Final Report

Time Critical Removal Action
Former Vieques Naval Training Range

Air Monitoring Data Report

January 1, 2006 through March 31, 2006

Prepared for

Department of the Navy
Atlantic Division
Naval Facilities Engineering Command

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October 2006

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Acronyms and Abbreviations

$\mu g/m^3$	micrograms per cubic meter
COC	Chain-of-Custody
Cu	copper
E-BAM	Environmentally Protected Beta Attenuation Monitor
EPA	United States Environmental Protection Agency
ICP-MS	Inductively Coupled Plasma Mass Spectrometry
LCS	laboratory control sample
lpm	liters per minute
m/s	meters per second
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NC	not calculated
NIST	National Institute of Standards and Technology
OP	observation post
PM_{10}	particulate matter less than 10 micrometers in aerodynamic diameter
QA/QC	quality assurance/quality control
RPD	relative percent difference
slpm	standard liters per minute
TCRA	time critical removal action
VNTR	Vieques Naval Training Range
WD	wind direction
WS	wind speed
XRF	X-ray Flouresence

1.0 Background and Monitoring Objectives

The object of the air monitoring program at the former Vieques Naval Training Range (VNTR) is to assess the air quality impact of the time critical removal action (TCRA) and compare the offsite concentrations of constituents emitted from open detonation of munitions associated with the TCRA to National Ambient Air Quality Standards (NAAQS).

The air monitoring program includes determination of 24-hour particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}) concentration using a network of Met One Environmentally Protected Beta Attenuation Monitors (E-BAM). Samples are collected in 8-hour intervals for the 8 hours prior to and 16 hours following munitions detonations. These 8-hour samples, along with select background samples, are analyzed for metals and subsequently explosive residue. Meteorological data is limited to wind speed and wind direction data to determine localized wind conditions in the vicinity of the E-BAM monitoring stations.

2.0 Monitoring Sites

The three portable E-BAM samplers are located along a low ridge near the western side of the live impact area and within the former VNTR surface impact area. The monitoring station locations are along a small ridge line over which plumes would have to pass to reach populated areas. This location allows for safe monitoring while being close to the source of emissions. The selected locations, which are within 1 mile of the detonations, provide a conservative assessment of the air quality impact of the TCRA on the public, who are more than 4.5 miles west of the monitoring locations. The locations of the monitoring sites are shown on Figure 2-1.

2.1 Observation Post 1

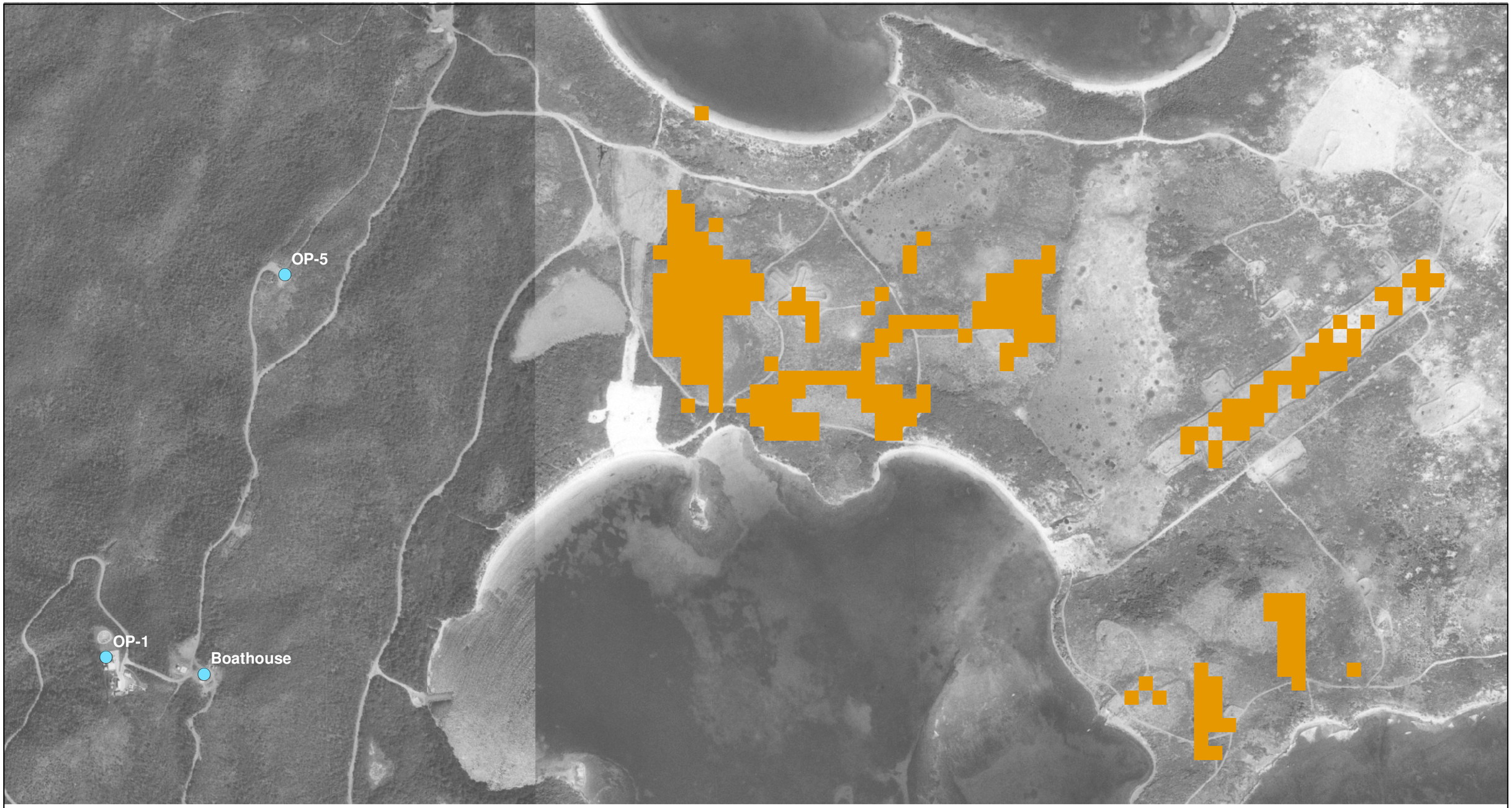
This location was selected to capture potential highly elevated plumes that may rise above the other two monitors. The elevation of the monitor is 53 feet.

2.2 Boathouse

This monitoring site is located on an existing small structure with the inlet located at 19 feet above the ground surface. It was selected to capture plumes that cross over the ridge line.

2.3 Observation Post 5

This monitoring site is located on an existing small structure with the inlet located 17 feet above the ground surface.



Legend

- Air Monitoring Station
- Demolition Location

N

0 Meters

Figure 2-1
Surface Clearance Areas and Air Monitoring Station Locations
January 2006 through March 2006
Former VNTR, Vieques, Puerto Rico

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3.0 Data

This report presents data collected from January 1, 2006 through March 31, 2006. Removal actions occurred on January 12, February 17, March 8, and March 29. The E-BAM located at Observation Post (OP) 1 was the only instrument functioning in January. As indicated by the figures in this section, there was significant instrument downtime this quarter. The power systems at all of the monitoring stations were upgraded in March. This upgrade, involving more solar power and larger battery banks, is expected to resolve the power issues and increase data capture efficiency. Site activities that may influence results during this time period include driving on dry, dusty roads. The munitions destroyed are provided in Table 3-1.

