in the 218-W-3A Burial Ground (Table 1). No vent risers are present in the portions of the other trenches that contain RSW. As stated in the SAP, sampling was limited to the existing vent risers that were accessible without posing health and safety risks to workers. During Step I, vapor samples were collected from all nine of these vent risers.

Two types of vapor samples were collected. At each trench, vapor samples initially were collected from each riser and analyzed using a field-screening instrument. A vapor sample then was collected from the vent riser in that trench that had the highest VOC concentration, based on the field-screening results. This vapor sample was contained in a SUMMA³ canister for laboratory analysis. A total of 13 vapor samples were collected. Of these, nine samples were collected for field screening and four samples were collected in SUMMA canisters for laboratory analysis. The samples collected in SUMMA canisters include one each from Trenches T-05 and T-08, one additional sample from Trench T-08, and one duplicate from Trench T-08.

Vent riser sampling was initiated on August 25, 2005, and completed on September 8, 2005. The vent risers in Trench T-05 were sampled on August 25, 2005, and analyzed using field-screening instruments. The vent risers in Trench T-08 were sampled on September 6, 2005, and analyzed using field-screening instruments. The SUMMA canister samples were collected on September 8, 2005.

A sample location number (trench and riser) was established and recorded for each vent riser. The vent risers in each trench were numbered sequentially from west to east.

After the vent riser cap was removed, a 15.2 m (50-ft-) long piece of TYGON⁴ tubing was lowered to the bottom of the riser or until refusal. The tubing measured 0.64 cm (0.25 in.) inside diameter and 0.95 cm (0.375 in.) outside diameter, with a metal filter on the lower end. The tubing then was pulled back approximately 0.08 m (0.25 ft) to lift the filter off the bottom of the trench. The top of the riser was sealed to prevent intrusion of ambient air during purging and sampling. The vapor sampling method is shown schematically in Figure 2.

The sample tubing was connected to a sampling pump, which was used to pump vapor from the bottom of the vent riser. The sampling pump was operated for 1 to 2 minutes to purge the tubing

³ SUMMA is a trademark of Moletrics, Inc., Cleveland, Ohio.

⁴ TYGON is a trademark of Norton Performance Plastics Corporation, a Saint-Gobain Company, Akron, Ohio.

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS FOR OCTOBER – DECEMBER 2005

(purging time was dependent on the sampling pump flow rate). When the sampling pump was operating, the VOC concentrations at the outlet of the pump were monitored using an organic vapor analyzer (OVA). When the VOC concentration readings on the OVA stabilized after purging, or at the discretion of the industrial hygienist and field sampler, the vapor was introduced directly to a Miran SapphIRE Ambient Air Analyzer⁵ (Miran analyzer) for field-screening analysis for VOCs. Following sample analysis, the sample tubing was removed from the riser and the cap was replaced.

The field-screening results were used to determine the locations for collection of vapor samples in SUMMA canisters for laboratory analysis. The sampling methodology was similar to that used for the field-screening samples. Following the 1- to 2-minute purge, the valve on the canister was opened for 5 minutes to allow vapor to flow into the 6 L canister. The SUMMA canisters were transported to the laboratory for analysis.

3.0 ANALYTICAL RESULTS

During Step I sampling at the 218-W-3A Burial Ground, vapor samples were collected from inside the engineered trenches through vent risers. Most of the samples were collected near the base of the trench, which is typically approximately 5 m (16 ft) below the engineered surface overlying the trench (FH-0402233.5).

The SUMMA canister samples were analyzed in the laboratory for VOCs. Because of high concentrations of tetrachloroethene (PCE), the samples required special handling. Samples were transferred from the SUMMA canisters to sorbent tubes and analyzed by thermal desorption gas chromatograph/mass spectrometer using a modified EPA Method TO-17 (EPA/625/R-96/010b, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*). Results for the detected analytes, including tentatively identified compounds, are summarized in Table 1. Results for all analytes are provided in Table 2.

The SUMMA canister samples for laboratory analysis were collected from vent risers T-05-02 (sample B1DX09), T-08-03 (sample B1DX12), and T-08-05 (sample B1DX10) on September 8, 2005. A duplicate SUMMA canister sample was collected from vent riser T-08-05 (sample B1DX11). Vapor samples from vent risers T-05-02 and T-08-03 contained the highest VOC concentrations, based on field screening, in Trenches T-05 and T-08, respectively (FH-0402233.5). An additional SUMMA canister sample and the duplicate sample were collected from vent riser T-08-05. The additional and duplicate SUMMA canister samples were collected from a vent riser with slightly lower VOC concentrations to reduce the potential that the highest VOC concentrations would exceed calibration standards and make the duplicate analysis of little value.

