MARTIN MARIETTA

RECEIVED

DEC 28 1995

Y/SUB/95-99069C/K49/4

OSTI

**SITE STATUS MONITORING
REPORT FOR
UNDERGROUND STORAGE
TANK 2331-U
AT BUILDING 9201-1**

**OAK RIDGE Y-12 PLANT
OAK RIDGE, TENNESSEE
FACILITY ID #0-010117**

May 1995

**Environmental Management Department
Health, Safety, Environment,
and Accountability Organization**

**MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY**

MASTER
DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

**contributed to the preparation of this document and should not be considered
an eligible contractor for its review.**

DISCLAIMER

**Portions of this document may be illegible
in electronic image products. Images are
produced from the best available original
document.**

**SITE STATUS MONITORING REPORT
FOR UNDERGROUND STORAGE TANK 2331-U
AT BUILDING 9201-1**

**OAK RIDGE Y-12 PLANT
OAK RIDGE, TENNESSEE
FACILITY ID #0-010117**

May 1995

**Environmental Management Department
Health, Safety, Environment,
and Accountability Organization**

Prepared by

**Science Applications International Corporation
Under Subcontract 22B-99069C
for the
Oak Ridge Y-12 Plant
Oak Ridge, Tennessee 37831**

Managed by

**Martin Marietta Energy Systems, Inc.
for the
U.S. Department of Energy
Under Contract No. DE-AC05-84OR21400**

MASTER

TABLE OF CONTENTS

	Page
LIST OF FIGURES	iv
LIST OF TABLES	iv
LIST OF ACRONYMS	v
SIGNATURE PAGE	vi
CERTIFICATION PAGE	vii

SITE STATUS MONITORING REPORT

1. INTRODUCTION	1-1
1.1 Purpose and Scope	1-1
1.2 Site Description	1-1
2. GROUNDWATER MONITORING	2-1
2.1 Groundwater Measurement, Sample Collection, and Analysis	2-1
2.1.1 Well Locations	2-1
2.1.2 Groundwater Measurement and Sampling	2-1
2.1.3 Sample Analysis	2-1
2.2 Potentiometric Data	2-1
2.3 Groundwater Analytical Data	2-6
3. VAPOR MONITORING	3-1
3.1 Monitoring Method and Locations	3-1
3.2 Vapor Monitoring Results	3-1
REFERENCES	R-1
APPENDICES	
Appendix A Laboratory Analytical Results for Site Status Monitoring	A-1

LIST OF FIGURES

Figure	Title	Page
1-1	Location of the Building 9201-1 Site at the Y-12 Plant	1-2
1-2	Building 9201-1 Site Map	1-3
2-1	Building 9201-1 Site Monitoring Well Location Map	2-2
2-2	Building 9201-1 Site Groundwater Potentiometric Contour Map Dec. 1994	2-4
2-3	Building 9201-1 Site Groundwater Potentiometric Contour Map May 1995	2-5
3-1	Building 9201-1 Site Vapor Monitoring Sampling Location Map	3-2

LIST OF TABLES

Table	Title	Page
2-1	Water level measurements at the Building 9201-1 Site for the periods of Dec. 1994 and May 1995	2-3
2-2	Analytical results for groundwater samples collected during site status, comprehensive monitoring, and baseline sampling	2-6
3-1	Vapor monitoring results for the Building 9201-1 Site, May 10, 1995	3-1

LIST OF ACRONYMS

BGS	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylenes
BTOC	below top of casing
CAP	Corrective Action Plan
GRO	gasoline range organic
LEL	lower explosive limit
MSL	mean sea level
TDEC	Tennessee Department of Environment and Conservation
TPH	total petroleum hydrocarbon
TWA	time weighted average
UEFPC	Upper East Fork Poplar Creek
UST	underground storage tank

SIGNATURE PAGE

I certify under penalty of law, including but not limited to penalties for perjury, that the information contained in this report and on any attachments, is true, accurate, and complete to the best of my knowledge, information, and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for intentional violations.

See Attached Certification
Owner/Operator (Print)

Signature

Date

Christopher David Potter
P.E. or P.G. (Print)

CDP TN 2345
Signature TN Lic./Reg. #

5/26/95
Date

If a P.E. signs this report, please indicate the area of expertise.

(Print or Type)

(P.E./P.G. Stamp/Seal)

County of Anderson State of Tennessee

Subscribed and Sworn to before me this

26 day of May, 19 95.

Suzanne Knott
Notary Public

My Commission expires: 01-27-96 (Notary Seal)

**CERTIFICATION STATEMENT FOR THE
SITE STATUS MONITORING REPORT FOR
THE UNDERGROUND STORAGE TANK 2331-U,
AT BUILDING 9201-1**

I certify that this document and all enclosures were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

U.S. Department of Energy
Owner and Operator

By:

R.J. Spence
Department of Energy, Y-12 Site Manager

6/6/95
Date Signed

Martin Marietta Energy Systems, Inc.
Co-Operator

By:

T.R. Butz
Martin Marietta Energy Systems, Inc.
Y-12 Plant Manager

5/25/95
Date Signed

Note: Both signatures have been notarized per requirements.