TABLE 3-1
Munitions Destroyed

Item	Qty	Item	Qty
UK pract bomb	1	60mm WP	1
Mk83 Inert	1	40 HEDP	9
Mk82	4	40mm HE	1
Mk82 HE	19	40mm Illum	2
Mk81	1	37mm HE	1
Mk81 HE	2	30mm HE	11
Mk24 flare	1	25mmHEI	3
M39	1	25mm HE	22
750lb GPHE	1	20mm HEI	17
BDU 33	3	20mm HE	187
155mm HE	5	16in HE	2
155mm WP	5	5in HE	48
155mm smk	2	5in Smoke	6
105mm Illum	2	5in Illum	2
90mm HEAT	1	5in pract	2
81mm HE	6	4.2in WP	1
81mm Illum	13	3in APHE	9
81mm WP	1	3in HE	3
81mm RP	1	2.75in rkt HE	16
81mm pract	2	AC flare	1
75mm HE	4	Slap flare	2
75mm WP	2	Flare Canister	2
60mm HE	27	Bomb fuze	19
60mm IIIum	3		

3.1 PM_{10} Data

For the monitoring period, 24-hour averages of PM_{10} were calculated from the hourly data. These averages were then compared to the NAAQS for PM_{10}. There were no exceedances of the NAAQS during this quarter. Figures 3-1 through 3-4 present the 24-hour average PM_{10} concentration prior to, during, and following the munitions detonation operations. The comparison to NAAQS is a very conservative assessment, considering that the NAAQS applies to areas where the public is exposed to the air emissions and the closest public exposure to air emissions from the detonations is greater than 4 miles from the detonations. There would be much lower particulate emissions at public access areas due to dispersion. Furthermore, PM_{10} is a measurement of the particulate concentrations in the air and is not a direct measurement of risks to human health and the environment. The comparison of the metals and explosives data to the risk-based concentrations provides a more direct assessment of impacts to human health and the environment. However, the methods used to collect these data were questioned by the local regulatory agency.