⁵ MIRAN and the SapphIRE Ambient Air Analyzer are registered trademarks of Thermo Electron Corporation, Franklin, Massachusetts.

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS FOR OCTOBER – DECEMBER 2005

Based on the laboratory analysis, the sample from vent riser T-08-03 contained the highest concentration of PCE (Table 1). During field screening, the highest concentration of PCE also was detected in the sample from vent riser T-08-03 (FH-0402233.5).

4.0 QUALITY CONTROL

For vent riser vapor samples collected in SUMMA canisters, the field quality control consisted of duplicate samples and equipment blank samples. As specified in the SAP (DOE/RL-2004-71), one duplicate SUMMA canister sample was collected during vent riser sampling. As explained in Section 3.0, the duplicate was collected from vent riser T-08-05. The only VOC detected in the sample and duplicate sample from vent riser T-08-05 was PCE (Table 1). For this single analyte detected in both the sample and duplicate, the relative percent difference (RPD) was calculated according to the formula:

$$RPD = \frac{(C_1 - C_2) \times 100}{(C_1 + C_2) / 2}$$

where

C_1 = the larger of the two observed values

C_2 = the smaller of the two observed values.

The RPD was 6 percent. This RPD is within the required precision of 25 percent. These calculations indicate that the analytical method produced repeatable measurements.

The purpose of collecting equipment blanks is to verify the adequacy of sampling equipment decontamination procedures. The SUMMA canisters are analyzed for cleanliness at the laboratory.

The percent recovery for the laboratory control samples analyzed with the SUMMA canister samples was within the specified limits of 70 to 130 for all but three analytes (2-nitropropane, acetaldehyde, and methanol). Because these three analytes were not detected in the SUMMA canister samples, quality control flags were not assigned to the sample results. Laboratory analyses of the VOC concentrations were accurate to within 30 percent, as required by the SAP, for all other analytes.

No analytes were detected in the blank quality control samples.

No holding times were exceeded during collection and laboratory analysis of SUMMA canister samples from vent risers.

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS FOR OCTOBER – DECEMBER 2005

5.0 COMPARISON TO REGULATORY REQUIREMENTS

As determined through the data quality objectives process, preliminary action levels are not applicable to VOC vapor samples.

6.0 DOCUMENTED CONTAMINANT RELEASES TO THE ENVIRONMENT

Other than incidental and unavoidable vapor releases to atmosphere associated with sampling at the vent risers, no contaminant releases to the environment were documented as a result of the vent riser vapor sampling. The vent riser vapor samples were collected from within the engineered trench. The Step II and Step III characterization of the trench floor and vadose zone is designed to evaluate whether contaminants within the engineered trench were released to the environment.

7.0 PLANNED AND/OR SCHEDULED ADDITIONAL WORK

The analysis of the SUMMA canister samples from the 218-W-3A Burial Ground was completed during this quarter (October – December 2005). The Step I sampling and analysis for the 218-W-3A Burial Ground is complete.

Based on the sampling design in the 218-W-3A Burial Ground SAP (DOE/RL-2004-71), Step II sampling is planned following completion of Step I sampling and retrieval of the RSW. The Step II characterization will be scheduled when the entire RSW portion of the trench has become accessible and sampling will not interfere with waste-retrieval operations.

Based on the sampling design in the 218-E-12B Burial Ground SAP (DOE/RL-2004-32), Step II sampling is planned following completion of Step I sampling and retrieval of the RSW. The Step II characterization will be scheduled when the entire RSW portion of the trench has become accessible and sampling will not interfere with waste-retrieval operations.

Based on the sampling design in the 218-W-4C Burial Ground SAP (DOE/RL-2003-48), Step II sampling is planned following completion of Step I sampling and retrieval of the RSW. The Step II characterization will be scheduled when the asphalt pad in an entire trench has become accessible and sampling will not interfere with waste-retrieval operations.

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS FOR OCTOBER – DECEMBER 2005

8.0 REFERENCES

Atomic Energy Act of 1954, 42 USC 2011, et seq.

