SEMIANNUAL GROUNDWATER MONITORING REPORT

Hazardous Waste Management Units 5, 7, 10 and 16 SECOND QUARTER 2008

RADFORD ARMY AMMUNITION PLANT RADFORD, VIRGINIA

Submitted to:

Virginia Department of Environmental Quality 629 East Main Street Richmond, Virginia 23219 (800) 592-5482

Prepared for:

Alliant Techsystems Inc.
Radford Army Ammunition Plant
Route 114
Radford, Virginia 24141-0100

AUGUST 6, 2008

DAA PROJECT No. B03204-06



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August 2008 DAA Job No. B03204-06

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1.0 INTRODUCTION

This document presents the Semiannual Groundwater Monitoring Report for Second Quarter 2008 for Hazardous Waste Management Units (HWMUs) 5, 7, 10, and 16 located at the Radford Army Ammunition Plant (Radford AAP) in Radford, Virginia. The Semiannual Groundwater Monitoring Report was compiled in accordance with the requirements specified in the Final Hazardous Waste Post-Closure Care Permit (October 4, 2002) for HWMUs 5, 7, 10, and 16. The Semiannual Groundwater Monitoring Report presents the following set of information for each Unit: basic information and unit identification, a description of the groundwater monitoring plan, a table of groundwater elevations, an updated potentiometric surface map, a table of constituent concentrations detected during the monitoring event, and statistical evaluations of the analytical data. Summary tables of all Second Quarter 2008 analytical data for Units 5, 7, 10, and 16 are included in **Appendix A**. A list of quantitation limits and detection limits for the analyzed parameters for all Units is also included in **Appendix A**. **Appendix B** includes complete laboratory certificates of analysis and data validation reports in CD-ROM format.

Please note that the sampling frequency for HWMUs 5, 7, 10, and 16 was changed to a semiannual basis in the VDEQ-approved Class 1 Permit Modification dated June 14, 2007. The next sampling event is scheduled for October 2008 (Fourth Quarter 2008).

1.1 HWMU-5

HWMU-5 is a closed lined neutralization pond. The Unit received certification for closure in 1989. As stated in Permit Condition I.K.1 of the Final Post-Closure Care Permit, the Compliance Period during which the Groundwater Protection Standard (GPS) applies to HWMU-5 is 19 years, beginning on the effective date of the original Post-Closure Care Permit for HWMU-5 (October 28, 2001) and continuing until October 28, 2020.

1.2 HWMU-7

HWMU-7 is a closed unlined holding and neutralization basin. The Unit received certification for closure in 1990. As stated in Permit Condition I.K.2, the Compliance Period during which the GPS applies to HWMU-7 is 18 years, beginning on the effective date of the original Post-Closure Care Permit for HWMU-7 (October 30, 1999) and continuing until October 30, 2017.

1.3 HWMU-10

HWMU-10 is a closed lined equalization basin for the biological treatment system. The Unit received certification for closure in 1998. As stated in Permit Condition I.K.3, the Compliance Period during which the GPS applies to HWMU-10 is 18 years, beginning on the effective date of the Final Hazardous Waste Post-Closure Care Permit for HWMUs 5, 7, 10, and 16 (October 4, 2002) and continuing until October 4, 2020.

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1.4 HWMU-16

HWMU-16 is a closed unlined hazardous waste landfill. The Unit received certification for closure in 1993. As stated in Permit Condition I.K.4, the Compliance Period during which the GPS applies to HWMU-16 is 13 years, beginning on the effective date of the Final Hazardous Waste Post-Closure Care Permit for HWMUs 5, 7, 10, and 16 (October 4, 2002) and continuing until October 4, 2015.

2.0 HWMU-5 SEMIANNUAL GROUNDWATER MONITORING REPORT

2.1 WASTE MANAGEMENT UNIT INFORMATION

Unit Name: Hazardous Waste Management Unit 5 (HWMU-5)
Owner/Operator: United States Army/Alliant Techsystems Inc.

Unit Location: Radford AAP Main Plant Area, Radford, Virginia

Class: Hazardous Waste Management Unit **Type:** Closed Lined Neutralization Pond

2.2 GROUNDWATER MONITORING PLAN

Monitoring Network:

Upgradient Well: 5W8B

Point of Compliance Wells: 5W5B, 5W7B, 5WC21, 5WC22, 5WC23 Plume Monitoring Wells: 5SW5, S5W7, 5W9A, 5W10A, 5W11A Observation Wells: 5WCA, S5W6, S5W8, 5WC11, 5WC12

Monitoring Status: Compliance Monitoring Program

CY 2008 Monitoring Events:

Second Quarter 2008: April 28-30, 2008

Fourth Quarter 2008:

2.3 GROUNDWATER ELEVATIONS

The monitoring wells at HWMU-5 are screened entirely within either weathered carbonate bedrock residuum, alluvium, or across the weathered residuum/carbonate bedrock interface. The static water level measurements gathered during the Second Quarter 2008 monitoring event are summarized in **Table 1** (**Appendix C**). As shown on the HWMU-5 Potentiometric Surface Map (**Figure 1** in **Appendix D**), groundwater movement beneath the site is generally to the northeast.

2.4 GROUNDWATER ANALYTICAL DATA EVALUATION

The groundwater samples collected from the upgradient well and the point of compliance wells during Second Quarter 2008 were analyzed for the constituents listed in Appendix IX to 40 CFR Part 264 as presented in Appendix I of Attachment 1 of the Final Post-Closure Care Permit. The groundwater samples collected from the plume monitoring wells during the Second Quarter 2008 monitoring event were analyzed for the constituents listed in Appendix E to Attachment 2 of the Final Post-Closure Care Permit, plus chromium, diethyl ether, 2-nitroaniline, 4-nitroaniline, and nitrobenzene (which were added to the constituent list for HWMU-5 following Fourth Quarter 2003) and dichlorodifluoromethane (which was added to the constituent list following Third Quarter 2006). The constituents detected in the upgradient well and the point of

compliance wells at concentrations greater than their respective detection limits are summarized in **Table 2** (**Appendix C**). The constituents detected in plume wells at concentrations greater than their respective Permit-specified quantitation limits are also summarized in **Table 2** (**Appendix C**). The complete laboratory certificates of analysis and data validation reports for HWMU-5 are included in **Appendix B**.

2.4.1 40 CFR Part 264 Appendix IX Constituent Detections

No additional Appendix IX constituents, which are not listed in Appendix E of Permit Attachment 2 (Unit 5 – Groundwater Compliance Monitoring (Quarterly) Constituent List), were detected during the Second Quarter 2008 groundwater monitoring event. Therefore, no changes to the Groundwater Monitoring List for the Unit are required.

2.4.2 Comparison to Groundwater Protection Standards

As specified in Permit Condition V.J.1.i, the Second Quarter 2008 groundwater analytical data for the upgradient well and the point of compliance wells were compared to the GPSs for HWMU-5 listed in Appendix G of Permit Attachment 2. In accordance with Permit Condition V.I.2, Radford AAP performed a simple empirical comparison of the upgradient well and the point of compliance well data to the GPSs (**Table 2** in **Appendix C**). As shown on **Table 2**, no inorganic constituents were detected at concentrations exceeding their respective GPSs. As also shown on **Table 2**, trichloroethene (TCE) was detected in point of compliance well 5W5B at a concentration of 7.8 μ g/l, which exceeds the GPS of 5 μ g/l. These results are consistent with previous monitoring events for HWMU-5. No other organic constituents were detected at concentrations exceeding their GPSs.

TCE has been detected repeatedly at concentrations exceeding the USEPA Maximum Contaminant Level (MCL) of 5 mg/l in point of compliance well 5W5B. As TCE has previously been detected in upgradient well 5W8B and is not present in the residual materials contained within HWMU-5, it is likely derived from a source located upgradient of the Unit. Radford AAP submitted an Alternate Source Demonstration (ASD) for TCE. VDEQ requested Radford AAP amend the ASD in order to identify the exact source of TCE. On July 30, 2008 Radford AAP presented the results of the most recent investigation to VDEQ. A resolution regarding the ASD status has not been determined at this time.

2.4.3 Comparison to Background Concentrations

As specified in Permit Condition V.O, the Second Quarter 2008 groundwater analytical data for the plume monitoring wells were compared to the background concentrations for HWMU-5 listed in Appendix F of Permit Attachment 2. In accordance with Permit Condition V.I.2, Radford AAP performed a simple empirical comparison of the plume monitoring well data to the background concentrations (**Table 2**).

Initially, dichlorodifluoromethane was detected in plume monitoring well S5W7 at a concentration of 1.2 μ g/l, which exceeded the site-specific background concentration of 1 μ g/l. On July 17, 2008, Radford AAP collected a verification sample from well S5W7 in order to confirm or refute the detected dichlorodifluoromethane concentration. Dichlorodifluoromethane

was not detected in the verification sample at a concentration exceeding the site-specific background concentration.

No other constituent concentrations detected in the plume monitoring wells exceeded their respective background concentrations.

2.5 CONCLUSIONS

Based on an evaluation of the groundwater analytical data and additional information for HWMU-5, the GPSs have not been exceeded by any releases from the Unit. TCE detected at HWMU-5 in exceedance of the GPS will be addressed under the IRP.

No additional Appendix IX constituents were detected during Second Quarter 2008; therefore, no changes to the Groundwater Monitoring List for the Unit are required.

3.0 HWMU-7 SEMIANNUAL GROUNDWATER MONITORING REPORT

3.1 WASTE MANAGEMENT UNIT INFORMATION

Unit Name: Hazardous Waste Management Unit 7 (HWMU-7) **Owner/Operator:** United States Army/Alliant Techsystems Inc.

Unit Location: Radford AAP Main Plant Area, Radford, Virginia

Class: Hazardous Waste Management Unit

Type: Closed Unlined Holding and Neutralization Basin

3.2 GROUNDWATER MONITORING PLAN

Monitoring Network

Upgradient Well: 7W12B

Point of Compliance Wells: 7WCA, 7MW6, 7W11B

Plume Monitoring Wells: 7W9C, 7W10B, 7W10C, 7W13

Observation Wells: 7MW5, 7W9B, 7W11

Monitoring Status: Compliance Monitoring Program

CY 2008 Monitoring Events:

Second Quarter 2008: April 22-23, 2008

Fourth Quarter 2008:

3.3 GROUNDWATER ELEVATIONS

The monitoring wells at HWMU-7 are screened entirely within either alluvium, weathered carbonate bedrock residuum, carbonate bedrock, or across the interfaces between two of the listed strata. The static water level measurements gathered during the Second Quarter 2008 monitoring event are summarized in **Table 3** (**Appendix C**). As shown on the HWMU-7 Potentiometric Surface Map (**Figure 2** in **Appendix D**), groundwater movement beneath the site is generally to the west towards the New River and to the northeast and southwest toward the unnamed intermittent drainages that flow into the New River north and south of the site.

3.4 GROUNDWATER ANALYTICAL DATA EVALUATION

The groundwater samples collected from the upgradient well and the point of compliance wells during Second Quarter 2008 were analyzed for the constituents listed in Appendix IX to 40 CFR Part 264 as presented in Appendix I of Attachment 1 of the Final Post-Closure Care Permit. The groundwater samples collected from the plume monitoring wells during the Second Quarter 2008 monitoring event were analyzed for the constituents listed in Appendix E to Attachment 3 of the Final Post-Closure Care Permit, plus copper (which was added to the constituent list for HWMU-7 following Third Quarter 2003) and zinc (which was added to the constituent list for HWMU-7 following Second Quarter 2004). The constituents detected in the upgradient well and

the point of compliance wells at concentrations greater than their respective detection limits are summarized in **Table 4** (**Appendix C**). The constituents detected at concentrations greater than their respective Permit-specified quantitation limits are summarized in **Table 4** (**Appendix C**). The complete laboratory certificates of analysis and data validation reports for HWMU-7 are included in **Appendix B**.

3.4.1 40 CFR Part 264 Appendix IX Constituent Detections

Upon receipt of the Second Quarter 2008 analytical data, Radford AAP notified the VDEQ of the detection of an additional Appendix IX constituent that was not listed in Appendix E of Permit Attachment 3 (Unit 7 – Groundwater Compliance Monitoring (Quarterly) Constituent List). As shown on **Table 4**, chloroform was detected in point of compliance well 7MW6. However, Radford AAP did not verify the chloroform concentration detected in wel 7MW6 based on the June 14, 2007 concurrence by the VDEQ with the Alternate Source Demonstration (ASD) for chloroform at HWMU-7 submitted on January 31, 2007, which identified an upgradient off-site source for chloroform in groundwater. Therefore, chloroform will not be added to the Groundwater Monitoring List for the Unit.

No additional Appendix IX constituents were detected during Second Quarter 2008

3.4.2 Comparison to Groundwater Protection Standards

As specified in Permit Condition V.J.2.i, the Second Quarter 2008 groundwater analytical data for the upgradient well and the point of compliance wells were compared to the GPSs for HWMU-7 listed in Appendix G of Permit Attachment 3. In accordance with Permit Condition V.I.2, Radford AAP performed a simple empirical comparison of the upgradient well and the point of compliance well data to the GPSs (**Table 4** in **Appendix C**). As shown on **Table 4**, none of the constituent concentrations detected in the upgradient well and in the point of compliance wells exceeded their respective GPSs.

3.4.3 Comparison to Background Concentrations

As specified in Permit Condition V.O, the Second Quarter 2008 groundwater analytical data for the plume monitoring wells were compared to the background concentrations for HWMU-7 listed in Appendix F of Permit Attachment 3. In accordance with Permit Condition V.I.2, Radford AAP performed a simple empirical comparison of the plume monitoring well data to the background concentrations (**Table 4**).

Initially, total arsenic was detected in plume monitoring well 7W13 at a concentration of 10.5 μ g/l, which exceeded the site-specific background concentration of 10 μ g/l. On July 17, 2008, Radford AAP collected verification samples from well 7W13 in order to confirm or refute the detected arsenic concentration. Total arsenic was not detected in the verification samples at concentrations exceeding the site-specific background concentration.

As shown on **Table 4**, total barium was detected in plume monitoring wells 7W10B and 7W10C at concentrations of 83.2 μ g/l and 51.8 μ g/l, respectively, which exceed the site-specific background concentration of 41 μ g/l. However, these concentrations are more than an order of

magnitude below the USEPA MCL for barium of $2,000 \mu g/l$. Exceedances of the background concentration for total barium in wells 7W10B and 7W10C are likely due to natural variations in trace element distribution in groundwater. In addition, these concentrations are consistent with previous barium concentrations detected in hese wells.

Initially, total cobalt was detected in plume monitoring wells 7W9C and 7W13 at concentrations exceeding the site-specific background concentration of 5 μ g/l. On July 17, 2008, Radford AAP collected verification samples from wells 7W9C and 7W13 in order to confirm or refute the detected cobalt concentrations. Total cobalt was not detected in the verification sample collected from well 7W9C. The verification sample for well 7W13 confirmed the initial total cobalt concentration of 5.8 μ g/l. However, the total cobalt concentration detected in well 7W13 is more than an order of magnitude below the VDEQ ACL for cobalt of 156.65 μ g/l. Exceedance of the background concentration for total cobalt in well 7W13 is likely due to natural variations in trace element distribution in groundwater. In addition, the total cobalt concentration detected in well 7W13 is consistent with previous cobalt concentrations detected in this well.

No other constituent concentrations detected in the plume monitoring wells exceeded their respective background concentrations.

3.5 CONCLUSIONS

Based on an evaluation of the groundwater analytical data for HWMU-7, GPSs have not been exceeded by any releases from the Unit.

The Appendix IX constituent chloroform was detected in point of compliance well 7MW6 during Second Quarter 2008. Chloroform will not be added to the Compliance Monitoring (Quarterly) Constituent List for HWMU-7 based on the June 14, 2007 concurrence by the VDEQ with the ASD for chloroform at HWMU-7 submitted on January 31, 2007. No additional Appendix IX constituents were detected during Second Quarter 2008; therefore, no changes to the Groundwater Monitoring List for the Unit are required.

The evaluation of the plume monitoring well data indicated that the concentrations of total barium in plume monitoring wells 7W10B and 7W10C exceeded the site-specific background concentration. As stated previously, exceedances of the background concentration for total barium in wells 7W10B and 7W10C are likely due to natural variations in trace element distribution in groundwater. In addition, the total barium concentrations detected in plume monitoring wells 7W10B and 7W10C are consistent with previous barium concentrations detected in these wells. Therefore, no further action regarding the Second Quarter 2008 total barium concentrations detected in plume monitoring wells 7W10B and 7W10C is recommended at this time.

The evaluation of the plume monitoring well data indicated that the concentration of total cobalt in plume monitoring well 7W13 exceeded the site-specific background concentration. As stated previously, exceedance of the background concentration for total cobalt in well 7W13 is likely due to natural variations in trace element distribution in groundwater. In addition, the total cobalt concentration detected in plume monitoring well 7W13 is consistent with previous cobalt

concentrations detected in this well. Therefore, no further action regarding the Second Quarter 2008 total cobalt concentration detected in plume monitoring well 7W13 is recommended at this time.

4.0 HWMU-10 SEMIANNUAL GROUNDWATER MONITORING REPORT

4.1 WASTE MANAGEMENT UNIT INFORMATION

Unit Name: Hazardous Waste Management Unit 10 (HWMU-10)

Owner/Operator: United States Army/Alliant Techsystems Inc.

Unit Location: Radford AAP Main Plant Area, Radford, Virginia

Class: Hazardous Waste Management Unit

Type: Closed Equalization Basin for the Biological Treatment System

4.2 GROUNDWATER MONITORING PLAN

Monitoring Network

Upgradient Well: 10D4

Point of Compliance Wells: 10MW1, 10DDH2R, 10D3, 10D3D

Plume Monitoring Wells: none Observation Wells: none

Monitoring Status: Compliance Monitoring Program

CY 2008 Monitoring Events:

Second Quarter 2008: April 17, 2008

Fourth Quarter 2008:

4.3 GROUNDWATER ELEVATIONS

The monitoring wells at HWMU-10 are screened either across the alluvium/limestone bedrock interface or entirely within bedrock. The static water level measurements gathered during the Second Quarter 2008 monitoring event are summarized in **Table 5** (**Appendix C**). As shown on the HWMU-10 Potentiometric Surface Map (**Figure 3** in **Appendix D**), groundwater movement beneath the site is generally to the northeast toward the New River.

4.4 GROUNDWATER ANALYTICAL DATA EVALUATION

The groundwater samples collected from the upgradient well and the point of compliance wells during the Second Quarter 2008 monitoring event were analyzed for the constituents listed in Appendix IX to 40 CFR Part 264 as presented in Appendix I of Attachment 1 of the Final Post-Closure Care Permit. The constituents detected at concentrations greater than their respective detection limits are summarized in **Table 6** (**Appendix C**). The laboratory certificates of analysis and data validation reports for HWMU-10 are included in **Appendix B**.

4.4.1 40 CFR Part 264 Appendix IX Constituent Detections

Upon receipt of the Second Quarter 2008 analytical data, Radford AAP notified the VDEQ of the detection of two additional Appendix IX constituents (chlordane and diethyl phthalate) that were not listed in Appendix E of Permit Attachment 4 (Unit 10 – Groundwater Compliance Monitoring (Quarterly) Constituent List). In accordance with Permit Condition V.J.3.e.(1), Radford AAP resampled the subject well (10MW1) for the detected constituents in order to confirm or refute the additional Appendix IX constituent detections. Chlordane and diethyl phthalate were not confirmed in the subject well at concentrations above their respective detection limits. As a result, chlordane and diethyl phthalate will not be added to the Groundwater Monitoring List for the Unit.

4.4.2 Comparison to Groundwater Protection Standards

As specified in Permit Condition V.J.3.i, the Second Quarter 2008 groundwater analytical data for the upgradient well and the point of compliance wells were compared to the GPSs for HWMU-10 listed in Appendix G of Permit Attachment 4. In accordance with Permit Condition V.I.2, Radford AAP performed a simple empirical comparison of the upgradient well and the point of compliance well data to the GPSs (**Table 6** in **Appendix C**). As shown on **Table 6**, none of the constituent concentrations detected in the upgradient well and in the point of compliance wells exceeded their respective GPSs.

4.4.3 Comparison to Background Concentrations

Only the analytical data from plume monitoring wells are compared to background concentrations. As the compliance monitoring network for HWMU-10 is composed entirely of point of compliance wells, the analytical data from HWMU-10 are not compared to background concentrations.

4.5 CONCLUSIONS

Based on an evaluation of the groundwater analytical data for HWMU-10, GPSs have not been exceeded by any releases from the Unit. No additional Appendix IX constituents were detected during Second Quarter 2008; therefore, no changes to the Groundwater Monitoring List for the Unit are required.

The Appendix IX constituents chlordane and diethyl phthalate were detected in compliance well 10MW1 during Second Quarter 2008. In accordance with Permit Condition V.J.3.e.(1), Radford AAP resampled the subject well for the detected constituents in order to confirm or refute the additional Appendix IX constituent detections. Chlordane and diethyl phthalate were not confirmed in the subject well at concentrations above their respective detection limits. As a result, chlordane and diethyl phthalate will not be added to the Groundwater Monitoring List for the Unit.

5.0 HWMU-16 SEMIANNUAL GROUNDWATER MONITORING REPORT

5.1 WASTE MANAGEMENT UNIT INFORMATION

Unit Name: Hazardous Waste Management Unit 16 (HWMU-16)

Owner/Operator: United States Army/Alliant Techsystems Inc.

Unit Location: Radford AAP Main Plant Area, Radford, Virginia

Class: Hazardous Waste Management Unit Type: Closed Hazardous Waste Landfill

5.2 GROUNDWATER MONITORING PLAN

Monitoring Network

Upgradient Well: 16C1

Point of Compliance Wells: 16WC1A, 16WC1B, 16MW8, 16MW9

Plume Monitoring Wells: 16-1, 16-2, 16-3, 16-5, 16WC2B, 16SPRING Observation Wells: 16WC2A, 16C3, 16CDH3

Monitoring Status: Compliance Monitoring Program

CY 2008 Monitoring Events:

Second Quarter 2008: April 15-16, 2008

Fourth Quarter 2008:

5.3 GROUNDWATER ELEVATIONS

The monitoring wells at HWMU-16 are screened entirely within either carbonate bedrock, weathered carbonate bedrock residuum, or across the residuum/bedrock interface. The static water level measurements gathered during the Second Quarter 2008 monitoring event are summarized in **Table 7** (**Appendix C**). As shown on the HWMU-16 Potentiometric Surface Map (**Figure 4** in **Appendix D**), groundwater movement beneath the site is generally to the northeast.

5.4 GROUNDWATER ANALYTICAL DATA EVALUATION

The groundwater samples collected from the upgradient well and the point of compliance wells during Second Quarter 2008 were analyzed for the constituents listed in Appendix IX to 40 CFR Part 264 as presented in Appendix I of Attachment 1 of the Final Post-Closure Care Permit. The groundwater samples collected from the plume monitoring wells during the Second Quarter 2008 monitoring event were analyzed for the constituents listed in Appendix E to Attachment 5 of the Final Post-Closure Care Permit, plus chloroethane, diethyl ether, dimethyl ether, and methylene chloride (which were added to the constituent list for HWMU-16 following Third Quarter 2003), and 1,1,2-trichloro-1,2,2-trifluoroethane (which was added to the constituent list for HWMU-16 following Second Quarter 2004). The constituents detected in the upgradient

well and the point of compliance wells at concentrations greater than their respective detection limits are summarized in **Table 8** (**Appendix C**). The constituents detected at concentrations greater than their respective Permit-specified quantitation limits are summarized in **Table 8** (**Appendix C**). The complete laboratory certificates of analysis and data validation reports for HWMU-16 are included in **Appendix B**.

5.4.1 40 CFR Part 264 Appendix IX Constituent Detections

No additional Appendix IX constituents, which are not listed in Appendix E of Permit Attachment 5 (Unit 16 – Groundwater Compliance Monitoring (Quarterly) Constituent List), were detected during the Second Quarter 2008 groundwater monitoring event. Therefore, no changes to the Groundwater Monitoring List for the Unit are required.

5.4.2 Comparison to Groundwater Protection Standards

As specified in Permit Condition V.J.4.i, the Second Quarter 2008 groundwater analytical data for the upgradient well and the point of compliance wells were compared to the GPSs for HWMU-16 listed in Appendix G of Permit Attachment 5. In accordance with Permit Condition V.I.2, Radford AAP performed a simple empirical comparison of the upgradient well and the point of compliance well data to the GPSs (**Table 8** in **Appendix C**). As shown on **Table 8**, none of the constituent concentrations detected in the upgradient well and in the point of compliance wells exceeded their respective GPSs.

5.4.3 Comparison to Background Concentrations

As specified in Permit Condition V.O, the Second Quarter 2008 groundwater analytical data for the plume monitoring wells were compared to the background concentrations for HWMU-16 listed in Appendix F of Permit Attachment 5. In accordance with Permit Condition V.I.2, Radford AAP performed a simple empirical comparison of the plume monitoring well data to the background concentrations (**Table 8**).

As shown on **Table 8**, total barium was detected in upgradient well 16C1 at a concentration of 201 µg/l and in plume monitoring wells 16-1, 16-2, 16-3, and 16-5 and spring sampling location 16SPRING at concentrations of 245 µg/l, 310 µg/l, 776 µg/l, 195 µg/l, and 319 µg/l, respectively, which exceed the site-specific background concentration of 175.4 µg/l. The total barium concentrations detected in plume monitoring locations 16-1, 16-2, 16-3, 16-5, and 16SPRING also exceeded the background concentration during previous monitoring events. However, the Second Quarter 2008 barium concentrations and the previous barium concentrations detected in the plume monitoring wells were well below the USEPA MCL for barium of 2,000 µg/l. Higher barium concentrations in downgradient plume monitoring wells relative to background at HWMU-16 may be the result of natural variations in trace element distribution in groundwater. As illustrated in the boring logs for the compliance network monitoring wells (Appendix H of Permit Attachment 5), upgradient well 16C1 is screened in limestone while downgradient plume monitoring wells 16-1, 16-2, 16-3, and 16-5 are screened in shale and fault breccia. Such differing lithologic formations would be expected to contain different trace element distributions.

No other constituent concentrations detected in the plume monitoring wells exceeded their respective background concentrations.

5.5 CONCLUSIONS

Based on an evaluation of the groundwater analytical data for HWMU-16, the GPSs have not been exceeded by any releases from the Unit.

No additional Appendix IX constituents were detected during Second Quarter 2008; therefore, no changes to the Groundwater Monitoring List for the Unit are required.

The evaluation of the plume monitoring well data indicated that the concentration of total barium in plume monitoring locations 16-1, 16-2, 16-3, 16-5, and 16SPRING exceeded the site-specific background concentration. As stated previously, exceedances of the background concentration for barium in locations 16-1, 16-2, 16-3, 16-5, and 16SPRING are likely due to natural variations in trace element distribution in groundwater. Upgradient well 16C1 is screened in limestone while downgradient plume monitoring wells 16-1, 16-2, 16-3, and 16-5 are screened in shale and fault breccia. Such differing lithologic formations would be expected to contain different trace element distributions. Therefore, no further action regarding the Second Quarter 2008 total barium concentrations detected in plume monitoring locations 16-1, 16-2, 16-3, 16-5, and 16SPRING is recommended at this time.

SIGNATURE/CERTIFICATION

Name:	Ross G. Miller, Senior Project Geologist
Signature:	Total Mell
Company:	Draper Aden Associates
Address:	2206 South Main Street
City/State/Zip:	Blacksburg, Virginia 24060-6600

I certify that I have prepared or supervised preparation of the attached report, that it has been prepared in accordance with industry standards and practices, and that the information contained herein is truthful and accurate to the best of my knowledge.