FIGURE 3-1
24-hour PM_{10} Averages for January 11 through January 13, 2006

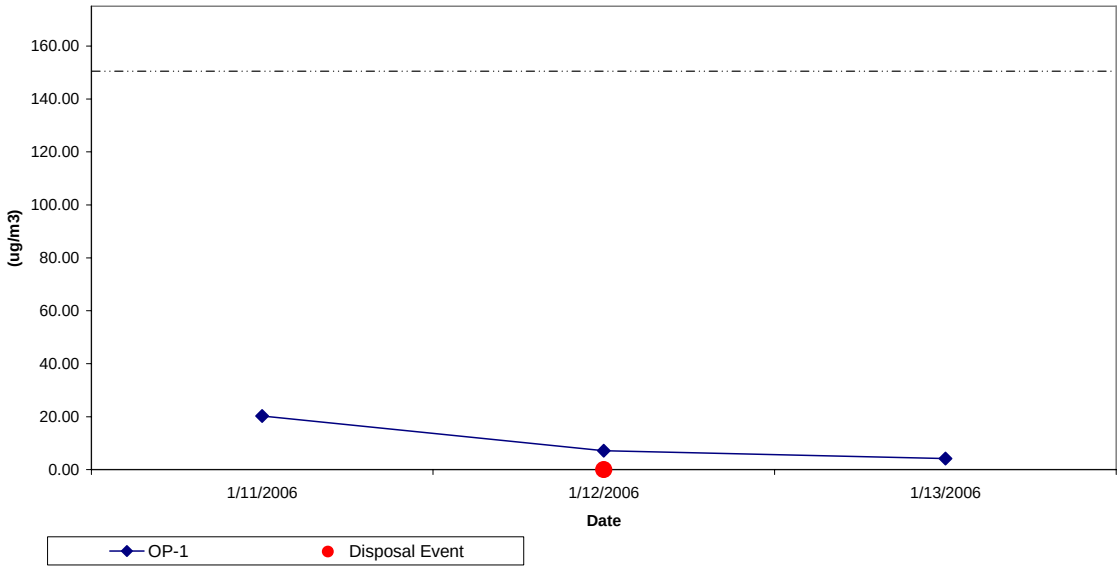


FIGURE 3-2
24-hour PM_{10} Averages for February 16 through February 18, 2006

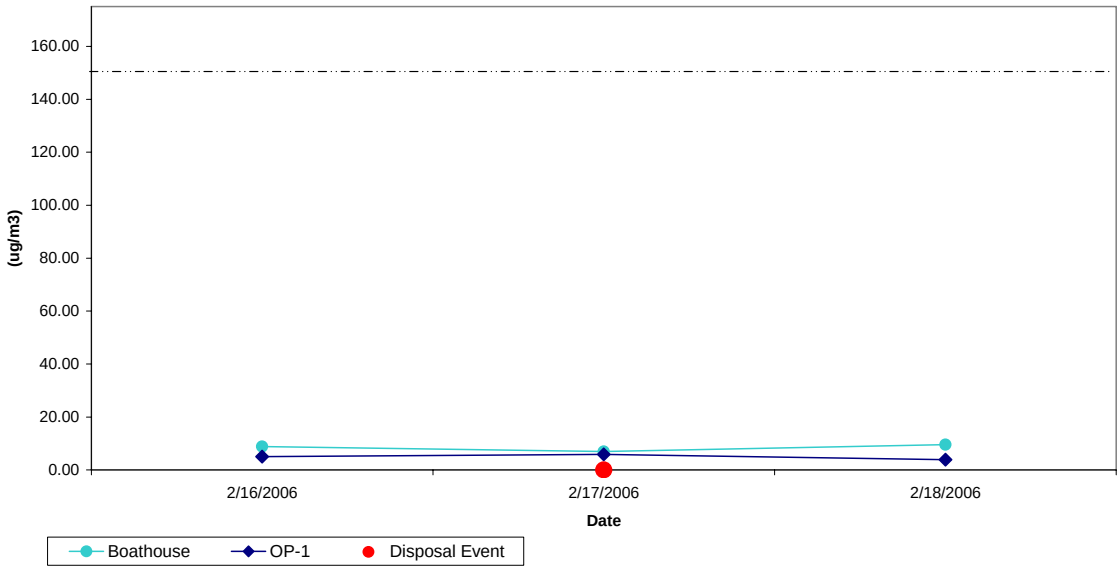


FIGURE 3-3
24-hour PM_{10} Averages for March 6 through March 10, 2006

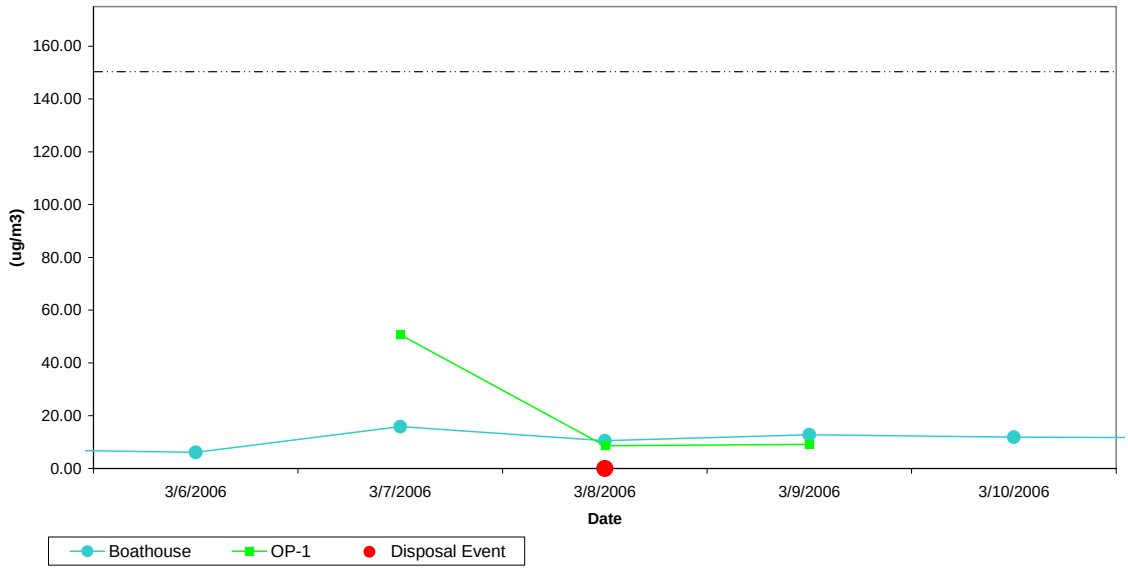
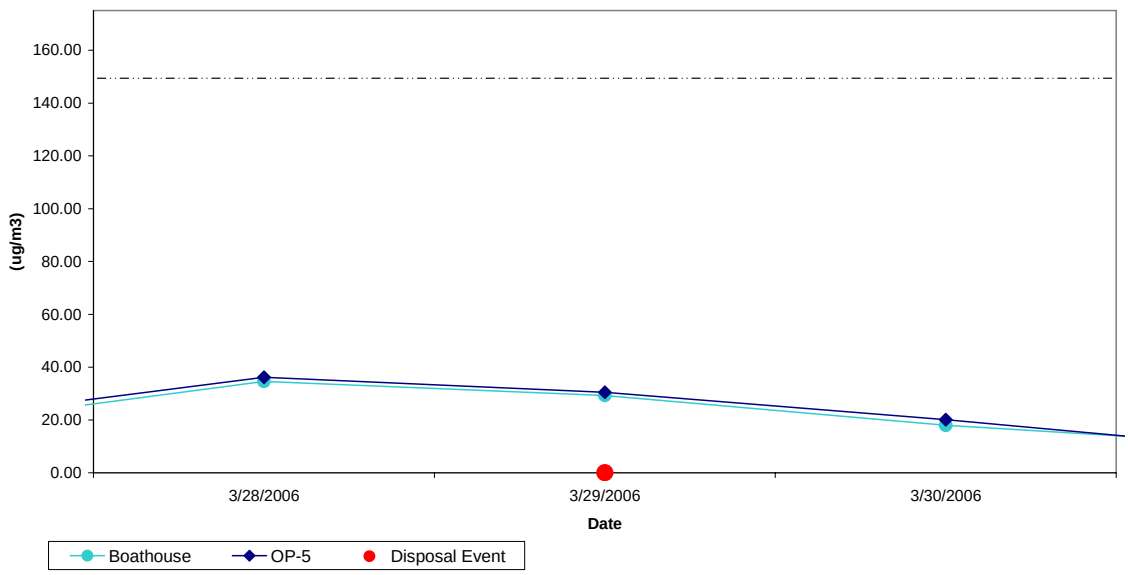


FIGURE 3-4
24-hour PM_{10} Averages for March 28 through March 30, 2006



The 24-hour PM_{10} NAAQS is 150 micrograms per cubic meter (µg/m³). The top three highest PM_{10} concentration days for each operating location were identified for the quarter and are shown in Table 3-2. The average monthly PM_{10} concentration at each location is shown in Table 3-3.

TABLE 3-2
Top Three PM_{10} 24-hour Average Concentration Days

Boathouse		OP-1		OP-5	
Date	**24-hr Average (µg/m³)**	**Date**	**24-hr Average (µg/m³)**	**Date**	**24-hr Average (µg/m³)**
3/23/06	50.7	1/11/06	20.3	3/24/06	62.8
3/28/06	34.6	3/24/06	27.8	3/28/06	36.2
3/29/06	29.4	3/25/06	16.8	3/29/06	30.5

TABLE 3-3
Average Monthly PM_{10} 24-hour Concentration (µg/m³)

Month	Boathouse	OP-1	OP-5
January	_	10.5	-
February	8.3	5.0	-
March	16.1	16.1	25.9

3.2 Metals Data

Particulate samples collected on the E-BAM filter tape were sent to an analytical laboratory for metals analysis by x-ray fluorescence (XRF). Table 3-4 lists the 8-hour health based

guidance levels for metals and explosive compounds. There were no exceedances of these levels during this reporting period.

Trace levels of iron and copper were the present in some of the samples. The maximum concentration of iron for this reporting period (0.99 µg/m^3) occurred at OP-1 on March 28, 2006. The maximum concentration of copper for this reporting period (0.51 µg/m^3) occurred at OP-5 on January 13, 2006. The complete analytical results are shown in Appendix A.

3.3 Explosive Residue Data

Following XRF analyses, filter tape particulate samples were sent to an analytical laboratory for extraction and analysis for explosive residue by gas chromatography. The 8-hour, health-based guidance levels for explosive compounds are listed in Table 3-4. There were no detections above the reporting limit for explosive compounds during this reporting period; therefore, there were no exceedances.

TABLE 3-4
8-Hour Health Based Risk Guidance Levels for Metals and Explosive Compounds

Compound	Abbrev.	8-hour threshold value (µg/m^3)
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	HMX	1575
Hexahydro-1,3,5-trinitro-1,3,5-triazine	RDX	85
Nitrobenzene	NB	350
1,3-Dinitrobenzene	1,3-DNB	70
1,3,5-Trinitrobenzene	1,3,5-TNB	700
2,4-Dinitrotoluene	2,4-DNT	14
2,6-Dinitrotoluene	2,6-DNT	14
2,4,6-Trinitrotoluene	2,4,6-TNT	105
Cadmium	Cd	0.35
Copper	Cu	70
Chromium	Cr	7
Lead	Pb	3.5
Phosphorus	P	7
Tin	Sn	210
Iron	Fe	140
Nickel	Ni	70
Arsenic	As	0.7
Mercury	Hg	2.45

3.4 Wind Speed and Direction

Table 3-5 shows the wind speed and direction averages for the reporting period and for the 24-hour periods during each demolition event.

Wind directions were primarily from the northeast to the southwest at all locations during the reporting period and demolition events. Wind speeds ranged from 2 meters per second (m/s) to 10 m/s, with wind speeds slightly higher at OP-1. Slower wind speeds were observed at the boathouse.

TABLE 3-5
Wind Speed and Direction: OP-1, Boathouse, and OP-5

	OP-1		Boathouse		OP-5	
Date	**WS (m/s)**	**WD (Deg)**	**WS (m/s)**	**WD (Deg)**	**WS (m/s)**	**WD (Deg)**
1/11/2006	8.3	104	NA	NA	NA	NA
1/12/2006	8.4	112	NA	NA	NA	NA
1/13/2006	8.1	112	NA	NA	NA	NA
3/7/2006	4.1	156	3.4	87	3.8	146
3/8/2006	3.4	186	2.3	192	2.7	200
3/9/2006	10.5	53	6.1	45	7.1	44
3/28/2006	NA	NA	2.1	128	2.8	142
3/29/2006	NA	NA	2.8	134	3.5	144
3/30/2006	NA	NA	2.7	136	3.8	144

NA = Not applicable
WS = Wind Speed
WD = Wind Direction

4.0 Quality Assurance and Quality Control Activities

Quality assurance and quality control (QA/QC) take place both in the field and in the laboratory. The purpose of QA/QC activities is to assess the quality of the monitoring data as well as control and improve the quality of the data by implementing policies, procedures, and corrective actions.

4.1 Field Quality Assurance/Quality Control

4.1.1 Flow Precision

Precision is determined for the PM_{10} monitor by conducting weekly flow checks. The procedure is described in the Air Monitoring Plan. The flow of the E-BAM is compared to a primary flow meter that is certified annually. If the results of the flow check do not fall within the United States Environmental Protection Agency (EPA) criterion for flow rate of ±4 percent, the instrument is calibrated and rechecked. If the instrument flow checks fall outside the 4 percent criteria, data may be recalculated using an average flow.

In instances when flow precision was not determined in the field, associated data is qualified as "estimated."