DOE/RL-2001-01, 2004, *Plutonium/Organic-Rich Process Condensate/Process Waste Group Operable Unit RI/FS Work Plan: Includes the 200-PW-1, 200-PW-3 and 200-PW-6 Operable Units*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-2003-48, 2003, *218-W-4C Burial Ground Sampling and Analysis Plan*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-2004-32, 2005, *218-E-12B Burial Ground Sampling and Analysis Plan*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-2004-71, 2005, *218-W-3A Burial Ground Sampling and Analysis Plan*, Draft A, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

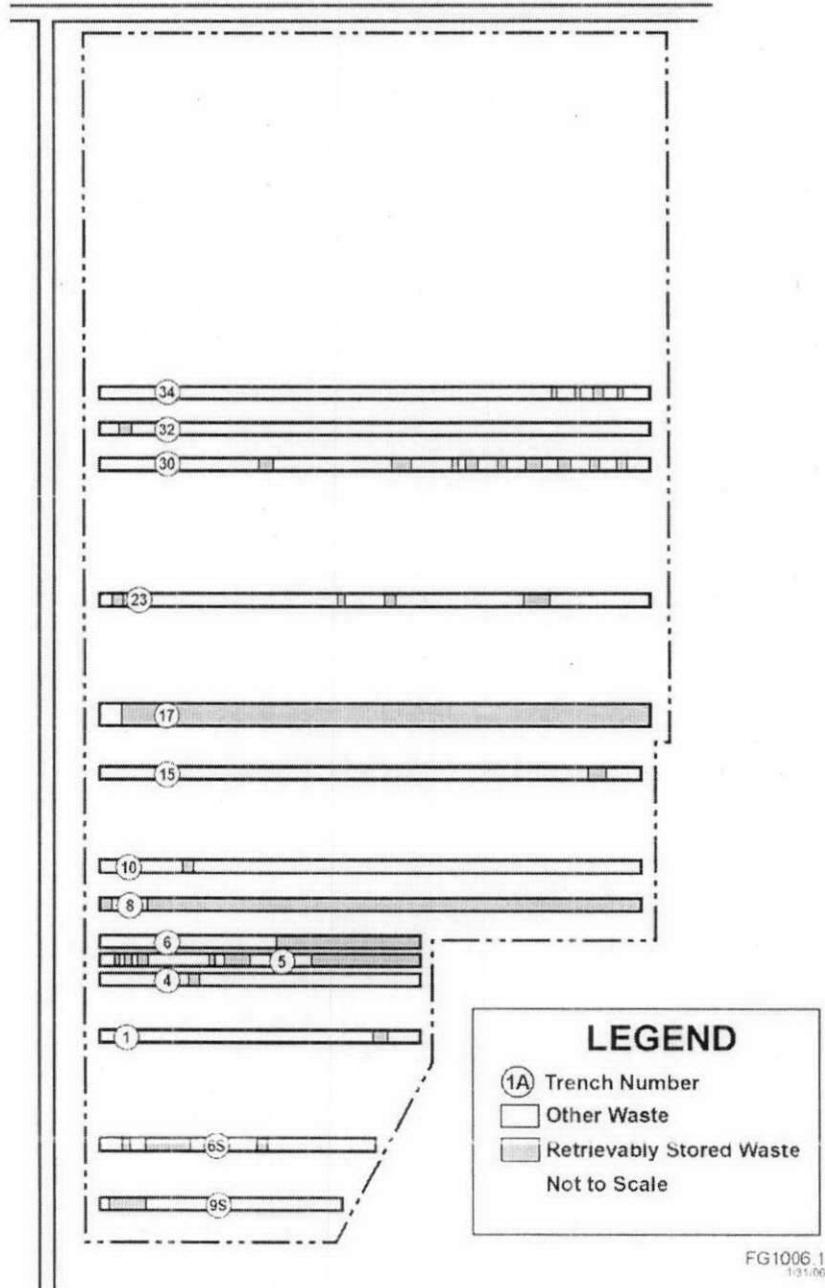
Ecology, EPA, and DOE, 1989, *Hanford Federal Facility Agreement and Consent Order*, 2 vols., Washington State Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington, as amended.

EPA/625/R-96/010b, 1999, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air*, Second Edition, U.S. Environmental Protection Agency, Washington, D.C.

FH-0402233.5, 2005, "Transmittal of the Burial Ground Sampling and Analysis Results for July-September 2005 in Accordance with the *Hanford Federal Facility Agreement and Consent Order* Interim Milestone M-91-40," (external letter to K. A. Klein, U.S. Department of Energy, Richland Operations Office, from R. G. Gallagher), Fluor Hanford, Inc., Richland, Washington, November 8.