Name:	Michael D. Lawless, Environmental	Program Manager
Cionatura		
Signature:		
Virginia Professional Certific	cation Type and Number:	PG 832
Company:	Draper Aden Associates	
Address:	2206 South Main Street	
City/State/Zip:	Blacksburg, Virginia 24060-6600	

APPENDIX A

SUMMARY TABLES
SECOND QUARTER 2008 ANALYTICAL DATA – UNITS 5, 7, 10, AND 16

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 5W8B

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
Antimony						CAS # 7440-36-0		1	1
Second Quarter 2008	U	U	0.79 J	U	U	U	1	6	6020
Arsenic			1	!	L	CAS # 7440-38-2			I .
Second Quarter 2008	U	U	U	U	U	U	10	50	6020
Barium		J	i		<u> </u>	CAS # 7440-39-3			
Second Quarter 2008	115	39.7	37.3	14.2	34.6	25.4	10	2000	6020
Beryllium			<u> </u>		<u> </u>	CAS # 7440-41-7			
Second Quarter 2008	U	U	0.63 J	1.9	U	U	1	4	6020
Cadmium			l		L	CAS # 7440-43-9			J
Second Quarter 2008	U	U	U	0.56 J	0.37 J	0.23 J	1	5	6020
Chromium						CAS # 7440-47-3		L	
Second Quarter 2008	U	U	3 J	7.4	U	U	5	100	6020
Cobalt		L	Į			CAS # 7440-48-4		1	1
Second Quarter 2008	1.3 J	UJ	11 J	62.7 J	16.9 J	3 J	5	313	6020
Copper		I				CAS# 7440-50-8			<u></u>
Second Quarter 2008	U	1.2 J	4.9 J	6.1	U	U	5	1300	6020
Lead		L		4	***************************************	CAS# 7439-92-1		J	
Second Quarter 2008	U	U	1.7	U	U	U	1	15	6020
Mercury				1		CAS # 7439-97-6			<u> </u>
Second Quarter 2008	υ	U	U	U	U	U	2	2	7470A
Nickel			<u></u>	. [CAS # 7440-02-0		<u> </u>	
Second Quarter 2008	U	U	11.6	39.5	10.5	4.4 J	10	313	6020
Selenium		l				CAS # 7782-49-2		<u> </u>	
Second Quarter 2008	U	11.2	U	U	U	U	10	50	6020
Silver						CAS # 7440-22-4			
Second Quarter 2008	U	U	U	U	U	U	2	78.25	6020
Thallium		L				CAS # 7440-28-0		1	L
Second Quarter 2008	U	U	U	U	U	U	1	2	6020
Tin						CAS# 7440-31-5			
Second Quarter 2008	υ	U	U	U	U	U	5	-	6020
Vanadium						CAS# 7440-62-2			
Second Quarter 2008	U	U	U	U	U	U	10	109.55	6020
Zinc						CAS# 7440-66-6			
Second Quarter 2008	5 J	8.6 J	30.1	43.9	U	3.5 J	10	4695	6020
Sulfide						CAS # 18496-25-	*		
Second Quarter 2008	U	U	U	U	U	U	1000	-	9034
Cyanide						CAS # 57-12-5			1
Second Quarter 2008	U	U	U	U	U	U	20	-	9014
Acenaphthene						CAS# 83-32-9			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Acenaphthylene						CAS # 208-96-8		<u> </u>	02700
Second Quarter 2008	U	υ	U	U	U	U U	10	-	8270C
Acetone						CAS # 67-64-1	-10		1 32,700
Second Quarter 2008	ן ט ז	υJ	UJ	UJ		U J	10	223.57	8260B
Acetonitrile		0 0	U J	0 3		CAS # 75-05-8	10		02008
Second Quarter 2008	υ	U	U				100	1 -	pocon
	U	U	U	U	U	U C48# 98-86-2	100		8260B
Acetophenone					1	CAS# 98-86-2			

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 5W8B

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
2-Acetylaminofluorene	E		2	J 0 11 C 2 2		CAS # 53-96-3	2.0	010	1/10/10/10
Second Quarter 2008	U	U	υ	υ	U	U	30	Τ.	8270C
Acrolein						CAS# 107-02-8	30		02700
Second Quarter 2008	UJ	UJ	UJ	UJ	UJ	U J	10	Ι.	8260B
Acrylonitrile	0 0		0 3	0 3		CAS# 107-13-1	10		02000
Second Quarter 2008	UJ	U J	U J	UJ		U J	1	Ι.	8260B
Aldrin			0 3	0 3		CAS# 309-00-2	'		62005
Second Quarter 2008	l n l	UJ	U J	UJ	U J	U J	0.025	T .	8081A
Allyl chloride] 0 3		CAS# 107-05-1	0.023		1 00017
Second Quarter 2008	UJ	U J	UJ	UJ		U J	1	Τ.	8260B
			0 3	0 3		CAS# 92-67-1			02005
4-Aminobiphenyl Second Quarter 2008	U	U	T 1.	T 11 1		,	40	Τ.	90700
	0	0	U	U	U	U C4S# 62~53-3	10	_	8270C
Aniline Second Quarter 2008	1 1		1	1 1		T	40	Τ.	20700
	U	U	U	U	U	U CAS# 120-12-7	10	<u> </u>	8270C
Anthracene	1 1		1	1 1			40	T	00700
Second Quarter 2008	U	U	U	U	U	U CAS# 140-57-8	10	<u> </u>	8270C
Aramite			1	1				1	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Benzene			1	1 1		CAS # 71-43-2		1	T
Second Quarter 2008	U	U	U	U	U	U	1		8260B
Benzo[a]anthracene	1		1			CAS# 56-55-3		1	
Second Quarter 2008	U	U	U	U	U	U	10	•	8270C
Benzo[b]fluoranthene				, ,		CAS# 205-99-2		1	~
Second Quarter 2008	U	U	U	U	U	U	10	•	8270C
Benzo[k]fluoranthene				,		CAS# 207-08-9		————	,
Second Quarter 2008	U	U	U	U	U	U	10	<u> </u>	8270C
Benzo[ghi]perylene						CAS# 191-24-2			F
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Benzo(a)pyrene						CAS # 50-32-8			-
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
1,4-Benzenediamine						CAS # 106-50-3			
Second Quarter 2008	U	U	U	U	U	U	50	-	8270C
Benzyl alcohol						CAS# 100-51-6			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
alpha-BHC						CAS# 319-84-6			
Second Quarter 2008	U	U	U	U	U	υ	0.025	•	8081A
beta-BHC				· · · · · · · · · · · · · · · · · · ·	* (CAS# 319-85-7			
Second Quarter 2008	U	υ	υ	υ	U	U	0.025	-	8081A
delta-BHC	· · · · · · · · · · · · · · · · · · ·					CAS # 319-86-8			
Second Quarter 2008	U	U	U	U	U	U	0.025	-	8081A
gamma-BHC						CAS # 58-89-9		·	
Second Quarter 2008	U	U	U	U	U	U	0.025	-	8081A
bis(2-Chloroethoxy)metha	ine			<u> </u>		CAS# 111-91-1		1	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
bis(2-Chloroethyl)ether	1		1	1	•	CAS# 111-44-4			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
ois(2-Chloro-1-methylethy	l)ether		l	1		CAS# 108-60-1			
	-								



Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 5W8B

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
bis(2-Ethylhexyl)phthalate)					CAS# 117-81-7			
Second Quarter 2008	U	U	U	U	U	U	6	10	8270C
Bromobenzene					I	CAS# 108-86-1		<u> </u>	1
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
Bromochloromethane			<u> </u>		i	CAS # 74-97-5			İ
Second Quarter 2008	UJ	UJ	UJ	U	U	U	1	-	8260B
Bromodichloromethane			<u> </u>			CAS# 75-27-4		<u> </u>	<u> </u>
Second Quarter 2008	U	U	U	U	U	υ	1	1 -	8260B
Bromoform			1			CAS # 75-25-2		1:	i
Second Quarter 2008	U	U	U	U	U	U	1	Ţ -	8260B
4-Bromophenyl phenyl eth	ner					CAS # 101-55-3		1	
Second Quarter 2008	U	U	U	U	U	U	10	Ι -	8270C
2-Butanone						CAS # 78-93-3		1	
Second Quarter 2008	U	U	U	U	U	U	10	691.08	8260B
n-Butyl alcohol					_	CAS # 71-36-3			02000
Second Quarter 2008	UJ	U J	UJ	UJ	UJ	UJ	200	1 -	8260B
tert-Butyl alcohol					_	CAS # 75-65-0			02000
Second Quarter 2008	UJ	UJ	UJ	UJ	U J	UJ	20	T .	8260B
n-Butylbenzene				0 3		CAS # 104-51-8		1	02000
Second Quarter 2008	UJ	U J	UJ	U	U	U U	1	Т_	8260B
	0 3	U J	0 3	<u> </u>	-	CAS # 135-98-8			6200B
sec-Butylbenzene Second Quarter 2008	U	U		1.				1.	l encon
	U	<u> </u>	U	U	υ	U CAS# 98-06-6	1		8260B
tert-Butylbenzene	T T			1	,	·		T _	
Second Quarter 2008	U	U	U	U	U	U	1	<u> </u>	8260B
Butyl benzyl phthalate	1 1			1		CAS# 85-68-7			
Second Quarter 2008	U	U	U	U	U	U	10	•	8270C
Carbon disulfide	· I			T		CAS # 75-15-0			
Second Quarter 2008	U	U	U	U	U	U	1	•	8260B
Carbon tetrachloride	1			, , , , , , , , , , , , , , , , , , , ,		CAS # 56-23-5		,	
Second Quarter 2008	υ	U	U	U	U	U	1	5	8260B
Chlordane	T			,		CAS# 57-74-9			,
Second Quarter 2008	U	U	U	U	U	U	0.25	-	8081A
p-Chloroaniline						CAS# 106-47-8			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Chlorobenzene						CAS# 108-90-7			
Second Quarter 2008	U	U	U	U	U	U	1	<u> </u>	8260B
Chlorobenzilate						CAS# 510-15-6			
Second Quarter 2008	U	U	U	U	U	U	20	-	8270C
p-Chloro-m-cresol						CAS# 59-50-7			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Chloroethane						CAS# 75-00-3			
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
2-Chloroethyl vinyl ether				<u> </u>		CAS# 110-75-8		.1	
Second Quarter 2008	U	U	U	U	U	U	5	-	8260B
Chloroform	1			_il		CAS# 67-66-3			I
Second Quarter 2008	U	U	U	U	U	U	1	80	8260B
Chloromethane				<u> </u>		CAS# 74-87-3			I
Second Quarter 2008	U	U	U						8260B

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 5W8B

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
2-Chloronaphthalene						CAS# 91-58-7		***************************************	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
2-Chlorophenol	1					CAS# 95-57-8		l	·
Second Quarter 2008	U	U	U	U	U	U	10		8270C
4-Chlorophenyl phenyl eth	ner	<u> </u>	<u> </u>	1		CAS# 7005-72-3		L	1
Second Quarter 2008	U	υ	U	U	U	U	10	-	8270C
Chloroprene		İ	I			CAS# 126-99-8		l	
Second Quarter 2008	UJ	UJ	U J	U	U	U	1		8260B
2-Chlorotoluene			<u> </u>			CAS# 95-49-8		<u> </u>	
Second Quarter 2008	U	U	U	U	U	U	1		8260B
4-Chlorotoluene			1			CAS# 106-43-4		1	
Second Quarter 2008	U	U	U	U	U	U	1		8260B
Chrysene			1			CAS# 218-01-9			
Second Quarter 2008	U	U	U	υ	U	U	10	-	8270C
Cyclohexane						CAS # 110-82-7			
Second Quarter 2008	U	U	U	U	U	U	2	T -	8260B
2,4-Dichlorophenoxyacetic						CAS# 94-75-7		<u> </u>	
Second Quarter 2008	U	U	U	U	υ	U U	5		8151A
4,4'-DDD						CAS # 72-54-8		I	1
Second Quarter 2008	U	U	U	U	U	U U	0.025	T -	8081A
4,4'-DDE						CAS # 72-55-9	0.020		
Second Quarter 2008	U	U	U	U	U	U U	0.025	T .	8081A
		0	l			CAS # 50-29-3	0.020		000111
4,4'-DDT Second Quarter 2008	U	U	U	U	U	U U	0.025	l -	8081A
	U	U		0		CAS # 2303-16-4			00017
Diallate Second Quarter 2008	U	U	U	υ	U	U	10	Ι .	8270C
	0	<u> </u>	0			CAS # 53-70-3	10		02700
Dibenz(a,h)anthracene	1 ,,	11				1	40	I -	8270C
Second Quarter 2008	U	U	U	U	U	U 122 64 0	10		82700
Dibenzofuran			·	T T		CAS # 132-64-9	- 40	1 -	00700
Second Quarter 2008	U	U	U	U	U	U CAS# 124-48-1	10		8270C
Dibromochloromethane			1	T 1		1		1 -	00000
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
1,2-Dibromo-3-chloroprop			1	T 1		CAS# 96-12-8		I	
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
1,2-Dibromoethane	1			1 1		CAS# 106-93-4		1	1
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
Di-n-butyl phthalate	· · · · · · · · · · · · · · · · · · ·			, , , , , , , , , , , , , , , , , , , ,		CAS# 84-74-2		T	1
Second Quarter 2008	U	U	U	U	U	U	10	•	8270C
1,2-Dichlorobenzene						CAS# 95-50-1		1	
Second Quarter 2008	U	U	U	U	U	U	1	<u> </u>	8260B
1,3-Dichlorobenzene			,·			CAS# 541-73-1		,	
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
1,4-Dichlorobenzene						CAS# 106-46-7			1
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
3,3'-Dichlorobenzidine						CAS# 91-94-1			
Second Quarter 2008	U	U	U	U	U	υ	10	-	8270C
trans-1,4-Dichloro-2-buten	ie					CAS# 110-57-6			
• • • • • • • • • • • • • • • • • • • •									

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 5W8B

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
Dichlorodifluoromethane	1					CAS # 75-71-8	I	1	I
Second Quarter 2008	U	υ	U	U	U	U	1	125.2	8260B
1,1-Dichloroethane		L				CAS# 75-34-3	İ		I
Second Quarter 2008	U	U	U	U	υ	U	1	-	8260B
1,2-Dichloroethane		1				CAS# 107-06-2	I		ł
Second Quarter 2008	U	U	U	U	U	U	1	5	8260B
1,1-Dichloroethene	L	<u> </u>		_li		CAS # 75-35-4	L	1	<u> </u>
Second Quarter 2008	U	U	U	U	υ	U	1	-	8260B
cis-1,2-Dichloroethene	d	<u> </u>	J			CAS # 156-59-2		L	1
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
trans-1,2-Dichloroethene		<u> </u>	L			CAS# 156-60-5	i	<u> </u>	1
Second Quarter 2008	U	U	U	U	U	U	1		8260B
2,4-Dichlorophenol	1	<u> </u>	L			CAS# 120-83-2		L	
Second Quarter 2008	U	U	U	U	U	U	10		8270C
2,6-Dichlorophenol	1	L	1			CAS# 87-65-0		<u> </u>	
Second Quarter 2008	U	U	U	U	Ŭ	U	10	T -	8270C
1,2-Dichloropropane	1		<u> </u>			CAS # 78-87-5	l		l
Second Quarter 2008	U	U	U	U	U	U	1 1	-	8260B
1,3-Dichloropropane		J		1		CAS# 142-28-9	<u> </u>		1
Second Quarter 2008	U	U	U	U	U	U	1		8260B
2,2-Dichloropropane		<u> </u>				CAS# 594-20-7			
Second Quarter 2008	U	U	U	UJ	U j	UJ	1	T -	8260B
1,1-Dichloropropene					_	CAS# 563-58-6		<u> </u>	
Second Quarter 2008	U	U	U	U	υ	U	1	-	8260B
cis-1,3-Dichloropropene		L	<u> </u>			CAS# 10061-01			
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
trans-1,3-Dichloropropene	L		L		-	CAS# 10061-02	-6	<u> </u>	
Second Quarter 2008	U	U	U	U	U	U	1		8260B
Dieldrin						CAS # 60-57-1	<u> </u>		
Second Quarter 2008	U	U	U	U	U	U	0.025	Ι.	8081A
Diethyl ether						CAS# 60-29-7			
Second Quarter 2008	UJ	υJ	UJ	U	U	U	12		8260B
Diethyl phthalate						CAS# 84-66-2	L '		
Second Quarter 2008	U	υ	U	U	U	U	10	12,520	8270C
O,O-Diethyl O-2-pyrazinyl			1			CAS # 297-97-2			02.00
Second Quarter 2008	U	U	U	U	U	U	10	l -	8270C
	0	U				CAS # 60-51-5	10		02700
Dimethoate Second Quarter 2008	U	U	U	U	U	U	20	1 -	8270C
	0	l		0		CAS# 115-10-6			02700
Dimethyl ether	UJ	UJ	UJ	UJ		U J	2	T -	8260B
Second Quarter 2008	L	υJ	UJ	UJ	-	CAS # 60-11-7	2		0200B
p-(Dimethylamino)azobenz	1	T	1	1 11 1		,	10	Ι.	8270C
Second Quarter 2008	U	υ	U	U	U	U	10	<u></u>	82700
7,12-Dimethylbenz[a]anthr		I	1	1		CAS # 57-97-6	T	T	50700
Second Quarter 2008	U	U	U	U	U	U 440.03.7	20	<u> </u>	8270C
3,3'-Dimethylbenzidine			1	1		CAS# 119-93-7	7	T	1
Second Quarter 2008 a,a-Dimethylphenethylamii	U	U	U	U	U	U CAS # 122-09-8	20		8270C

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 5W8B

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
2,4-Dimethylphenol	. 1		<u> </u>			CAS# 105-67-9			
Second Quarter 2008	UJ	U J	U J	UJ	UJ	UJ	10	-	8270C
Dimethyl phthalate			1			CAS# 131-11-3		i	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
m-Dinitrobenzene						CAS # 99-65-0			1
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
4,6-Dinitro-o-cresol						CAS# 534-52-1			J
Second Quarter 2008	U	U	U	U	U	U	20	-	8270C
2,4-Dinitrophenol						CAS# 51-28-5		L	1
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
2,4-Dinitrotoluene						CAS# 121-14-2		I	J
Second Quarter 2008	U	U	U	U	U	U	10	31.3	8270C
2,6-Dinitrotoluene			.1			CAS# 606-20-2			
Second Quarter 2008	U	U	U	U	U	U	10	15.65	8270C
Dinoseb			1			CAS # 88-85-7		l	
Second Quarter 2008	U	U	U	U	U	U	2.5	-	8151A
Di-n-octyl phthalate						CAS# 117-84-0			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
1,4-Dioxane						CAS# 123-91-1			
Second Quarter 2008	U	U	U	U	U	U	200		8260B
Diphenylamine			1			CAS# 122-39-4		<u></u>	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Disulfoton						CAS# 298-04-4	L		
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Endosulfan i					I	CAS# 959-98-8	J		
Second Quarter 2008	U	U	U	υ	U	U	0.025	-	8081A
Endosulfan li						CAS# 33213-65	-9		
Second Quarter 2008	U	U	U	U	U	U	0.025	-	8081A
Endosulfan sulfate						CAS# 1031-07-8	3	·	
Second Quarter 2008	U	U	U	U	U	U	0.025	-	8081A
Endrin				i i		CAS# 72-20-8	L		
Second Quarter 2008	U	U	U	U	U	U	0.025	-	8081A
Ethyl acetate			<u> </u>			CAS # 75-25-2	L	J	-
Second Quarter 2008	U	U	U	υJ	UJ	υJ	2	-	8260B
Endrin aldehyde			,i	1		CAS# 7421-93-4	1	.1	
Second Quarter 2008	U	U	U	U	U	U	0.025	-	8081A
Ethanol				1		CAS# 110-82-7	1		
Second Quarter 2008	UJ	υJ	U J	υJ	ÜJ	UJ	500	-	8260B
Ethylbenzene			1			CAS# 100-41-4			
Second Quarter 2008	U	U	υ	U	U	U	1	-	8260B
Ethyl methacrylate			1			CAS# 97-63-2			
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
Ethyl methanesulfonate	ı	L			I	CAS# 62-50-0	L	.1	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Ethylene oxide	. I		l .	1	1	CAS# 75-21-8		1	
Second Quarter 2008	U	U	U	UJ	UJ	UJ	20	-	8260B
Famphur		L		I	<u> </u>	CAS # 52-85-7		1	
Second Quarter 2008	U	U	U	U	U	U	10	7	8270C

Radford Army Ammunition Plant, Radford, Virginia

 $Upgradient \ well = 5W8B$

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
Fluoranthene			<u> </u>			CAS# 206-44-0		***************************************	
Second Quarter 2008	U	U	U	U	U	υ	10	-	8270C
Fluorene			1	- 		CAS # 86-73-7		i	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Heptachlor			1			CAS# 76-44-8			·!····
Second Quarter 2008	UJ	U J	UJ	UJ	UJ	UJ	0.025	-	8081A
Heptachlor epoxide						CAS# 1024-57-3	}	1	
Second Quarter 2008	U	U	U	U	U	U	0.025	-	8081A
Hexachlorobenzene						CAS# 118-74-1		l	1
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Hexachlorobutadiene				.1		CAS# 87-68-3		i	<u> </u>
Second Quarter 2008	UJ	UJ	UJ	U	U	U	1	-	8260B
Hexachlorocyclopentadi	ene		<u> </u>			CAS# 77-47-4		1	
Second Quarter 2008	U	U	U	U	U	U	20	-	8270C
Hexachloroethane			1	1		CAS# 67-72-1	L		
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
Hexachlorophene				1		CAS # 70-30-4		L	1
Second Quarter 2008	U	U	U	U	υ	U	500	-	8270C
Hexachloropropene			1			CAS# 1888-71-	7		1
Second Quarter 2008	U	U	U	U	U	U	10		8270C
2-Hexanone						CAS# 591-78-6	l	<u> </u>	
Second Quarter 2008	U	U	U	U	U	U	5	l -	8260B
Indeno[1,2,3-cd]pyrene						CAS# 193-39-5			
Second Quarter 2008	U	U	U	U	U	U	10	T -	8270C
Isobutyl alcohol			<u></u>	1		CAS# 78-83-1		l	
Second Quarter 2008	U	U	U	U J	UJ	UJ	125	-	8260B
Isodrin					V	CAS # 465-73-6		1	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Isophorone			<u> </u>			CAS # 78-59-1			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Isopropylbenzene			<u> </u>	<u> </u>		CAS# 98-82-8		l	
Second Quarter 2008	U	Ü	U	U	U	U	200		8260B
Isopropylether						CAS# 108-20-3	l		
Second Quarter 2008	UJ	U J	UJ	υ	U	U	1		8260B
4-Isopropyltoluene						CAS# 99-87-6			L
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
Isosafrole						CAS # 120-58-1	<u> </u>		1
Second Quarter 2008	U	U	U	U	U	U	10		8270C
						CAS # 143-50-0			
Kepone Second Quarter 2008	U	U	U	U	U	U	10	1 -	8270C
		<u> </u>	"			CAS # 126-98-7			
Methacrylonitrile	U	U	U	U	U	U	10	<u>.</u>	8260B
Second Quarter 2008	U	U		1 0	U	CAS# 91-80-5	10	<u> </u>	U200B
Methapyrilene	,,	11	I 11	T	U	U	40	Τ -	8270C
Second Quarter 2008	U	U	U	U	Ü	CAS # 72-43-5	10		02/00
Methoxychlor	1	11	1 11	1		,	0.005	1 -	00044
Second Quarter 2008	U	U	U	U	U	U CAS # 74-83-9	0.025		8081A
Bromomethane						CAN# /4-83-9			

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 5W8B

	TYYOR O								
Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
3-Methylcholanthrene	1 1		1	T		CAS # 56-49-5	1	1	1
Second Quarter 2008	υ	U	U	U	U	U	10	•	8270C
Iodomethane			1	T		CAS# 74-88-4		1	T
Second Quarter 2008	ΠΊ	υJ	υJ	U	U	U	1	<u> </u>	8260B
Methyl methacrylate	I I		1			CAS# 80-62-6	ı	1	T
Second Quarter 2008	υ	U	υ	U	U	U	1	<u> </u>	8260B
Methyl methane sulfonate			1			CAS# 66-27-3			
Second Quarter 2008	U	υ	U	U	U	U	10		8270C
2-Methylnaphthalene	,		·			CAS# 91-57-6		1	1
Second Quarter 2008	U	U	U	υ	U	U	10	<u> </u>	8270C
Methyl parathion						CAS# 298-00-0		-,	1
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
4-Methyl-2-pentanone						CAS# 108-10-1			
Second Quarter 2008	U	U	U	U	U	U	5	-	8260B
2-Methylphenol						CAS# 95-48-7			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
3 & 4-Methylphenol						CAS# 106-44-5			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Methyl tert-butyl ether						CAS # 1634-04-4	1		
Second Quarter 2008	U	U	U	υ	U	U	1	-	8260B
Dibromomethane						CAS# 74-95-3			
Second Quarter 2008	υJ	Πl	υJ	U	U	U	1	-	8260B
Methylene chloride						CAS# 75-09-2			
Second Quarter 2008	U	U	U	U	U	U	1	5	8260B
Naphthalene						CAS# 91-20-3			
Second Quarter 2008	UJ	UJ	υJ	UJ	UJ	UJ	1	-	8260B
1,4-Naphthoquinone						CAS# 130-15-4			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
1-Naphthylamine		•				CAS# 134-32-7			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
2-Naphthylamine				,		CAS# 91-59-8			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
o-Nitroaniline	ł		·\			CAS# 88-74-4			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
m-Nitroaniline	l					CAS# 99-09-2	J		
Second Quarter 2008	U	U	U	U	U	U	20	-	8270C
p-Nitroaniline	<u>. </u>					CAS# 100-01-6			
Second Quarter 2008	U	U	U	U	U	U	20	20	8270C
Nitrobenzene			1		l <u></u>	CAS# 98-95-3	J		
Second Quarter 2008	U	U	U	U	U	U	10	10	8270C
o-Nitrophenol	ll		.1		<u> </u>	CAS# 88-75-5			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
p-Nitrophenol	II		1	_ <u> </u>	L	CAS# 100-02-7	1	_1	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
4-Nitroquinoline-1-oxide	L		1	1	L	CAS# 56-57-5	L		
Second Quarter 2008	U	U	U	U	U	U	50	-	8270C
N-Nitrosodi-n-butylamine		-	1		_	CAS# 924-16-3	1		
	,					.,			8270C