TABLE 4-1
Precision Flow Check Data

Date	Location	E-BAM Display Value (slpm)	Standard Value (slpm)	Flow Rate% Difference
1/13/06	OP-1	16.7	16.84	-0.8%
1/13/06	Boathouse	16.7	16.56	0.8%
1/13/06	OP-5	0	0	NC
2/16/06	OP-1	16.7	-	NC
3/7/06	Boathouse	16.7	17.2	-2.9%[1]
3/7/06	OP-5	16.6	8.7	90%[2]
3/7/06	OP-1	16.7	16.9	-1.2%
3/15/06	Boathouse	16.8	16.60	0.6%
3/31/06	OP-1	16.3	-	NC
3/31/06	Boathouse	16.5	-	NC

Notes: 1- Flow recalibrated. Post-calibration flow 16.7.
2 - Flow outside of specifications. Data rejected.
NC - Not calculated
slpm – Standard liters per minute

4.1.2 PM_{10} Calibrations

PM_{10} instruments are calibrated as part of the quality control program. The E-BAM is factory calibrated. The only user-required calibration is for flow verification that includes verification of the temperature and internal barometric pressure sensor. Before any adjustments are made to the instrument, the flow is verified against a flow standard and then adjusted (if the percent difference from the standard is greater than ± 2). These calibrations are done onsite before monitoring commences, and routinely throughout the monitoring program:

- After any repair work that may alter the operation of the instrument
- When an instrument has been moved
- At least once a quarter, or whenever the instrument has failed a performance audit or a QC flow check

4.1.3 Performance Audits

Auditing is an independent function performed under its own set of procedures. The purpose of the audit is to inspect the calibration and test the instruments with known inputs and accurately measure the system's responses to determine instrument performance and accuracy. Quality assurance audits and process evaluations are performed to determine the accuracy of the monitoring system and hence the data it produces. Audits are performed by experienced air monitoring personnel who are not responsible for the day-to-day operation of the station.

Audit procedures for the E-BAM call for comparing the audit flow rate measured by the audit device to the indicated sampler flow rate. Flow rates measured in liters per minute (lpm) are compared at actual conditions of temperature and pressure. Field measurements of temperature and pressure are recorded using certified equipment traceable to the National Institute of Standards and Technology (NIST) standards. The difference between the audit flow and the E-BAM indicated flow must be within ± 4 percent to pass the audit.

The E-BAM is operated under normal conditions as part of the performance audit. A measurement of the indicated sampler flow rate is determined using a NIST flow measurement device. The percentage difference between the E-BAM monitor's indicated flow rate and the corresponding audit flow is measured. If the audit flow rate percentage difference is less than or equal to ± 4 percent, then the audit is acceptable. If this criterion is not met, the flow meter must be recalibrated.

The equation for calculating the percent difference is:

$$\% \text{ diff.} = \frac{(\text{audit flow} - \text{E-BAM station flow})}{100 \text{ percent audit flow}}$$

One audit was conducted at each monitoring station during the monitoring period of record on March 24, 2006 and the results are presented in Table 4-2. All audits were within the audit criteria of ± 4 percent difference.

TABLE 4-2
Audit Results – March 24, 2006

Audit Date	Location	EBAM Station Flow (slpm)	Audit Flow (slpm)	Percent Difference (%)
March 24, 2006	OP-1	16.5	16.48	0.1%
March 24, 2006	Boathouse	16.4	16.55	-0.9%
March 24, 2006	OP-5	16.5	16.61	-0.7%

slpm – Standard liters per minute

4.2 Laboratory Quality Assurance/Quality Control

All analytical data were reviewed based on criteria analogous to that set forth in the EPA *National Functional Guidelines* and the Air Monitoring Plan. All items reviewed were within acceptable limits.

4.2.1 Metals

A Multi-elemental Quality Control Standard was analyzed with each batch of samples. Agreement must be ± 5 percent for sample results to be valid. Accuracy is determined by the analysis of a NIST reference standard analyzed with each batch of samples. Criteria is ± 15 percent.

Additionally, XRF analyses monitor run-time instrument performance to ensure quality assurance/quality control (QA/QC) at the time of sample analysis. Precision is determined by the analysis of replicate samples. Three replicates were analyzed during this reporting period.

All QA/QC results for metals were within acceptable limits for this quarter.

4.2.2 Explosive Residue

A laboratory control sample (LCS) is analyzed with each batch of samples. Agreement must be ± 40 percent for sample results to be valid. Accuracy is determined by the analysis of a NIST-traceable second source standard analyzed at a frequency of once per initial calibration. Criteria is ± 30 percent.

Laboratory precision is determined by the analysis of an LCS and LCS duplicate pair. The relative percent difference (RPD) must be less than 50 percent.

All QA/QC results for explosive/energetic compounds were within acceptable limits for this reporting period.

Intra-method comparison for metals

As an additional QA/QC check for metals analysis accuracy, four samples were analyzed by XRF and Inductively Coupled Plasma Mass Spectrometry (ICP-MS). Iron was detected at low levels in some of these samples by XRF. Iron was not detected by ICP-MS in any of the

samples. Copper (Cu) was the only compound detected by both analytical methods, and therefore is the only compound presented in Table 4-3. The RPD between the XRF Cu result and the ICP-MS Cu result has been calculated for each sample. Calculated concentrations were at the limit of detection for each method resulting in a high RPD. It should be noted that although the calculated RPD is high, there are only 4 nanograms difference between sample results. Results and RPD are presented in Table 4-3.

The equation for calculating the RPD is:

$$RPD = \left[\frac{|C_1 - C_2|}{(C_1 + C_2)/2} \right] 100$$

where:

C_1 = Concentration of the sample by XRF analysis

C_2 = Concentration of the sample by ICP-MS analysis

TABLE 4-3
Metals Analysis Accuracy Results

Sample	Cu XRF Result (ug/m^3)	Cu ICP-MS Result (ug/m^3)	RPD (%)
B524	0.012	0.084	150
B525	0.012	0.082	149

4.2.3 Chain-of-Custody

Proper chain-of-custody (COC) documentation accompanied the samples to the laboratories. All sample handling protocols and COC requirements were followed.

4.2.4 Completeness

The data completeness goal for this project is 80 percent completeness per quarter. Data completeness for PM_{10} was at 58 percent for this reporting period due to continued power issues. Data included in this calculation is from 24 hours prior to until 24 hours following completion of a removal event (3 days).

5.0 Summary

For the first quarter 2006 monitoring period, 24-hour averages of PM_{10} were calculated from the hourly data. These averages were then compared to the NAAQS for PM_{10}. There were no NAAQS exceedances during this reporting period. It should be noted that the comparison to NAAQS is a very conservative assessment considering that the measurements were collected very close to the source areas and NAAQS applies to areas where the public is exposed to the air emissions; the closest public exposure to air emissions from the detonations is normally greater than 4 miles from the detonations. There would be much lower particulate emissions at public access areas due to dilution and dispersion. Furthermore, PM_{10} is a measurement of the particulate concentrations in the air and are not a direct measurement of risks to human health and the environment. The comparison of the metals and explosives data to the risk-based concentrations provides a more direct assessment of impacts to human health and the environment.

Concentrations of metals and explosive compounds were compared to 8-hour average, health-based values. There were no exceedances of the 8-hour threshold values for any of the metal or explosive compounds for this reporting period.