1. INTRODUCTION

1.1 Purpose and Scope

The purpose of this document is to present potentiometric, groundwater quality and vapor monitoring data required for site status monitoring of underground storage tank (UST) 2331-U at the Building 9201-1 Site. Site status monitoring has been conducted at the site as part of a Monitoring Only program approved by the Tennessee Department of Environment and Conservation (TDEC) based on review and approval of Site Ranking (Site Ranking Form approved May 23, 1994). This document presents the results of the second semiannual site status monitoring that was performed in May 1995. Site status monitoring and preparation of this report have been conducted in accordance with the requirements of TDEC Rule 1200-1-15 and the TDEC *UST Reference Handbook, Second Edition* (TDEC 1994) Technical Guidance Document (TGD) 007.

This document is organized into three sections. Section 1 presents introductory information relative to the site including the regulatory initiative and a site description. Section 2 includes the results of measurement and sampling of monitoring wells GW-193, GW-657, GW-707, GW-708, GW-808, GW-809, and GW-810. Section 3 presents data from vapor monitoring conducted in subsurface utilities present at the site.

1.2 Site Description

The Building 9201-1 Site is located within the south central portion of the Oak Ridge Y-12 Plant in Oak Ridge, Tennessee (Figure 1-1). This area is within the Exclusion Zone of the Y-12 Plant, which is access restricted. The site is generally defined as the area directly south of the Building 9201-1 concrete ramp/loading dock (Figure 1-2). The site was previously the location of a gasoline UST used to fuel gasoline-powered equipment in the area. The tank has been excavated and removed from the site.

The UST was a 560-gallon gasoline tank that was first suspected of leaking in 1988. Tightness testing confirmed that the tank was leaking and the tank was subsequently excavated and removed. An Initial Site Characterization and Environmental Assessment identified the presence of petroleum contamination above applicable TDEC Closure Action Levels. A Corrective Action Plan (CAP) was prepared and approved and Baseline Monitoring was performed in support of corrective action (11/93). However, site ranking performed in accordance with the newly issued TGD-014 (1/94) indicated that contaminant concentrations were sufficiently low and contaminant exposure sufficiently limited in extent to qualify for a monitoring only program in lieu of active remediation.

The topography of the Building 9201-1 Site gently decreases in elevation from north to south across the facility. A surface water and groundwater divide coincident with the trace of Upper East Fork Poplar Creek (UEFPC) lies approximately 230 ft south of the site. Given the nature of the surface topography at the Building 9201-1 Site, any petroleum contamination resulting from past UST operations would be expected to migrate south/southeast away from the source area.

[illegible]

Figure 1-1. Location of the Building 9201-1 Site at the Y-12 Plant

All location information presented in this figure is based upon MMES engineering drawings, results of previous MMES investigations, and/or field determinations of feature and sampling locations. No representation or warranty, expressed or implied, is made as to the accuracy of the information or statements presented in this figure.

REV. 2 - 05/18/95 SAIC FILE: 93021R1/DWGS/131SITE

Legend

- Building
- Fence

Martin Marietta Energy Systems, Inc.
Environmental Management Department

FIGURE 1-2
Building 9201-1 Site
Site Map

2. GROUNDWATER MONITORING

2.1 Groundwater Measurement, Sample Collection, and Analysis

2.1.1 Well Locations

Seven wells identified by TDEC have been measured and sampled as part of the Monitoring Only program for the site. These wells include GW-193, GW-657, GW-707, GW-708, GW-808, GW-809, and GW-810. The locations of these wells are presented in Figure 2-1. Well installation reports and construction details for monitoring wells GW-193, GW-657, GW-707, and GW-708 are presented in the CAP for the Site [*Corrective Action Plan for Underground Storage Tank 2331-U at the Building 9201-1 Site, Appendix C, Y/SUB-92-99928C/3* (Energy Systems 1992)]. Well installation reports and construction details for monitoring wells GW-808, GW-809, and GW-810 that were installed in July 1993 are presented in the Corrective Action Baseline Report for the Site [*Corrective Action Baseline Report for Underground Storage Tank 2331-U, Building 9201-1, Appendix A, Y/SUB/94-99069C/Y15/2* (Energy Systems 1994)].

2.1.2 Groundwater Measurement and Sampling

Current groundwater level measurement and sampling of the monitoring wells at the Building 9201-1 Site occurred on December 14, 1994 and May 4, 1995. Water levels were measured to the nearest 0.01 ft using an electronic water level indicator. Each well was then purged of three well volumes prior to sampling. Field measurement of pH, conductivity, temperature, and dissolved oxygen was conducted during purging to ensure representativeness for sampling. Monitoring wells GW-809, and GW-810 had elevated pH (>10.0), but this is not expected to affect analytical results. No measurable free product was encountered during water level measurement or sampling in any of these wells. However, an oily sheen and petroleum odor were observed during purging and sampling of wells GW-193 and GW-708. A slight sulfur odor was observed in GW-657 possibly due to the close proximity of the sewer line. Samples were collected using a bailer and transferred into pre-cleaned glass containers with zero headspace.

2.1.3 Sample Analysis

Groundwater samples were analyzed for total petroleum hydrocarbons-gasoline range organics (TPH-GRO), and for benzene, toluene, ethylbenzene, and xylenes (BTEX) at the Y-12 Plant Environmental Laboratory (a TDEC Division of UST approved laboratory).