Radford Army Ammunition Plant, Radford, Virginia

 $Upgradient \ well = 5W8B$

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
N-Nitrosodiethylamine	·					CAS# 55-18-5	<u></u>		•
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
N-Nitrosodimethylamine	1				1 , , ,	CAS# 62-75-9		.1	.1
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
N-Nitrosodiphenylamine	1		J			CAS# 86-30-6	l		
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
N-Nitrosodipropylamine	L		1			CAS# 621-64-7		J	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
N-Nitrosomethylethylamin	e	<u> </u>	1			CAS# 10595-95	-6		
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
N-Nitrosomorpholine	-		£		J	CAS# 59-89-2			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
N-Nitrosopiperidine			I.		.]	CAS# 100-75-4			<u> </u>
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
N-Nitrosopyrrolidine					1	CAS# 930-55-2	I	<u></u>	.1
Second Quarter 2008	U	U	U	U	U	U	10		8270C
5-Nitroso-o-toluidine	L				1	CAS# 99-55-8		I	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Parathion			<u> </u>			CAS # 56-38-2	L	.1	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Pentachlorobenzene	<u> </u>		<u> </u>		<u>.</u>	CAS# 608-93-5		.i.	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Pentachloroethane			1			CAS# 76-01-7	[L
Second Quarter 2008	υJ	UJ	UJ	UJ	Uj	UJ	1	-	8260B
Pentachloronitrobenzene			<u> </u>			CAS# 82-68-8	<u> </u>	1	
Second Quarter 2008	υ	U	U	U	U	U	10	-	8270C
Pentachlorophenol	i				<u> </u>	CAS# 87-86-5			
Second Quarter 2008	U	U	U	U	U	U	20	T -	8270C
Phenacetin						CAS# 62-44-2			
Second Quarter 2008	U	U	U	U	U	U	10		8270C
Phenanthrene	I		<u> </u>		1	CAS# 85-01-8			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Phenol					1	CAS # 108-95-2	<u> </u>	L	
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Total Recoverable Phenoli	L		L			CAS# C-020			
Second Quarter 2008	υ	U	U	U	U	U	5	-	9065
Phorate						CAS# 298-02-2			
Second Quarter 2008	υ	U	U	U	U	U	20	-	8270C
2-Picoline						CAS# 109-06-8	L		
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Pronamide				1		CAS# 23950-58	<u> </u>		
Second Quarter 2008	U	U	U	U	U	U	10	T -	8270C
1-Propanol					_	CAS# 71-23-8	L		
Second Quarter 2008	UJ	υJ	UJ	U	U	U	1000	Τ.	8260B
		<u> </u>			1 0	CAS# 67-63-0			JEGGB
2-Propanol Second Quarter 2008	U	U	U	U	U	U	1000	l -	8260B
Propionitrile						CAS# 107-12-0	1000		52000

Radford Army Ammunition Plant, Radford, Virginia

 $Upgradient \ well = 5W8B$

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
n-Propylbenzene	4					CAS # 103-65-1			
Second Quarter 2008	U	U	U	U	V	U	1	1 -	8260B
Pyrene		1				CAS# 129-00-0			4.
Second Quarter 2008	U	υ	U	U	U	U	10		8270C
Pyridine		1				CAS # 110-86-1			
Second Quarter 2008	U	υ	U	U	υ	U	20		8270C
Safrole		1	.L			CAS# 94-59-7			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Silvex		J	<u> </u>			CAS# 93-72-1			
Second Quarter 2008	U	U	U	U	U	U	2.5	-	8151A
Styrene		l				CAS # 100-42-5			<u> </u>
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
Sulfotep		L	1			CAS# 3689-24-5			
Second Quarter 2008	U	U	U	υ	U	U	10	-	8270C
2,4,5-Trichlorophenoxyac	etic acid	<u> </u>	i			CAS# 93-76-5			٠
Second Quarter 2008	U	U	U	U	U	U	2.5	-	8151A
1,2,4,5-Tetrachlorobenzer	ne	<u> </u>	I			CAS# 95-94-3			1
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
1,1,1,2-Tetrachloroethane			1			CAS # 630-20-6			
Second Quarter 2008	U	U	U	U	U	υ	1	-	8260B
1,1,2,2-Tetrachloroethane			L	1		CAS # 79-34-5			
Second Quarter 2008	UJ	UJ	UJ	U	U	U	1	-	8260B
Tetrachloroethene						CAS # 127-18-4			
Second Quarter 2008	UJ	UJ	UJ	UJ	UJ	UJ	1	5	8260B
Tetrahydrofuran						CAS # 109-99-9		.i	
Second Quarter 2008	U	U	υ	U	U	U	5	Τ -	8260B
2,3,4,6-Tetrachlorophenol		L	L			CAS # 58-90-2		<u> </u>	1
Second Quarter 2008	U	U	U	U	U	U	10		8270C
Toluene					_	CAS # 108-88-3			
Second Quarter 2008	υJ	υJ	UJ	U	U	U	1	1000	8260B
o-Toluidine						CAS# 95-53-4		<u> </u>	
Second Quarter 2008	U	U	U	υ	U	U U	10	-	8270C
Toxaphene						CAS # 8001-35-2			
Second Quarter 2008	U	U	U	υ	U	U	1	Τ-	8081A
1,2,3-Trichlorobenzene						CAS# 87-61-6			
Second Quarter 2008	UJ	υJ	U J	UJ	UJ	U J	1	1 -	8260B
1,2,4-Trichlorobenzene				0 0		CAS # 120-82-1	<u> </u>	1	02002
Second Quarter 2008	U	U	U	U	U	U	1		8260B
-	1 0	0				CAS # 71-55-6		1	
1,1,1-Trichloroethane Second Quarter 2008	U	U	U	U	U	U	1	Τ.	8260B
						CAS # 79-00-5	'		CZGGD
1,1,2-Trichloroethane Second Quarter 2008	U	U	U	U	U	U	1	T -	8260B
	1 0	0	U	0		CAS # 79-01-6	<u>'</u>		Q200B
Trichloroethene	1	70	11	11		,	1	5	8260B
Second Quarter 2008	U	7.8	U	U	2.7	2.9	1	3	02008
Trichlorofluoromethane			1	1		CAS# 75-69-4		T	90000
Second Quarter 2008	l n l	n 1	n 1	U	U	U CAS# 95-95-4	1	-	8260B
2,4,5-Trichlorophenol						1 AN# 95-95-4			

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 5W8B

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method
2,4,6-Trichlorophenol						CAS# 88-06-2			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
1,2,3-Trichloropropane	'		1	1		CAS# 96-18-4			
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
1,1,2-Trichloro-1,2,2-Triflu	oroethane		·			CAS# 76-13-1			
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
O,O,O-Triethyl phosphoro	thioate					CAS# 126-68-1			1
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
1,2,4-Trimethylbenzene						CAS# 95-63-6			
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
1,3,5-Trimethylbenzene						CAS# 108-67-8			
Second Quarter 2008	U	U	U	U	U	U	1	-	8260B
sym-Trinitrobenzene			1	'		CAS# 99-35-4			
Second Quarter 2008	U	U	U	U	U	U	10	-	8270C
Vinyl acetate			1	<u>'</u>		CAS# 108-05-4		•	-
Second Quarter 2008	UJ	UJ	υJ	UJ	U J	ΠΊ	5	-	8260B
Vinyl chloride			3			CAS# 75-01-4		.1	J
Second Quarter 2008	UJ	υJ	UJ	UJ	U J	υJ	1	-	8260B
Xylenes (Total)			1	1.		CAS# 1330-20-7	7		
Second Quarter 2008	U	U	U	U	U	U	3	10,000	8260B

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 5W8B

All Results in ug/L.

Analyte/Quarter	5W8B Q	5W5B Q	5W7B Q	5WC21 Q	5WC22 Q	5WC23 Q	QL	GPS	Method

Definitions:

The following definitions apply to results reported for Appendix IX monitoring events.

All Appendix IX monitoring results for compliance wells are reported to the detection limit.

Appendix IX Monitoring Events: Fourth Quarter 2003, Second Quarter 2004, Second Quarter 2005,
Third Quarter 2006, Second Quarter 2007, Second Quarter 2008

QL Denotes permit required quantitation limit.

U denotes not detected at or above the detection limit.

UA denotes not detected at or above the adjusted detection limit.

J Denotes result is estimated. When used with "U" (i.e., "UJ"), denotes analyte not detected at or above the detection limit and detection limit and QL are estimated. When used with "UA" (i.e., "UAJ"), denotes analyte not detected at or above adjusted detection limit and and adjusted detection limit and OL are estimated.

UN Denotes analyte concentration is less than the quantitation limit and/or five times the blank concentration. Not reliably detected due to blank contamination. This qualifier used only for Appendix IX monitoring event when compliance well results are reported to at or above the project detection limit.

R Denotes result rejected.

Q Denotes data validation qualifier. X Denotes mass spectral confirmation not obtained-result suspect.

Background Denotes background concentrations listed in Appendix F to Attachment 2 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002), where applicable.

CAS# Denotes Chemical Abstract Services registration number.

GPS Denotes Groundwater Protection Standards listed in Appendix G to Attachment 2 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002).

NS denotes not sampled. NA denotes not analyzed.

"-" denotes not detected (pre-2nd Quarter 2003) or not available / not sampled (beginning 2nd Quarter 2003).

The following definitions apply to results reported for non-Appendix IX monitoring events. All non-Appendix IX monitoring results for compliance wells are reported to at or above the quantitation limit.

QL Denotes permit required quantitation limit.

U Denotes analyte not detected at or above QL.

UA Denotes analyte not detected at or above adjusted sample QL.

J Denotes result is estimated. When used with "U" (i.e., "UJ"), denotes analyte not detected at or above QL and QL is estimated. When used with "UA" (i.e., "UAJ"), denotes analyte not detected at or above adjusted QL and adjusted QL is estimated.

R Denotes result rejected.

Q Denotes data validation qualifier.

Background Denotes background concentrations listed in Appendix F to Attachment 2 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002), where applicable. **CAS#** Denotes Chemical Abstract Services registration number.

GPS Denotes Groundwater Protection Standards listed in Appendix G to Attachment 2 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002).

Verification events:

Verification event 12/12/03 and 6/22/2004, 3/23/05, 08/03/2005, and 9/26/2006 (original results reported). 07/17/2008. Verification results reported except where noted.



Target Analyte Monitoring Results At Or Above Permit Quantitation Limit HWMU-5 Plume Monitoring Wells

Radford Army Ammunition Plant, Radford, Virginia

All Results in ug/L.

Upgradient well = 5W8B

Analyte/Quarter/CAS #	5W8B Q	5W9A Q	5W10A Q	5W11A Q	S5W5 Q	S5W7 Q	QL	Background	Method
Antimony						CAS #	7440-3	16-0	
Second Quarter 2008	υ	U	U	U	U	U	1	3	6020
Arsenic						CAS #	7440-3	8-2	
Second Quarter 2008	U	U	υ	U	U	U	10	1	6020
Barium						CAS #	7440-3	19-3	
Second Quarter 2008	115	61.5	52.5	108	26.6	72.8	10	172.87	6020
Beryllium						CAS #	7440-4	11-7	
Second Quarter 2008	U	U	U	U	U	U	1	0.7	6020
Cadmium						CAS #	7440-4	13-9	
Second Quarter 2008	U	U	U	U	U	U	1	1.45	6020
Chromium						CAS #	7440-4	17-3	
Second Quarter 2008	U	U	U	U	U	U	5	5	6020
Cobalt				***************************************		CAS #	7440-4	18-4	
Second Quarter 2008	1.3 J	U	U	U	U	U	5	7	6020
Copper						CAS #	7440-5	50-8	
Second Quarter 2008	U	U	U	U	U	U	5	18	6020
Lead						CAS #	7439-9	2-1	
Second Quarter 2008	U	U	U	U	U	1.1	1	10	6020
Mercury						CAS #	7439-9	7-6	
Second Quarter 2008	U	U	U	U	U	U	2	0.9	7470A
Nickel						CAS	¥7440-0	02-0	
Second Quarter 2008	U	U	U	U	U	U	10	106	6020
Selenium						CAS #	‡7782-4	19-2	
Second Quarter 2008	U	U	U	U	U	U	10	1	6020
Silver	1 -						#7440-2	22-4	
Second Quarter 2008	T u	U	U	U	U	U	2	2.3	6020
Thallium							¥7440-2		
Second Quarter 2008	U	U	U	U	U	U	1	2	6020
							¥7440-6		
Vanadium	U	U	U	U	U	U	10	17	6020
Second Quarter 2008	1 0	-					#7440-6		
Zinc	5 J	U	U	U	U	U	10	75	6020
Second Quarter 2008	5 J	U			0		#67-64-		
Acetone	11 1			11 3				89	8260B
Second Quarter 2008	UJ	U J	U J	UJ	U J	U J	10 # <i>117-8</i>		020UD
bis(2-Ethylhexyl)phthalate							T		90700
Second Quarter 2008	U	U	U	U	U	U	6	10	8270C
2-Butanone	1						#78-93-		00000
Second Quarter 2008	U	U	U J	n 1	U	U	10	21.3	8260B
Chloroform	1						#67-66-		
Second Quarter 2008	U	U		U J	U	U	1	0.5	8260B
Dichlorodifluoromethane							#75-71-		
Second Quarter 2008	U	U	U J	U J	U	U	1	1	8260B
1,2-Dichloroethane							#107-0		
Second Quarter 2008	U	U	U	U	U	U	1	0.1	8260B
Diethyl ether							#60-29		
Second Quarter 2008	UJ	U J	U	U	υJ	UJ	12	12	8260B
Diethyl phthalate						CAS	#84-66		
Second Quarter 2008	U	U	υ	U	U	U	10	5	8270C
2,4-Dinitrotoluene						CAS	#121-1	4-2	
Second Quarter 2008	υ	U	U	U	U	U	10	0.18	8270C

Target Analyte Monitoring Results At Or Above Permit Quantitation Limit HWMU-5 Plume Monitoring Wells

Radford Army Ammunition Plant, Radford, Virginia

All Results in ug/L.

Upgradient well = 5W8B

Analyte/Quarter/CAS #	5W8B Q	5W9A Q	5W10A Q	5W11A Q	S5W5 Q	S5W7 Q	QL	Background	Method
2,6-Dinitrotoluene						CAS #	606-2	0-2	
Second Quarter 2008	U	U	U	U	U	U	10	0.08	8270C
Methylene chloride			****			CAS #	75-09	-2	
Second Quarter 2008	U	U	U	U	U	U	1	0.7	8260B
o-Nitroaniline						CAS t	88-74	-4	
Second Quarter 2008	Ų	U	U	U	U	U	10	20	8270C
p-Nitroaniline						CAS	100-0	1-6	
Second Quarter 2008	Ų	U	U	U	U	U	20	20	8270C
Nitrobenzene						CAS	98-95	-3	
Second Quarter 2008	Ü	U	Ų	U	U	U	10	10	8270C
Toluene						CAS	108-8	8-3	
Second Quarter 2008	UJ	υJ	U	U	UJ	U J	1	0.1	8260B
Trichloroethene						CAS	79-01	-6	
Second Quarter 2008	U	U	U	U	U	U	1	0.8	8260B
Xylenes (Total)						CAS	1330-	20-7	
Second Quarter 2008	U	U	U	U	U	U	3	0.1	8260B

Definitions

All plume monitoring well results reported to at or above the permit quantitation limit except for the upgradient well during the Appendix IX monitoring Event. During this event, results for the upgradient well are reported to the detection limit.

- Q Denotes data validation qualifier.
- QL Denotes permit required quantitation limit.
- U Denotes analyte not detected at or above QL.
- UA Denotes analyte not detected at or above adjusted sample QL.
- J Denotes result is estimated. When used with "U" (i.e., "UJ"), denotes analyte not detected at or above QL and QL is estimated. When used with "UA" (i.e., "UAJ"), denotes analyte not detected at or above adjusted QL and adjusted QL is estimated.
- UN Denotes analyte concentration is less than the quantitation limit and five times the blank concentration.

 Not reliably detected due to blank contemination. This qualifier used only for Appendix IX monitoring event, who

Not reliably detected due to blank contamination. This qualifier used only for Appendix IX monitoring event when compliance well results are reported to at or above the project detection limit.

- R Denotes result rejected.
- **Background** Denotes background concentrations listed in Appendix F to Attachment 2 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002).
- CAS# Denotes Chemical Abstract Services registration number.
- GPS Denotes groundwater protection standard.
- NS denotes not sampled.
- NA denotes not analyzed. "-" denotes not detected (pre-2nd Quarter 2003) or not available / not sampled (beginning 2nd Quarter 2003).

Comprehensive Data Validation Report

Sample/Blind Field Duplicate Results Greater Than the Quantitation Limit

Draper Aden Associates

Monitoring Event: Second Quarter 2008 Facility: HWMU-5

		Laboratory	Validated	d	
		Result	Result	ļ ,	
Analyte	Sample ID	Sample ID (ug/L) Q	(ng/L) Q	(ng/L)	Validation Notes
Method: 6020	020				
Laboratory:	Laboratory: CompuChem, Cary, NC				
Barium	5WC21	14.2	14.2	10	No action taken.
	SWDUP	13.9	13.9	10	Blind field duplicate for 5WC21. No action taken.
Beryllium	5WC21	1.9	1.9	-	No action taken.
	SWDUP	1.8	1.8	_	Blind field duplicate for 5WC21. No action taken.
Chromium	5WC21	7.4	7.4	S	No action taken.
	SWDUP	7.3	7.3	5	Blind field duplicate for 5WC21. No action taken.
Cobalt	5WC21	62.7	62.7 J	5	No action taken. RPD <10%. Result estimated -ICP Serial dilution >10% (21).
	SWDUP	61.5	61.5 J	ς,	Blind field duplicate for 5WC21. Sample/field duplicate RPD <10%. Result estimated -ICP Serial dilution >10% (21).
Copper	5WC21	6.1	6.1	5	No action taken.
	SWDUP	9	9	5	Blind field duplicate for 5WC21. No action taken.
Nickel	5WC21	39.5	39.5	10	No action taken.
	SWDUP	38.4	38.4	10	Blind field duplicate for 5WC21. No action taken.
Zinc	5WC21	43.9	43.9	10	No action taken.
	SWDUP	42.6	42.6	10	Blind field duplicate for 5WC21. No action taken.

Definitions:

Data Validation Qualifiers:

QL Denotes permit quantitation limit. Q Denotes data qualifier.

J Denotes analyte reported at or above quantitation limit and associated result is estimated.

Upgradient well = 7W12B

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method
Antimony						С	'AS #	7440-36-0
Second Quarter 2008	U	U	U	UN	1	6	1	6020
Arsenic				1	l	C	'AS#	7440-38-2
Second Quarter 2008	U	U	U	U	10	10	10	6020
Barium				1	<u> </u>	c	AS#	7440-39-3
Second Quarter 2008	39.7	21.4	28.6	45	10	2000	41	6020
Beryllium				1			AS#	7440-41-7
Second Quarter 2008	U	U	U	U	1		1	6020
Cadmium							'AS#	7440-43-9
Second Quarter 2008	U	U	U	U	1	5	1	6020
Chromium					'		'	7440-47-3
Second Quarter 2008	8.5	U	U	U	5	100	9.9	6020
Cobalt					5		'AS#	7440-48-4
Second Quarter 2008	U	U	5.8	U	-		AS# 5	6020
			J.0		5	156.65		7440-50-8
Copper Second Quarter 2008	1.7 J	U	16 1	20 1	_		AS#	
	1./ J		1.6 J	2.2 J	5	1300	5	6020
Lead Second Overter 2009	1	1 '	0.04 :				AS#	7439-92-1
Second Quarter 2008	U	U	0.21 J	U	1	15	1	6020
Mercury		1					AS#	7439-97-6
Second Quarter 2008	U	U	U	U	0.2	2	2	7470A
Nickel	1	1		,	,	<i>C</i>	AS#	7440-02-0
Second Quarter 2008	U	U	15.8	2.1 J	10	313	10	6020
Selenium						C	AS#	7782-49-2
Second Quarter 2008	U	U	U	U	10	50	10	6020
Silver						C.	AS#	7440-22-4
Second Quarter 2008	U	U	U	U	2	78.25	2	6020
Thallium						C	AS#	7440-28-0
Second Quarter 2008	U	U	U	U	1	2	1	6020
Tin						C.	AS#	7440-31-5
Second Quarter 2008	U	U	U	U	5	-		6020
Vanadium		1				C	AS#	7440-62-2
Second Quarter 2008	U	U	U	U	10	-		6020
Zinc		11			ŀ	C	AS#	7440-66-6
Second Quarter 2008	7.5 J	8.6 J	6.7 J	4.9 J	10	4695	10.9	6020
Sulfide		<u> </u>			ľ		AS#	18496-25-8
Second Quarter 2008	U	U	U	U	1000	-		9034
Cyanide							AS#	57-12-5
Second Quarter 2008	U	U	U	U	20	200	20	9010B
Acenaphthene		I					AS#	83-32-9
Second Quarter 2008	U	U	U	U	10			8270C
Acenaphthylene		L					AS #	208-96-8
Second Quarter 2008	U	U	U	υ	10			8270C
Acetone					10		AS #	67-64-1
Second Quarter 2008	U	U	U	U	F	- 1	ALD IT	8260B
				<u> </u>	5		10#	75-05-8
Acetonitrile						C	AS#	13-05-6

 $Upgradient\ well = 7W12B$

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method
Acetophenone					***************************************	(CAS#	98-86-2
Second Quarter 2008	U	U	U	U	10			8270C
2-Acetylaminofluorene				L		(CAS#	53-96-3
Second Quarter 2008	UJ	UJ	UJ	UJ	30			8270C
Acrolein		L		l			CAS#	107-02-8
Second Quarter 2008	UJ	UJ	UJ	υJ	10			8260B
Acrylonitrile							CAS#	107-13-1
Second Quarter 2008	U	U	U	U	1			8260B
Aldrin							CAS#	309-00-2
Second Quarter 2008	U	U	U	U	0.025			8081A
Allyl chloride					0.025		CAS#	107-05-1
Second Quarter 2008	U	U	U	U	1		JAIS #	8260B
		<u> </u>		U	'		CAS#	92-67-1
4-Aminobiphenyl Second Quarter 2008	U	U	U	U	40		_AB#	92-67-1 8270C
	1 0	U	J	U	10		C46#	62-53-3
Aniline Second Quarter 2008	U		11			(CAS#	1
		U	U	U	10	•		8270C
Anthracene	1						CAS#	120-12-7
Second Quarter 2008	U	U	U	U	10	•		8270C
Aramite	1					(CAS#	140-57-8
Second Quarter 2008	U	U	U	U	10	-		8270C
Benzene					,,		CAS#	71-43-2
Second Quarter 2008	U	U	U	U	1	•		8260B
Benzo[a]anthracene						(CAS#	56-55-3
Second Quarter 2008	U	U	U	U	10	-		8270C
Benzo[b]fluoranthene							CAS#	205-99-2
Second Quarter 2008	U	U	U	Ų	10	-		8270C
Benzo[k]fluoranthene						(CAS#	207-08-9
Second Quarter 2008	U	υ	Ų	U	10	-		8270C
Benzo[ghi]perylene						(CAS#	191-24-2
Second Quarter 2008	U	U	U	U	10			8270C
Benzo(a)pyrene						(CAS#	50-32-8
Second Quarter 2008	U	U	U	U	10			8270C
1,4-Benzenediamine	-1					(CAS#	106-50-3
Second Quarter 2008	U	U	U	U	50	•		8270C
Benzyl alcohol					I	-	CAS#	100-51-6
Second Quarter 2008	U	U	U	U	10	-		8270C
alpha-BHC						(CAS#	319-84-6
Second Quarter 2008	U	U	U	U	0.025	-		8081A
beta-BHC							CAS#	319-85-7
Second Quarter 2008	U	U	U	U	0.025			8081A
delta-BHC		_		-	5.520		CAS#	319-86-8
Second Quarter 2008	U	U I	U	U	0.025	-		8081A
		-			0.020		CAS#	58-89-9
gamma-BHC Second Quarter 2008	U	U	U	U	0.005		лы т	8081A
				0	0.025		749#	111-91-1
bis(2-Chloroethoxy)meth	arie					(CAS#	111-31-1

Upgradient well = 7W12B

Analtye/Quarter	7W12B Q	7MW6 Q	₹WCA Q	7W11B Q	QL	GPS	Background	Method
bis(2-Chloroethyl)ether			·····			(CAS#	111-44-4
Second Quarter 2008	U	U	U	U	10	-		8270C
bis(2-Chloro-1-methyleth	yl)ether		<u> </u>	i		(CAS#	108-60-1
Second Quarter 2008	U	U	U	U	10	-		8270C
bis(2-Ethylhexyl)phthalat	e		I			(CAS#	117-81-7
Second Quarter 2008	U	U	U	U	6	6	6	8270C
Bromobenzene		L		<u> </u>		(CAS#	108-86-1
Second Quarter 2008	U	U	U	U	1			8260B
Bromochloromethane					,		CAS#	74-97-5
Second Quarter 2008	U	U	υ	U	1			8260B
Bromodichloromethane					'		CAS#	75-27-4
Second Quarter 2008	U	U	U	U	1			8260B
Bromoform	1 -		<u> </u>		1		 CAS #	75-25-2
Second Quarter 2008	U	U	U	U	,		π	8260B
		5	· ·		1		CAS#	101-55-3
4-Bromophenyl phenyl et Second Quarter 2008	ner U	U	.,	1 11	امد	C	# CIN.	8270C
		J	U	U	10		7404	71-36-3
n-Butyl alcohol	1 ,,			1 !			CAS#	1
Second Quarter 2008	U	υ	U	U	200	-	1.0"	8260B
tert-Butyl alcohol	1			3			CAS#	75-65-0
Second Quarter 2008	ΠĴ	υJ	υJ	υJ	20	•		8260B
n-Butylbenzene							CAS#	104-51-8
Second Quarter 2008	U	U	U	U	1	-	<u></u>	8260B
sec-Butylbenzene						C	CAS#	135-98-8
Second Quarter 2008	U	U	U	U	1	-		8260B
tert-Butylbenzene							CAS#	98-06-6
Second Quarter 2008	U	U	U	υ	1	-		8260B
Butyl benzyl phthalate						C	CAS#	85-68-7
Second Quarter 2008	U	U	U	U	10	3130	10	8270C
Carbon disulfide				·		C	CAS#	75-15-0
Second Quarter 2008	U	U	U	U	1	•		8260B
Carbon tetrachloride				·		C	CAS#	56-23-5
Second Quarter 2008	U	U	U	U	1	-		8260B
Chlordane						(CAS#	57-74-9
Second Quarter 2008	U	U	U	U	0.25			8081A
p-Chloroaniline		i		<u> </u>		(CAS#	106-47-8
Second Quarter 2008	U	U	U	U	10	-		82700
Chlorobenzene	1			II	1		CAS#	108-90-7
Second Quarter 2008	U	U	U	U	1			8260B
Chlorobenzilate	1						CAS#	510-15-6
Second Quarter 2008	U	U	U	U	20			82700
p-Chloro-m-cresol		-	-				CAS#	59-50-7
Second Quarter 2008	υ	U	U	U	10		~.~ "	82700
		•			10		CAS#	75-00-3
Chloroethane		,					-A0#	
Second Quarter 2009	1 11 1	11 ;	11	111111	ا م		i .	
Second Quarter 2008 Chloroform	U	U	U	U	1	-	CAS#	8260B 67-66-3