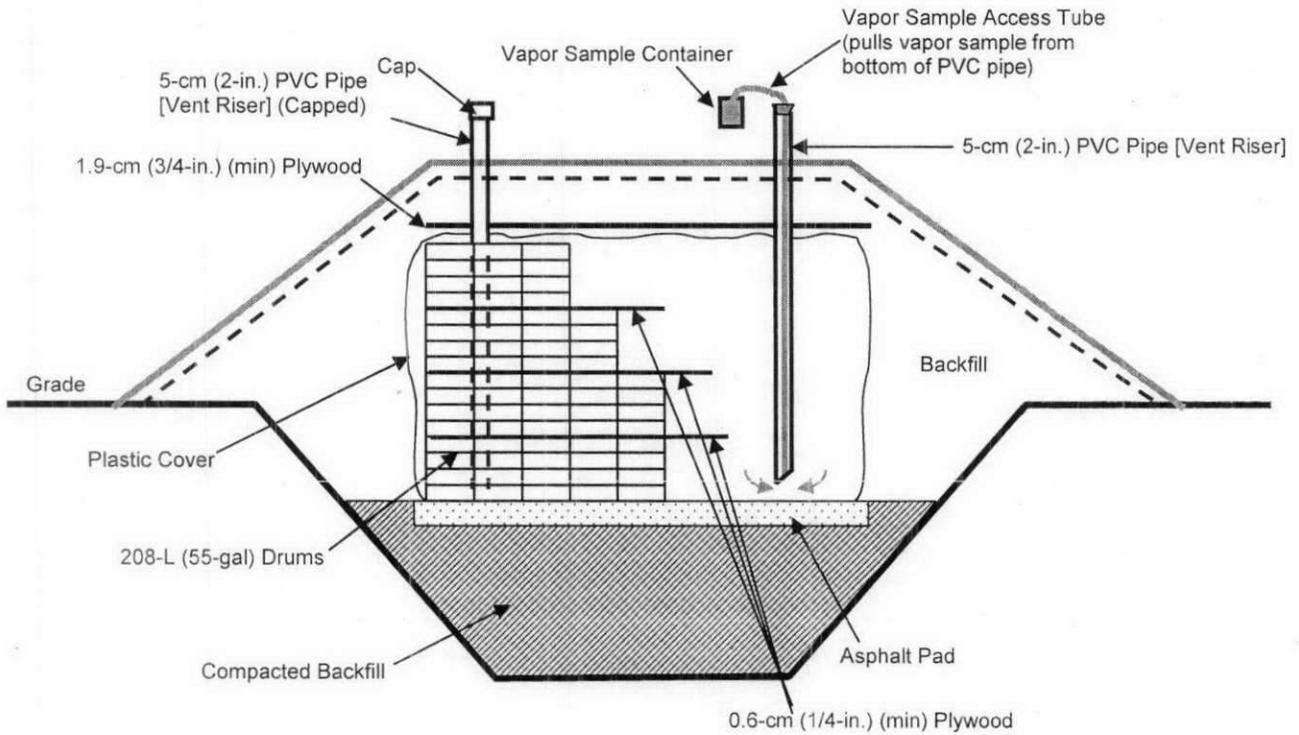
BURIAL GROUND SAMPLING AND ANALYSIS RESULTS FOR OCTOBER – DECEMBER 2005

Figure 1. Locations of Retrievably Stored Waste Trenches
at the 218-W-3A Burial Ground.



BURIAL GROUND SAMPLING AND ANALYSIS RESULTS FOR OCTOBER – DECEMBER 2005

Figure 2. Schematic View of the 218-W-3A Burial Ground Trench and Vent Riser Sampling Method.



**BURIAL GROUND SAMPLING AND ANALYSIS RESULTS
FOR OCTOBER – DECEMBER 2005**

Figure 3. Locations of Vent Risers in the 218-W-3A Burial Ground Trenches Containing Retrievably Stored Waste.