2.2 Potentiometric Data

Potentiometric data for monitoring wells at the Building 9201-1 Site from the site status monitoring measurement events are presented in Table 2-1. Figures 2-2 and 2-3 present potentiometric contour maps from these two events. These figures indicate an irregular potentiometric surface with locally variable groundwater flow directions. A localized water table high southeast of the former UST site (around wells GW-707 and GW-657) appears to be reasonably persistent. This water table high may be related to a subsurface feature (e.g., fracture) or may reflect a small difference in head between unconsolidated and bedrock wells. However, the general flow direction, for any petroleum contaminants entering groundwater from the former UST depicted for both periods of measurement, is from north to south across the site.

All location information presented in this figure is based upon MMES engineering drawings, results of previous MMES investigations, and/or field determinations of feature and sampling locations. No representation or warranty, expressed or implied, is made as to the accuracy of the information or statements presented in this figure.

REV. 2 - 05/12/95 SAIC FILE: 95021R1/DWGS/131MON

Legend

- ▲ GW-193 Groundwater Monitoring Point
(18.4 BGS) Total Depth Below Ground Surface

Martin Marietta Energy Systems, Inc.
Environmental Management Department

FIGURE 2-1
Building 9201-1 Site
Monitoring Well Location Map

**Table 2-1. Water level measurements at the Building 9201-1 Site for the periods of
December 1994 and May 1995**

Monitoring well number	Date measured	Well depth (from TOC)	Top of casing (ft-MSL)	Top of casing to water level (ft-BTOC)	Potentiometric surface elevation (ft-MSL)
GW-193	12/14/94	21.0	934.00	8.07	925.93
	05/04/95	21.0	934.00	7.76	926.24
GW-657	12/14/94	15.2	930.53	6.30	924.23
	05/04/95	15.2	930.53	6.38	924.15
GW-707	12/14/94	16.6	930.91	6.20	924.71
	05/04/95	16.6	930.91	5.88	925.03
GW-708	12/14/94	13.1	930.87	4.64	926.23
	05/04/95	13.1	930.87	4.65	926.22
GW-808	12/14/94	36.1	930.75	8.30	922.45
	05/04/95	36.1	930.75	7.70	923.05
GW-809	12/14/94	36.0	931.04	9.20	921.84
	05/04/95	36.0	931.04	8.69	922.35
GW-810	12/14/94	26.1	931.44	8.95	922.49
	05/04/95	26.1	931.44	8.35	923.09

Notes:

MSL - mean sea level

BTOC - below top of casing

TOC - top of casing

All location information presented in this figure is based upon MMES engineering drawings, results of previous MMES investigations, and/or field determinations of feature and sampling locations. No representation or warranty, expressed or implied, is made as to the accuracy of the information or statements presented in this figure.

REV. 2 - 05/18/95 SAIC FILE: 93021R1/DWGS/131POTEN

ic Contour
 antiometric
 MSL)
 low Direction

▲ GW-193 Groundwater Monitoring Well Location
 925.93 Water Level Measurement Dec. 1994 (Feet Above MSL)

Martin Marietta Energy Systems, Inc.
 Environmental Management Department

FIGURE 2-2
 Building 9201-1 Site
 Groundwater Potentiometric
 Contour Map Dec. 1994

All location information presented in this figure is based upon MMES engineering drawings, results of previous MMES investigations, and/or field determinations of feature and sampling locations. No representation or warranty, expressed or implied, is made as to the accuracy of the information or statements presented in this figure.

REV. 2 - 05/18/95 SAIC FILE: 95021R2/DWGS/131POTJN

Legend

- 925 Groundwater Potential Line (Feet Above MSL)
- 924 Inferred Groundwater Contour Line (Feet Above MSL)
- Interpreted Groundwater Flow Direction

Potentiometric
Contour
(ft. above MSL)
Flow Direction

▲ GW-193 Groundwater Monitoring
Well Locations
(925.29') Water Level Measurement
May 1995

Martin Marietta Energy Systems, Inc.
Environmental Management Department

FIGURE 2-3

Building 9201-1 Site
Groundwater Potentiometric
Contour Map May 1995

2.3 Groundwater Analytical Data

Analytical data for groundwater sampled at the site during site status and comprehensive monitoring and baseline sampling are presented in Table 2-2. Analytical results for the site status monitoring did not indicate any significant increase or decrease in the level of contamination as compared to historical monitoring. Benzene and TPH values for GW-193 and GW-708 continued to exceed the applicable Closure Action Levels of 0.07 ppm for benzene and 1.0 ppm for TPH. Both of these wells have historically produced values in excess of these closure limits. These results produce no change in the horizontal area of groundwater contamination as defined by the comprehensive monitoring data. Analytical results for GW-657, GW-707, GW-808, GW-809, and GW-810 show no groundwater contamination detected above analytical quantitation limits, which are below the applicable Closure Action Levels. These data indicate that groundwater contamination has not migrated downgradient to the location of these wells, and suggests the area of groundwater contamination is relatively stable over time. This is consistent with previous monitoring results and the calculated hydraulic gradient, velocity, and conductivity from slug testing of wells GW-193 and GW-707 (Energy Systems 1992). It is expected that contaminant levels will fall off slowly as contaminant degradation continues because of the slow migration and limited mixing of the contaminated groundwater.