 $Upgradient\ well = 7W12B$

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method
2-Chloroethyl vinyl ethe	7					(CAS#	110-75-8
Second Quarter 2008	UJ	U J	U J	υJ	5	-		8260B
2-Chloronaphthalene						(CAS#	91-58-7
Second Quarter 2008	U	U	U	U	10	-		8270C
2-Chlorophenol					i1	(CAS#	95-57-8
Second Quarter 2008	U	U	U	U	10	-		8270C
4-Chlorophenyl phenyl e	ether			1	<u> </u>	(CAS#	7005-72-3
Second Quarter 2008	U	U	U	U	10	-		8270C
Chloroprene				<u> </u>	L	-	CAS#	126-99-8
Second Quarter 2008	U	U	U	U	1	-		8260B
2-Chlorotoluene				<u> </u>			CAS#	95-49-8
Second Quarter 2008	U	U	U	U	1	-		8260B
4-Chlorotoluene						(CAS#	106-43-4
Second Quarter 2008	U	U	U	U	1		1	8260B
Chrysene							CAS#	218-01-9
Second Quarter 2008	U	U	υ	U	10	`	1	8270C
Cyclohexane		-	-				CAS#	110-82-7
Second Quarter 2008	U	U	υ	U	2			8260B
2,4-Dichlorophenoxyace							CAS#	94-75-7
Second Quarter 2008	U	U	U	U	5		// W	8151
4,4'-DDD					3		CAS#	72-54-8
Second Quarter 2008	U	U	U	U	0.005		/// # 	8081A
					0.025		CAS#	72-55-9
4,4'-DDE Second Quarter 2008	U	U	U	U	0.005		.A3#	8081A
	J 0		0	U	0.025		CAS#	50-29-3
4,4'-DDT Second Quarter 2008	U	U	U	U	0.005		.A3 #	8081A
	U	U	U	U	0.025		CAS#	2303-16-4
Diallate	U	U					,A5 #	8270C
Second Quarter 2008	U	U	U	U	10	-	745#	53-70-3
Dibenz(a,h)anthracene							CAS#	,
Second Quarter 2008	U	U	U	U	10	-	~	82700
Dibenzofuran	1				· · · · · · · · · · · · · · · · · · ·		CAS#	132-64-9
Second Quarter 2008	U	U	U	U	10	-		8270C 124-48-1
Dibromochloromethane	1						CAS#	
Second Quarter 2008	U	U	U	U	1	-	<u></u>	8260B
1,2-Dibromo-3-chloropro	-						CAS#	96-12-8
Second Quarter 2008	U	U	U	U	1	-		8260B
1,2-Dibromoethane					1		CAS#	106-93-4
Second Quarter 2008	U	U	U	U	1			8260B
Di-n-butyl phthalate				,			CAS#	84-74-2
Second Quarter 2008	U	U	U	U	10	-		82700
1,2-Dichlorobenzene						(CAS#	95-50-1
Second Quarter 2008	U	U	U	U	1	-		8260B
1,3-Dichlorobenzene						(CAS#	541-73-1
Second Quarter 2008	U	U	U	U	1	-		8260B
1,4-Dichlorobenzene						(CAS#	106-46-7
Second Quarter 2008	U	U	U	U	1			8260B

Upgradient well = 7W12B

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method
3,3'-Dichlorobenzidine		uman da anticolo de como de del del contra de esta en esta en esta en esta en esta en esta en esta en esta en	488			(CAS#	91-94-1
Second Quarter 2008	U	U	U	U	10	-		8270C
trans-1,4-Dichloro-2-but	ene	1		·			CAS#	110-57-6
Second Quarter 2008	υ	U	U	U	1	-		8260B
Dichlorodifluoromethan	9	1					CAS#	75-71-8
Second Quarter 2008	U	U	U	U	1	-		8260B
1,1-Dichloroethane				1	<u> </u>	(CAS#	75-34-3
Second Quarter 2008	U	U	U	U	1			8260B
1,2-Dichloroethane		ł		i	i	(CAS#	107-06-2
Second Quarter 2008	υ	U	U	U	1	-		8260B
1,1-Dichloroethene		I.	L	I	L	(CAS#	75-35-4
Second Quarter 2008	U	U	U	U	1	_		8260B
cis-1,2-Dichloroethene		L	L	l	<u> </u>	(CAS#	156-59-2
Second Quarter 2008	U	U	U	U	1	-		8260B
trans-1,2-Dichloroethene	 }	1	I	<u> </u>			CAS #	156-60-5
Second Quarter 2008	U	U	U	U	1	-		8260B
2,4-Dichlorophenol		I.	<u> </u>	1	l .		CAS#	120-83-2
Second Quarter 2008	υ	U	U	U	10	-		82700
2,6-Dichlorophenol							CAS#	87-65-0
Second Quarter 2008	U	U	U	U	10			82700
1,2-Dichloropropane		[L	1	<u> </u>		CAS#	78-87-5
Second Quarter 2008	υ	U	U	U	1			8260B
1,3-Dichloropropane				İ			CAS#	142-28-9
Second Quarter 2008	U	U	U	U	1			8260B
2,2-Dichloropropane		l					CAS#	594-20-7
Second Quarter 2008	U	U	U	U	1			8260B
1,1-Dichloropropene		L					CAS#	563-58-6
Second Quarter 2008	U	U	U	U	1	_		8260E
cis-1,3-Dichloropropene		L		-			CAS#	10061-01-5
Second Quarter 2008	U	U	U	U	1	-		8260E
trans-1,3-Dichloroproper	16				· .		CAS#	10061-02-6
Second Quarter 2008	U	U	U	U	1		1	8260E
Dieldrin		L	_		•		CAS#	60-57-1
Second Quarter 2008	U	U	U	U	0.025			8081A
Diethyl ether		_	_	_	0.020		CAS#	60-29-7
Second Quarter 2008	U	U	U	U	2			8260E
Diethyl phthalate			_		_		CAS#	84-66-2
Second Quarter 2008	U	U	U	U	10			82700
O,O-Diethyl O-2-pyraziny		L			10		CAS#	297-97-2
Second Quarter 2008	U U	U	U	U	10			82700
		L			10		CAS#	60-51-5
Dimethoate Second Quarter 2008	U	U	U	U	20		UPAD TF	82700
	U		U	U	20	-	CAS#	115-10-6
Dimethyl ether	U	l 11	11	11	_		CAS#	8260E
Second Quarter 2008		U	U	U	2		C46#	60-11-7
p-(Dimethylamino)azobe		1		I			CAS#	
Second Quarter 2008	U	U	υ	U	10	-		82700

Upgradient well = 7W12B

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method
7,12-Dimethylbenz[a]ant	hracene					C	AS#	57-97-6
Second Quarter 2008	U	U	U	U	20	-		8270C
3,3'-Dimethylbenzidine	1			t	·	C	AS #	119-93-7
Second Quarter 2008	U	U	U	υ	20	-		8270C
a,a-Dimethylphenethylar	nine			1	i	C	AS #	122-09-8
Second Quarter 2008	U	U	U	υ	50	-		82700
2,4-Dimethylphenol						C	AS #	105-67-9
Second Quarter 2008	U	U	U	U	10			8270C
Dimethyl phthalate		L				C.	4S#	131-11-3
Second Quarter 2008	U	U	U	U	10			82700
m-Dinitrobenzene				<u> </u>	i		4S#	99-65-0
Second Quarter 2008	U	U	U	U	10	-		82700
4,6-Dinitro-o-cresol				i			4S#	534-52-1
Second Quarter 2008	U	U	U	U	20	-		82700
2,4-Dinitrophenol		L		1		C.	AS#	51-28-5
Second Quarter 2008	U	U	U	U	10	31.3	10	82700
2,4-Dinitrotoluene		I		1	<u> </u>	- C	AS #	121-14-2
Second Quarter 2008	U	U	1.2 J	υ	10	31.3	10	82700
2,6-Dinitrotoluene				<u> </u>	II	C	AS#	606-20-2
Second Quarter 2008	U	U	U	U	10	15.65	10	82700
Dinoseb				L	iI	C	AS#	88-85-7
Second Quarter 2008	U	U	U	U	2.5			8151
Di-n-octyl phthalate						C	AS #	117-84-0
Second Quarter 2008	U	U	U	U	10			82700
1,4-Dioxane						C	AS#	123-91-1
Second Quarter 2008	U	U	U	U	200	-		8260E
Diphenylamine	<u> </u>			1		C	AS#	122-39-4
Second Quarter 2008	U	U	U	U	10			82700
Disulfoton						C	AS#	298-04-4
Second Quarter 2008	U	U	U	U	10	•	-	82700
Endosulfan I		L		l			AS#	959-98-8
Second Quarter 2008	U	U	υ	U	0.025	-		8081 <i>A</i>
Endosulfan II		-	-		J.,J2.5		AS#	33213-65-9
Second Quarter 2008	U	U	U	U	0.025			8081
Endosulfan sulfate							AS#	1031-07-8
Second Quarter 2008	U	U	U	U	0.025	-		8081
Endrin	<u> </u>	-	-	-	2.525		AS #	72-20-8
Second Quarter 2008	U	U	U	U	0.025			8081
Ethyl acetate	1 -				0.020		AS #	141-78-6
Second Quarter 2008	UJ	UJ	UJ	UJ	2	-		82601
			- 0		-		AS #	7421-93-4
Endrin aldehyde Second Quarter 2008	U	U	U	U	0.025		, , , , , , , , , , , , , , , , , , ,	8081/
Ethanol		Ŭ	,		0.025		AS#	64-17-5
Second Quarter 2008	U	U	U	U	200		, a.j. #	8260E
Ethylbenzene	J	J	J	"	∠00		AS#	100-41-4

Upgradient well = 7W12B

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method
Ethyl methacrylate						(CAS#	97-63-2
Second Quarter 2008	U	U	U	U	1	-		8260B
Ethyl methanesulfonate						(CAS#	62-50-0
Second Quarter 2008	U	U	U	U	10	•		8270C
Ethylene oxide				,	iI	(CAS#	75-21-8
Second Quarter 2008	U	U	U	U	20	-	-	8260B
Famphur			l	;		(CAS#	52-85-7
Second Quarter 2008	U	U	U	U	10	-		82700
Fluoranthene	1					(CAS#	206-44-0
Second Quarter 2008	U	υ	U	U	10	-		82700
Fluorene			I			(CAS#	86-73-7
Second Quarter 2008	U	U	U	U	10	-		82700
Heptachlor	1		ı			(CAS#	76-44-8
Second Quarter 2008	U	U	U	U	0.025	-		8081A
Heptachlor epoxide			1		l	(CAS#	1024-57-3
Second Quarter 2008	U	U	U	U	0.025	•		8081A
Hexachlorobenzene				1	L	(CAS#	118-74-1
Second Quarter 2008	U	U	U	U	10	-		82700
Hexachlorobutadiene		I		I	l	-	CAS#	87-68-3
Second Quarter 2008	กา	υJ	υJ	υJ	1			8260E
Hexachlorocyclopentad	iene			I!			CAS#	77-47-4
Second Quarter 2008	UJ	U J	UJ	UJ	20	-		82700
Hexachloroethane					i 1	(CAS#	67-72-1
Second Quarter 2008	U	U	U	U	1			8260E
Hexachlorophene			L				CAS#	70-30-4
Second Quarter 2008	U	U	U	U	500	-		82700
Hexachioropropene						(CAS#	188871-7
Second Quarter 2008	U	U	U	U	10	•		82700
2-Hexanone			I			(CAS#	591-78-6
Second Quarter 2008	U	U	U	U	5	-		8260E
Indeno[1,2,3-cd]pyrene						(CAS#	193-39-5
Second Quarter 2008	U	U	U	U	10	-		82700
Isobutyl alcohol			l				CAS#	78-83-1
Second Quarter 2008	UJ	UJ	υJ	U J	125	-		8260E
Isodrin		l	l			-	CAS#	465-73-6
Second Quarter 2008	U	U	U	U	10			82700
Isophorone		L	1	1		-	CAS#	78-59-1
Second Quarter 2008	U	U	U	U	10	-		82700
Isopropylbenzene				1		(CAS#	98-82-8
Second Quarter 2008	U	U	U	U	1			8260
Isopropylether		<u> </u>	l	L., ,	L		CAS#	108-20-3
Second Quarter 2008	U	U	U	U	1			82601
4-Isopropyltoluene		L	I	1			CAS#	99-87-6
Second Quarter 2008	U	U	U	U	1			82608
Isosafrole		L	L				CAS#	120-58-1
Second Quarter 2008	U	U	U	U	10			82700

Upgradient well = 7W12B

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method
Kepone		***************************************				(CAS#	143-50-0
Second Quarter 2008	U	U	U	U	10	-		8270C
Methacrylonitrile	'			1		(CAS#	126-98-7
Second Quarter 2008	U	U	U	U	10	-		8260B
Methapyrilene	1	I	<u> </u>	!		(CAS#	91-80-5
Second Quarter 2008	υ	U	U	U	10	-		8270C
Methoxychlor							CAS#	72-43-5
Second Quarter 2008	U	U	U	U	0.025	-		8081A
Bromomethane							CAS#	74-83-9
Second Quarter 2008	U	U	U	U	1			8260B
Chloromethane					'		CAS#	74-87-3
Second Quarter 2008	U	U	U	U	1		1	8260B
			<u> </u>		ı		CAS#	56-49-5
3-Methylcholanthrene Second Quarter 2008	U	U	U	U	10		<i>π</i>	8270C
		U	U	U	10		CAS#	78-93-3
2-Butanone Second Quarter 2008	1 11	11	11		_		A10 #	76-93-3 8260B
	U	U	U	U	5		CAS#	74-88-4
lodomethane	1 11	.,					AS#	,
Second Quarter 2008	U	U	U	υ	1	-	7.46.11	8260B
Methyl methacrylate	1			1			CAS#	80-62-6
Second Quarter 2008	U	U	U	U	1	-		8260B
Methyl methane sulfonat	1						CAS#	66-27-3
Second Quarter 2008	U	U	U	υ	10	-		82700
2-Methylnaphthalene			,	,		- (CAS#	91-57-6
Second Quarter 2008	U	U	U	U	10	-		82700
Methyl parathion							CAS#	298-00-0
Second Quarter 2008	U	U	U	U	10	-		82700
4-Methyl-2-pentanone							CAS#	108-10-1
Second Quarter 2008	U	U	U	U	5	•		8260E
2-Methylphenol						(CAS#	95-48-7
Second Quarter 2008	U	U	U	U	10	-		82700
3 & 4-Methylphenol				•		(CAS#	106-44-5
Second Quarter 2008	U	U	U	U	10	-		82700
Methyl tert-butyl ether	· · · · · · · · · · · · · · · · · · ·					(CAS#	1634-04-4
Second Quarter 2008	U	υ	U	U	1	-		8260E
Dibromomethane	1	l	L			(CAS#	74-95-3
Second Quarter 2008	U	U	U	υ	1	-		8260E
Methylene chloride		<u> </u>	L				CAS#	75-09-2
Second Quarter 2008	U	U	U	U	1			8260E
Naphthalene	1					(CAS#	91-20-3
Second Quarter 2008	UJ	UJ	υJ	υJ	1	-		8260E
1,4-Naphthoguinone							CAS#	130-15-4
Second Quarter 2008	U	υ	U	U	10	-		82700
1-Naphthylamine	1 -	-	_	_	,0		CAS#	134-32-7
Second Quarter 2008	U	U	U	U	10	-		82700
					10		CAS#	91-59-8
2-Naphthylamine						,	דענייע דיי	5, 50 0

 $Upgradient\ well = 7W12B$

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method
o-Nitroaniline			** = *270. /2.2/////			(CAS#	88-74-4
Second Quarter 2008	U	U	U	υ	10	-		8270C
m-Nitroaniline	F	1		I	L		CAS#	99-09-2
Second Quarter 2008	υ	U	U	υ	20	-		8270C
p-Nitroaniline	I					(CAS#	100-01-6
Second Quarter 2008	υJ	UJ	UJ	υJ	20	l -		8270C
Nitrobenzene							CAS#	98-95-3
Second Quarter 2008	U	U	U	U	10			8270C
					10		CAS#	88-75-5
o-Nitrophenol Second Quarter 2008	U	U	U	U		1	Z13 #	8270C
	U	U	U	U	10	-	7.4.0.11	100-02-7
p-Nitrophenol	·			1		1	CAS#	·
Second Quarter 2008	U	U	U	U	10	50	20	8270C
4-Nitroquinoline-1-oxide	,						CAS#	56-57-5
Second Quarter 2008	U	U	U	U	50	-		8270C
N-Nitrosodi-n-butylamine							CAS#	924-16-3
Second Quarter 2008	U	U	U	U	10	-		8270C
N-Nitrosodiethylamine						(CAS#	55-18-5
Second Quarter 2008	υ	U	U	U	10	-		8270C
N-Nitrosodimethylamine		 		1	1	•	CAS#	62-75-9
Second Quarter 2008	U	U	U	υ	10			8270C
N-Nitrosodiphenylamine		I.	l	I .	l	(CAS#	86-30-6
Second Quarter 2008	U	υ	U	υ	10	_		8270C
N-Nitrosodipropylamine	<u> </u>			I		<u> </u>	CAS#	621-64-7
Second Quarter 2008	U	U	U	U	10	_		8270C
N-Nitrosomethylethylamin		_				L	CAS#	10595-95-6
Second Quarter 2008	U	U	U	U	10	`	1	8270C
		U			10	l	CAS#	59-89-2
N-Nitrosomorpholine		U		U	40	·	AS#	8270C
Second Quarter 2008	U	· ·	U	U	10	-	346#	100-75-4
N-Nitrosopiperidine	1	1		1	1	ſ	CAS#	
Second Quarter 2008	U	U	U	U	10	-		82700
N-Nitrosopyrrolidine				,	1		CAS#	930-55-2
Second Quarter 2008	U	U	U	U	10	-		8270C
5-Nitroso-o-toluidine						(CAS#	99-55-8
Second Quarter 2008	U	U	U	υ	10	-		82700
Parathion						(CAS#	56-38-2
Second Quarter 2008	U	υ	U	U	10	-		82700
Pentachlorobenzene						(CAS#	608-93-5
Second Quarter 2008	U	U	U	U	10	-		82700
Pentachloroethane	1	L	[[i	(CAS#	76-01-7
Second Quarter 2008	UJ	U J	UJ	UJ	1	-		8260E
Pentachloronitrobenzene	<u> </u>	<u> </u>		<u> </u>	· ·		CAS#	82-68-8
Second Quarter 2008	U	U	U	U	10	· ·		82700
Pentachlorophenol			_		10	<u> </u>	CAS#	87-86-5
Second Quarter 2008	U	U	U	U	- 20	1		82700
		<u> </u>	U		20		CAS#	62-44-2
Phenacetin							A3#	UZ-14°Z

 $Upgradient\ well = 7W12B$

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method
Phenanthrene	<u> </u>					(CAS#	85-01 - 8
Second Quarter 2008	U	U	U	U	10			8270C
Phenol		I		1		(CAS#	108-95-2
Second Quarter 2008	U	U	U	U	10	-		8270C
Total Recoverable Pheno	olics	1	<u> </u>	L		(CAS#	C-020
Second Quarter 2008	U	U	U	U	5			9065
Phorate		<u> </u>		i	li	-	CAS#	298-02-2
Second Quarter 2008	U	Ų	U	U	20	-		8270C
2-Picoline			1			(CAS#	109-06-8
Second Quarter 2008	U	U	U	U	10	-		8270C
Pronamide]		(CAS # 2	3950-58-5
Second Quarter 2008	U	U	U	U	10			8270C
1-Propanol			i	1		(CAS#	71-23-8
Second Quarter 2008	U	U	U	U	1000	-		8260B
2-Propanol		I	<u> </u>	<u> </u>			CAS#	67-63-0
Second Quarter 2008	U	U	U	U	1000	•		8260B
Propionitrile	<u> </u>	1	I	I				107-12-0
Second Quarter 2008	U	U	U	U	10	-		8260B
n-Propylbenzene		I		l			CAS#	103-65-1
Second Quarter 2008	υ	U	U	U	1	-		8260B
Pyrene	1	<u> </u>		İ			CAS#	129-00-0
Second Quarter 2008	U	U	U	υ	10			8270C
Pyridine			I	I			CAS#	110-86-1
Second Quarter 2008	U	U	U	U	20	_		82700
Safrole]					CAS#	94-59-7
Second Quarter 2008	U	U	U	U	10			8270C
Silvex		_					CAS#	93-72-1
Second Quarter 2008	U	U	U	U	2.5			8151
Styrene							CAS#	100-42-5
Second Quarter 2008	U	U	U	U	1	-		8260B
Sulfotep			L	-	<u> </u>		CAS#	3689-24-5
Second Quarter 2008	U	U	U	U	10			82700
2,4,5-Trichlorophenoxya			L	1	.5		CAS#	93-76-5
Second Quarter 2008	U	υ	U	U	2,5		<i>"</i>	8151
1,2,4,5-Tetrachlorobenze		1	L -		2.0		CAS#	95-94-3
Second Quarter 2008	U	U	U	U	10			82700
1,1,1,2-Tetrachloroethan				I -	10		CAS#	630-20-6
Second Quarter 2008	U	U	U	U	1			8260E
1,1,2,2-Tetrachloroethan					'		CAS#	79-34-5
Second Quarter 2008	U	U	U	U	1			8260B
Tetrachloroethene		L		<u> </u>			CAS#	127-18-4
Second Quarter 2008	U	U	U	U	1	_		8260E
Tetrahydrofuran		<u> </u>			'		CAS#	109-99-9
Second Quarter 2008	U	U	U	U	5			8260B
2,3,4,6-Tetrachloropheno							CAS#	58-90-2

Upgradient well = 7W12B

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method
Toluene					****	(CAS#	108-88-3
Second Quarter 2008	U	U	U	U	1	-		8260B
o-Toluidine			1			(CAS#	95-53-4
Second Quarter 2008	U	U	U	U	10	-		8270C
Toxaphene		•	<u> </u>				CAS#	8001-35-2
Second Quarter 2008	U	U	U	U	1	-		8081A
1,2,3-Trichlorobenzene						•	CAS#	87-61-6
Second Quarter 2008	υJ	UJ	UJ	υJ	1			8260B
1,2,4-Trichlorobenzene						•	CAS#	120-82-1
Second Quarter 2008	UJ	UJ	UJ	UJ	1			8260B
1,1,1-Trichloroethane		.!		I		•	CAS#	71-55-6
Second Quarter 2008	U	U	U	U	1	-		8260B
1,1,2-Trichloroethane	. 1	1				•	CAS#	79-00-5
Second Quarter 2008	U	U	υ	U	1			8260B
Trichloroethene	-1		1	I		(CAS#	79-01-6
Second Quarter 2008	U	U	U	U	1	-		8260B
Trichlorofluoromethane			I	1		(CAS#	75-69-4
Second Quarter 2008	U	U	U	U	1	-		8260B
2,4,5-Trichlorophenol						(CAS#	95-95-4
Second Quarter 2008	U	U	U	U	10	-		8270C
2,4,6-Trichlorophenol	1		l	I			CAS#	88-06-2
Second Quarter 2008	U	U	U	U	10			82700
1,2,3-Trichloropropane				1			CAS#	96-18-4
Second Quarter 2008	U	U	U	U	1	-		8260B
1,1,2-Trichloro-1,2,2-Triflu	ıoroethan	 e		1			CAS#	76-13-1
Second Quarter 2008	U	U	U	U	1	-		8260B
O,O,O-Triethyl phosphoro	othioate						CAS#	126-68-1
Second Quarter 2008	U	U	U	U	10	Τ.		82700
1,2,4-Trimethylbenzene		1		L			CAS#	95-63-6
Second Quarter 2008	U	U	U	U	1	T -		8260B
1,3,5-Trimethylbenzene	1	1		l	-	ii	CAS#	108-67-8
Second Quarter 2008	υ	U	U	U	1	l -		8260B
sym-Trinitrobenzene				1	1		CAS#	99-35-4
Second Quarter 2008	U	U	U	U	10	1 -		82700
Vinyl acetate	<u> </u>				, •		CAS#	108-05-4
Second Quarter 2008	U	υ	U	υ	5	· ·		8260E
Vinyl chloride		1 -	•			<u> </u>	CAS#	75-01-4
Second Quarter 2008	U	U	U	υ	1		J.5 "	8260E
					<u>'</u>	L	CAS#	1330-20-7
Xylenes (Total) Second Quarter 2008	U	U	U	U	3		μ <u>π</u>	8260E

Upgradient well = 7W12B

All Results in ug/L.

Analtye/Quarter	7W12B Q	7MW6 Q	7WCA Q	7W11B Q	QL	GPS	Background	Method

Definitions:

The following definitions apply to results reported for Appendix IX monitoring events.

All Appendix IX monitoring results for compliance wells are reported to the detection limit.

QL Denotes permit required quantitation limit.

U denotes not detected at or above the detection limit.

UA denotes not detected at or above the adjusted detection limit.

J Denotes result is estimated. When used with "U" (i.e., "UJ"), denotes analyte not detected at or above the detection limit and detection limit and QL are estimated. When used with "UA" (i.e., "UAJ"), denotes analyte not detected at or above adjusted detection limit and and adjusted detection limit and OL are estimated.

UN Denotes analyte concentration is less than the quantitation limit and/or five times the blank concentration. Not reliably detected due to blank contamination. This qualifier used only for Appendix IX monitoring event when compliance well results are reported to at or above the project detection limit.

R Denotes result rejected.

Q Denotes data validation qualifier.

Background Denotes background concentrations listed in Appendix F to Attachment 3 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002), where applicable.

CAS# Denotes Chemical Abstract Services registration number.

GPS Denotes groundwater protection standard.

The following definitions apply to results reported for non-Appendix IX monitoring events. All non-Appendix IX monitoring results for compliance wells are reported to at or above the quantitation limit.

QL Denotes permit required quantitation limit.

U Denotes analyte not detected at or above QL.

UA Denotes analyte not detected at or above adjusted sample QL.

J Denotes result is estimated. When used with "U" (i.e., "UJ"), denotes analyte not detected at or above QL and QL is estimated. When used with "UA" (i.e., "UAJ"), denotes analyte not detected at or above adjusted QL and adjusted QL is estimated.

R Denotes result rejected.

Q Denotes data validation qualifier.

Background Denotes background concentrations listed in Appendix F to Attachment 3 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002), where applicable.

CAS# Denotes Chemical Abstract Services registration number.

GPS Denotes groundwater protection standard.

Notes:

Appendix IX Groundwater Monitoring Events:

Third Quarter 2003, Second Quarter 2004, Second Quarter 2005, Third Quarter 2006, Second Quarter 2007, Second Quarter 2008

All Appendix IX results evaluated and reported to detection limit.

-9/29/2003: Verification sampling event for 7MW6, 7W11B, 7W12B, 7WCA (copper and zinc).

Verification results reported in this table for copper and zinc.
6/21-22/2004: Verification sampling event for 7MW6, 7W11B, 7W12B, 7WCA.

Verification results reported in this table for chloroform (7W12B).

3/23/2005: Verification sampling event for 7MW6. Verification results reported in this table for bis(2-ethylhexyl)phthalate).

7/26/2005: Verification sampling event for 7MW6, 7W11B, 7W12B, 7WCA (ethyl acetate), 7W11B (beta-BHC), and 7MW6 (alpha-BHC). All verification results reported as not detected. Verification results reported.

Sept 2006: Verification sampling event for 7W12B and 7W11B 3Q2006 for chloroform. Initial results reported in this table for chloroform (7W11B, 7W12B).

July 17, 2008: Verification sampling event for 7W13 arsenic and cobalt. 7W9C cobalt



Target Analyte Monitoring Results At or Above Permit Quantitation Limit HWMU 7 Plume Monitoring Wells

Radford Army Ammunition Plant, Radford, Virginia

All Results in ug/L.