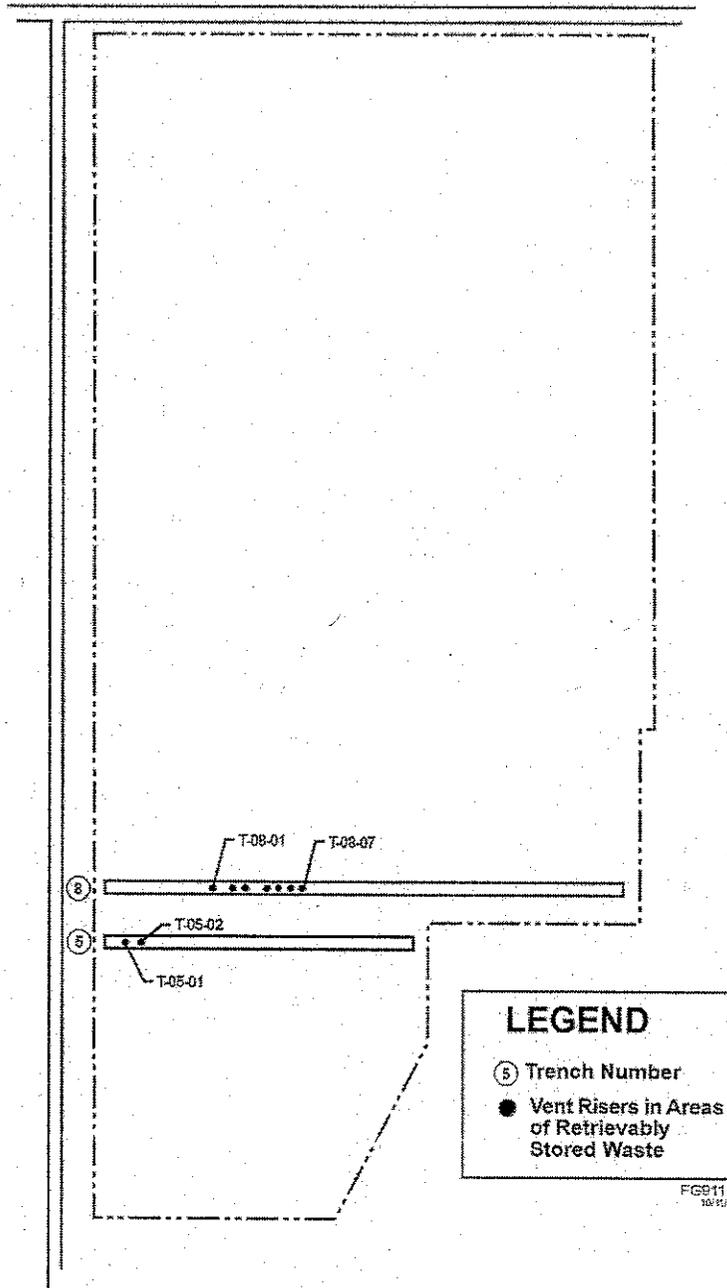


Table 1. Analytes Detected by Laboratory Analysis of 218-W-3A Burial Ground Vent Riser Samples.

Analyte	Chemical Abstracts Service Registry Number	Concentration Detected in Vent Riser Samples (ppmv)			
		Vent Riser T-05-02	Vent Riser T-08-03	Vent Riser T-08-05 ^a	Vent Riser T-08-05 ^a Duplicate
		B1DX09	B1DX12	B1DX10	B1DX11
1,1-Dichloroethene	75-35-4	1.6			
1,2-Dichloroethane	107-06-2	0.62			
Chloroform	67-66-3	4			
Tetrachloroethene (PCE)	127-18-4	3	4,200	18	17
Trichloroethene	79-01-6	1.3	8.8		

^a Vapor samples from vent risers T-05-02 and T-08-03 contained the highest VOC concentrations, based on field screening, in trenches T-05 and T-08, respectively. An additional SUMMA canister sample and the duplicate sample were collected from vent riser T-08-05. The additional and duplicate SUMMA canister samples were collected from a vent riser with slightly lower VOC concentrations to reduce the potential that the highest VOC concentrations would exceed calibration standards and make the duplicate analysis of little value.

ppmv = parts per million by volume.

VOC = volatile organic compound.

Table 2. Laboratory Results for Samples Collected Through Vent Risers in the
218-W-3A Burial Ground Trenches. (9 Pages)

Vent Riser	HEIS Number	Sample Date	Analysis Date	CAS Number	Constituent	Value (ppmv)	Qualifier
T-05-02	B1DX09	09/08/2005	10/05/2005	79-34-5	1,1,2,2-Tetrachloroethane	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	75-35-4	1,1-Dichloroethene	1.6	
T-05-02	B1DX09	09/08/2005	10/05/2005	106-93-4	1,2-Dibromoethane	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	107-06-2	1,2-Dichloroethane	0.62	
T-05-02	B1DX09	09/08/2005	10/05/2005	106-99-0	1,3-Butadiene	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	123-91-1	1,4-Dioxane	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	71-36-3	1-Butanol	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	71-23-8	1-Propanol	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	78-93-3	2-Butanone	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	110-43-0	2-Heptanone	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	591-78-6	2-Hexanone	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	79-46-9	2-Nitropropane	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	107-87-9	2-Pentanone	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	67-63-0	2-Propanol	0.26	U
T-05-02	B1DX09	09/08/2005	10/05/2005	106-35-4	3-Heptanone	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	589-38-8	3-Hexanone	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	108-10-1	4-Methyl-2-Pentanone	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	75-07-0	Acetaldehyde	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	67-64-1	Acetone	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	75-05-8	Acetonitrile	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	71-43-2	Benzene	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	123-72-8	Butyraldehyde	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	109-74-0	Butyronitrile	0.28	U