Table 2-2. Analytical results for groundwater samples collected during site status and comprehensive monitoring and baseline sampling

Sampling event	Sampling date	TPH-GRO ¹ (ppm)	Benzene (ppm)	Ethylbenzene (ppm)	Toluene (ppm)	Xylenes (ppm)
GW-193						
Site status monitoring	05-04-95	2.400	*0.350	0.280	.077	0.200
Site status monitoring	12-14-94	*3.000	*0.620	0.320	0.230B ²	0.360B
Comprehensive monitoring	6-21-94	*4.100	*0.420	0.400	0.200	0.480
Baseline sampling	11-2-93	*5.50	*1.68E ³	0.575	0.235	0.353
GW-657						
Site status monitoring	05-04-95	<0.100	0.010U	0.010U	0.010U	0.010U
Site status monitoring	12-14-94	<0.100	0.010U	0.010U	0.010U	0.010U
Comprehensive monitoring	6-21-94	0.100U ⁴	0.010U	0.010U	0.010U	0.010U
Baseline sampling	11-2-93	<0.100	<0.001	<0.001	<0.001	<0.001
GW-707						
Site status monitoring	05-04-95	<0.100	0.010U	0.010U	0.010U	0.010U
Site status monitoring	12-14-94	<0.100	0.010U	0.010U	0.010U	0.010U
Comprehensive monitoring	6-21-94	0.042J ⁵	0.002J	0.010U	0.010U	0.001J
Baseline sampling ⁶	11-2-93	<0.100	<0.001	<0.001	<0.001	<0.001
GW-708						
Site status monitoring	05-04-95	6.400	*0.500	0.430	0.062	0.930
Site status monitoring	12-14-94	*5.300	*0.820	0.610	0.094B	1.200B
Comprehensive monitoring	6-21-94	*5.300	*0.980	0.620	0.110	0.690
Baseline sampling ⁶	11-2-93	*7.50	*0.900	0.800	0.095	1.575
GW-808						
Site status monitoring	05-04-95	<0.100	0.010U	0.010U	0.010U	0.010U
Site status monitoring	12-14-94	<0.100	0.010U	0.010U	0.010U	<0.010B
Comprehensive monitoring	6-21-94	0.012J	0.010U	0.010U	0.010U	0.006J
Baseline sampling	11-2-93	0.140	<0.001	0.016	<0.001	0.111
GW-809						
Site status monitoring	05-04-95	<0.100	0.010U	0.010U	0.010U	0.010U
Site status monitoring	12-14-94	<0.100	0.010U	0.010U	0.010U	0.010U
Comprehensive monitoring	6-21-94	0.010	0.010U	0.010U	0.010U	0.010U
Baseline sampling	11-2-93	<0.100	0.001	0.003	0.001	0.016

Table 2-2 (continued)

Sampling event	Sampling date	TPH-GRO ¹ (ppm)	Benzene (ppm)	Ethylbenzene (ppm)	Toluene (ppm)	Xylenes (ppm)
<i>GW-810</i>						
Site status monitoring	05-04-95	<0.100	0.010U	0.010U	0.010U	0.010U
Site status monitoring	12-14-94	<0.100	0.010U	0.010U	0.010U	0.010U
Comprehensive monitoring	6-21-94	0.021J	0.010U	0.010U	0.010U	0.010U
Baseline sampling	11-2-93	0.190	0.001	0.019	0.001	0.136

¹TPH-GRO - Total Petroleum Hydrocarbons-Gasoline Range Organics.

²B - Indicates the analyte was found in the associated blank as well as in the sample.

³E - Benzene exceeded calibration range.

⁴U - Contaminant was not detected above quantitation limit during the analysis.

⁵J - Value estimated for contaminant.

⁶Sample identification error suspected. Baseline sample results for wells GW-707 and GW-708 have been transposed to correct this error.

*Denotes contamination above the applicable closure action levels for the site.

3. VAPOR MONITORING

3.1 Monitoring Methods and Locations

Vapor monitoring as part of the Monitoring Only program has been conducted at seven access points along subsurface stormwater and sewer drainage lines that cross the Building 9201-1 Site. However, none of the subsurface utilities present at the site crosses the groundwater plume defined by the most recent data. The locations of vapor monitoring locations are illustrated in Figure 3-1.

At each location, the atmosphere was monitored using direct reading instruments. Organic vapors were measured using a Thermo Environmental™ organic vapor meter. Oxygen and lower explosive limit (LEL) were monitored.

3.2 Vapor Monitoring Results

The results of site status vapor monitoring conducted May 10, 1995 at the Building 9201-1 Site are presented in Table 3-1. Measured oxygen percentages are within the range of normal air concentrations. LEL readings of 0% indicate that an explosion hazard does not exist within any of the monitored utilities. Organic vapor readings range from 0.0 ppm to 1.8 ppm above background. These results are not considered indicative of the presence of measurable petroleum contamination, but may be due to the presence of residual petroleum contamination or other organic compounds (naturally occurring or man-made) at the site. However, the non-discriminatory nature of the organic vapor meter used in monitoring does not allow specific identification of the source.