APPENDIX A

Complete Analytical Results

TABLE A-1
VNTR Air Monitoring Data Explosive/Energetics Results (µg/m³)

Demo Date	Sample Name	Location	Sample Start Date/Time (GMT)	Sample End Date/Time (GMT)	NB 350[a] 0.03[b]	1,3-DNB 70[a] 0.006[b]	2,6-DNT 14[a] 0.006[b]	2,4-DNT 14[a] 0.006[b]	1,3,5-TNB 700[a] 0.01[b]	TNT 105[a] 0.006[b]	RDX 85[a] 0.006[b]	HMX 1575[a] 0.03[b]
1/12/2006	A420	OP-1	1/11/2006 16:00	1/12/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	A421	OP-1	1/12/2006 0:00	1/12/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	A422	OP-1	1/12/2006 8:00	1/12/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	A423	OP-1	1/12/2006 16:00	1/13/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	A424	OP-1	1/13/2006 0:00	1/13/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	A425	OP-1	1/13/2006 8:00	1/13/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B333	Boathouse	1/11/2006 8:00	1/11/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B334	Boathouse	1/11/2006 16:00	1/12/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B335	Boathouse	1/12/2006 0:00	1/12/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B336	Boathouse	1/12/2006 8:00	1/12/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B337	Boathouse	1/12/2006 16:00	1/13/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B338	Boathouse	1/13/2006 0:00	1/13/2002 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B339	Boathouse	1/13/2002 8:00	1/13/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	C312	OP-5	1/11/2006 16:00	1/12/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	C313	OP-5	1/12/2006 0:00	1/12/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	C314	OP-5	1/12/2006 8:00	1/12/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	C315	OP-5	1/12/2006 16:00	1/13/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	C316	OP-5	1/13/2006 0:00	1/13/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	C317	OP-5	1/13/2006 8:00	1/13/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
2/10/2006	A427	OP-1	2/16/2006 16:00	2/17/2000 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	A428	OP-1	2/17/2000 0:00	2/17/2000 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	A429	OP-1	2/17/2000 8:00	2/17/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	A430	OP-1	2/17/2006 16:00	2/18/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	A431	OP-1	2/18/2006 0:00	2/18/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B490	Boathouse	2/15/2006 16:00	2/16/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B491	Boathouse	2/16/2006 0:00	2/16/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B494	Boathouse	2/17/2000 0:00	2/17/2000 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B495	Boathouse	2/17/2000 8:00	2/17/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B496	Boathouse	2/17/2006 16:00	2/18/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B497	Boathouse	2/18/2006 0:00	2/18/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND

[a] 8-hour average health-based guidance level [b] 8-hour target reporting limit ND-Not Detected Estimated Values

TABLE A-1 (CONTINUED)
VNTR Air Monitoring Data Explosive/Energetics Results (µg/m³)

Demo Date	Sample Name	Location	Sample Start Date/Time (GMT)	Sample End Date/Time (GMT)	NB 350[a] 0.03[b]	1,3-DNB 70[a] 0.006[b]	2,6-DNT 14[a] 0.006[b]	2,4-DNT 14[a] 0.006[b]	1,3,5-TNB 700[a] 0.01[b]	TNT 105[a] 0.006[b]	RDX 85[a] 0.006[b]	HMX 1575[a] 0.03[b]
3/8/2006	A524	OP-1	3/8/2006 0:00	3/8/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	A525	OP-1	3/8/2006 8:00	3/8/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	A526	OP-1	3/8/2006 16:00	3/9/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	A527	OP-1	3/9/2006 0:00	3/9/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	A529	OP-1	3/9/2006 16:00	3/10/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B530	Boathouse	3/7/2006 0:00	3/7/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B532	Boathouse	3/7/2006 16:00	3/8/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B533	Boathouse	3/8/2006 0:00	3/8/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B534	Boathouse	3/8/2006 8:00	3/8/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B535	Boathouse	3/8/2006 16:00	3/9/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B536	Boathouse	3/9/2006 0:00	3/9/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B537	Boathouse	3/9/2006 8:00	3/9/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B538	Boathouse	3/9/2006 16:00	3/10/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	C537	OP-5	3/7/2006 16:00	3/8/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	C538	OP-5	3/8/2006 0:00	3/8/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	C539	OP-5	3/8/2006 8:00	3/8/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	C540	OP-5	3/8/2006 16:00	3/9/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	C541	OP-5	3/9/2006 0:00	3/9/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	C542	OP-5	3/9/2006 8:00	3/9/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
3/29/2006	A554	OP-1	3/26/2006 16:00	3/27/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	A555	OP-1	3/27/2006 0:00	3/27/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	A556	OP-1	3/27/2006 8:00	3/27/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	A557	OP-1	3/27/2006 16:00	3/28/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	A558	OP-1	3/28/2006 0:00	3/28/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	A559	OP-1	3/28/2006 8:00	3/28/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	A560	OP-1	3/28/2006 16:00	3/29/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	A561	OP-1	3/29/2006 0:00	3/29/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	A562	OP-1	3/29/2006 8:00	3/29/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	A563	OP-1	3/29/2006 16:00	3/30/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND

[a] 8-hour average health-based guidance level [b] 8-hour target reporting limit ND = Not Detected Data Rejected

TABLE A-1 (CONTINUED)
VNTR Air Monitoring Data Explosive/Energetics Results (µg/m³)

Demo Date	Sample Name	Location	Sample Start Date/Time (GMT)	Sample End Date/Time (GMT)	NB 350[a] 0.03[b]	1,3-DNB 70[a] 0.006[b]	2,6-DNT 14[a] 0.006[b]	2,4-DNT 14[a] 0.006[b]	1,3,5-TNB 700[a] 0.01[b]	TNT 105[a] 0.006[b]	RDX 85[a] 0.006[b]	HMX 1575[a] 0.03[b]
3/29/2006	A564	OP-1	3/30/2006 0:00	3/30/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	A565	OP-1	3/30/2006 8:00	3/30/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	A566	OP-1	3/30/2006 16:00	3/31/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	A567	OP-1	3/31/2006 0:00	3/31/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	A568	OP-1	3/31/2006 8:00	3/31/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B592	Boathouse	3/27/2006 16:00	3/28/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B593	Boathouse	3/28/2006 0:00	3/28/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B594	Boathouse	3/28/2006 8:00	3/28/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B595	Boathouse	3/28/2006 16:00	3/29/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B596	Boathouse	3/29/2006 0:00	3/29/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B597	Boathouse	3/29/2006 8:00	3/29/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B598	Boathouse	3/29/2006 16:00	3/30/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B599	Boathouse	3/30/2006 0:00	3/30/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B600	Boathouse	3/30/2006 8:00	3/30/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	B601	Boathouse	3/30/2006 16:00	3/31/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	B602	Boathouse	3/31/2006 0:00	3/31/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	B603	Boathouse	3/31/2006 8:00	3/31/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	C573	OP-5	3/27/2006 8:00	3/27/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	C574	OP-5	3/27/2006 16:00	3/28/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	C575	OP-5	3/28/2006 0:00	3/28/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	C576	OP-5	3/28/2006 8:00	3/28/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	C577	OP-5	3/28/2006 16:00	3/29/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND

[a] 8-hour average health-based guidance level [b] 8-hour target reporting limit ND = Not Detected Estimated values

TABLE A-1 (CONTINUED)
VNTR Air Monitoring Data Explosive/Energetics Results (µg/m³)

Demo Date	Sample Name	Location	Sample Start Date/Time (GMT)	Sample End Date/Time (GMT)	NB 350[a] 0.03[b]	1,3-DNB 70[a] 0.006[b]	2,6-DNT 14[a] 0.006[b]	2,4-DNT 14[a] 0.006[b]	1,3,5-TNB 700[a] 0.01[b]	TNT 105[a] 0.006[b]	RDX 85[a] 0.006[b]	HMX 1575[a] 0.03[b]
3/29/2006	C578	OP-5	3/29/2006 0:00	3/29/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	C579	OP-5	3/29/2006 8:00	3/29/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	C580	OP-5	3/29/2006 16:00	3/30/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	C581	OP-5	3/30/2006 0:00	3/30/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	C582	OP-5	3/30/2006 8:00	3/30/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND
	C583	OP-5	3/30/2006 16:00	3/31/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND
	C584	OP-5	3/31/2006 0:00	3/31/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND
	C585	OP-5	3/31/2006 8:00	3/31/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND

[a] 8-hour average health-based guidance level [b] 8-hour target reporting limit ND = Not Detected Estimated values

TABLE A-2
VNTR Air Monitoring Data Metals Results (µg/m³)