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS
FOR JULY - SEPTEMBER 2005

Table 2. Laboratory Results for Samples Collected Through Vent Risers in the
218-W-3A Burial Ground Trenches. (9 Pages)

Vent Riser	HEIS Number	Sample Date	Analysis Date	CAS Number	Constituent	Value (ppmv)	Qualifier
T-05-02	B1DX09	09/08/2005	10/05/2005	75-15-0	Carbon disulfide	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	56-23-5	Carbon tetrachloride	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	108-90-7	Chlorobenzene	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	67-66-3	Chloroform	4	
T-05-02	B1DX09	09/08/2005	10/05/2005	108-94-1	Cyclohexanone	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	124-18-5	Decane	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	64-17-5	Ethanol	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	107-12-0	Ethyl cyanide	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	100-41-4	Ethylbenzene	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	110-00-9	Furan	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	110-54-3	Hexane	0.3	U
T-05-02	B1DX09	09/08/2005	10/05/2005	111-13-7	Hexyl methyl ketone	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	67-56-1	Methanol	0.82	U
T-05-02	B1DX09	09/08/2005	10/05/2005	75-09-2	Methylene chloride	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	108-38-3	m-Xylene	0.56	U
T-05-02	B1DX09	09/08/2005	10/05/2005	142-82-5	n-Heptane	0.26	U
T-05-02	B1DX09	09/08/2005	10/05/2005	106-97-8	n-Butane	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	74-98-6	N-Propane	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	95-47-6	o-Xylene	0.3	U
T-05-02	B1DX09	09/08/2005	10/05/2005	109-66-0	Pentane	0.26	U
T-05-02	B1DX09	09/08/2005	10/05/2005	127-18-4	Tetrachloroethene	3	
T-05-02	B1DX09	09/08/2005	10/05/2005	109-99-9	Tetrahydrofuran	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	108-88-3	Toluene	0.28	U
T-05-02	B1DX09	09/08/2005	10/05/2005	79-01-6	Trichloroethene	1.3	

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS
FOR JULY - SEPTEMBER 2005

Table 2. Laboratory Results for Samples Collected Through Vent Risers in the
218-W-3A Burial Ground Trenches. (9 Pages)

Vent Riser	HEIS Number	Sample Date	Analysis Date	CAS Number	Constituent	Value (ppmv)	Qualifier
T-05-02	B1DX09	09/08/2005	10/05/2005	75-01-4	Vinyl chloride	0.28	U
T-08-03	B1DX12	09/08/2005	10/05/2005	79-34-5	1,1,2,2-Tetrachloroethane	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	75-35-4	1,1-Dichloroethene	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	106-93-4	1,2-Dibromoethane	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	107-06-2	1,2-Dichloroethane	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	106-99-0	1,3-Butadiene	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	123-91-1	1,4-Dioxane	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	71-36-3	1-Butanol	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	71-23-8	1-Propanol	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	78-93-3	2-Butanone	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	110-43-0	2-Heptanone	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	591-78-6	2-Hexanone	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	79-46-9	2-Nitropropane	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	107-87-9	2-Pentanone	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	67-63-0	2-Propanol	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	106-35-4	3-Heptanone	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	589-38-8	3-Hexanone	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	108-10-1	4-Methyl-2-Pentanone	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	75-07-0	Acetaldehyde	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	67-64-1	Acetone	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	75-05-8	Acetonitrile	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	71-43-2	Benzene	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	123-72-8	Butyraldehyde	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	109-74-0	Butyronitrile	2.5	U

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS
FOR JULY - SEPTEMBER 2005

Table 2. Laboratory Results for Samples Collected Through Vent Risers in the
218-W-3A Burial Ground Trenches. (9 Pages)