**Table 3-1. Vapor monitoring results for the Building 9201-1 Site,
May 10, 1995**

Sampling location	O ₂ %	LEL %	Organic vapors (ppm)	Background organic vapors (ppm)
402A	20.8	0	0.0 to 0.6	0.0
409	20.7	0	0.0 to 0.6	0.0
C-4019	20.7	0	0.0 to 0.6	0.0
C-4021	20.7	0	0.6 to 1.8	0.0
C-4112	20.7	0	0.0	0.0
C-4111	20.8	0	0.0 to 0.6	0.0
C-4024	20.8	0	0.0	0.0

All location information presented in this figure is based upon MMES engineering drawings, results of previous MMES investigations, and/or field determinations of feature and sampling locations. No representation or warranty, expressed or implied, is made as to the accuracy of the information or statements presented in this figure.

REV. 2 - 05/12/95 SAIC FILE: 93021R1/DWGS/131VAPOR

Y-12 PLANT NORTH

Legend

FTL	Fuel Transfer Lin
CWL	Chilled Water Lin
EC	Electrical Conduit

- SDL — Underground Stormwater
 Drainage Line
- SSL — Sanitary Underground
 Sewer Line
- ⊗ Vapor Monitoring Location

Martin Marietta Energy Systems, Inc.
Environmental Management Department

FIGURE 3-1
Building 9201-1 Site
Vapor Monitoring Sampling
Location Map

REFERENCES

- American Conference of Governmental Industrial Hygienists 1993-1994. *The 1993-1994 Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*, ISDN: 1-882417-03-8.
- Energy Systems (Martin Marietta Energy Systems, Inc.) 1992. *Corrective Action Plan for Underground Storage Tank 2331-U at the Building 9201-1 Site*, Y/SUB-92-99928C/3.
- Energy Systems 1994. *Corrective Action Baseline Report for Underground Storage Tank 2331-U, Building 9201-1*, Y/SUB/94-99069C/Y15/2.
- TDEC (Tennessee Department of Environment and Conservation) 1994. *Underground Storage Tank Reference Handbook*, Second Edition.

APPENDIX A
LABORATORY ANALYTICAL RESULTS FOR
SITE STATUS MONITORING
(05/04/95)

UNCLASSIFIED

OFFICIAL REPORT

5/11/95 15:44:18

Y-12 ANALYTICAL SERVICES ORGANIZATION

PAGE 1 OF 1

SMITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
Bohrman, Donald Edwa	Building 9115 MS 8219	FID# 0-010117		E951230034	8601	APPROVED
TE SAMPLED: 05/04/95 10:00:00	DATE NEEDED: 05/11/95	LOCATION: 9201-1 GW-808			CHARGE #:	S2205F26
TE RECEIVED: 05/04/95	DATE COMPLETED: 05/11/95	PROJECT CODE:			CASE:	U03130
AMPLER: 029776	SAMPLE DESCRIPTION: GRAB					

FINAL APPROVAL:

A. T. Emerson

REMARKS: 9201-1 UST GW-808 FOR DON BOHRMAN, 1 WEEK TURNAROUND

ST: GRO	TPH Gasoline Range Organics Including BTEX	REPLICATE: 1	STATUS: APPROVED
EP MTH:	PROC MTH: SW846 8020 PHASE:	TIME ANALYZED: 05/09/95 10:24:00	APPROVER: E030124

S NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
0	Gasoline Range Organics		<100		ug/L
432	Benzene		10 U		ug/L
0414	Ethylbenzene		10 U		ug/L
3883	Toluene		10 U		ug/L
80207	Xylene		10 U		ug/L
	GRO Quantitation Limit		100		ug/L
	BTEX Quantitation Limit		10		ug/L
	GRO Amount in Blank		NONE		ug/L

UNCLASSIFIED

*** LAST PAGE ***

UNCLASSIFIED

OFFICIAL REPORT

11/95 15:22:42

Y-12 ANALYTICAL SERVICES ORGANIZATION

PAGE 1 OF 1

MITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
Bohrman, Donald Edwa	Building 9115 MS 8219	FID #0-010117		E951230041	8601	APPROVED
E SAMPLED: 05/04/95 10:12:00	DATE NEEDED: 05/11/95	LOCATION: 9201-1 GW-809			CHARGE #:	S2205F26
E RECEIVED: 05/04/95	DATE COMPLETED: 05/11/95	PROJECT CODE:			CASE:	U03130
PLER: 029776	SAMPLE DESCRIPTION: GRAB					

FINAL APPROVAL:

MENTS: 9201-1 UST GW- 809 FOR DON BOHRMAN, 1 WEEK TURNAROUND

T: GRO	TPH Gasoline Range Organics Including BTEX	REPLICATE: 1	STATUS: APPROVED
P MTH:	PROC MTH: SW846 8020 PHASE:	TIME ANALYZED: 05/09/95 12:21:00	APPROVER: E030124

NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		<100		ug/L
32	Benzene		10 U		ug/L
414	Ethylbenzene		10 U		ug/L
883	Toluene		10 U		ug/L
0207	Xylene		10 U		ug/L
	GRO Quantitation Limit		100		ug/L
	BTEX Quantitation Limit		10		ug/L
	GRO Amount in Blank		NONE		ug/L