Demo Date	Sample Name	Location	Sample Start Date/Time (GMT)	Sample End Date/Time (GMT)	P 7[a] 0.1[b]	Cr 7[a] 0.03[b]	Fe 140[a] 0.005[b]	Ni 70[a] 0.005[b]	Cu 70[a] 0.004[b]	As 0.7[a] 0.003[b]	Cd 0.35[a] 0.05[b]	Sn 210[a] 0.05[b]	Hg 2.45[a] 0.006[b]	Pb 3.5[a] 0.005[b]
1/12/2006	A420	OP-1	1/11/2006 16:00	1/12/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	A421	OP-1	1/12/2006 0:00	1/12/2006 8:00	ND	ND	ND	ND	**0.005**	ND	ND	ND	ND	ND
	A422	OP-1	1/12/2006 8:00	1/12/2006 16:00	ND	ND	ND	ND	**0.005**	ND	ND	ND	ND	ND
	A423	OP-1	1/12/2006 16:00	1/13/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	A424	OP-1	1/13/2006 0:00	1/13/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	A425	OP-1	1/13/2006 8:00	1/13/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	B333	Boathouse	1/11/2006 8:00	1/11/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	B334	Boathouse	1/11/2006 16:00	1/12/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	B335	Boathouse	1/12/2006 0:00	1/12/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	B336	Boathouse	1/12/2006 8:00	1/12/2006 16:00	ND	ND	ND	ND	**0.005**	ND	ND	ND	ND	ND
	B337	Boathouse	1/12/2006 16:00	1/13/2006 0:00	ND	ND	ND	ND	**0.005**	ND	ND	ND	ND	ND
	B338	Boathouse	1/13/2006 0:00	1/13/2002 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	B339	Boathouse	1/13/2002 8:00	1/13/2006 16:00	ND	ND	ND	ND	**0.005**	ND	ND	ND	ND	ND
	C312	OP-5	1/11/2006 16:00	1/12/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C313	OP-5	1/12/2006 0:00	1/12/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C314	OP-5	1/12/2006 8:00	1/12/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C315	OP-5	1/12/2006 16:00	1/13/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C316	OP-5	1/13/2006 0:00	1/13/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C317	OP-5	1/13/2006 8:00	1/13/2006 16:00	ND	ND	ND	ND	**0.051**	ND	ND	ND	ND	ND
2/17/2006	A427	OP-1	2/16/2006 16:00	2/17/2000 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	A428	OP-1	2/17/2000 0:00	2/17/2000 8:00	ND	ND	**0.044**	ND	ND	ND	ND	ND	ND	ND
	A429	OP-1	2/17/2000 8:00	2/17/2006 16:00	ND	ND	**0.012**	ND	**0.005**	ND	ND	ND	ND	ND
	A430	OP-1	2/17/2006 16:00	2/18/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	A431	OP-1	2/18/2006 0:00	2/18/2006 16:00	ND	ND	ND	ND	**0.005**	ND	ND	ND	ND	ND
	B489	Boathouse	2/15/2006 8:00	2/15/2006 16:00	ND	ND	ND	ND	**0.008**	ND	ND	ND	ND	ND
	B490	Boathouse	2/15/2006 16:00	2/16/2006 0:00	ND	ND	ND	ND	**0.007**	ND	ND	ND	ND	ND
	B491	Boathouse	2/16/2006 0:00	2/16/2006 8:00	ND	ND	ND	ND	**0.008**	ND	ND	ND	ND	ND
	B494	Boathouse	2/17/2000 0:00	2/17/2000 8:00	ND	ND	ND	ND	**0.005**	ND	ND	ND	ND	ND
	B495	Boathouse	2/17/2000 8:00	2/17/2006 16:00	ND	ND	ND	ND	**0.006**	ND	ND	ND	ND	ND

[a] 8-hour average health-based guidance level [b] 8-hour target reporting limit ND-Not Detected Estimated values

TABLE A-2 (CONTINUED)
VNTR Air Monitoring Data Metals Results (µg/m³)

Demo Date	Sample Name	Location	Sample Start Date/Time (GMT)	Sample End Date/Time (GMT)	P 7[a] 0.1[b]	Cr 7[a] 0.03[b]	Fe 140[a] 0.005[b]	Ni 70[a] 0.005[b]	Cu 70[a] 0.004[b]	As 0.7[a] 0.003[b]	Cd 0.35[a] 0.05[b]	Sn 210[a] 0.05[b]	Hg 2.45[a] 0.006[b]	Pb 3.5[a] 0.005[b]
2/17/2006	B496	Boathouse	2/17/2006 16:00	2/18/2006 0:00	ND	ND	**0.019**	ND	**0.005**	ND	ND	ND	ND	ND
	B497	Boathouse	2/18/2006 0:00	2/18/2006 16:00	ND	ND	**0.011**	ND	**0.005**	ND	ND	ND	ND	ND
3/8/2006	A521	OP-1	3/7/2006 0:00	3/7/2006 8:00	ND	ND	**0.007**	ND	ND	ND	ND	ND	ND	ND
	A524	OP-1	3/8/2006 0:00	3/8/2006 8:00	ND	ND	**0.013**	ND	ND	ND	ND	ND	ND	ND
	A525	OP-1	3/8/2006 8:00	3/8/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	A526	OP-1	3/8/2006 16:00	3/9/2006 0:00	ND	ND	**0.014**	ND	ND	ND	ND	ND	ND	ND
	A527	OP-1	3/9/2006 0:00	3/9/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	A529	OP-1	3/9/2006 16:00	3/10/2006 0:00	ND	ND	**0.051**	ND	ND	ND	ND	ND	ND	ND
	B524	Boathouse	3/5/2006 0:00	3/5/2006 8:00	ND	ND	**0.068**	ND	**0.012**	ND	ND	ND	ND	ND
	B525	Boathouse	3/5/2006 8:00	3/5/2006 16:00	ND	ND	ND	ND	**0.012**	ND	ND	ND	ND	ND
	B530	Boathouse	3/7/2006 0:00	3/7/2006 8:00	ND	ND	ND	ND	**0.014**	ND	ND	ND	ND	ND
	B532	Boathouse	3/7/2006 16:00	3/8/2006 0:00	ND	ND	ND	ND	**0.011**	ND	ND	ND	ND	ND
	B533	Boathouse	3/8/2006 0:00	3/8/2006 8:00	ND	ND	**0.045**	ND	**0.006**	ND	ND	ND	ND	ND
	B534	Boathouse	3/8/2006 8:00	3/8/2006 16:00	ND	ND	ND	ND	**0.006**	ND	ND	ND	ND	ND
	B535	Boathouse	3/8/2006 16:00	3/9/2006 0:00	ND	ND	**0.014**	ND	ND	ND	ND	ND	ND	ND
	B536	Boathouse	3/9/2006 0:00	3/9/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	B537	Boathouse	3/9/2006 8:00	3/9/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	B538	Boathouse	3/9/2006 16:00	3/10/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C535	OP-5	3/7/2006 0:00	3/7/2006 8:00	ND	ND	**0.007**	ND	ND	ND	ND	ND	ND	ND
	C536	OP-5	3/7/2006 8:00	3/7/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C537	OP-5	3/7/2006 16:00	3/8/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C538	OP-5	3/8/2006 0:00	3/8/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C539	OP-5	3/8/2006 8:00	3/8/2006 16:00	ND	ND	**0.035**	ND	ND	ND	ND	ND	ND	ND
	C540	OP-5	3/8/2006 16:00	3/9/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C541	OP-5	3/9/2006 0:00	3/9/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C542	OP-5	3/9/2006 8:00	3/9/2006 16:00	ND	ND	**0.007**	ND	ND	ND	ND	ND	ND	ND
3/29/2006	A554	OP-1	3/26/2006 16:00	3/27/2006 0:00	ND	ND	**0.099**	ND	ND	ND	ND	ND	ND	ND
	A555	OP-1	3/27/2006 0:00	3/27/2006 8:00	ND	ND	**0.284**	ND	ND	ND	ND	ND	ND	ND
	A556	OP-1	3/27/2006 8:00	3/27/2006 16:00	ND	ND	**0.466**	ND	ND	ND	ND	ND	ND	ND

[a] 8-hour average health-based guidance level [b] 8-hour target reporting limit ND = Not Detected Data Rejected