 $Upgradient\ well = 7W12B$

-			1		· · · · · · · · · · · · · · · · · · ·	1			1 1	
Analyte/Quarter	7W12B Q	7W9C Q	7W10B Q	7W10C Q	7W13 Q	QL	Background	GPS	Method	CAS#
Antimony										
Second Quarter 2008	U	UN	U	U	U	1	1	6	6020	7440-36-0
Arsenic						4				
Second Quarter 2008	U	U	U	U	U	10	10	10	6020	7440-38-2
Barium										
Second Quarter 2008	39.7	26.6	83.2	51.8	14.1	10	41	2000	6020	7440-39-3
Cadmium							1			
Second Quarter 2008	U	U	U	U	U	1	1	5	6020	7440-43-9
Chromium				•••••					-1	
Second Quarter 2008	8.5	U	υ	U	U	5	9.9	100	6020	7440-47-3
Cobalt	<u>- </u>		l			1				
Second Quarter 2008	U	U	U	U	5.8	5	5	156.65	6020	7440-48-4
Copper	-L		l				.			
Second Quarter 2008	1.7 J	U	U	U	U	5	5	1300	6020	7440-50-8
Lead	·		1							
Second Quarter 2008	U	U	U	U	U	1	1	15	6020	7439-92-1
Mercury	1		1							
Second Quarter 2008	U	U	U	U	U	0.2	2	2	7470A	7439-97-6
Nickel	<u> </u>		i							
Second Quarter 2008	U	U	U	U	U	10	10	313	6020	7440-02-0
Selenium	1		1			1	LL.		.1	L
Second Quarter 2008	U	U	U	U	U	10	10	50	6020	7782-49-2
Silver	I .						L			I
Second Quarter 2008	U	U	U	U	U	2	2	78.25	6020	7440-22-4
Thallium	1		L			1			1	
Second Quarter 2008	U	U	U	U	U	1	1 1	2	6020	7440-28-0
Zinc	11		<u> </u>							<u> </u>
Second Quarter 2008	7.5 J	U	U	U	U	10	10.9	4695	6020	7440-66-6
Cyanide	L		1			L				
Second Quarter 2008	U	U	U	U	U	20	20	200	9010B	57-12-5
bis(2-Ethylhexyl)pht	thalate		li			L	L		_L	
Second Quarter 2008	U	U	UJ	U	U	6	6	6	8270C	117-81-7
Butyl benzyl phthala	ate		II							<u> </u>
Second Quarter 2008	U	U	UJ	U	U	10	10	3130	8270C	85-68-7
2,4-Dinitrophenol			lL			L				L
Second Quarter 2008	U	U	UJ	U	U	10	10	31.3	8270C	51-28-5
2,4-Dinitrotoluene										J
Second Quarter 2008	U	U	UJ	U	U	10	10	31.3	8270C	121-14-2
2,6-Dinitrotoluene		· · · · · · · · · · · · · · · · · · ·	11		<u> </u>	<u> </u>			<u> </u>	
Second Quarter 2008	U	U	UJ	U	U	10	10	15.65	8270C	606-20-2
p-Nitrophenol									1	
Second Quarter 2008	U	U	UJ	U	U	10	20	50	8270C	100-02-7
Second Quarter 2008		J	0 3	5	J		20	50	32,00	.50 02-7

Target Analyte Monitoring Results At or Above Permit Quantitation Limit HWMU 7 Plume Monitoring Wells

Radford Army Ammunition Plant, Radford, Virginia

All Results in ug/L.

Upgradient well = 7W12B

	· · · · · · · · · · · · · · · · · · ·									
Analyte/Quarter	7W12B Q	7W9C Q	7W10B Q	7W10C Q	7W13 Q	QL	Background	GPS	Method	CAS#

Definitions:

All plume monitoring well results reported to at or above the permit quantitation limit except for the upgradient well during the Appendix IX monitoring Event. During this event, results for the upgradient well are reported to the detection limit.

- O Denotes data validation qualifier.
- **OL** Denotes permit required quantitation limit.
- U Denotes analyte not detected at or above QL.
- UA Denotes analyte not detected at or above adjusted sample QL.
- J Denotes result is estimated. When used with "U" (i.e., "UJ"), denotes analyte not detected at or above QL and QL is estimated. When used with "UA" (i.e., "UAJ"), denotes analyte not detected at or above adjusted QL and adjusted QL is estimated.
- UN Denotes analyte concentration is less than the quantiation limit and five times the blank concentration.

 Not reliably detected due to blank contamination. This qualifier used only for Appendix IX monitoring event when compliance well results are reported to at or above the project detection limit.
- R Denotes result rejected.
- **Background** Denotes background concentrations calculated using 2nd Quarter 2003 through 4th Quarter 2007 data from the upgradient well 7W12B.
- CAS# Denotes Chemical Abstract Services registration number. GPS Denotes groundwater protection standard.

Notes:

- -January 2005: Verification sampling event for 7MW13 4Q2004 arsenic. Verification results reported in this table for arsenic (7W13).
- -March 2006: Verification sampling event for 7MW13 1Q2006 arsenic. Verification results reported in this table for arsenic (7W13).
- -July 2006: Verification sampling event for 7MW13 2Q2006 arsenic. Verification results reported in this table for arsenic (7W13).
- -Sept 2006: Verification sampling event for 7W12B 3Q2006 chloroform. Initial results reported in this table for chloroform (7W12B).
- -July 17, 2007. Verification sampling event for 7W13 arsenic-verification event result reported, highest of four quadruplicate results,

7W13 cobalt-original result reported. 7W9C cobalt- Verification result reported.

Comprehensive Data Validation Report

Sample/Blind Field Duplicate Results Greater Than the Quantitation Limit

Draper Aden Associates

Facility: HWMU-7

Monitoring Event: Second Quarter 2008

	_	Laboratory Result	Validated Result	성	
Analyte	Sample ID	Sample ID (ug/L) Q	(ug/L) Q (ug/L)	(ng/L)	Validation Notes
Method: 6020					
Laboratory: CompuChem, a Division of Liberty Analytical, Cary, NC	Them, a Division of	f Liberty Anal	ytical, Cary, NC		
Barium	7WCA	28.6	28.6	10	No action taken.
	7WDUP	29.2	29.2	10	Blind sample duplicate for 7WCA. No action taken. RPD <10%.
Cobalt	7WCA	5.8	5.8	5	No action taken.

Blind sample duplicate for 7WCA. No action taken. RPD <10%.

Blind sample duplicate for 7WCA. No action taken. RPD <10%.

10

16.3 15.8

7WDUP 7WCA

15.8 16.3

Nickel

7WDUP

Definitions: QL Denotes permit quantitation limit. Q Denotes data qualifier. J Denotes analyte reported at or above QL limit and associated result is estimated.

Upgradient well = 10D4

Analyte/Quarter	10D4 Q	10D3 Q	10D3D Q	10DDH2R Q	10MW1 Q	QL	GPS	Method
Antimony				CAS #	7440-36-0			
Second Quarter 2008	U	U	U	U	U	1	-	6020
Arsenic		1	1	CAS #	7440-38-2			·····
Second Quarter 2008	U	U	U	U	U	10	50	6020
Barium		1		CAS	7440-39-3			
Second Quarter 2008	123 J	118 J	54.4 J	95.3 J	92.9 J	10	2000	6020
Beryllium	. !			CAS #	7440-41-7			
Second Quarter 2008	U	U	U	Ū	U	1	- 1	6020
Cadmium				CAS #	7440-43-9			
Second Quarter 2008	U	U	U	U	U	1		6020
Chromium		1		CAS #	7440-47-3			
Second Quarter 2008	3.5 J	1.8 J	U	4 J	2.4 J	5	100	6020
Cobalt				CAS#	7440-48-4	I.		
Second Quarter 2008	U	U	U	U	U	5		6020
Copper		L			7440-50-8	-		
Second Quarter 2008	1.2 J	1.1 J	U	U	U	5	1300	6020
Lead			J		7439-92-1			
Second Quarter 2008	0.38 J	U	U	U	U	1	15	6020
Mercury		_	I		7439-97-6	· · · · · ·		
Second Quarter 2008	U	U	U	U	U	2	2	7470A
Nickel					7440-02-0			1410/1
Second Quarter 2008	U	U	U	U	U	10	313	6020
Sèlenium		U			7782-49-2	10	010	0020
Second Quarter 2008	U	U	U	U U	U	10	50	6020
Silver	0		0		7440-22-4		30	0020
Second Quarter 2008	U	U	U	U	U	2	78.25	6020
Thallium			0		7440-28-0	2	76.25	0020
Second Quarter 2008	UJ	UJ	UJ			4		6000
Tin		U 3	UJ		7440-31-5	1	- 1	6020
Second Quarter 2008	U	U				-		0000
	0	<u> </u>	U	U C45#	7440-62-2	5	=	6020
/anadium	1 11 1				,			
Second Quarter 2008	U	U	U	U	7440.00.0	10	-	6020
Zinc		40.1			7440-66-6			
Second Quarter 2008	5 J	4.9 J	6.7 J	3.5 J	3.7 J	10	4695	6020
Sulfide	T ,.				18496-25-8			
Second Quarter 2008	U	U	U	U	U	1000	-	9034
Cyanide	т т				57-12-5			
Second Quarter 2008	U	U	U	U	U	20	200	9014
Acenaphthene					83-32-9			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Acenaphthylene					208-96-8	·····		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Acetone	T		*		67-64-1			
Second Quarter 2008	U	U	18000	180 J	U	5	-	8260B
Acetonitrile				CAS#	75-05-8			
Second Quarter 2008	U	U	UA	U	U	100	-	8260B
cetophenone				CAS#	98-86-2			
Second Quarter 2008	U	U	U	U	U	10	-	8270C

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 10D4

Analyte/Quarter	10D4 Q	10D3 Q	10D3D Q	10DDH2R Q	10MW1 Q	QL	GPS	Method
2-Acetylaminofluorene				CAS#	<i>53-</i> 96-3			
Second Quarter 2008	U	U	U	U	U	30	-	8270C
Acrolein				CAS#	107-02-8			
Second Quarter 2008	UJ	UJ	U JA	UJ	UJ	10	-	8260B
Acrylonitrile			1	CAS#	107-13-1			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Aldrin	<u></u>	·····	J	CAS#	309-00-2			
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
Allyl chloride		·	,	CAS#	107-05-1			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
4-Aminobiphenyl		·		CAS#	92-67-1			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Aniline	J		J.	CAS#	62-53-3			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Anthracene	,1	L		CAS#	120-12-7			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Aramite		L		CAS#	140-57-8			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Benzene	1	I		CAS#	71-43-2			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Benzo[a]anthracene		1	1	CAS#	56-55-3			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Benzo[b]fluoranthene	1	<u> </u>		CAS#	205-99-2	ł		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Benzo[k]fluoranthene		<u> </u>		CAS#	207-08-9			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Benzo[ghi]perylene			I	CAS#	191-24-2			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Benzo(a)pyrene	1	<u> </u>	1	CAS#	50-32-8	1.		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
1.4-Benzenediamine	<u> </u>	<u></u>		CAS#	106-50-3		1	
Second Quarter 2008	U	U	U	U	U	50	-	8270C
Benzyl alcohol		L	<u></u>	CAS#	100-51-6			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
alpha-BHC		L	l	CAS#	319-84-6	L		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
oeta-BHC		I	1		319-85-7			
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
delta-BHC	1 -	<u> </u>	1	CAS#	319-86-8			
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
gamma-BHC		L	<u> </u>	<u> </u>	58-89-9			
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
ois(2-Chloroethoxy)metl		L		L	111-91-1			
Second Quarter 2008	U	U	U	U	υ	10		8270C
ois(2-Chloroethyl)ether					111-44-4			
Second Quarter 2008	U	U	U	U	U	10	_	8270C
ois(2-Chloro-1-methyleti					108-60-1	, ,		
	IAIDELLE			~ 10 11				

Upgradient well = 10D4

Analyte/Quarter	10D4 Q	10D3 Q	10D3D	Q	10DDH2R	Q	10MW1 Q	QL	GPS	Method
bis(2-Ethylhexyl)phthala	te				c	1S#	117-81-7			
Second Quarter 2008	U	U	U		U		U	6	-	8270C
Bromobenzene					C	1S#	108-86-1			
Second Quarter 2008	U	U	U	Α	U		U	1	-	8260B
Bromochloromethane			<u> </u>		C	1S#	74-97-5			
Second Quarter 2008	U	U	Ų	Α	U		U	1	-	8260B
Bromodichloromethane					c	1S#	75-27-4			
Second Quarter 2008	U	U	U	Α	U		U	1	80	8260B
Bromoform			<u> </u>		c	1S#	75-25-2			
Second Quarter 2008	U	U	Ų	Α	U		U	1	-	8260B
4-Bromophenyl phenyl e	ther		·		C	1.S #	101-55-3			
Second Quarter 2008	U	U	U		U		U	10	-	8270C
2-Butanone				- '	C	1S#	78-93-3	**************************************		
Second Quarter 2008	U	U	U	Α	U		U	5	691.08	8260B
n-Butyl alcohol		·			C	1S#	71-36-3		L.	A. A. A. A. A. A. A. A. A. A. A. A. A. A
Second Quarter 2008	U	U	U	Α	U		U	200	- 1	8260B
tert-Butyl alcohol			1		c	1S#	75-65-0			
Second Quarter 2008	UJ	UJ	U	JA	U	J	UJ	20	-	8260B
n-Butylbenzene	.1		I		C	1S#	104-51-8			·
Second Quarter 2008	U	U	U	Α	U		U	1	-	8260B
sec-Butylbenzene			<u> </u>		C	1S#	135-98-8			
Second Quarter 2008	U	U	U	Α	U		U	1	-	8260B
tert-Butylbenzene	1		1		C	1S#	98-06-6	i		
Second Quarter 2008	U	U	U	Α	U		U	1	-	8260B
Butyl benzyl phthalate	1		L		C	1S#	85-68-7			
Second Quarter 2008	U	U	U		U		U	10	-	8270C
Carbon disulfide			L		c	1S#	75-15-0	1		
Second Quarter 2008	U	U	U	Α	U		U	1	-	8260B
Carbon tetrachloride	J		1		C	1S#	56-23-5			
Second Quarter 2008	U	U	U	Α	U		U	1	-	8260B
Chlordane			<u> </u>		C	1S#	57-74-9			
Second Quarter 2008	U	U	U		U		U A	0.25	-	8081A
p-Chloroaniline	<u> </u>	***************************************			C	1S#	106-47-8			
Second Quarter 2008	U	U	U		U		U	10	-	8270C
Chlorobenzene	1				c	4S#	108-90-7			
Second Quarter 2008	U	U	U	Α	U		U	1	-	8260B
Chlorobenzilate	1	_	L			4S#	510-15-6			
Second Quarter 2008	U	U	U		U		U	20	-	8270C
p-Chloro-m-cresol			l			4S#	59-50-7			
Second Quarter 2008	U	U	U		U		U	10	-	8270C
Chloroethane	1 -				_	4.S #	75-00-3			
Second Quarter 2008	U	U	U	Α	U		U	1	-	8260B
Chloroform	1	L				4S#	67-66-3	•	1	
Second Quarter 2008	17	1.5	U	Α	U		3.7	1	80	8260B
2-Chloroethyl vinyl ethe	<u> </u>			••		4S#	110-75-8	•		
Second Quarter 2008	U	U	U	Α	U		U	5		8260B
2-Chloronaphthalene						4S#	91-58-7			

 $Upgradient \ well = 10D4$

Analyte/Quarter	10D4 Q	10D3 Q	10D3D Q	10DDH2R Q	10MW1 Q	QL	GPS	Method
2-Chlorophenol				CAS #	95-57-8			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
4-Chiorophenyl phenyl	ether	I.		CAS #	7005-72-3	·		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Chloroprene			1	CAS #	126-99-8			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
2-Chlorotoluene			.1	CAS #	95-49-8			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
4-Chlorotoluene		I	.1	CAS #	106-43-4	I		
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Chrysene		<u> </u>		CAS #	218-01-9	LL		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Cyclohexane		L	1	CAS #	71-36-3	L		
Second Quarter 2008	U	U	U A	U	U	2	-	8260B
2,4-Dichlorophenoxyace	etic acid			CAS #	94-75-7	<u> </u>		
Second Quarter 2008	U	U	U	U	U	5	-	8151A
4,4'-DDD		<u> </u>	1		72-54-8	1		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
4.4'-DDE		l	1	CAS #	72-55-9	<u> </u>		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
4,4'-DDT		1			± 50-29-3	LL	1	
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
Diallate					2303-16-4	1 1		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Dibenz(a,h)anthracene		L	1		53-70-3		ı	
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Dibenzofuran					132-64-9			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Dibromochloromethane					124-48-1	10	<u> </u>	
Second Quarter 2008	U	U	UA	U	U	1 1	-	8260B
1,2-Dibromo-3-chloropr			0 A		96-12-8	<u>' </u>		
Second Quarter 2008	U	U	U A	U	U	1	_	8260B
1,2-Dibromoethane			0 7		106-93-4	<u> </u>	l	02000
Second Quarter 2008	U	U	UA	U	U	1 1	-	8260B
			_ O A	_	\$ 84-74-2		l	
Di-n-butyl phthalate Second Quarter 2008	U	U	U	U	UN	10		8270C
	U		0	<u> </u>	\$ 95-50-1	1 10		02700
1,2-Dichlorobenzene Second Quarter 2008	U	U	UA	U	U	1 1	- [8260B
	J 0		U A	<u> </u>	\$ 541-73-1	1	-	02000
1,3-Dichlorobenzene Second Quarter 2008	U	U	UA	U	U	1 1	- !	8260B
	U	U	U A		↓ 106-46-7	1	-	02000
1,4-Dichlorobenzene	1 11	11	11 A					8260B
Second Quarter 2008	U	U	U A	U	U # 91 - 94-1	1	-	02000
3,3'-Dichlorobenzidine	T	T	1			1 15		00700
Second Quarter 2008	U	U	U	U	U	10	-	8270C
trans-1,4-Dichloro-2-but	1	1	1	·	# 110-57-6	T . I		20005
Second Quarter 2008	U	U	U A	U	U # <i>75-71-</i> 8	1	-	8260B
Dichlorodifluoromethar								

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 10D4

Analyte/Quarter	10D4 Q	10D3 Q	10D3D Q	10DDH2R Q	10MW1 Q	QL	GPS	Method
1,1-Dichloroethane				CAS #	75-34-3			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
1,2-Dichloroethane	I	1		CAS #	107-06-2			
Second Quarter 2008	U	U	U A	U	U	1	- [8260B
1,1-Dichloroethene		1		CAS #	75-35-4		L	
Second Quarter 2008	U	U	U A	U	U	1	- [8260B
cis-1,2-Dichloroethene			1	CAS #	156-59-2			
Second Quarter 2008	U	U	U A	U	U	1	- 1	8260B
trans-1,2-Dichloroether	ne	L		CAS #	156-60-5			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
2,4-Dichlorophenol			1	CAS #	120-83-2			
Second Quarter 2008	U	U	U	U	U	10	- [8270C
2,6-Dichlorophenol		<u> </u>	1	CAS #	‡ 87-65-0			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
1,2-Dichloropropane	1	L	L	CAS #	‡ 78-87-5		<u>i</u>	
Second Quarter 2008	U	U	UA	U	U	1	- 1	8260B
1,3-Dichloropropane	1	L	I	CAS #	142-28-9	J		- Laboration Association and A
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
2,2-Dichloropropane		l .		CAS #	≢ 594-20-7			
Second Quarter 2008	UJ	UJ	U JA	UJ	UJ	1	- 1	8260B
1,1-Dichloropropene					\$ 563-58-6			
Second Quarter 2008	U	U	UA	U	U	1	_	8260B
cis-1,3-Dichloropropend					± 10061-01-5			
Second Quarter 2008	U	U	U A	U	U	1		8260B
trans-1,3-Dichloroprope					10061-02-6	•		
Second Quarter 2008	U	U	U A	U	U	1		8260B
Dieldrin				1	60-57-1			
Second Quarter 2008	U	U	U	U	U	0.025		8081A
Diethyl ether			L 9		60-29-7	0.020		
Second Quarter 2008	U	U	UA	U	U	2	-	8260B
Diethyl phthalate		-	U A		84-66-2			
Second Quarter 2008	U	U	U	U	U U	10	_	8270C
		U		1	297-97-2	10		02100
O,O-Diethyl O-2-pyrazin Second Quarter 2008	U U	U	U	U	U	10		8270C
		U			60-51-5	10		02700
Dimethoate Second Quarter 2008	U	U	U	U	U			8270C
	ļ U	U	<u> </u>		‡ 115-10-6	20	- 1	62700
Dimethyl ether	1 11		11. 4	T		•		90900
Second Quarter 2008	U	U	UA	U	U ≠ 60-11-7	2	- 1	8260B
p-(Dimethylamino)azob			1			40		99700
Second Quarter 2008	U	U	U	U	U	10	-	8270C
7,12-Dimethylbenz[a]an	1		1	1	<i>57-</i> 97-6			00700
Second Quarter 2008	U	U	U	U	U	20	-	8270C
3,3'-Dimethylbenzidine	1		1	1	119-93-7		ī	
Second Quarter 2008	U	υ	U	U	U	20	-	8270C
a,a-Dimethylphenethyla			1		122-09-8			
Second Quarter 2008	U	U	U	U	U	50	•	8270C
2,4-Dimethylphenol	•		T	7	‡ 105-67 - 9		,	
Second Quarter 2008	UJ	υJ	UJ	UJ	UJ	10	-	8270C

Upgradient well = 10D4

Analyte/Quarter	10D4 Q	10D3 Q	10D3D Q	10DDH2R Q	10MW1 Q	QL	GPS	Method
Dimethyl phthalate				CAS#	131-11-3			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
m-Dinitrobenzene			.'	CAS#	99-65-0			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
4,6-Dinitro-o-cresol	1	J		CAS#	534-52-1			
Second Quarter 2008	U	U	U	U	U	20	-	8270C
2,4-Dinitrophenol				CAS#	51-28-5			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
2,4-Dinitrotoluene			1	CAS#	121-14-2			
Second Quarter 2008	U	U	U	U	U	10	31.3	8270C
2,6-Dinitrotoluene		J		CAS#	606-20-2			
Second Quarter 2008	U	U	U	U	U	10	15.65	8270C
Dinoseb		<u> </u>		CAS#	88-85-7			
Second Quarter 2008	U	U	U	U	U	2.5	-	8151A
Di-n-octyl phthalate				CAS#	117-84-0			
Second Quarter 2008	U	U	U	U	U	10	_	8270C
1,4-Dioxane		<u> </u>	<u> </u>	CAS#	123-91-1			
Second Quarter 2008	U	U	U A	U	U	200	-	8260B
Diphenylamine		I	1	CAS#	122-39-4	<u></u>		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Disulfoton				CAS #	298-04-4			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Endosulfan I		1		CAS #	959-98-8			
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
Endosulfan II	1	J		CAS #	33213-65-9	_l		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
Endosulfan sulfate				CAS #	1031-07-8	<u></u>		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
Endrin		1	1	CAS #	72-20-8	- L		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
Ethyl acetate				CAS #	75-25-2	1		
Second Quarter 2008	U	U	U A	U	U	2	-	8260B
Endrin aldehyde			<u> </u>	CAS	7421-93-4			
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
Ethanol		1		CAS	60-29-7			
Second Quarter 2008	U	U	U A	U	U	200	-	8260B
Ethylbenzene				CAS #	‡ 100-41 - 4			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Ethyl methacrylate	1	1	1	CAS	¥ 97-63-2	·		
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Ethyl methanesulfonate	e			CAS	# 62-50-0			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Ethylene oxide		1		CAS	# 75-21-8			
Second Quarter 2008	U	U	U A	U	U	20	-	8260E
Famphur				CAS	# 52-85-7			
Second Quarter 2008	υ	U	U	U	U	10	-	8270C
Fluoranthene			1	CAS	# 206-44-0	_l		<u> </u>
Second Quarter 2008	U	U	U	U	U	10	-	82700

Radford Army Ammunition Plant, Radford, Virginia Upgradient well = 10D4

Analyte/Quarter	10D4 Q	10D3 Q	10D3D Q	10DDH2R Q	10MW1 Q	QL	GPS	Method
Fluorene				CAS	86-73-7			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Heptachlor				CAS	76-44-8			
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
Heptachlor epoxide		J		CAS	1024-57-3			
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
Hexachlorobenzene		L	1	CAS	118-74-1			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Hexachlorobutadiene		1		CAS	87-68-3		<u></u>	
Second Quarter 2008	υ	U	U A	U	U	1	<u> </u>	8260B
Hexachlorocyclopentac	liene	<u> </u>		CAS #	77-47-4	ļ		
Second Quarter 2008	UJ	UJ	UJ	UJ	UJ	20	-	8270C
Hexachioroethane		<u> </u>		CAS	67-72-1		<u> </u>	
Second Quarter 2008	U	U	U A	U	U	1	•	8260B
Hexachlorophene	_L	J		CAS #	70-30-4	<u> </u>		,
Second Quarter 2008	U	U	U	U	U	500	-	8270C
Hexachloropropene		I			188871-7			
Second Quarter 2008	U	U	U	U	U	10	- 1	8270C
2-Hexanone	1	L	1		591-78-6	<u> </u>		
Second Quarter 2008	U	U	U A	U	U	5	-	8260B
Indeno[1,2,3-cd]pyrene				<u> </u>	193-39-5			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Isobutyl alcohol				CAS #	78-83-1			
Second Quarter 2008	UJ	UJ	U JA	U J	UJ	125	<u> </u>	8260B
Isodrin		L			465-73-6			
Second Quarter 2008	U	U	U	U	U	10		8270C
sophorone				_	78-59-1			
Second Quarter 2008	U	U	U	U	U	10	_	8270C
Isopropylbenzene	-				98-82-8	10		
Second Quarter 2008	U	U	U A	U	U	1	_	8260B
sopropylether			_		108-20-3	<u> </u>		
Second Quarter 2008	U	U	U A	U	U	1	- 1	8260B
4-isopropyltoluene			1 0 A	<u> </u>	99-87-6	<u>'</u>		
Second Quarter 2008	U	U	U A	U	U	1		8260B
Isosafrole		J	0 4	<u> </u>	120-58-1			02000
Second Quarter 2008	U	U	U	U	U	10		8270C
	U				143-50-0	10		02700
Kepone Second Quarter 2008	U	U	U	U	U	10		8270C
	U	U	0	L	126-98-7	10		62700
Methacrylonitrile Second Quarter 2008	U	U	U A	U	U	10		8260B
	J	U	U A	I	91-80-5	10	-	02000
Wethapyrilene		1 11	Т	1	· · · · · · · · · · · · · · · · · · ·	40		00700
Second Quarter 2008	U	υ	U	U	U 72-43-5	10	-	8270C
Methoxychlor	1	1,	1 11		· · · · · · · · · · · · · · · · · · ·	0.005	I	00044
Second Quarter 2008	U	U	U	U	U 74.83.0	0.025	-	8081A
Bromomethane	1		T		74-83-9			20005
Second Quarter 2008	ΠJ	UJ	U JA	UJ	UJ	1	-	8260B
Chloromethane	1	Г	T		74-87-3			
Second Quarter 2008	U	U	UA	U	U	1	-	8260B

Radford Army Ammunition Plant, Radford, Virginia

 $Upgradient \ well = 10D4$

Analyte/Quarter	10D4 Q	10D3 Q	10D3D Q	10DDH2R Q	10MW1 Q	QL	GPS	Method
3-Methylcholanthrene				CAS #	56-49-5			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
lodomethane	-			CAS #	74-88-4			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Methyl methacrylate	•			CAS #	80-62-6			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Methyl methane sulfona	te			CAS #	66-27-3			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
2-Methylnaphthalene			··	CAS #	91-57-6			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Methyl parathion				CAS #	298-00-0			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
4-Methyl-2-pentanone			.,	CAS #	108-10-1			
Second Quarter 2008	U	U	U A	U	U	5	-	8260B
2-Methylphenol				CAS #	95-48-7			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
3 & 4-Methylphenol				CAS #	106-44-5			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Methyl tert-butyl ether		,	-1	CAS #	1634-04-4			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Dibromomethane		·	.1	CAS #	74-95-3			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Methylene chloride		1		CAS #	75-09-2	,		
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Naphthalene	1			CAS #	91-20-3	1,		
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
1,4-Naphthoquinone			.1	CAS #	130-15-4			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
1-Naphthylamine		h		CAS #	134-32-7			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
2-Naphthylamine	1	i	<u> </u>	CAS #	91-59-8	1		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
o-Nitroaniline	<u> </u>		3	CAS #	88-74-4			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
m-Nitroaniline		1		CAS #	99-09-2			
Second Quarter 2008	U	U	U	U	U	20	-	8270C
p-Nitroaniline	4			CAS #	100-01-6			
Second Quarter 2008	U	U	U	U	U	20	-	8270C
Nitrobenzene		<u> </u>		CAS #	98-95-3			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
o-Nitrophenol				CAS #	88-75-5			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
p-Nitrophenol		f		CAS	100-02-7			
Second Quarter 2008	U	U	U	U	U	10		8270C
4-Nitroquinoline-1-oxide	<u> </u>	I		CAS	‡ 56-57-5			
Second Quarter 2008	U	U	U	U	U	50	-	8270C
N-Nitrosodi-n-butylamin	e	<u>t</u>	<u> </u>	CAS	924-16-3	1		
Second Quarter 2008	U	U	U	U	U	10	_	8270C