UNCLASSIFIED

*** LAST PAGE ***

UNCLASSIFIED

OFFICIAL REPORT

05/11/95 15:22:49

Y-12 ANALYTICAL SERVICES ORGANIZATION

PAGE 1 OF 1

MITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
Bohrman, Donald Edwa	Building 9115 MS 8219	FID# 0-010117		E951230042	8601	APPROVED
DATE SAMPLED: 05/04/95 11:22:00	DATE NEEDED: 05/11/95	LOCATION: 9201-1 GW-810			CHARGE #:	S2205F26
DATE RECEIVED: 05/04/95	DATE COMPLETED: 05/11/95	PROJECT CODE:			CASE:	U03130
AMPLER: 029776	SAMPLE DESCRIPTION: GRAB					

FINAL APPROVAL:

REMARKS: 9201-1 UST GW-810 FOR DON BOHRMAN, 1 WEEK TURNAROUND

TEST: GRO	TPH Gasoline Range Organics Including BTEX	REPLICATE: 1	STATUS: APPROVED
PROC MTH:	PROC MTH: SW846 8020 PHASE:	TIME ANALYZED: 05/09/95 15:05:00	APPROVER: E030124

S NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
0	Gasoline Range Organics		<100		ug/L
32	Benzene		10 U		ug/L
414	Ethylbenzene		10 U		ug/L
883	Toluene		10 U		ug/L
0207	Xylene		10 U		ug/L
	GRO Quantitation Limit		100		ug/L
	BTEX Quantitation Limit		10		ug/L
	GRO Amount in Blank		NONE		ug/L

UNCLASSIFIED

*** LAST PAGE ***

UNCLASSIFIED

OFFICIAL REPORT

05/11/95 15:22:58

Y-12 ANALYTICAL SERVICES ORGANIZATION

PAGE 1 OF 1

<u>SMITTER</u>	<u>ADDRESS</u>	<u>CUSTOMER ID</u>	<u>REQ NO</u>	<u>SAMPLE NO</u>	<u>MTC</u>	<u>STATUS</u>
Bohrman, Donald Edwa	Building 9115 MS 8219	FID# 0-010117		E951230043	8601	APPROVED
DATE SAMPLED: 05/04/95 11:04:00	DATE NEEDED: 05/11/95	LOCATION: 9201-1 GW-657			CHARGE #:	S2205F26
DATE RECEIVED: 05/04/95	DATE COMPLETED: 05/11/95	PROJECT CODE:			CASE:	U03130
AMPLER: 029776	SAMPLE DESCRIPTION: GRAB					

FINAL APPROVAL:

REMARKS: 9201-1 UST GW-657 FOR DON BOHRMAN, 1 WEEK TURNAROUND

TEST: GRO	TPH Gasoline Range Organics Including BTEX	REPLICATE: 1	STATUS: APPROVED
PROC MTH:	PROC MTH: SW846 8020 PHASE:	TIME ANALYZED: 05/09/95 15:44:00	APPROVER: E030124

S NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
0	Gasoline Range Organics		<100		ug/L
32	Benzene		10 U		ug/L
0414	Ethylbenzene		10 U		ug/L
8883	Toluene		10 U		ug/L
0207	Xylene		10 U		ug/L
	GRO Quantitation Limit		100		ug/L
	BTEX Quantitation Limit		10		ug/L
	GRO Amount in Blank		NONE		ug/L

UNCLASSIFIED

*** LAST PAGE ***

UNCLASSIFIED

OFFICIAL REPORT

05/11/95 15:23:04

Y-12 ANALYTICAL SERVICES ORGANIZATION

PAGE 1 OF 1

MITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
Bohrman, Donald Edwa	Building 9115 MS 8219	FID# 0-010117		E951230044	8601	APPROVED
DATE SAMPLED: 05/04/95 13:35:00	DATE NEEDED: 05/11/95	LOCATION: 9201-1 GW-707			CHARGE #:	S2205F26
DATE RECEIVED: 05/04/95	DATE COMPLETED: 05/11/95	PROJECT CODE:			CASE:	U03130
AMPLER: 029776	SAMPLE DESCRIPTION: GRAB					

FINAL APPROVAL:

REMARKS: 9201-1 UST GW-707 FOR DON BOHRMAN, 1 WEEK TURNAROUND

TEST: GRO	TPH Gasoline Range Organics Including BTEX	REPLICATE: 1	STATUS: APPROVED
PROC MTH:	PROC MTH: SW846 8020 PHASE:	TIME ANALYZED: 05/09/95 16:23:00	APPROVER: E030124

NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
0	Gasoline Range Organics		<100		ug/L
32	Benzene		10 U		ug/L
0414	Ethylbenzene		10 U		ug/L
883	Toluene		10 U		ug/L
0207	Xylene		10 U		ug/L
	GRO Quantitation Limit		100		ug/L
	BTEX Quantitation Limit		10		ug/L
	GRO Amount in Blank		NONE		ug/L

UNCLASSIFIED

*** LAST PAGE ***

UNCLASSIFIED

OFFICIAL REPORT

05/11/95 15:44:24

Y-12 ANALYTICAL SERVICES ORGANIZATION

PAGE 1 OF 1

SMITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
Bohrman, Donald Edwa	Building 9115 MS 8219	FID# 0-010117		E951230045	8601	APPROVED
DATE SAMPLED: 05/04/95 14:44:00	DATE NEEDED: 05/11/95	LOCATION: 9201-1 GW-193			CHARGE #:	S2205F26
DATE RECEIVED: 05/04/95	DATE COMPLETED: 05/11/95	PROJECT CODE:			CASE:	U03130
AMPLER: 029776	SAMPLE DESCRIPTION: GRAB					