TABLE A-2 (CONTINUED)
VNTR Air Monitoring Data Metals Results (µg/m³)

Demo Date	Sample Name	Location	Sample Start Date/Time (GMT)	Sample End Date/Time (GMT)	P 7[a] 0.1[b]	Cr 7[a] 0.03[b]	Fe 140[a] 0.005[b]	Ni 70[a] 0.005[b]	Cu 70[a] 0.004[b]	As 0.7[a] 0.003[b]	Cd 0.35[a] 0.05[b]	Sn 210[a] 0.05[b]	Hg 2.45[a] 0.006[b]	Pb 3.5[a] 0.005[b]
	A557	OP-1	3/27/2006 16:00	3/28/2006 0:00	ND	ND	**0.601**	ND	ND	ND	ND	ND	ND	ND
	A558	OP-1	3/28/2006 0:00	3/28/2006 8:00	ND	ND	**0.801**	ND	ND	ND	ND	ND	ND	ND
	A559	OP-1	3/28/2006 8:00	3/28/2006 16:00	ND	ND	**0.993**	ND	ND	ND	ND	ND	ND	ND
	A560	OP-1	3/28/2006 16:00	3/29/2006 0:00	ND	ND	**0.491**	ND	ND	ND	ND	ND	ND	ND
	A561	OP-1	3/29/2006 0:00	3/29/2006 8:00	ND	ND	**0.843**	ND	ND	ND	ND	ND	ND	ND
	A562	OP-1	3/29/2006 8:00	3/29/2006 16:00	ND	ND	**0.625**	ND	ND	ND	ND	ND	ND	ND
	A563	OP-1	3/29/2006 16:00	3/30/2006 0:00	ND	ND	**0.551**	ND	ND	ND	ND	ND	ND	ND
	A564	OP-1	3/30/2006 0:00	3/30/2006 8:00	ND	ND	**0.249**	ND	ND	ND	ND	ND	ND	ND
	A565	OP-1	3/30/2006 8:00	3/30/2006 16:00	ND	ND	**0.031**	ND	ND	ND	ND	ND	ND	ND
	A566	OP-1	3/30/2006 16:00	3/31/2006 0:00	ND	ND	**0.026**	ND	ND	ND	ND	ND	ND	ND
	A567	OP-1	3/31/2006 0:00	3/31/2006 8:00	ND	ND	**0.047**	ND	ND	ND	ND	ND	ND	ND
3/29/2006	A568	OP-1	3/31/2006 8:00	3/31/2006 16:00	ND	ND	**0.073**	ND	ND	ND	ND	ND	ND	ND
	B592	Boathouse	3/27/2006 16:00	3/28/2006 0:00	ND	ND	**0.267**	ND	**0.005**	ND	ND	ND	ND	ND
	B593	Boathouse	3/28/2006 0:00	3/28/2006 8:00	ND	ND	**0.438**	ND	ND	ND	ND	ND	ND	ND
	B594	Boathouse	3/28/2006 8:00	3/28/2006 16:00	ND	ND	**0.668**	ND	**0.006**	ND	ND	ND	ND	ND
	B595	Boathouse	3/28/2006 16:00	3/29/2006 0:00	ND	ND	**0.704**	ND	**0.006**	ND	ND	ND	ND	ND
	B596	Boathouse	3/29/2006 0:00	3/29/2006 8:00	ND	ND	**0.811**	ND	ND	ND	ND	ND	ND	ND
	B597	Boathouse	3/29/2006 8:00	3/29/2006 16:00	ND	ND	**0.478**	ND	ND	ND	ND	ND	ND	ND
	B598	Boathouse	3/29/2006 16:00	3/30/2006 0:00	ND	ND	**0.638**	ND	**0.020**	ND	ND	ND	ND	ND
	B599	Boathouse	3/30/2006 0:00	3/30/2006 8:00	ND	ND	**0.530**	ND	**0.018**	ND	ND	ND	ND	ND
	B600	Boathouse	3/30/2006 8:00	3/30/2006 16:00	ND	ND	**0.472**	ND	**0.010**	ND	ND	ND	ND	ND
	B601	Boathouse	3/30/2006 16:00	3/31/2006 0:00	ND	ND	**0.230**	ND	**0.014**	ND	ND	ND	ND	ND
	B602	Boathouse	3/31/2006 0:00	3/31/2006 8:00	ND	ND	**0.031**	ND	**0.021**	ND	ND	ND	ND	ND
	B603	Boathouse	3/31/2006 8:00	3/31/2006 16:00	ND	ND	**0.024**	ND	**0.018**	ND	ND	ND	ND	ND
	C573	OP-5	3/27/2006 8:00	3/27/2006 16:00	ND	ND	**0.869**	ND	ND	ND	ND	ND	ND	ND
	C574	OP-5	3/27/2006 16:00	3/28/2006 0:00	ND	ND	**0.619**	ND	ND	ND	ND	ND	ND	ND
	C575	OP-5	3/28/2006 0:00	3/28/2006 8:00	ND	ND	**0.574**	ND	ND	ND	ND	ND	ND	ND
	C576	OP-5	3/28/2006 8:00	3/28/2006 16:00	ND	ND	**0.395**	ND	ND	ND	ND	ND	ND	ND
	C577	OP-5	3/28/2006 16:00	3/29/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

[a] 8-hour average health-based guidance level [b] 8-hour target reporting limit ND-Not Detected Estimated values

TABLE A-2 (CONTINUED)
VNTR Air Monitoring Data Metals Results (µg/m³)

Demo Date	Sample Name	Location	Sample Start Date/Time (GMT)	Sample End Date/Time (GMT)	P 7[a] 0.1[b]	Cr 7[a] 0.03[b]	Fe 140[a] 0.005[b]	Ni 70[a] 0.005[b]	Cu 70[a] 0.004[b]	As 0.7[a] 0.003[b]	Cd 0.35[a] 0.05[b]	Sn 210[a] 0.05[b]	Hg 2.45[a] 0.006[b]	Pb 3.5[a] 0.005[b]
	C578	OP-5	3/29/2006 0:00	3/29/2006 8:00	ND	ND	**0.054**	ND	ND	ND	ND	ND	ND	ND
	C579	OP-5	3/29/2006 8:00	3/29/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C580	OP-5	3/29/2006 16:00	3/30/2006 0:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3/29/2006	C581	OP-5	3/30/2006 0:00	3/30/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C582	OP-5	3/30/2006 8:00	3/30/2006 16:00	ND	ND	**0.011**	ND	ND	ND	ND	ND	ND	ND
	C583	OP-5	3/30/2006 16:00	3/31/2006 0:00	ND	ND	**0.052**	ND	ND	ND	ND	ND	ND	ND
	C584	OP-5	3/31/2006 0:00	3/31/2006 8:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	C585	OP-5	3/31/2006 8:00	3/31/2006 16:00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
				Max	**NA**	**NA**	**0.993**	**NA**	**0.051**	**NA**	**NA**	**NA**	**NA**	**NA**

[a] 8-hour average health-based guidance level [b] 8-hour target reporting limit ND = Not Detected NA = Not Applicable Estimated values

TABLE A-3
VNTR Air Monitoring Data Metals Blank Results (µg/m^3) from Q1 2006

Sample Name	Location	P 7[a] 0.1[b]	Cr 7[a] 0.03[b]	Fe 140[a] 0.005[b]	Ni 70[a] 0.005[b]	Cu 70[a] 0.004[b]	As 0.7[a] 0.003[b]	Cd 0.35[a] 0.05[b]	Sn 210[a] 0.05[b]	Hg 2.45[a] 0.06[b]	Pb 3.5[a] 0.05[b]
FBAAJ	OP-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBBAJ	Boathouse	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBCAJ	OP-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBAKA	OP-1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBAKB	Boathouse	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBAKC	OP-5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

[a] 8-hour average health-based guidance level [b] 8-hour target reporting limit ND = Not Detected