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 10D4

Analyte/Quarter	10D4 Q	10D3 Q	10D3D Q	10DDH2R Q	10MW1 Q	QL	GPS	Method
N-Nitrosodiethylamine				CAS #	55-18-5			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
N-Nitrosodimethylamin	е			CAS #	62-75-9	1	L	
Second Quarter 2008	U	U	U	U	U	10	-	8270C
N-Nitrosodiphenylamin	e	J		CAS #	86-30-6			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
N-Nitrosodipropylamin	e	4		CAS#	621-64-7			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
N-Nitrosomethylethylar	nine	<u> </u>	1	CAS#	10595-95-6			
Second Quarter 2008	U	U	U	U	U	10	· [8270C
N-Nitrosomorpholine		<u> </u>		CAS#	59-89-2			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
N-Nitrosopiperidine			<u> </u>	CAS#	100-75-4			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
N-Nitrosopyrrolidine			-t	CAS#	930-55-2		<u> </u>	
Second Quarter 2008	U	U	U	U	U	10	-	8270C
5-Nitroso-o-toluidine		1		CAS#	99-55-8	L		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Parathion			<u> </u>	CAS#	56-38-2	1		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Pentachlorobenzene		1	1	CAS#	608-93-5			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Pentachloroethane		1	<u> </u>	CAS#	76-01-7	JL		
Second Quarter 2008	UJ	UJ	U JA	UJ	UJ	1	-	8260B
Pentachloronitrobenze	 ne	L	J	CAS#	82-68-8			
Second Quarter 2008	U	U	U	U	U	10	•	8270C
Pentachlorophenol		I	I	CAS#	87-86-5			
Second Quarter 2008	U	U	U	U	u	20	_	8270C
Phenacetin			1 -	_	62-44-2		L	
Second Quarter 2008	U	U	U	U	U	10	_	8270C
Phenanthrene					85-01-8	1 1		
Second Quarter 2008	U	U	U	U	U	10	_	8270C
Phenol					108-95-2			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Total Recoverable Pher					C-020	10	<u>_</u>	
Second Quarter 2008	U	U	U	U	U	5	-	9065
Phorate	0				298-02-2			
Second Quarter 2008	U	U	U	U	U	20	_	8270C
2-Picoline	<u> </u>				109-06-8			02100
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Pronamide				-	23950-58-5	10	-	02700
Second Quarter 2008	U	U	U	U	U	10	_	8270C
1-Propanol		J			71-23-8	10	-	02700
Second Quarter 2008	U	U	U A	U U	U	1000	-	8260B
	U	U	U A		67-63-0	1000	-	020UB
2-Propanol	U	11	40000		,	4000		90800
Second Quarter 2008	U	U	40000	6300	U 107.12.0	1000	-	8260B
Propionitrile	1 ,.	T	1 11 -		107-12-0			
Second Quarter 2008	U	U	UA	U	U	10	-	8260B

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 10D4

Analyte/Quarter	10D4 Q	10D3 Q	10D3D Q	10DDH2R Q	10MW1 Q	QL	GPS	Method
n-Propylbenzene				CAS#	103-65-1			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Pyrene		L		CAS#	129-00-0			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Pyridine		1	1	CAS#	110-86-1			
Second Quarter 2008	U	U	U	U	U	20	-	8270C
Safrole	ı			CAS#	94-59-7			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Silvex	<u> </u>	L	J	CAS#	93-72-1			
Second Quarter 2008	U	U	U	U	U	2.5	-	8151A
Styrene	L	1	.1	CAS#	100-42-5			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Sulfotep	L	L		CAS#	3689-24-5			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
2,4,5-Trichlorophenoxya	Letic acid			CAS#	93-76-5			
Second Quarter 2008	U	U	U	U	U	2.5	-	8151A
1,2,4,5-Tetrachlorobenze	ne	L	1	CAS#	95-94-3			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
1,1,1,2-Tetrachloroethan	e			CAS#	630-20-6			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
1.1.2.2-Tetrachloroethan					79-34-5			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
Tetrachloroethene				L	127-18-4			
Second Quarter 2008	UJ	UJ	U JA	UJ	UJ	1	-	8260B
Tetrahydrofuran					109-99-9	•		
Second Quarter 2008	U	U	U A	· U	U	5	-	8260B
2,3,4,6-Tetrachloropheno			1 0 71		58-90-2			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Toluene				_	108-88-3			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
o-Toluidine	U				95-53-4			
Second Quarter 2008	U	U	U	U	U	10		8270C
	0	0	1 0	L	8001-35-2	10	-	02700
Toxaphene Second Quarter 2008	U	U	U	U U	U	1		8081A
		0	0		87-61-6			000171
1,2,3-Trichlorobenzene Second Quarter 2008	U	U	U A	U	U	1	_	8260B
	0		U A		120-82-1		-	02000
1,2,4-Trichlorobenzene Second Quarter 2008	U	U	U A	U	U U	1		8260B
	U	U	UA		71-55-6	1	<u>-</u>	0200B
1,1,1-Trichloroethane	U	U	1 11 0	U U	U	1		8260B
Second Quarter 2008	U	U	U A	l	79-00-5	1	-	02006
1,1,2-Trichloroethane		1	1 11 4	,			1	8260B
Second Quarter 2008	U	U	U A	U	U 70.04.6	1	-	0200B
Trichloroethene	1	· · · · · · · · · · · · · · · · · · ·	· T	ì	79-01-6		-	00005
Second Quarter 2008	U	U	U A	U	U 75.00.4	1	5	8260B
Trichlorofluoromethane	1	I	T	1	75-69-4		1	
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
2,4,5-Trichlorophenol		i			95-95-4		I	I
Second Quarter 2008	U	U	U	U	U	10	-	8270C

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 10D4

Analyte/Quarter	10D4 Q	10D3 Q	10D3D Q	10DDH2R Q	10MW1 Q	QL	GPS	Method
2,4,6-Trichlorophenol				CAS#	88-06-2			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
1,2,3-Trichloropropane				CAS#	96-18-4			
Second Quarter 2008	U	U	Ų A	U	U	1	-	8260B
1,1,2-Trichloro-1,2,2-Tri	fluoroetha	ne	1	CAS#	76-13-1			
Second Quarter 2008	U	U	UA	U	U	1	-	8260B
O,O,O-Triethyl phospho	rothioate			CAS#	126-68-1			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
1,2,4-Trimethylbenzene				CAS#	95-63-6			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
1,3,5-Trimethylbenzene				CAS#	108-67-8			
Second Quarter 2008	U	U	U A	U	U	1	-	8260B
sym-Trinitrobenzene				CAS#	99-35-4			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Vinyl acetate			J	CAS#	108-05-4			
Second Quarter 2008	UJ	UJ	U JA	UJ	UJ	5	-	8260B
Vinyl chloride				CAS#	75-01-4			
Second Quarter 2008	UJ	UJ	U JA	UJ	UJ	1	-	8260B
Xylenes (Total)				CAS#	1330-20-7			
Second Quarter 2008	U	U	U A	U	U	3	10000	8260B

Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 10D4

All Results in ug/L.

10D3D Q 10DDH2R Q 10MW1 Q Analyte/Quarter **GPS** Method 10D4 Q 10D3 Q OL

Definitions:

QL Denotes permit required quantitation limit.

U Denotes analyte not detected at or above QL.

UA Denotes analyte not detected at or above adjusted sample QL.

J Denotes associated result is estimated. When used with "U" (i.e., "UJ"), denotes analyte not detected at or above QL and QL is estimated. When used with "UA" (i.e., "UAJ"), denotes analyte not detected at or above adjusted QL and adjusted QL is estimated.

UN Denotes analyte concentration is less than the quantiation limit and five times the blank concentration. Not reliably detected due to blank contamination. This qualifier used only for Appendix IX monitoring event when results are reported to at or above the detection limit.

R Denotes result rejected.

Q Denotes data validation qualifier.

CAS# Denotes Chemical Abstract Services registration number.

GPS Denotes Groundwater Protection Standards listed in Appendix G to Attachment 4 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002). For cobalt, vanadium, acetone and 2-propanol, these analytes are not listed in Appendix VIII to 40 CFR Part 261; therefore, GPSs will not be established for these constituents.

NS denotes not sampled.

NA denotes not analyzed.

"-" denotes not detected (pre-2nd Quarter 2003) or not available / not sampled (beginning 2nd Quarter 2003).

Appendix IX Monitoring Events:

First Quarter 2003, Second Quarter 2004, Second Quarter 2005, Third Quarter 2006, Second Quarter 2007, Second Quarter 2008

For Appendix IX monitoring, compliance well results reported/evaluated to detection limit.

Verification events: 12/12/03, 06/17/04, 7/25/2005.

6/17/04. Verification event. Acetone: 10D3D was not detected during verification event. Verification event result reported. 7/25/05. Verification event. All wells: ethyl acetate. 10D3D: alpha-BHC, acetone and 2-propanol. All verification results: Not detected except for acetone and 2-propanol. Verification results presented in table.

7/17/2008. Verification event. 10MW1. Technical chlordane, diethylphthalate. Verification results reported-all not detected.

Comprehensive Data Validation Report

Sample/Blind Field Duplicate Results Greater Than the Quantitation Limit

Draper Aden Associates
Eginemg + Surving + Environmental Servines

Facility: HWMU-10

Monitoring Event: Second Quarter 2008

QL Denotes permit quantitation limit.

O Denotes data qualifier.

J Denotes analyte reported at or above QL and associated result is estimated.

Tuesday, August 05, 2008

Upgradient well = 16C1

Analtye/Ouarter	16C1	16MW8	16MW9	16WC1A	16WC1B	OL	GPS	Method
Antimony						7440-36-0		, 111-11104
Second Quarter 2008	U	U	U	UN	U U	1	6	6020
Arsenic						7440-38-2	··············	
Second Quarter 2008	U	U	U	U	<i>CAS #</i>	10	50	6020
Barium								0020
Second Quarter 2008	201 J	109 J	207 (044		7440-39-3		
	2013	109 1	305 J	244 J	178 J	10	2000	6020
Beryllium						7440-41-7		
Second Quarter 2008	U	0.29 J	U	U	U	1	4	6020
Cadmium					CAS#	7440-43-9		
Second Quarter 2008	U	0.25 J	U	U	U	1	5	6020
Chromium					CAS#	7440-47-3		
Second Quarter 2008	U	1.4 J	U	U	2 J	5	100	6020
Cobalt					CAS#	7440-48-4		
Second Quarter 2008	υJ	υJ	1,8 J	28.8 J	U J	5	313	6020
-				20.0				0020
Copper Second Quarter 2008	U	3 J	U	2 J	CAS#	7440-50-8 5	4000	6000
		3 J	V		U		1300	6020
Lead	••				CAS#	7439-92-1		
Second Quarter 2008	υ	0.64 J	U	0.38 J	0.24 J	1	15	6020
Mercury					CAS#	7439-97-6		
Second Quarter 2008	U	U	U	U	0.66 J	0.2	2	7470A
Nickel					CAS#	7440-02-0		
Second Quarter 2008	υJ	6.6 J	7.2 J	8.8 J	UJ	10	313	6020
Selenium					CAS#	7782-49-2		
Second Quarter 2008	U	U	U	U	U U	10	50	6020
Silver	-			-				
Second Quarter 2008	U	2.2	U	U	CAS#_ U	7440-22-4	70.05	6000
		2.2		<u> </u>		2	78.25	6020
T <u>hallium</u>						7440-28-0		
Second Quarter 2008	U	U	U	U	U	1	-	6020
r <u>in</u>					CAS#	7440-31-5		
Second Quarter 2008	U	U	U	U	U	5	-	6020
/anadium					CAS#	7440-62-2		
Second Quarter 2008	U	U	U	U	1 J	10	109.55	6020
Zinc					CAS#	7440-66-6		
Second Quarter 2008	U	24.1	U	8.8 J	7 J	10	4695	6020
Sulfide								
Second Quarter 2008	U	U	U	U	CAS#	18496-25-8		0004
			<u> </u>			1000	-	9034
Cyanide						57-12-5		
Second Quarter 2008	U	U	U	U	U	20	-	9014
Acenaphthene					CAS#	83-32-9		
Second Quarter 2008	U	U	U	U	U	10	-	82700
Acenaphthylene					CAS#	208-96-8		
Second Quarter 2008	U	U	U	U	U	10	-	82700
Acetone				•	C16#	67-64-1		
Second Quarter 2008	U	U	U	U	U U	5	223.57	8260B
		-					220.01	
Acetonitrile Second Quarter 2008	U	U	U		CAS#	75-05-8		0000
	U	U	U	U	U	100	-	8260B
Acetophenone					CAS#	98-86-2		
Second Quarter 2008	U	U	U	U	U	10	-	82700
-Acetylaminofluorene					CAS#	53-96-3		
Second Quarter 2008	U	U	U	U	U	30	-	82700
crolein					CAS#	107-02-8		
Second Quarter 2008	UJ	U J	U J	UJ	U J	10	-	8260B
				-	CAS#	107-13-1		
crylonitrile								
Acrylonitrile Second Quarter 2008	11	11	11	11				90600
Second Quarter 2008	U	U	U	U	υ	1		8260B
	U	U	U	U U			-	8260B 8081A



Upgradient well = 16C1

Analtye/Ouarter	16C1	16MW8	16MW9	16WC1A	16WC1B	OL	GPS	Method
Allyl chloride						107-05-1	UI B	1 Memou
Second Quarter 2008	U	U	U	U	U	1	-	8260B
4-Aminobiphenyl						92-67-1		
Second Quarter 2008	U	U	U	U	U CAS#	10		82700
Aniline		-						02100
Second Quarter 2008	U	U	U	U		62-53-3		
			0	U	U	10	•	82700
Anthracene						120-12-7		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Aramite					CAS#	140-57-8		
Second Quarter 2008	U	υ	U	U	U	10	-	8270C
Benzene					CAS#	71-43-2		
Second Quarter 2008	U	U	U	U	U	1	•	8260B
Benzo[a]anthracene					CAS#	56-55-3		
Second Quarter 2008	U	U	U	U	U U	10		8270C
Benzo[b]fluoranthene								02700
Second Quarter 2008	U	U	U			205-99-2		20722
			U	U	U	10	-	8270C
Benzo[k]fluoranthene						207-08-9		
Second Quarter 2008	U	U	U	ប	U	10	•	8270C
Benzo[ghi]perylene					CAS#	191-24-2		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Benzo(a)pyrene					CAS#	50-32-8		
Second Quarter 2008	U	U	U	U	U U	10	_	8270C
I 4 Pontonadiamina								02/00
,4-Benzenediamine Second Quarter 2008	U				CAS#	106-50-3		
	<u> </u>	U	U	U	U	50	-	8270C
Benzyl alcohol					CAS#	100-51-6		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
lpha-BHC					CAS#	319-84-6		
Second Quarter 2008	U	U	U	U	U	0.025	•	8081A
eta-BHC					C48#	319-85-7		
Second Quarter 2008	U	U	U	U	U CAS #	0.025		8081A
					-			0001A
lelta-BHC Second Quarter 2008						319-86-8	···	
	U	U	U	U	U	0.025	-	8081A
amma-BHC					CAS#	58-89-9		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
is(2-Chloroethoxy)methane					CAS#	111-91-1		
Second Quarter 2008	U	Ų	U	U	U	10	-	8270C
is(2-Chloroethyl)ether					C18#	111-44-4		
Second Quarter 2008	U	U	Ų	U	U	10		8270C
								02700
ois(2-Chloro-1-methylethyl)ether						108-60-1		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
is(2-Ethylhexyl)phthalate					CAS#	117-81-7		
Second Quarter 2008	U	U	U	U	U	6	10	8270C
romobenzene					CAS#	108-86-1		
Second Quarter 2008	U	U	U	υ	U	1	•	8260B
romochloromethane					CAS#	74-97-5		
Second Quarter 2008	U	U	U	U	<i>LA</i> .s # U	1		8260B
	-							
romodichloromethane Second Quarter 2008	11			11		75-27-4		
	U	U	U	U	U	1	•	8260B
romoform					CAS#	75-25-2		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
Bromophenyl phenyl ether					CAS#	101-55-3		
Second Quarter 2008	υ	U	U	U	U	10	-	8270C
-Butanone								22, 30
Second Quarter 2008	U	U	U	U		78-93-3	604.00	00000
	0		·	V	U	10	691.08	8260B
-Butyl alcohol						71-36-3		
Second Quarter 2008	U	U	U	U J	U	200	-	8260B

Upgradient well = 16C1

Analtye/Ouarter	16C1	16MW8	16MW9	16WC1A	16WC1B	OL	GPS	Method
tert-Butyl alcohol				WV	CAS#	75-65-0		
Second Quarter 2008	υJ	UJ	UJ	U J	UJ	20	-	8260B
n-Butylbenzene					CAS#	104-51-8		
Second Quarter 2008	U	U	U	U	U	1		8260B
sec-Butylbenzene						135-98-8		
Second Quarter 2008	U	U	U	11	CAS#			00000
	U	U	U	U	U	1	-	8260B
tert-Butylbenzene					CAS#	98-06-6		
Second Quarter 2008	U	U	υ	U	U	1	-	8260B
Butyl benzyl phthalate					CAS#	85-68-7		
Second Quarter 2008	U	U	U	U	U	10	_	8270C
Carbon disulfide						75-15-0		
Second Quarter 2008	U	U	U	U	U CAS#	1		8260B
		<u> </u>	0	U			-	82008
Carbon tetrachloride					CAS#	56-23-5		
Second Quarter 2008	U	U	U	U	U	1	5	8260B
Chlordane					CAS#	57-74-9		
Second Quarter 2008	U	U	U	U	U	0.25	-	8081A
p-Chloroaniline						106-47-8		
Second Quarter 2008	U	U	U	U	CAS#		_	90700
	U	J		U	U	10	-	8270C
Chlorobenzene						108-90-7		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
Chlorobenzilate					CAS#	510-15-6		
Second Quarter 2008	U	U	U	U	U	20	_	8270C
n Chiara m aragai					-			
p-Chloro-m-cresol Second Quarter 2008						59-50-7		
Second Quarter 2008	U	U	U	U	U	10-	-	8270C
Chloroethane					CAS#	75-00-3		
Second Quarter 2008	4.6	U	U	U	U	1	-	8260B
Chloroform					CAS#	67-66-3		
Second Quarter 2008	U	U	U	U	U	1	80	8260B
2-Chloroethyl vinyl ether					CAS#	110-75-8		
Second Quarter 2008	UJ	υJ	υJ	UJ	UJ	5	-	8260B
2-Chloronaphthalene					CAS#	91-58-7		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
2-Chlorophenol					C48#	95-57-8		
Second Quarter 2008	U	U	U	U	U	10		8270C
4-Chlorophenyl phenyl ether					CAS#	7005-72-3		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Chloroprene					CAS#	126-99-8		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
2-Chlorotoluene					0.15.4	95-49-8		
Second Quarter 2008	U	U	11					90000
	<u> </u>	U	U	U	U	11	-	8260B
4-Chlorotoluene						106-43-4		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
Chrysene					CAS#	218-01-9		
Second Quarter 2008	U	U	U	U	U	10		8270C
				-				
Cyclohexane Second Quarter 2008		* 1	11		CAS#	•		
	υ	U	U	n 1	U	. 2	-	8260B
2,4-Dichlorophenoxyacetic acid					CAS#	94-75-7		
Second Quarter 2008	U	U	U	U	U	5	-	8151A
I,4'-DDD					CAS#	72-54-8		
Second Quarter 2008	U	U	U	U	U U	0.025	_	8081A
					-		-	000 1A
I,4'-DDE						72-55-9		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
I,4'-DDT					CAS#	50-29-3		
Second Quarter 2008	υ	U	U	U	U	0.025	-	8081A
Diallate Second Quarter 2009	• 1					2303-16-4		
Second Quarter 2008	U	U	U	U	Ų	10	-	8270C

Upgradient well = 16C1

Analtye/Ouarter	16C1	16MW8	16MW9	16WC1A	16WC1B	OL	GPS	Method
Dibenz(a,h)anthracene					CAS#	53-70-3		
Second Quarter 2008	U	U	U	U	U	10	-	82700
Dibenzofuran					CAS#	132-64-9		
Second Quarter 2008	U	U	U	U	U	10	-	82700
Dibromochloromethane					C48#	124-48-1		
Second Quarter 2008	U	U	U	U	U U	1		8260E
,2-Dibromo-3-chloropropane								
Second Quarter 2008	U	U	U	U	U CAS #	96-12-8 1		8260E
							-	02000
Second Quarter 2008	U	11			CAS#	106-93-4		
	- 0	U	U	U	U	1	-	8260E
Di-n-butyl phthalate						84-74-2		
Second Quarter 2008	U	U	U	U	U	10	-	82700
,2-Dichlorobenzene					CAS#	95-50-1		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
,3-Dichlorobenzene					CAS#	541-73-1		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
,4-Dichlorobenzene					CAS#	106-46-7		-
Second Quarter 2008	U	U	U	U	U	1	-	8260B
,3'-Dichlorobenzidine						91-94-1		
Second Quarter 2008	U	U	U	U	U CAS#	10	_	82700
		<u> </u>					-	02700
rans-1,4-Dichloro-2-butene Second Quarter 2008					CAS#			
	U	U	U	U	U	1	-	8260E
ichlorodifluoromethane					CAS#	75-71-8		
Second Quarter 2008	U	U	U	U	U	1	46.5	8260B
,1-Dichloroethane					CAS#	75-34-3		
Second Quarter 2008	6.6	U	2.2	1.4	1.6	1	296.08	8260B
,2-Dichloroethane					CAS#	107-06-2		
Second Quarter 2008	U	U	U	U	U	1	5	8260B
,1-Dichloroethene					C40.#	75-35-4		
Second Quarter 2008	U	U	U	U	U CAS#	1		8260B
						•		02000
is-1,2-Dichloroethene Second Quarter 2008	U	U	Ü	11	CAS#	156-59-2		00000
	<u> </u>	U	U	U	U	11	-	8260B
ans-1,2-Dichloroethene						156-60-5		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
4-Dichlorophenol					CAS#	120-83-2		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
6-Dichlorophenol					CAS#	87-65-0		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
2-Dichloropropane					C45 #	78-87-5		
Second Quarter 2008	U	U	U	U	U U	1	-	8260B
3-Dichloropropane						440.00.0		
Second Quarter 2008	U	U	U	U	U CAS#	142-28-9 1	_	8260B
							-	02005
2-Dichloropropane		11				594-20-7		
Second Quarter 2008	U	U	U	υJ	U	1	•	8260B
1-Dichloropropene						563-58-6		
Second Quarter 2008	U	U	υ	U	U	1	-	8260B
s-1,3-Dichloropropene					CAS#	10061-01-5		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
ans-1,3-Dichloropropene					CAS#	10061-02-6		
Second Quarter 2008	U	U	U	U	U	1		8260B
	-	-					-	02000
eldrin Second Quarter 2008	U	U	11		· · · · · · · · · · · · · · · · · · ·	60-57-1		00044
	<u> </u>	· ·	U	U	U	0.025	-	8081A
ethyl ether						60-29-7		
Second Quarter 2008	U	U	U	UJ	U	12.5	-	8260B
ethyl phthalate					0.10."	04 66 0		
culyi pilulalate					CAS#	84-66-2		

Upgradient well = 16C1

Analtye/Ouarter	16C1	16MW8	16MW9	16WCIA	16WC1B		GPS	Method
O,O-Diethyl O-2-pyrazinyl						297-97-2		
Second Quarter 2008	U	U	U	U	U	10	-	82700
Dimethoate					CAS#	60-51-5		
Second Quarter 2008	U	U	U	U	U	20	-	82700
Dimethyl ether					CAS#	115-10-6		
Second Quarter 2008	8.1 J	U	2.7 J	1.6 J	U U	12.5		8260B
p-(Dimethylamino)azobenzene				1.0 0	-			02000
Second Quarter 2008	U	11	11		CAS#			
		U	U	U	U	10	-	8270C
7,12-Dimethylbenz[a]anthracene						57-97-6		
Second Quarter 2008	U	U	U	U	U	20	-	82700
3,3'-Dimethylbenzidine					CAS#	119-93-7		
Second Quarter 2008	U	U	U	U	U	20	-	8270C
a,a-Dimethylphenethylamine					CAS#	122-09-8		
Second Quarter 2008	U	U	U	U	U U	50	-	8270C
2.4 Dimethylphonel				-				OZ7 OO
2,4-Dimethylphenol Second Quarter 2008	UJ	υJ	UJ		CAS#	105-67-9		00700
	J		U J	UJ	UJ	10	-	8270C
Dimethyl phthalate					CAS#	131-11-3		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
m-Dinitrobenzene		***************************************			CAS#	99-65-0		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
1,6-Dinitro-o-cresol					CAS#	534-52-1	·	
Second Quarter 2008	U	U	U	U	U U	20		8270C
					-			
2,4-Dinitrophenol						51-28-5		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
2,4-Dinitrotoluene					CAS#	121-14-2		
Second Quarter 2008	U	U	υ	U	U	10	31.3	8270C
2,6-Dinitrotoluene					CAS#	606-20-2	·	
Second Quarter 2008	U	U	U	U	U	10	15.65	8270C
Dinoseb						88-85-7		
Second Quarter 2008	U	U	U	U	<i>CAS</i> #_ U	2.5		DAEAA
				U			-	8151A
Di-n-octyl phthalate		·			CAS#	117-84-0		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
,4-Dioxane					CAS#	123-91-1		
Second Quarter 2008	U	U	U	U	U	200	-	8260B
Diphenylamine					CAS#	122-39-4		
Second Quarter 2008	U	υ	U	U	U U	10	-	8270C
Disulfoton		-						02,00
Second Quarter 2008	U	U			CAS#			
	<u> </u>	U	U	U	U	10	-	8270C
ndosulfan i					CAS#	959-98-8		····
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
indosulfan II					CAS#	33213-65-9		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
indosulfan sulfate					C103	1031-07-8		
Second Quarter 2008	U	U	U	U	U CAS#	0.025		8081A
								0001A
indrin					CAS#	72-20-8		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
thyl acetate					CAS#	141-78-6		
Second Quarter 2008	U	U	U	U	U	2	-	8260B
ndrin aldehyde					CAS #	7421-93-4		
Second Quarter 2008	U	U	U	U	U U	0.025	_	8081A
	-	-		-				
thanol Second Quarter 2008			11			64-17-5		
· · · · · · · · · · · · · · · · · · ·	U	U	U	υJ	U	200	-	8260B
thylbenzene					CAS#	100-41-4		
Second Quarter 2008	U	U	U	U	U	1	70	8260B
thyl methacrylate					CAS#	97-63-2		
Second Quarter 2008	U	U	U	U	U U	1	_	8260B
	-	-	-	-	-	•		22000