FINAL APPROVAL:

REMARKS: 9201-1 UST GW-193 FOR DON BOHRMAN, 1 WEEK TURNAROUND

TEST: GRO	TPH Gasoline Range Organics Including BTEX	REPLICATE: 1	STATUS: APPROVED
REP MTH:	PROC MTH: SW846 8020 PHASE:	TIME ANALYZED: 05/09/95 17:40:00	APPROVER: E030124
REMARKS: GRO, BENZENE, AND ETHYLBENZENE ARE REPORTED FROM A 1:2 DILUTION RUN ON 5/10/95 AT 10:16			

S NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
0	Gasoline Range Organics		2400		ug/L
32	Benzene		350		ug/L
0414	Ethylbenzene		280		ug/L
8883	Toluene		77		ug/L
50207	Xylene		200		ug/L
	GRO Quantitation Limit		200		ug/L
	BTEX Quantitation Limit		10		ug/L
	GRO Amount in Blank		NONE		ug/L

UNCLASSIFIED

*** LAST PAGE ***

UNCLASSIFIED

OFFICIAL REPORT

11/95 15:44:30

Y-12 ANALYTICAL SERVICES ORGANIZATION

PAGE 1 OF 1

<u>MITTER</u>	<u>ADDRESS</u>	<u>CUSTOMER ID</u>	<u>REQ NO</u>	<u>SAMPLE NO</u>	<u>MTC</u>	<u>STATUS</u>
rman, Donald Edwa	Building 9115 MS 8219	FID# 0-010117		E951230046	8601	APPROVED
E SAMPLED: 05/04/95 13:48:00	DATE NEEDED: 05/11/95	LOCATION: 9201-1 GW-708			CHARGE #:	S2205F26
E RECEIVED: 05/04/95	DATE COMPLETED: 05/11/95	PROJECT CODE:			CASE:	U03130
PLER: 029776	SAMPLE DESCRIPTION: GRAB					

FINAL APPROVAL:

MENTS: 9201-1 UST GW-708 FOR DON BOHRMAN, 1 WEEK TURNAROUND

T: GRO	TPH Gasoline Range Organics Including BTEX	REPLICATE: 1	STATUS: APPROVED
P MTH:	PROC MTH: SW846 8020 PHASE:	TIME ANALYZED: 05/10/95 18:19:00	APPROVER: E030124
MENTS: GRO, BENZENE, ETHYLBENZENE, AND M,P-XYLENE ARE REPORTED FROM A 1:4 DILUTION RUN			
ON 5/10/95 AT 11:15			

NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		6400		ug/L
32	Benzene		500		ug/L
414	Ethylbenzene		430		ug/L
883	Toluene		62		ug/L
0207	Xylene		930		ug/L
	GRO Quantitation Limit		400		ug/L
	BTEX Quantitation Limit		10		ug/L
	GRO Amount in Blank		NONE		ug/L

UNCLASSIFIED

*** LAST PAGE ***

UNCLASSIFIED

OFFICIAL REPORT

05/11/95 15:23:09

Y-12 ANALYTICAL SERVICES ORGANIZATION

PAGE 1 OF 1

MITTER	ADDRESS	CUSTOMER ID	REQ NO	SAMPLE NO	MTC	STATUS
Bohrman, Donald Edwa	Building 9115 MS 8219	FID# 0-010117		E951230047	8601	APPROVED
DATE SAMPLED: 05/04/95 07:25:00	DATE NEEDED: 05/11/95	LOCATION: 9201-1 GW EQ. RINSE			CHARGE #:	S2205F26
DATE RECEIVED: 05/04/95	DATE COMPLETED: 05/11/95	PROJECT CODE:			CASE:	U03130
AMPLER: 029776	SAMPLE DESCRIPTION: GRAB					

FINAL APPROVAL:

REMARKS: 9201-1 UST GW EQUIP. RINSE FOR DON BOHRMAN, 1 WEEK TURNAROUND

TEST: GRO	TPH Gasoline Range Organics Including BTEX	REPLICATE: 1	STATUS: APPROVED
PROC MTH:	PROC MTH: SW846 8020 PHASE:	TIME ANALYZED: 05/09/95 17:02:00	APPROVER: E030124

NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
	Gasoline Range Organics		<100		ug/L
32	Benzene		10 U		ug/L
414	Ethylbenzene		10 U		ug/L
883	Toluene		10 U		ug/L
0207	Xylene		10 U		ug/L
	GRO Quantitation Limit		100		ug/L
	BTEX Quantitation Limit		10		ug/L
	GRO Amount in Blank		NONE		ug/L