Vent Riser	HEIS Number	Sample Date	Analysis Date	CAS Number	Constituent	Value (ppmv)	Qualifier
T-08-03	B1DX12	09/08/2005	10/05/2005	75-15-0	Carbon disulfide	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	56-23-5	Carbon tetrachloride	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	108-90-7	Chlorobenzene	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	67-66-3	Chloroform	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	108-94-1	Cyclohexanone	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	124-18-5	Decane	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	64-17-5	Ethanol	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	107-12-0	Ethyl cyanide	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	100-41-4	Ethylbenzene	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	110-00-9	Furan	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	110-54-3	Hexane	2.6	U
T-08-03	B1DX12	09/08/2005	10/05/2005	111-13-7	Hexyl methyl ketone	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	67-56-1	Methanol	7.6	U
T-08-03	B1DX12	09/08/2005	10/05/2005	75-09-2	Methylene chloride	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	108-38-3	m-Xylene	5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	142-82-5	n-Heptane	2.4	U
T-08-03	B1DX12	09/08/2005	10/05/2005	106-97-8	n-Butane	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	74-98-6	N-Propane	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	95-47-6	o-Xylene	2.6	U
T-08-03	B1DX12	09/08/2005	10/05/2005	109-66-0	Pentane	2.4	U
T-08-03	B1DX12	09/08/2005	10/05/2005	127-18-4	Tetrachloroethene	4,200	
T-08-03	B1DX12	09/08/2005	10/05/2005	109-99-9	Tetrahydrofuran	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	108-88-3	Toluene	2.5	U
T-08-03	B1DX12	09/08/2005	10/05/2005	79-01-6	Trichloroethene	8.8	

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS
FOR JULY - SEPTEMBER 2005

Table 2. Laboratory Results for Samples Collected Through Vent Risers in the
218-W-3A Burial Ground Trenches. (9 Pages)

Vent Riser	HEIS Number	Sample Date	Analysis Date	CAS Number	Constituent	Value (ppmv)	Qualifier
T-08-03	B1DX12	09/08/2005	10/05/2005	75-01-4	Vinyl chloride	2.5	U
T-08-05	B1DX10	09/08/2005	10/05/2005	79-34-5	1,1,2,2-Tetrachloroethane	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	75-35-4	1,1-Dichloroethene	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	106-93-4	1,2-Dibromoethane	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	107-06-2	1,2-Dichloroethane	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	106-99-0	1,3-Butadiene	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	123-91-1	1,4-Dioxane	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	71-36-3	1-Butanol	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	71-23-8	1-Propanol	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	78-93-3	2-Butanone	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	110-43-0	2-Heptanone	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	591-78-6	2-Hexanone	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	79-46-9	2-Nitropropane	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	107-87-9	2-Pentanone	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	67-63-0	2-Propanol	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	106-35-4	3-Heptanone	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	589-38-8	3-Hexanone	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	108-10-1	4-Methyl-2-Pentanone	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	75-07-0	Acetaldehyde	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	67-64-1	Acetone	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	75-05-8	Acetonitrile	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	71-43-2	Benzene	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	123-72-8	Butyraldehyde	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	109-74-0	Butyronitrile	0.28	U

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS
FOR JULY - SEPTEMBER 2005

Table 2. Laboratory Results for Samples Collected Through Vent Risers in the
218-W-3A Burial Ground Trenches. (9 Pages)

Vent Riser	HEIS Number	Sample Date	Analysis Date	CAS Number	Constituent	Value (ppmv)	Qualifier
T-08-05	B1DX10	09/08/2005	10/05/2005	75-15-0	Carbon disulfide	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	56-23-5	Carbon tetrachloride	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	108-90-7	Chlorobenzene	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	67-66-3	Chloroform	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	108-94-1	Cyclohexanone	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	124-18-5	Decane	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	64-17-5	Ethanol	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	107-12-0	Ethyl cyanide	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	100-41-4	Ethylbenzene	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	110-00-9	Furan	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	110-54-3	Hexane	0.3	U
T-08-05	B1DX10	09/08/2005	10/05/2005	111-13-7	Hexyl methyl ketone	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	67-56-1	Methanol	0.82	U
T-08-05	B1DX10	09/08/2005	10/05/2005	75-09-2	Methylene chloride	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	108-38-3	m-Xylene	0.56	U
T-08-05	B1DX10	09/08/2005	10/05/2005	142-82-5	n-Heptane	0.26	U
T-08-05	B1DX10	09/08/2005	10/05/2005	106-97-8	n-Butane	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	74-98-6	N-Propane	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	95-47-6	o-Xylene	0.3	U
T-08-05	B1DX10	09/08/2005	10/05/2005	109-66-0	Pentane	0.26	U
T-08-05	B1DX10	09/08/2005	10/05/2005	127-18-4	Tetrachloroethene	18	
T-08-05	B1DX10	09/08/2005	10/05/2005	109-99-9	Tetrahydrofuran	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	108-88-3	Toluene	0.28	U
T-08-05	B1DX10	09/08/2005	10/05/2005	79-01-6	Trichloroethene	0.28	U