Upgradient well = 16C1

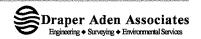
Analtye/Quarter	16C1	16MW8	16MW9	16WCIA	16WC1B	OL	GPS	Method
Ethyl methanesulfonate					CAS#	62-50-0		· · · · · · · · · · · · · · · · · · ·
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Ethylene oxide					CAS#	75-21-8		
Second Quarter 2008	U	U	U	U J	U	20	-	8260B
Famphur					CAS#	52-85-7		
Second Quarter 2008	U	U	U	U	U	10	_	8270C
Fluoranthene						206-44-0		02.00
Second Quarter 2008	U	U	U	U	U CAS #	10	-	8270C
Fluorene								02700
Second Quarter 2008	U	U	U	U		86-73-7		20722
		U	U	U	U	10	-	8270C
Heptachlor					CAS#			
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
Heptachlor epoxide					CAS#	1024-57-3		
Second Quarter 2008	U	U	U	U	Ü	0.025	-	8081A
Hexachlorobenzene					CAS#	118-74-1		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Hexachlorobutadiene					CAS#	87-68-3		
Second Quarter 2008	υJ	UJ	U J	υJ	U J	1	-	8260B
Hexachlorocyclopentadiene				-		77-47-4		
Second Quarter 2008	υJ	U J	UJ	UJ	U J	20		8270C
							-	02700
Hexachloroethane Second Quarter 2008	U	U	U	υ	<i>CAS</i> #_	67-72-1		
	U	U	U	U		1	-	8260B
Hexachlorophene						70-30-4		
Second Quarter 2008	U	U	U	U	U	500	-	8270C
Hexachloropropene					CAS#	1888-71-7		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
2-Hexanone					CAS#	591-78-6		
Second Quarter 2008	U	U	U	U	U	5	-	8260B
Indeno[1,2,3-cd]pyrene					CAS#	193-39-5		
Second Quarter 2008	U	U	U	U	U U	10		8270C
Isobutyl alcohol								
Second Quarter 2008	υJ	UJ	υJ	UJ	U J	78-83-1 125		8260B
				U J			-	02000
Isodrin					CAS#	465-73-6		
Second Quarter 2008	U	U	U	U	U	10	•	8270C
Isophorone						78-59-1		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
sopropylbenzene					CAS#	98-82-8		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
sopropylether					CAS#	108-20-3		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
4-Isopropyltoluene					CAS#	99-87-6		
Second Quarter 2008	U	U	U	U	U U	1	-	8260B
sosafrole			-	-				
Second Quarter 2008	υ	U	U	U	CAS#	<i>120-58-1</i> 10	-	8270C
		<u> </u>	-	<u> </u>			-	02100
Kepone Second Quarter 2008					CAS#	143-50-0		
	U	U	U	U	U	10	-	8270C
Viethacrylonitrile						126-98-7		
Second Quarter 2008	U	U	U	U	U	10		8260B
Methapyrilene					CAS#	91-80-5		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Methoxychlor					CAS#	72-43-5		
Second Quarter 2008	U	U	U	U	U	0.025	-	8081A
3romomethane						74-83-9		
Second Quarter 2008	U	U	U	U	CAS#	1	-	8260B
				•			-	
Chloromethane						74-87-3		
Second Quarter 2008	U	U	U	U	U	1	2.11	8260B

Upgradient well = 16C1

Analtye/Ouarter	16C1	16MW8	16MW9	16WC1A	16WC1B	OL	GPS	Method
3-Methylcholanthrene						56-49-5		
Second Quarter 2008	U	U	U	U	U	10		82700
lodomethane					CAS#	74-88-4		· · · · · · · · · · · · · · · · · · ·
Second Quarter 2008	U	U	U	U	U	1	-	8260
Methyl methacrylate					C45#	80-62-6		
Second Quarter 2008	U	U	U	U	U U	1	_	8260E
Methyl methane sulfonate								
Second Quarter 2008	U	U	U	U	<i>CAS</i> #	66-27-3 10		00700
				<u> </u>			-	82700
2-Methylnaphthalene Second Quarter 2008	U					91-57-6		
	U	U	U	U	U	10	-	82700
Methyl parathion					CAS#	298-00-0		
Second Quarter 2008	U	U	U	U	U	10	-	82700
4-Methyl-2-pentanone					CAS#	108-10-1		
Second Quarter 2008	U	U	U	U	U	5	•	8260E
2-Methylphenol					CAS#	95-48-7		
Second Quarter 2008	U	U	U	U	U	10	-	82700
3 & 4-Methylphenol					C10#	m 108-39-4	p 106-44-	-
Second Quarter 2008	U	U	U	U	U U	10	p 100-44-	82700
Methyl tert-butyl ether					-			
Second Quarter 2008	U	U	U	U	CAS#_ U	1634-04-4 1	_	00000
			U				-	8260B
Dibromomethane						74-95-3		
Second Quarter 2008	U	U	U	U	U	1	-	8260E
Methylene chloride					CAS#	75-09-2		
Second Quarter 2008	5.3	U	U	U	U	1	-	8260E
Naphthalene					CAS#	91-20-3		
Second Quarter 2008	υJ	UJ	UJ	U J	UJ	1	-	8260E
1,4-Naphthoguinone					CAS#	130-15-4		
Second Quarter 2008	U	U	U	U	U U	10		82700
1-Naphthylamine								02,00
Second Quarter 2008	U	U	U	υ	CAS#	134-32-7		00700
				<u> </u>		10	•	82700
2-Naphthylamine					CAS#	91-59-8		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
o-Nitroaniline					CAS#	88-74-4		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
n-Nitroaniline					CAS#	99-09-2		
Second Quarter 2008	U	U	U	U	U	20		8270C
o-Nitroaniline					CAS#	100-01-6		
Second Quarter 2008	U	U	U	U	U	20		8270C
Vitrobenzene Second Quarter 2008	U	U				98-95-3		
	U	U	U	U	U	10	•	8270C
-Nitrophenol						88-75-5		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
-Nitrophenol					CAS#	100-02-7		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
-Nitroquinoline-1-oxide					CAS#	56-57-5		
Second Quarter 2008	U	υ	U	U	· U	50	-	8270C
I-Nitrosodi-n-butylamine						924-16-3		
Second Quarter 2008	U	U	U	U	<i>CAS</i> # U	10	_	8270C
		~					-	02100
I-Nitrosodiethylamine Second Quarter 2008	U	11		11		55-18-5		AC
	U	U	U	U	U	10	-	8270C
I-Nitrosodimethylamine						62-75-9		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
l-Nitrosodiphenylamine					CAS#	86-30-6		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
-Nitrosodipropylamine					C45#	621-64-7		
Second Quarter 2008	U	υ	U	U	U CAS#	10	_	8270C
	-	-	-	-	J	10	-	02/00

Upgradient well = 16C1

Analtye/Ouarter	16C1	16MW8	16MW9	16WCIA	16WC1B	QL	GPS	Method
N-Nitrosomethylethylamine					CAS#	10595-95-6		
Second Quarter 2008	U	U	U	U	U	10	-	82700
N-Nitrosomorpholine				***************************************	CAS#	59-89-2		
Second Quarter 2008	U	U	U	U	U	10	-	82700
N-Nitrosopiperidine					C45 #	100-75-4		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
N-Nitrosopyrrolidine					0.40.11	930-55-2		
Second Quarter 2008	U	U	U	U	U CAS #	10		8270C
5-Nitroso-o-toluidine Second Quarter 2008	U	U	U			99-55-8		
			U	U	U	10	-	82700
Parathion						56-38-2		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
P <u>entachlorobenzene</u>					CAS#	608-93-5		
Second Quarter 2008	U	U	U	U	U	10	-	82700
Pentachloroethane					CAS#	76-01-7		
Second Quarter 2008	ΠĴ	UJ	UJ	UJ	U J	1	-	8260B
Pentachloronitrobenzene					CAS#	82-68-8		
Second Quarter 2008	U	U	U	U	U CAS#	10		8270C
		-	-				-	
Pentachlorophenol Second Quarter 2008	U	U	U	U	<i>CAS</i> #_ U	87-86-5		00700
	U	<u> </u>	U	U		20	-	8270C
P <u>henacetin</u>					CAS#			
Second Quarter 2008	U	U	U	U	U	10	-	8270C
P <u>henanthrene</u>					CAS#	85-01-8		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Phenol					CAS#	108-95-2		
Second Quarter 2008	U	U	U	U	U	10		8270C
Total Recoverable Phenolics					CAS#	C-020		
Second Quarter 2008	U	U	U	U	U U	20	-	9065
							-	
Phorate Second Quarter 2008	U	U	U		CAS#	298-02-2		00700
	U	U	U	U	U	20	-	8270C
2-Picoline					CAS#	931-19-1		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
P <u>ronamide</u>					CAS#	23950-58-5		
Second Quarter 2008	U	Ü	U	U	U	10	-	8270C
1-Propanol					CAS#	71-23-8		
Second Quarter 2008	U	U	U	Ų	U	1000	-	8260B
2-Propanol					C18#	67-63-0		
Second Quarter 2008	UN	U	U	U	U CAS#	1000	-	8260B
Propionitrile		11				107-12-0		
Second Quarter 2008		υ	U	U	U	10	-	8260B
n-Propylbenzene						103-65-1		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
Pyrene					CAS#	129-00-0		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
Pyridine					CAS#	110-86-1		
Second Quarter 2008	U	U	U	U	U	20	_	8270C
Safrole					C40.#	94-59-7		
Second Quarter 2008	U	U	U	U	U CAS#	10		8270C
				· ·			-	02/00
Socond Outstor 2009	11			.,		93-72-1		
Second Quarter 2008	U	U	U	U	U	2.5	-	8151A
Styrene					CAS#	100-42-5		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
Sulfotep					CAS#	3689-24-5		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
,4,5-Trichlorophenoxyacetic ac	id	300000000		······································	CARA	93-76-5		
Second Quarter 2008	U	U	U	U	U CAS#	5		0151 A
TTTTING GENERAL ECOLO	J	•	J	U	U	9	-	8151A



Target Analyte Monitoring Results - HWMU-16 Point of Compliance Wells Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 16C1

All Results in ug/L.

Analtye/Ouarter	16C1	16MW8	16MW9	16WC1A	16WC1B	OL	GPS	Method
1 <u>,2,4,5-Tetrachlorobenzene</u>					CAS#	95-94-3		
Second Quarter 2008	U	U	U	U	U	10	-	82700
,1,1,2-Tetrachloroethane					CAS#	630-20-6		
Second Quarter 2008	U	U	U	U	U	1	-	8260E
,1,2,2-Tetrachloroethane					CAS#	79-34-5		
Second Quarter 2008	υ	U	U	U	U	. 1	-	8260E
etrachloroethene					CAS#	127-18-4		
Second Quarter 2008	U	U	U	U	U	1	5	8260E
etrahydrofuran					CAS#	109-99-9		
Second Quarter 2008	U	U	U	UJ	U	5	-	8260E
,3,4,6-Tetrachiorophenol					C46#	58-90-2		
Second Quarter 2008	U	U	U	U	U CAS#	10		82700
oluene								02700
Second Quarter 2008	U	U	U	U	U CAS#	108-88-3 1	1000	8260E
			· · · · · · · · · · · · · · · · · · ·				1000	
-Toluidine Second Quarter 2008	U	U	U	11		95-53-4		
	U	U		U	U	10	-	82700
oxaphene						8001-35-2		
Second Quarter 2008	U	U	U	U	U	1	-	8081A
,2,3-Trichlorobenzene						87-61-6		
Second Quarter 2008	υJ	UJ	UJ	UJ	υj	1	-	8260B
,2,4-Trichlorobenzene					CAS#	120-82-1		
Second Quarter 2008	UJ	UJ	UJ	UJ	υJ	1	-	8260E
,1,1-Trichloroethane					CAS#	71-55-6		
Second Quarter 2008	U	U	U	U	U	1	200	8260E
1,2-Trichloroethane					CAS#	79-00-5		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
richloroethene					CAS#	79-01-6		
Second Quarter 2008	U	U	U	U	U	1	5	8260B
richlorofluoromethane						75-69-4		
Second Quarter 2008	U	U	U	U	U CAS#	1	469.5	8260B
4,5-Trichlorophenol							403.0	02000
Second Quarter 2008	U	U	U	U	<i>CAS</i> #	95-95-4 10	_	8270C
				<u> </u>			-	62700
4,6-Trichlorophenol Second Quarter 2008	11					88-06-2		
-	U	U	U	U	U	10	-	8270C
2,3-Trichloropropane						96-18-4		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
1,2-Trichloro-1,2,2-Trifluoroe	thane				CAS#	76-13-1		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
O,O-Triethyl phosphorothioa	ite				CAS#	126-68-1		
Second Quarter 2008	U	U	U	U	U	10	-	8270C
2,4-Trimethylbenzene					CAS#	95-63-6		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
3,5-Trimethylbenzene					CAS#	108-67-8		
Second Quarter 2008	U	U	U	U	U	1	-	8260B
m-Trinitrobenzene					C10#	99-35-4		
Second Quarter 2008	U	U	U	U	U CAS#	10		8270C
		-					-	02,00
nyl acetate Second Quarter 2008	U	U		11 1		108-05-4		90800
	· ·		U	U J	U	5	-	8260B
nyl chloride						75-01-4		
Second Quarter 2008	U ————————————————————————————————————	U	U	U	U	1	P	8260B
rienes (Total)					CAS#	1330-20-7		
Second Quarter 2008	U	U	U	U	U	3	10000	8260B

Target Analyte Monitoring Results - HWMU-16 Point of Compliance Wells Radford Army Ammunition Plant, Radford, Virginia

Upgradient well = 16C1

All Results in ug/L.

Analtye/Quarter 16C1 16MW8 16MW9 16WC1A 16WC1B OL GPS Method

Definitions:

The following definitions apply to results reported for Appendix IX monitoring events.

All Appendix IX monitoring results for compliance wells are reported to the detection limit.

Appendix IX Monitoring Events: 3Q-2003, 2Q-2004, 2Q-2005, 3Q2006, 2Q2007, 2Q2008

QL Denotes permit required quantitation limit.

U denotes not detected at or above the detection limit.

UA denotes not detected at or above the adjusted detection limit.

J Denotes result is estimated. When used with "U" (i.e., "UJ"), denotes analyte not detected at or above the detection limit and detection limit and QL are estimated. When used with "UA" (i.e., "UAJ"), denotes analyte not detected at or above adjusted detection limit and and adjusted detection limit and OL are estimated.

UN Denotes analyte concentration is less than the quantitation limit and/or five times the blank concentration. Not reliably detected due to blank contamination. This qualifier used only for Appendix IX monitoring event when compliance well results are reported to at or above the project detection limit.

R Denotes result rejected.

Q Denotes data validation qualifier. X Denotes mass spectral confirmation not obtained-result suspect.

Background Denotes background concentrations listed in Appendix F to Attachment 5 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002), where applicable. CAS# Denotes Chemical Abstract Services registration number.

GPS Denotes Groundwater Protection Standards listed in Appendix G to Attachment 5 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002).

NS denotes not sampled. NA denotes not analyzed.

"-" denotes not detected (pre-2nd Quarter 2003) or not available / not sampled (beginning 2nd Quarter 2003).

The following definitions apply to results reported for non-Appendix IX monitoring events. All non-Appendix IX monitoring results for compliance wells are reported to at or above the quantitation limit.

QL Denotes permit required quantitation limit.

U Denotes analyte not detected at or above QL.

UA Denotes analyte not detected at or above adjusted sample QL.

J Denotes result is estimated. When used with "U" (i.e., "UJ"), denotes analyte not detected at or above QL and QL is estimated. When used with "UA" (i.e., "UAJ"), denotes analyte not detected at or above adjusted QL and adjusted OL is estimated.

R Denotes result rejected.

O Denotes data validation qualifier.

Background Denotes background concentrations listed in Appendix F to Attachment 5 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002), where applicable. **CAS#** Denotes Chemical Abstract Services registration number.

GPS Denotes Groundwater Protection Standards listed in Appendix G to Attachment 5 in the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002).



Target Analyte Monitoring Results At Or Above Permit Quantitation Limit HWMU-16 Plume Monitoring Wells

Radford Army Ammunition Plant, Radford, Virginia All Results in ug/L.

Upgradient well = 16C1

Analtye/Quarter	16C1	Q 16-1 Q	16-2 Q	16-3 Q	16-5 Q	16WC2B Q	16SPRING Q	QL	Background	Method
Antimony					<u></u>	CAS # 7440				
Second Quarter 2008	U	U	υ	U	U	1.4	U	1	3	6020
Arsenic						CAS #7440)-38-2			
Second Quarter 2008	U	U	U	U	U	U	υ	10	1	6020
Barium			. 1	J	i	CAS #7440	i			
Second Quarter 2008	201	J 245	310	776	195	134	319	10	175.4	6020
Beryllium			· · · · · · · · · · · · · · · · · · ·	1	L	CAS #7440	-41-7			
Second Quarter 2008	U	U	U	U	υ	U	U	1	0.7	6020
Cadmium			<u> </u>	<u> </u>		CAS #7440	-43-9			
Second Quarter 2008	U	U	U	U	U	U	l u	1	0.2	6020
Chromium						CAS #7440				
Second Quarter 2008	U	U	U	5	5.9	U	U	5	6.2	6020
Cobalt						CAS #7440	L		J 0.2	
Second Quarter 2008	U.	J U J	Uj	UJ	UJ	U J	UJ	5	5	6020
Copper						CAS #7440				
Second Quarter 2008	U	U	U	U	U	U U	-50-6 U [5	13	6020
Lead					0				13	0020
Second Quarter 2008	U	U	U	U	l U	<i>CAS</i> #7439	1 ,		1 10 1	6000
Mercury				<u> </u>	U		U	1	10	6020
Second Quarter 2008	U	U	11	ļ ,,		CAS #7439	, ,			7.470.4
Nickel	U	U	U	U	U	U	U	0.2	0.2	7470A
Second Quarter 2008		.]	1	l	1	CAS #7440			1 1	
	UJ	J U	U	U	U	U	U	10	16	6020
Selenium		f	1			CAS #7782			f	
Second Quarter 2008	U	U	U	U	U	U	U	10	1	6020
Silver			1			CAS #7440	: 1			
Second Quarter 2008	U	U	U	U	U	U	U	2	0.5	6020
Vanadium					***************************************	CAS #7440-	-62-2			
Second Quarter 2008	U	U	U	U	U	U	U	10	151	6020
Zinc						CAS #7440-	-66-6			
Second Quarter 2008	U	U	U	U	U	12.2	υ	10	51	6020
2-Butanone						CAS #78-93	3-3			
Second Quarter 2008	U	U	U	U	U	U	U	10	1.1	8260B
Carbon tetrachloride						CAS # 56-23	3-5			
Second Quarter 2008	U	U	U	U	U	U	U	1	0.2	8260B
Chloroethane						CAS #75-00)-3			
Second Quarter 2008	4.6	U	U	U	U	U	U	1	20.7	8260B
Dichlorodifluorometh	ane					CAS #75-71	'-8		1	
Second Quarter 2008	U	U	U	U	U	U	U	1	46.5	8260B
1,1-Dichloroethane						CAS #75-34	1-3			
Second Quarter 2008	6.6	υ	U	U	U	U	U	1	9.5	8260B
Diethyl ether			Ll			CAS # 60-29			1 1	·
Second Quarter 2008	U	U	U	UJ	U	U	υ l	12.5	75.5	8260B
			<u> </u>		-	-			1	
Dimethyl ether						CAS #115-1	0-6			



Target Analyte Monitoring Results At Or Above Permit Quantitation Limit HWMU-16 Plume Monitoring Wells

Radford Army Ammunition Plant, Radford, Virginia

All Results in ug/L.

Upgradient well = 16C1

Analtye/Quarter	16C1 Q	16-1 Q	16-2 Q	16-3 Q	16-5 Q	16WC2B Q	16SPRING Q	QL	Background	Method
2,4-Dinitrotoluene			Otto manufaction (1.1%)			CAS # 121-	14-2			
Second Quarter 2008	U	U	U	U	U	U	U	10	0.1	8270C
2,6-Dinitrotoluene						CAS # 606-	20-2			
Second Quarter 2008	U	U	U	U	U	U	U	10	0.11	8270C
Ethylbenzene				1.		CAS # 100-	41-4		ii	
Second Quarter 2008	U	U	U	U	U	U	U	1	0.1	8260B
Chloromethane	Chloromethane CAS #74-87-3									
Second Quarter 2008	U	U	U	U	U	U	U	1	0.3	8260B
Methylene chloride	Methylene chloride CAS #75-09-2									
Second Quarter 2008	5.3	U	U	U	U	U	U	1	13.95	8260B
Tetrachloroethene						CAS #127-	18-4			
Second Quarter 2008	U	U	U	U	U	U	U	1	0.7	8260B
Toluene	Toluene CAS # 108-88-3									
Second Quarter 2008	U	U	U	υ	U	U	U	1	0.1	8260B
1,1,1-Trichloroethane CAS #71-55-6										
Second Quarter 2008	U	υ	U	U	U	U	U	1	9.2	8260B
Trichloroethene			L		1	CAS #79-0	ll 1-6			
Second Quarter 2008	U	U	U	U	U	U	U	1	0.1	8260B
Trichlorofluorometh	ane					CAS #75-6	9-4			
Second Quarter 2008	U	U	U	υ	U	U	U	1	11.3	8260B
1,1,2-Trichloro-1,2,2	-Trifluoro	ethane			1	CAS #76-1:	ii 3- <i>1</i>			
Second Quarter 2008	U	U	U	U	U	U	U	1	1.2	8260B
Xylenes (Total)			Ll		L	CAS # 1330	-20-7			
Second Quarter 2008	U	U	U	U	U	U	U	3	0.2	8260B
D-69-141					L	L				

Definitions:

All plume monitoring well results reported to at or above the permit quantitation limit except for the upgradient well during the Appendix IX monitoring Event. During this event, results for the upgradient well are reported to the detection limit.

- Q Denotes data validation qualifier.
- QL Denotes permit required quantitation limit.
- U Denotes analyte not detected at or above QL.
- UA Denotes analyte not detected at or above adjusted sample QL.
- J Denotes result is estimated. When used with "U" (i.e., "UJ"), denotes analyte not detected at or above QL and QL is estimated. When used with "UA" (i.e., "UAJ"), denotes analyte not detected at or above adjusted QL and adjusted QL is estimated.
- UN Denotes analyte concentration is less than the quantiation limit and five times the blank concentration.

Not reliably detected due to blank contamination. This qualifier used only for Appendix IX monitoring event when compliance well results are reported to at or above the project detection limit.

R Denotes result rejected.

Background Denotes background concentrations listed in Appendix F to Attachment 5 in the Final Hazardous Waste Post-Closure Care Pennit for Hazardous Waste Units 5, 7, 10, and 16 (October 4, 2002).

CAS# Denotes Chemical Abstract Services registration number.

GPS Denotes groundwater protection standard.

Notes:

4Q2004. No data for 16-1 8270C-semivolatiles. Well dry-insufficient sample volume. NS denotes not sampled. NA denotes not analyzed. "-"denotes not detected (pre-2nd Quarter 2003) or not available / not sampled (beginning 2nd Quarter 2003). Note: 4Q2006 - No data for 16-1; well dry.



Comprehensive Data Validation Report

Sample/Blind Field Duplicate Results Greater Than the Quantitation Limit

Draper Aden Associates
Etginering + Sursying + Environmental Services

Facility: HWMU-16

Monitoring Event: Second Quarter 2008

		La	Laboratory Validat	Validated Result	₽.	ē	
Analyte	Sample	e ID	Sample ID (ug/L) Q	(ug/L) Q	ø	(ng/L)	Validation Notes
Method: 6020							
Laboratory: CompuChem, a Division of Liberty Analytical, Ca	vuChem, a Divisi	on of T	iberty Analy	tical, Cary	uy, NC		
Barium	16WC1A	31A	244	244	-	10	Result estimated. Serial dilution RPD > 10%
	16WDUP	UP	256	256	_	10	Result estimated. Serial dilution RPD > 10% Blind field sample dunlicate for 16WC1A
Cobalt	16WC1A	31A	28.8	28.8	J	5	Result estimated. Serial dilution RPD > 10%. Sample/blind field duplicate RPD>10%.
		į	;				Sample/field duplicate RPD >20 (27.2).
	I6WDUP	JOP TOP	21.8	21.8	r	5	Result estimated. Serial dilution RPD > 10%. Blind field sample duplicate for 16WC1A.
COMMON COMMON CONTRACTOR IN CO							Sample/blind field duplicate RPD>10%.
Method: 8260B							

Laboratory: ProChem Analytical, Inc., Elliston, VA

	ٺ	Sample recollected on 5/21 due to	
ALL PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPER	No action taken. Sample recollected on 5/21 due to lab error	No action taken. Blind field sample duplicate for 16WC1A.	lab error.
	-	1	
	1.4	1.5	
	1.4	1.5	
	16WCIA	16WDUP	
	1,1-Dichloroethane		

Definitions:

Data Validation Qualifiers:

QL Denotes permit quantitation limit. Q Denotes data qualifier. J Denotes analyte reported at or above quantitation limit and associated result is estimated.