UNCLASSIFIED

*** LAST PAGE ***

UNCLASSIFIED

OFFICIAL REPORT

11/95 15:44:37

Y-12 ANALYTICAL SERVICES ORGANIZATION

PAGE 1 OF 1

<u>MITTER</u>	<u>ADDRESS</u>	<u>CUSTOMER ID</u>	<u>REQ NO</u>	<u>SAMPLE NO</u>	<u>MTC</u>	<u>STATUS</u>
Bohrman, Donald Edwa	Building 9115 MS 8219	FID# 0-010117		E951230048	8601	APPROVED
E SAMPLED: 05/04/95 07:20:00	DATE NEEDED: 05/11/95	LOCATION: 9207 UST T.B.			CHARGE #: S2211601	
E RECEIVED: 05/04/95	DATE COMPLETED: 05/10/95	PROJECT CODE:			CASE: SQT001	
PLER: 029776	SAMPLE DESCRIPTION: GRAB	FINAL APPROVAL:				

MENTS: 9201-1 UST GW TRIP BLANK FOR DON BOHRMAN, 1 WEEK TURNAROUND

T: VOA624	Volatile Organics by GC/MS (EPA 624)	REPLICATE: 1	STATUS: APPROVED
P MTH: EPA624	PROC MTH: EPA 624	TIME ANALYZED: 05/09/95 13:11:00	APPROVER: E030124

NUMBER	DETERMINATION	DT	RESULT	CONFIDENCE	UNIT
73	Chloromethane		10 U		ug/L
39	Bromomethane		10 U		ug/L
14	Vinyl chloride		10 U		ug/L
03	Chloroethane		10 U		ug/L
94	Trichlorofluoromethane		10 U		ug/L
92	Methylene chloride		3 BJ		ug/L
54	1,1-Dichloroethene		10 U		ug/L
43	1,1-Dichloroethane		10 U		ug/L
605	trans-1,2-Dichloroethene		10 U		ug/L
63	Chloroform		10 U		ug/L
062	1,2-Dichloroethane		10 U		ug/L
56	1,1,1-Trichloroethane		10 U		ug/L
35	Carbon tetrachloride		10 U		ug/L
74	Bromodichloromethane		10 U		ug/L
758	2-Chloroethylvinyl ether		10 U		ug/L
75	1,2-Dichloropropane		10 U		ug/L
61015	cis-1,3-Dichloropropene		10 U		ug/L
16	Trichloroethene		10 U		ug/L
481	Dibromochloromethane		10 U		ug/L
05	1,1,2-Trichloroethane		10 U		ug/L
32	Benzene		10 U		ug/L
61026	trans-1,3-Dichloropropene		10 U		ug/L
52	Bromoform		10 U		ug/L
184	Tetrachloroethene		10 U		ug/L
45	1,1,2,2,-Tetrachloroethane		10 U		ug/L
883	Toluene		10 U		ug/L
907	Chlorobenzene		10 U		ug/L
414	Ethylbenzene		10 U		ug/L

UNCLASSIFIED

*** LAST PAGE ***

DOE Y-12 PLANT CHAIN OF CUSTODY FORM

No 20447

SAMPLER: (Signature)			Dept.		Building/Phone								REMARKS
REQUISITION NUMBER	SAMPLING DATE	SAMPLING TIME	COMP.	GRAB	SAMPLE LOCATION	NO. OF CON- TAINERS	WATER	OIL	SOIL	SOLVENT	SLUDGE	OTHER	
	5/24/75	1000		✓	9201-1 GW-808	4	✓						BETX, TPH/GRO 1 week Turnaround for Don Bohman E951230034
		1012		✓	9201-1 GW-809	4	✓						E951230041
		1122		✓	9201-1 GW-810	4	✓						E951230042
		1104		✓	9201-1 GW-657	4	✓						E951230043
		1335		✓	9201-1 GW-707	4	✓						E951230044
		1444		✓	9201-1 GW-193	4	✓						E951230045
		1348		✓	9201-1 GW-708	4	✓						E951230046
		0725		✓	9201 Equip. Rinse	4	✓						E951230047
	✓	0720		✓	9201 Trip Blank	2	✓						E951230048

UCN-15487 (2 10-84)

Signatures Required on Back

UST Sampling / 1 wk. Turnaround
for Don Bohman

Relinquished By: (Signature) <i>J. L. Bitzler</i>	Date / Time <i>5/04/95 15¹⁶</i>	Received By: (Signature) <i>B. Campbell</i>	Date / Time <i>5/04/95 15¹⁶</i>	Dept. <i>7222</i>	Building <i>9207</i>	Phone <i>1-4347</i>
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone
Relinquished By: (Signature)	Date / Time	Received By: (Signature)	Date / Time	Dept.	Building	Phone

REMARKS:

RETURN TO: ENVIRONMENTAL MONITORING, 9704-1, MS - 1, 4-3980.

DISTRIBUTION

HEALTH, SAFETY, ENVIRONMENT AND ACCOUNTABILITY ORGANIZATION

D.E. Bohrman (2)
L.L. Cunningham/E.M. Ingram
L.W. McMahon
File - EMD -RC

MECHANICAL OPERATIONS ORGANIZATION

A.A. Barnes

ENVIRONMENTAL COMPLIANCE ORGANIZATION

S.H. Welch

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

C. Head
E.C. Leming/J.D. Harless

U. S. DEPARTMENT OF ENERGY

E.M. Atkins
R.J. Spence/L.M. Sparks
S.R. Lankford

A. K. Lee/DOE-OSTI (2)
Y-12 Central Files