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS
FOR JULY - SEPTEMBER 2005

Table 2. Laboratory Results for Samples Collected Through Vent Risers in the
218-W-3A Burial Ground Trenches. (9 Pages)

Vent Riser	HEIS Number	Sample Date	Analysis Date	CAS Number	Constituent	Value (ppmv)	Qualifier
T-08-05	B1DX10	09/08/2005	10/05/2005	75-01-4	Vinyl chloride	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	79-34-5	1,1,2,2-Tetrachloroethane	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	75-35-4	1,1-Dichloroethene	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	106-93-4	1,2-Dibromoethane	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	107-06-2	1,2-Dichloroethane	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	106-99-0	1,3-Butadiene	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	123-91-1	1,4-Dioxane	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	71-36-3	1-Butanol	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	71-23-8	1-Propanol	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	78-93-3	2-Butanone	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	110-43-0	2-Heptanone	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	591-78-6	2-Hexanone	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	79-46-9	2-Nitropropane	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	107-87-9	2-Pentanone	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	67-63-0	2-Propanol	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	106-35-4	3-Heptanone	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	589-38-8	3-Hexanone	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	108-10-1	4-Methyl-2-Pentanone	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	75-07-0	Acetaldehyde	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	67-64-1	Acetone	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	75-05-8	Acetonitrile	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	71-43-2	Benzene	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	123-72-8	Butyraldehyde	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	109-74-0	Butyronitrile	0.28	U

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS
FOR JULY - SEPTEMBER 2005

Table 2. Laboratory Results for Samples Collected Through Vent Risers in the
218-W-3A Burial Ground Trenches. (9 Pages)

Vent Riser	HEIS Number	Sample Date	Analysis Date	CAS Number	Constituent	Value (ppmv)	Qualifier
T-08-05	B1DX11	09/08/2005	10/05/2005	75-15-0	Carbon disulfide	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	56-23-5	Carbon tetrachloride	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	108-90-7	Chlorobenzene	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	67-66-3	Chloroform	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	108-94-1	Cyclohexanone	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	124-18-5	Decane	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	64-17-5	Ethanol	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	107-12-0	Ethyl cyanide	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	100-41-4	Ethylbenzene	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	110-00-9	Furan	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	110-54-3	Hexane	0.3	U
T-08-05	B1DX11	09/08/2005	10/05/2005	111-13-7	Hexyl methyl ketone	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	67-56-1	Methanol	0.82	U
T-08-05	B1DX11	09/08/2005	10/05/2005	75-09-2	Methylene chloride	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	108-38-3	m-Xylene	0.56	U
T-08-05	B1DX11	09/08/2005	10/05/2005	142-82-5	n-Heptane	0.26	U
T-08-05	B1DX11	09/08/2005	10/05/2005	106-97-8	n-Butane	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	74-98-6	N-Propane	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	95-47-6	o-Xylene	0.3	U
T-08-05	B1DX11	09/08/2005	10/05/2005	109-66-0	Pentane	0.26	U
T-08-05	B1DX11	09/08/2005	10/05/2005	127-18-4	Tetrachloroethene	17	
T-08-05	B1DX11	09/08/2005	10/05/2005	109-99-9	Tetrahydrofuran	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	108-88-3	Toluene	0.28	U
T-08-05	B1DX11	09/08/2005	10/05/2005	79-01-6	Trichloroethene	0.28	U

BURIAL GROUND SAMPLING AND ANALYSIS RESULTS
FOR JULY - SEPTEMBER 2005

Table 2. Laboratory Results for Samples Collected Through Vent Risers in the
218-W-3A Burial Ground Trenches. (9 Pages)

Vent Riser	HEIS Number	Sample Date	Analysis Date	CAS Number	Constituent	Value (ppmv)	Qualifier
T-08-05	B1DX11	09/08/2005	10/05/2005	75-01-4	Vinyl chloride	0.28	U

CAS = Chemical Abstracts Service.

HEIS = *Hanford Environmental Information System* database.

ppmv = parts per million by volume.

U = analyzed for but not detected above limiting criteria.