Appendix IX Monitoring Event

A Company	Analyte	Quantitation Limit/QL (ug/L)	Detection Limit/DL (ug/L)
Method: 60)20		
Laboratory:	CompuChem, a Division of L	berty Analytical, Cary, NC	
Antimony		1	0.4
Arsenic		10	2
Barium		10	1
Beryllium		1	0.2
Cadmium		1	0.2
Chromium		5	1
Cobalt		5	1
Copper		5	1
Lead		1	0.2
Nickel		10	2
Selenium		10	3
Silver		2	0.2
Thallium		1	0.2
Tin		5	1
Vanadium		10	1
		10	3
Zinc		10	•
Method: 74	70A		
Method: 74 <i>Laboratory:</i>	70A CompuChem, a Division of Li	berty Analytical, Cary, NC	
Method: 74 Laboratory: Mercury	CompuChem, a Division of Li		0.2
Method: 74 Laboratory: Mercury Method: 80	CompuChem, a Division of Li	berty Analytical, Cary, NC 2	
Method: 74 Laboratory: Mercury Method: 80 Laboratory:	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA	0.2
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA 0.03	0.2
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA 0.03 0.03	0.2 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03	0.2 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC delta-BHC	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03	0.01 0.01 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03	0.01 0.01 0.01 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC delta-BHC gamma-BHC Chlordane	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC delta-BHC gamma-BHC Chlordane 4,4'-DDD	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.1 0.
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC delta-BHC gamma-BHC Chlordane 1,4'-DDD 4,4'-DDE	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.1 0.
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC delta-BHC gamma-BHC Chlordane 1,4'-DDD 1,4'-DDE 1,4'-DDT	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC gamma-BHC Chlordane 4,4'-DDD 4,4'-DDE 4,4'-DDT Dieldrin	CompuChem, a Division of Li	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC delta-BHC gamma-BHC Chlordane 4,4'-DDD 4,4'-DDE 4,4'-DDT Dieldrin Endosulfan I	CompuChem, a Division of Li 81A ProChem Analytical, Elliston,	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80: Laboratory: Aldrin alpha-BHC beta-BHC delta-BHC gamma-BHC Chlordane 4,4'-DDD	CompuChem, a Division of Li 81A ProChem Analytical, Elliston,	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80: Laboratory: Aldrin alpha-BHC delta-BHC delta-BHC gamma-BHC Chlordane 4,4'-DDD 4,4'-DDE 4,4'-DDT Dieldrin Endosulfan II Endosulfan sul	CompuChem, a Division of Li 81A ProChem Analytical, Elliston,	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80: Laboratory: Aldrin alpha-BHC beta-BHC delta-BHC gamma-BHC Chlordane 4,4'-DDE 4,4'-DDT Dieldrin Endosulfan I Endosulfan sul	CompuChem, a Division of Li 81A ProChem Analytical, Elliston,	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC delta-BHC mpuChem, a Division of Li 81A ProChem Analytical, Elliston,	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC delta-BHC delta-BHC chlordane 4,4'-DDD 4,4'-DDT Dieldrin Endosulfan II Endosulfan sul Endrin aldehy Heptachlor	CompuChem, a Division of Li 81A ProChem Analytical, Elliston, Ifate de	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01
Method: 74 Laboratory: Mercury Method: 80 Laboratory: Aldrin alpha-BHC beta-BHC delta-BHC delta-BHC delta-BHC Tollordane 4,4'-DDD 4,4'-DDT Dieldrin Endosulfan I Endosulfan II Endosulfan sul Endrin Endrin	CompuChem, a Division of Li 81A ProChem Analytical, Elliston, Ifate de	berty Analytical, Cary, NC 2 VA 0.03 0.03 0.03 0.03 0.03 0.03 0.03 0.	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01



Appendix IX Monitoring Event

Analyte	Quantitation Limit/QL (ug/L)	Detection Limit/DL (ug/L)	
Method: 8151A			
Laboratory: CompuChem, a Division of L	iberty Analytical, Cary, NC		
2,4-Dichlorophenoxyacetic acid	5	1	
Dinoseb	2.5	0.5	
Silvex	2.5	0.2	
2,4,5-Trichlorophenoxyacetic acid	2.5	0.2	

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Appendix IX Monitoring Event

Analyte	Quantitation Limit/QL (ug/L)	Detection Limit/DL (ug/L)
Method: 8260B		
Laboratory: ProChem Analytical, Elliston, VA		
Acetone	5	2.6
Acetonitrile	100	21
Acrolein	10	2.6
Acrylonitrile	1	0.6
Allyl chloride	1	0.6
Benzene	1	0.2
Bromobenzene	1	0.3
Bromochloromethane	1	0.6
Bromodichloromethane	1	0.3
Bromoform	1	0.5
2-Butanone	5	5.1
n-Butyl alcohol	200	38,4
tert-Butyl alcohol	20	1
n-Butylbenzene	1	0.3
sec-Butylbenzene	1	0.2
tert-Butylbenzene	1	0.3
Carbon disulfide	1	0.3
Carbon tetrachloride	1	0.2
Chlorobenzene	1	0.2
Chloroethane	1	0.2
Chloroform	1	0.1
2-Chloroethyl vinyl ether	5	0.9
Chloroprene	1	0.3
2-Chlorotoluene	1	0.4
4-Chlorotoluene	1	0.4
Cyclohexane	2	0.3 1
Dibromochloromethane	1	0.2
1,2-Dibromo-3-chloropropane	1	1.4
1,2-Dibromoethane	1	
1,2-Dichlorobenzene		0.2
1,3-Dichlorobenzene	1	0.3
1,4-Dichlorobenzene	1	0.3
trans-1,4-Dichloro-2-butene	1	0.2
Dichlorodifluoromethane	1	0.7
1,1-Dichloroethane	1	0.3
	1	0.7
1,2-Dichloroethane	1	0.2
1,1-Dichloroethene	1	0.4
cis-1,2-Dichloroethene	1	0.1
trans-1,2-Dichloroethene	1	0.8
1,2-Dichloropropane	1	0.2
1,3-Dichloropropane	1	0.3
2,2-Dichloropropane	1	0.3
1,1-Dichloropropene	1	0.3
cis-1,3-Dichloropropene	1	0.1
trans-1,3-Dichloropropene	1	0.1
Diethyl ether	2	0.39
Dimethyl ether	2	0.3
1,4-Dioxane	200	160
Ethyl acetate	2	1



Appendix IX Monitoring Event

Analyte	Quantitation Limit/QL (ug/L)	Detection Limit/DL (ug/L)
Method: 8260B		
Laboratory: ProChem Analytical, Elliston, VA		
Ethanol	200	1
Ethylbenzene	1	0.2
Ethyl methacrylate	1	1.1
Ethylene oxide	20	5.4
Hexachlorobutadiene	1	0.6
Hexachloroethane	1	0.3
2-Hexanone	5	0.8
Isobutyl alcohol	125	11
Isopropylbenzene	1	0.2
Isopropylether	1	1.1
4-Isopropyltoluene	1	0.3
Methacrylonitrile	10	1.8
Bromomethane	1	0.5
Chloromethane	1	0.3
odomethane	1	0.3
Methyl methacrylate	1	0.8
4-Methyl-2-pentanone	5	2.7
Methyl tert-butyl ether	1	0.5
Dibromomethane	1	0.2
Methylene chloride	1	0.5
Naphthalene	1	0.4
Pentachloroethane	1	0.8
-Propanol	1000	289
2-Propanol	1000	229
Propionitrile	10	4.9
n-Propylbenzene	1	0.2
Styrene	1	0.1
1,1,1,2-Tetrachloroethane	1	0.3
,1,2,2-Tetrachloroethane	1	0.3
[etrachloroethene	1	0.7
Cetrahydrofuran	5	1.41
Coluene	1	0.5
,2,3-Trichlorobenzene	1	0.6
,2,4-Trichlorobenzene	1	0.3
,1,1-Trichloroethane	1	0.3
,1,2-Trichloroethane	1	0.3
Crichloroethene	1	0.3
Crichlorofluoromethane	1	0.7
,2,3-Trichloropropane	1	0.9
,1,2-Trichloro-1,2,2- Trifluoroethane	1	0.7
,2,4-Trimethylbenzene	1	0.2
,3,5-Trimethylbenzene	1	0.2
Vinyl acetate	5	1.3
Vinyl chloride	1	0.1
Kylenes (Total)	3	0.2



Appendix IX Monitoring Event

Analyte	Quantitation Limit/QL (ug/L)	Detection Limit/DL (ug/L)
Method: 8270C		
Laboratory: ProChem Analytical, Elliston, VA		
Acenaphthene	10	0.2
Acenaphthylene	10	0.2
Acetophenone	10	0.2
2-Acetylaminofluorene	30	2
4-Aminobiphenyl	10	2
Aniline	10	0.2
Anthracene	10	0.1
Aramite	10	1
Benzo[a]anthracene	10	0.1
Benzo[b]fluoranthene	10	0.1
Benzo[k]fluoranthene	10	0.1
Benzo[ghi]perylene	10	0.5
Benzo(a)pyrene	10	0.1
1,4-Benzenediamine	50	33
Benzyl alcohol	10	0.5
bis(2-Chloroethoxy)methane	10	0.2
bis(2-Chloroethyl)ether	10	0.2
bis(2-Chloro-1- methylethyl)ether	10	0.2
bis(2-Ethylhexyl)phthalate	6	1
4-Bromophenyl phenyl ether	10	0.2
Butyl benzyl phthalate	10	0.3
p-Chloroaniline	10	0.2
Chlorobenzilate	20	0.2
p-Chloro-m-cresol	10	0.2
2-Chloronaphthalene	10	0.5
2-Chlorophenol	10	0.2
4-Chlorophenyl phenyl ether	10	0.2
Chrysene	10	0.2
Diallate		
	10	0.2
Dibenz(a,h)anthracene Dibenzofuran	10	0.2
	10	0.1
Di-n-butyl phthalate	10	0.4
3,3'-Dichlorobenzidine	10	2
2,4-Dichlorophenol	10	0.2
2,6-Dichlorophenol	10	0.2
Diethyl phthalate	10	0.3
O,O-Diethyl O-2-pyrazinyl	10	0.3
Dimethoate	20	0.3
p-(Dimethylamino)azobenzene	10	2
7,12-	20	0.2
Dimethylbenz[a]anthracene	20	2
3,3'-Dimethylbenzidine	20	2
a,a-Dimethylphenethylamine	50	3
2,4-Dimethylphenol	10	0.3
Dimethyl phthalate	10	0.2
m-Dinitrobenzene	10	0.3
4,6-Dinitro-o-cresol	20	0.5
2,4-Dinitrophenol	10	0.4



Appendix IX Monitoring Event

Analyte	Quantitation Limit/QL (ug/L)	Detection Limit/DL (ug/L)
Method: 8270C		
Laboratory: ProChem Analytical, Ellist	on, VA	
2,4-Dinitrotoluene	10	0.2
2,6-Dinitrotoluene	10	0.2
Di-n-octyl phthalate	10	0.2
Diphenylamine	10	0.2
Disulfoton	10	1
Ethyl methanesulfonate	10	0.2
Famphur	10	0.3
Fluoranthene	10	0.2
Fluorene	10	0.2
Hexachlorobenzene	10	0.1
Hexachlorocyclopentadiene	20	0.5
Hexachlorophene	500	88
Hexachloropropene	10	0.1
Indeno[1,2,3-cd]pyrene	10	0.3
Isodrin	10	0.2
Isophorone	10	0.2
Isosafrole	10	0.1
Kepone	10	0.3
Methapyrilene	10	2
3-Methylcholanthrene	10	0.1
Methyl methane sulfonate	10	0.2
2-Methylnaphthalene	10	0.2
Methyl parathion	10	0.3
2-Methylphenol	10	1
3 & 4-Methylphenol	10	1
1,4-Naphthoquinone	10	0.1
1-Naphthylamine	10	1.6
2-Naphthylamine	10	1
o-Nitroaniline	10	0.8
m-Nitroaniline	20	0.8
p-Nitroaniline	20	1
Nitrobenzene	10	0.2
o-Nitrophenol	10	0.2
p-Nitrophenol	10	1
4-Nitroquinoline-1-oxide	50	0.5
N-Nitrosodi-n-butylamine	10	
N-Nitrosodiethylamine		2
N-Nitrosodimethylamine N-Nitrosodimethylamine	10	2
	10	0.3
N-Nitrosodiphenylamine	10	0.2
N-Nitrosodipropylamine	10	0.2
N-Nitrosomethylethylamine	10	2
N-Nitrosomorpholine	10	2
N-Nitrosopiperidine	10	2
N-Nitrosopyrrolidine	10	2
5-Nitroso-o-toluidine	10	2
Parathion	10	0.4
Pentachlorobenzene	10	0.2
Pentachloronitrobenzene	10	0.4
Pentachlorophenol	20	1



Appendix IX Monitoring Event

Analyte	Quantitation Limit/QL (ug/L)	Detection Limit/DL (ug/L)
Method: 8270C		
Laboratory: ProChem Analytical, Elliston, VA		
Phenacetin	10	0.2
Phenanthrene	10	0.2
Phenol	10	0.3
Phorate	20	0.7
2-Picoline	10	2
Pronamide	10	0.2
Pyrene	10	0.2
Pyridine	20	1
Safrole	10	0.2
Sulfotep	10	0.2
1,2,4,5-Tetrachlorobenzene	10	0.1
2,3,4,6-Tetrachlorophenol	10	0.3
o-Toluidine	10	2.2
2,4,5-Trichlorophenol	10	0.8
2,4,6-Trichlorophenol	10	0.2
O,O,O-Triethyl	10	0.2
phosphorothioate		
sym-Trinitrobenzene	10	0.2
Method: 9014		
Laboratory: ProChem Analytical, Elliston, VA		
Cyanide	20	1.5
Method: 9034	Marie de la companya de la companya de la companya de la companya de la companya de la companya de la companya	
Laboratory: ProChem Analytical, Elliston, VA		
Sulfide	1000	5
Method: 9065		
Laboratory: ProChem Analytical, Elliston, VA	onement usususus anementeet vai vai elite läiteid kantaiset kään kään kään kään kään kään kään kää	000/LCCC-400 (UTD-10 CTCC) 40 (UTD-10 CTC) 40
Total Recoverable Phenolics	5	1.48

APPENDIX B

LABORATORY CERTIFICATES OF ANALYSIS AND DATA VALIDATION REPORTS (CD-ROM)

APPENDIX C
TABLES

RADFORD ARMY AMMUNITION PLANT RADFORD, VIRGINIA GROUNDWATER ELEVATIONS - 2008 HWMU-5 TABLE 1

MONITORING	ELEVATION	SECOND QU	SECOND QUARTER 2008	FOURTH QU	FOURTH QUARTER 2008
WELL ID	TOP OF WELL	DTW	GW ELEV	DTW	GW ELEV
5W8B	1789.58	14.46	1775.12		
5W5B	1775.13	8.81	1766.32	THE REAL PROPERTY AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON ADDRESS OF THE PERSON ADDRESS OF T	
5W7B	1774.78	8.93	1765.85		
5WC21	1774.43	8.89	1765.54	A CANADA MANAGAMAN AND AND AND AND AND AND AND AND AND A	a variable state of the state o
5WC22	1774.45	8.87	1765.58	THE PARTY OF THE P	
5WC23	1773.84	8.35	1765.49		A CONTRACTOR OF THE CONTRACTOR
S5W5	1772.31	7.36	1764.95	WOODS A CALL OF THE PARTY OF TH	THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY A
S5W7	1776.08	10.85	1765.23		
5W9A	1762.20	2.12	1760.08	THE REAL PROPERTY AND ASSESSMENT OF THE PROPERTY ASSESSMENT OF THE	PROCESS AND COMMAND COMMAND AND COMMAND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND AND COMMAND COMMAND AND COMMAND AND COMMAND COMMAND AND COMMAND COMMAND AN
5W10A	1771.40	14.58	1756.82		THE PROPERTY OF THE PROPERTY O
5W11A	1766.20	11.09	1755.11		AND CONTRACTOR OF THE PARTY OF
5WC11	1788.92	15.93	1772.99		
5WC12	1788.96	15.63	1773.33	THE PROPERTY OF THE PROPERTY O	
5WCA	1779.05	12.92	1766.13		THE PROPERTY OF THE PROPERTY O
S5W6	1771.43	5.55	1765.88		
S5W8	1783.68	11.68	1772.00	The same of the sa	

NOTES:
DTW: Depth to water from top of casing.
GW ELEV: Groundwater elevation.

All elevations in feet above mean sea level. NM: Not measured.

SECOND QUARTER 2008 SUMMARY OF DETECTED CONSTITUENT CONCENTRATIONS RADFORD ARMY AMMUNITION PLANT RADFORD, VIRGINIA TABLE 2 HWMU-5

CONSTITUTENT	5W8B	SWSB	5W7B	5WC21	5WC22	5WC23			SW-846
	(upgradient)	(compliance)	(compliance)	(compliance)	(compliance)	(compliance)	S	3	METHOD
Antimony	pu	pu	0.79 J	pu	nd	pu	9	-	0209
Barium	115	39.7	37.3	14.2	34.6	25.4	2.000	10	0209
Beryllium	pu	pu	0.63 J	1.9	pu	pu	4		6020
Cadmium	pu	pu	pu	0.56 J	0.37 J	0.23 J	5		6020
Chromium	pu	pu	3.J	7.4	pu	pu	100 *	5	6020
Cobalt	1.3 J	pu	11 J	62.7 J	16.9 J	3.J	313	5	6020
Copper	pu	1.2 J	4.9 J	6.1	pu	pu	1,300	5	6020
Lead	pu	pu	1.7	pu	pu	pu	15	William Control of the Control of th	6020
Nickel	1.5 J	pu	11.6	39.5	10.5	4.4 J	313	10	6020
Selenium	pu	11.2	pu	pu	pu	pu	50	10	6020
Zinc	5.J	8.6 J	30.1	43.9	pu	3.5 J	4.695	10	6020
Inchloroethene	pu	7.8	pu	pu	2.7	2.9	5		8260B

	~ ~ ~ ~							-
CONSTITUENT	SSWS	S5W7	5W9A	5W10A	5W11A	DACT/CDOTINID	č	SW-846
	(plume well)	(plume well)	(plume well)	(plume well)	(plume well)	DACAGROUND	3	METHOD
								COLLEGIA
Barıum	26.6	72.8	61.5	52.5	108	172.87	10	0209
							,	0400
Lead	ì	?	1	≀		01		0609

All Units in ug/l.

GPS: Groundwater Protection Standards. Listed in Appendix G to Attachment 2 of the Final Hazardous Waste Post-Closure Care Permit for

Hazardous Waste Management Units 5, 7, 10, and 16 (October 4, 2002).

*: Chromium was added to the Groundwater Monitoring List for HWMU-5 beginning in First Quarter 2004. The GPS for Chromium was established in accordance with the procedures specified in Permit Condition V.J.1.g.

Background: Site-specific background concentrations. Listed in Appendix F to Attachment 2 of the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Management Units 5, 7, 10, and 16 (October 4, 2002).

QL: Permit-specified Quantitation Limit.

SW-846 Method: Permit-specified analytical method.

nd: Not detected above the Detection Limit (upgradient and compliance wells). Detection limits are summarized in Appendix A of this report.

Not detected above the Permit-specified Quantitation Limit.

J: Associated result is estimated.

RADFORD ARMY AMMUNITION PLANT RADFORD, VIRGINIA **GROUNDWATER ELEVATIONS - 2008** TABLE 3 HWMU-7

MONITORING	ELEVATION	SECOND QU	SECOND QUARTER 2008	FOURTH Q	FOURTH QUARTER 2008
WELL ID	TOP OF WELL	DTW	GW ELEV	MLQ	GW ELEV
7W12B	1717.31	24.86	1692.45		
7WCA	1715.40	24.85	1690.55		
7MW6	1715.30	26.05	1689.25		
7W11B	1715.90	24.97	1690.93	The state of the s	
7W9C	1704.45	13.79	1690.66	NAME OF TAXABLE PARTY.	
7W10B	1706.65	15.30	1691.35		
7W10C	1709.30	18.88	1690.42	TO THE PROPERTY OF THE PROPERT	
7W13	1705.42	18.43	1686.99	TOTAL DESCRIPTION OF THE PROPERTY OF THE PROPE	
7W9B	1712.49	23.27	1689.22		
7MW5	1716.20	24.02	1692.18		
7W11	1714.82	24.81	1690.01	A DATE OF THE PROPERTY OF THE	THE REAL PROPERTY AND ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY ADDRESS OF THE PERTY

NOTES: DTW: Depth to water from top of casing.

GW ELEV: Groundwater elevation.

All elevations in feet above mean sea level.

NM: Not measured.

TABLE 4

HWMU-7

SECOND QUARTER 2008 SUMMARY OF DETECTED CONSTITUENT CONCENTRATIONS
RADFORD ARMY AMMUNITION PLANT
RADFORD, VIRGINIA

CONSTITTIENT	7W12B	9MML	7WCA	7W11B	200	ō	SW-846
THE THE STATE OF T	(upgradient)	(compliance)	(compliance)	(compliance)	25	7	METHOD
Barium		21.4	28.6	45	2,000	10	6020
Chromium	8.5	pu	pu	pu	100	5	6020
Cobalt	pu	pu	5.8	pu	156.65	~	6020
Copper	1.7 J	pu	1.6 J	2.2 J	1,300	5	6020
Lead	pu	pu	0.21 J	pu	15		6020
Nickel	pu	pu	15.8	2.1 J	313	10	6020
Zinc	7.5 J	8.6 J	6.7 J	4.9 J	4,695	10	6020
Chloroform	pu	1.5	pu	pu	na	1	8260B
2,4-Dinitrotoluene	pu	pu	1.2 J	pu	31.3	10	8270C

TUBLITITION	7W9C	7W10B	7W10C	7W13	awiiOu5/15 va	7	SW-846
	(plume well)	(plume well)	(plume well)	(plume well)	DACAGROUND	72	METHOD
Barium	26.6	83.2	51.8	14.1	47	10	6020
Cobalt	>	7	}	5.8	5	5	6020

NOTES:

All Units in ug/l.

GPS: Groundwater Protection Standards. Listed in Appendix G to Attachment 3 of the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Management Units 5, 7, 10, and 16 (October 4, 2002).

Background: Site-specific background concentrations. Listed in Appendix F to Attachment 3 of the Final Hazardous Waste Post-Closure Care

Permit for Hazardous Waste Management Units 5, 7, 10, and 16 (October 4, 2002).

QL: Permit-specified Quantitation Limit.

SW-846 Method: Permit-specified analytical method.

nd: Not detected above the Detection Limit (upgradient and compliance wells). Detection limits are summarized in Appendix A of this report.

~: Not detected above the Permit-specified Quantitation Limit.

na: Not applicable.

J: Associated result is estimated.

RADFORD ARMY AMMUNITION PLANT RADFORD, VIRGINIA GROUNDWATER ELEVATIONS - 2008 HWMU-10 TABLE 5

MONITORING	ELEVATION	SECOND QU	SECOND QUARTER 2008	FOURTH QU	FOURTH QUARTER 2008
WELL ID	TOP OF WELL	DTW	GW ELEV	MLG	GW ELEV
10D4	1714.38	22.90	1691.48		
10DDH2R	1704.38	20.34	1684.04		THE RESERVE OF THE PERSON OF T
10D3	1702.95	18.85	1684.10		
10D3D	1702.64	18.72	1683.92	The same of the sa	THE PROPERTY OF THE PARTY OF TH
10MW1	1703.62	18.94	1684.68		

NOTES:

DTW: Depth to water from top of casing. GW ELEV: Groundwater elevation. All elevations in feet above mean sea level.

SECOND QUARTER 2008 SUMMARY OF DETECTED CONSTITUENT CONCENTRATIONS RADFORD ARMY AMMUNITION PLANT RADFORD, VIRGINIA **HWMU-10** TABLE 6

CONSTITUTION	10D4	10DDH2R	10D3	10D3D	10MW1	Sep.	į	SW-846
	(upgradient)	(compliance)	(compliance)	(compliance)	(compliance)	275	77	METHOD
Barium	123 J	95.3 J	118 J	54.4 J	92.9 J	2,000	10	6020
Chromium	3.5 J	4 J	1.8 J	pu	2.4 J	100	5	6020
Copper	1.2 J	pu	1.1 J	pu	pu	1,300	5	6020
Lead	0.38 J	pu	pu	pu	pu	15		6020
Zinc	5 J	3.5 J	4.9 J	6.7 J	3.7 J	4,695	10	6020
Acetone	pu	180 J	pu	18,000	pu	na	5	8260B
Chloroform	17	pu	1.5	pu	3.7	80		8260B
2-Propanol	pu	6,300	pu	40,000	pu	na	1,000	8260B

NOTES:

All Units in ug/l.

GPS: Groundwater Protection Standards. Listed in Appendix G to Attachment 4 of the Final Hazardous Waste Post-Closure Care Permit for

Hazardous Waste Management Units 5, 7, 10, and 16 (October 4, 2002).

QL: Permit-specified Quantitation Limit.

SW-846 Method: Permit-specified analytical method.

nd: Not detected above the Detection Limit (upgradient and compliance wells). Detection limits are summarized in Appendix A of this report.

na: Not applicable. The VDEQ is in the process of establishing GPSs for acetone and 2-propanol.

J: Associated result is estimated.

RADFORD ARMY AMMUNITION PLANT RADFORD, VIRGINIA GROUNDWATER ELEVATIONS - 2008 **HWMU-16** TABLE 7

FOURTH QUARTER 2008	GW ELEV		THE PERSON NAMED IN COLUMN 1 I	The Transport Annual An		TO THE PROPERTY OF THE PROPERT	***************************************				MATERIAL OF ST. AMARINA	Additional designation of the second	THE PROPERTY OF THE PROPERTY O	THE THE PARTY OF T	The second secon
FOURTH QU	DTW		THE RESIDENCE OF THE PROPERTY	THE RESERVE AND THE PROPERTY OF THE PROPERTY O	THE RESERVE THE RE								TOTAL DESCRIPTION OF THE PROPERTY OF THE PROPE		
SECOND QUARTER 2008	GW ELEV	1788.77	1742.11	1743.40	1743.68	1743.78	1762.50	1755.21	1766.19	1739.17	1762.94	DRY	DRY	DRY	na
SECOND QU	DTW	51.37	73.71	65.48	68.93	69.17	53.32	55.78	58.58	3.43	55.77	DRY	DRY	DRY	na
ELEVATION	TOP OF WELL	1840.14	1815.82	1808.88	1812.61	1812.95	1815.82	1810.99	1824.77	1742.60	1818.71	1820.05	1822.22	1825.60	na
MONITORING	WELL ID	16C1	16MW8	16MW9	16WC1A	16WC1B	16-1	16-2	16-3	16-5	16WC2B	16WC2A	16C3	16CDH3	SPRING

NOTES:

DTW: Depth to water from top of casing. GW ELEV: Groundwater elevation.

All elevations in feet above mean sea level. na: Not applicable.

TABLE 8 HWMU-16 SECOND QUARTER 2008 SUMMARY OF DETECTED CONSTITUENT CONCENTRATIONS RADFORD ARMY AMMUNITION PLANT RADFORD, VIRGINIA

CONSTITUENT	19C1	16MW8	16MW9	16WC1A	16WC1B	Sub	7	SW-846
	(upgradient)	(compliance)	(compliance)	(compliance)	(compliance)	25	٦ _{>}	METHOD
Barium	201 J	109 J	305 J	244 J	178 J	2,000	10	6020
Beryllium	pu	0.29 J	pu	pu	pu	4	_	6020
Cadmium	pu	0.25 J	pu	pu	pu	5		6020
Chromium	pu	1.4 J	pu	pu	2 J	100	5	6020
Cobalt	pu	nd	2.3	7.1	1.5 J	313	5	6020
Copper	pu	pu	1.8 J	28.8 J	pu	1,300	5	6020
Lead	pu	0.64 J	pu	0.38 J	0.24 J	15	_	6020
Nickel	pu	6.6 J	7.2 J	8.8 J	pu	313	10	6020
Silver	pu	2.2	pu	pu	pu	78.25	2	6020
Vanadium	pu	pu	pu	pu	1.5	109.55	10	6020
Zinc	pu	24.1	pu	8.8 J	7.3	4,695	10	6020
Chloroethane	4.6	pu	pu	pu	pu	20.7		8260B
1,1-Dichloroethane	6.6	pu	2.2	1.4	1.6	296.08	1	8260B
Dimethyl ether	8.1 J	pu	2.7 J	1.6 J	pu	na	12.5	8260B
Methylene chloride	5.3	nd	pu	pu	pu	13.95		8260B

CONSTITUTION	16-1	16-2	16-3	16-5	16WC2B	16SPRING	DA CIVIDADINID	10	SW-846
	(plume well)	(plume well)	(plume well)	(plume well)	(plume well)	(plume point)	BACAGROUND	7) (T	METHOD
Barium	245	310	922	195	134	319	175.4	01	6020
Chromium	₹	2	5	5.9		?	6.2	5	6020
Zinc	?	2	7	2	12.2	3	51	10	6020

NOTES:

All Units in ug/l.

GPS: Groundwater Protection Standards. Listed in Appendix G to Attachment 5 of the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Management Units

5, 7, 10, and 16 (October 4, 2002).

*: Chloroethane and Methylene chloride were added to the Groundwater Monitoring List for HWMU-16 beginning in Fourth Quarter 2003. GPSs were established for Chloroethane

and Methlyene chloride in accordance with the procedures specified in Permit Condition V.J.4.g.

Background: Site-specific background concentrations. Listed in Appendix F to Attachment 5 of the Final Hazardous Waste Post-Closure Care Permit for Hazardous Waste Management Units 5, 7, 10, and 16 (October 4, 2002).

QL: Permit-specified Quantitation Limit.

SW-846 Method: Permit-specified analytical method.

nd: Not detected above the Detection Limit (upgradient and compliance wells). Detection limits are summarized in Appendix A of this report.

~: Not detected above the Permit-specified Quantitation Limit.

na: Not applicable. The VDEQ is in the process of developing a GPS for dimethyl ether.

J: Associated result is estimated.

APPENDIX D FIGURES