TABLE A-4
VNTR Air Monitoring Data Explosives/Energetics Blank Results (µg/m^3) from Q1 2006

Sample Name	Location	NB 350[a] 0.03[b]	1,3-DNB 70[a] 0.006[b]	2,6-DNT 14[a] 0.006[b]	2,4-DNT 14[a] 0.006[b]	1,3,5-TNB 700[a] 0.01[b]	TNT 105[a] 0.006[b]	RDX 85[a] 0.006[b]	HMX 1575[a] 0.03[b]
FBAAJ	OP-1	ND	ND	ND	ND	ND	ND	ND	ND
FBBAJ	Boathouse	ND	ND	ND	ND	ND	ND	ND	ND
FBCAJ	OP-5	ND	ND	ND	ND	ND	ND	ND	ND
FBAKA	OP-1	ND	ND	ND	ND	ND	ND	ND	ND
FBAKB	Boathouse	ND	ND	ND	ND	ND	ND	ND	ND

[a] 8-hour average health-based guidance level [b] 8-hour target reporting limit ND = Not Detected

APPENDIX B

QA/QC Results

CH2M HILL
Applied Sciences Laboratory
2300 NW Walnut Blvd
Corvallis, OR
97330-3538
P.O. Box 428
Corvallis, OR
97339-0428
Tel 541.752.4271
Fax 541.752.0276

CH2MHILL
Applied Sciences Laboratory

March 3, 2006

Vieques Naval Training Range

333271.CE.GN

RE: Laboratory Report for Vieques Naval Training Range
Applied Sciences Laboratory Reference No. F1184

Jodi Lee/SLC:

On February 10, 2006, CH2M HILL Applied Sciences Laboratory received 22 samples with a request for analysis of selected parameters. All analyses were performed by CH2M HILL unless otherwise indicated below.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analysis of your samples are discussed in the case narrative. This data package meets standards requested by client and is not intended or implied to meet any other standard.

CH2M HILL Applied Sciences Laboratory appreciates your business and looks forward to serving your analytical needs again. If you should have any questions concerning the data, or if you need additional information, please call Ben Thompson at (541) 758-0235, extension 3132.

Sincerely,

Ben Thompson
Analytical Manager

Enclosures

cc:
Mitch Lindsay/SLC

CLIENT SAMPLE CROSS-REFERENCE

CH2M HILL Applied Sciences Laboratory Reference No. F1184

Sample ID	Client Sample ID	Date Collected	Time Collected
F118401	A420	01/13/2006	
F118402	A421	01/13/2006	
F118403	A422	01/13/2006	
F118404	A423	01/13/2006	
F118405	A424	01/13/2006	
F118406	A425	01/13/2006	
F118407	FBAHA	01/13/2006	
F118408	B333	01/13/2006	
F118409	B334	01/13/2006	
F118410	B335	01/13/2006	
F118411	B336	01/13/2006	
F118412	B337	01/13/2006	
F118413	B338	01/13/2006	
F118414	B339	01/13/2006	
F118415	FBAHB	01/13/2006	
F118416	C312	01/13/2006	
F118417	C313	01/13/2006	
F118418	C314	01/13/2006	
F118419	C315	01/13/2006	
F118420	C316	01/13/2006	
F118421	C317	01/13/2006	
F118422	FBAHC	01/13/2006	

Applied Sciences Laboratory

Organic CLP and CLP Like Data Qualifiers

U — The analyte was analyzed for, but not detected above the reported sample quantitation limit.

J — The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ — The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

N — The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification".

NJ — The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

P — The primary and confirmation analyte result recoveries do not match.

E — The analyte was positively identified; the associated numerical value exceeded the instrument calibration range.

R — The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Inorganic CLP and CLP Like Data Qualifiers

U — The analyte was analyzed for, but not detected above the reported sample quantitation limit.

B — The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ — The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

E — The analyte was positively identified; the associated numerical value exceeded the instrument calibration range.

N — The matrix spike/matrix spike duplicate recovery for the analyte is outside of acceptance criteria—qualifier is applied to the native sample only.

R — The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

EXPLOSIVES BY EPA SW8095

CASE NARRATIVE
ORGANICS

Lab Reference No.: F1184

Client/Project: Vieques Naval Training Range

I. Holding Times:
All acceptance criteria were met.

II. Analysis:

A. Calibration:
CV2-0220 recovered outside of acceptance criteria (85-115%) for TNT/PETN* (127.5%) and HMX (140%) on the confirmation detector. No analyte hits were found in client samples related to this calibration check.

CV2-0221 recovered outside of acceptance criteria (85-115%) for 1,3,5-TNB (126.3%) and TNT/PETN* (120.6%) on the confirmation detector. No analyte hits were found in client samples related to this calibration check.

CV2-0222 recovered outside of acceptance criteria (85-115%) for 1,3,5-TNB (126.4%) and RDX (121.1%) on the confirmation detector. No analyte hits were found in client samples related to this calibration check.

**PETN is not in project analyte list, but co-elutes with TNT on the confirmation detector.*

B. Duplicate Sample(s):
All acceptance criteria were met.

C. Spike Sample(s):
All acceptance criteria were met.

D. Surrogate Recoveries:
All acceptance criteria were met.

E. Lab Control Sample(s):
All acceptance criteria were met.

F. Other:
Primary and confirmation analyses were performed on separate days for samples C317 (F118421) and FBAHC (F118422), on 02/22/06 and 02/23/06 respectively. See Form 8 for more detail.

III. Documentation Exceptions:
None

IV. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Prepared by: _____

Reviewed by: _____

SAMPLE DATA SUMMARY

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **A420**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **F118401**

Sample Amt.: 1 Filter Lab File ID: 007B0401.D

% Moisture: 0 Decanted: N Date Received: 02/10/06

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/20/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	94.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **A421**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118402**
Sample Amt.: 1 Filter
Lab File ID: 008B0501.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/20/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	99.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **A422**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **F118403**

Sample Amt.: 1 Filter Lab File ID: 009B0601.D

% Moisture: 0 Decanted: N Date Received: 02/10/06

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/20/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	95.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **A423**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **F118404**

Sample Amt.: 1 Filter Lab File ID: 010B0701.D

% Moisture: 0 Decanted: N Date Received: 02/10/06

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/20/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	95.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **A424**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **F118405**

Sample Amt.: 1 Filter Lab File ID: 011B0801.D

% Moisture: 0 Decanted: N Date Received: 02/10/06

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/20/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	94.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **A425**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **F118406**

Sample Amt.: 1 Filter Lab File ID: 012B0901.D

% Moisture: 0 Decanted: N Date Received: 02/10/06

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/20/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	99.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **FBAHA**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **F118407**

Sample Amt.: 1 Filter Lab File ID: 013B1001.D

% Moisture: 0 Decanted: N Date Received: 02/10/06

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/20/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	99.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **B333**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **F118408**

Sample Amt.: 1 Filter Lab File ID: 014B1101.D

% Moisture: 0 Decanted: N Date Received: 02/10/06

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/20/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	93.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **B334**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118409**
Sample Amt.: 1 Filter
Lab File ID: 015B1201.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/20/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	93.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **B335**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **F118410**

Sample Amt.: 1 Filter Lab File ID: 016B1301.D

% Moisture: 0 Decanted: N Date Received: 02/10/06

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/20/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	87.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **B336**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118411**
Sample Amt.: 1 Filter
Lab File ID: 004B0301.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/21/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	111	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **B337**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118412**
Sample Amt.: 1 Filter
Lab File ID: 005B0401.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/21/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	111	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **B338**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **F118413**

Sample Amt.: 1 Filter Lab File ID: 006B0501.D

% Moisture: 0 Decanted: N Date Received: 02/10/06

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/21/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	107	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **B339**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118414**
Sample Amt.: 1 Filter
Lab File ID: 007B0601.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/21/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	108	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **FBAHB**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118415**
Sample Amt.: 1 Filter
Lab File ID: 008B0701.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/21/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	103	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **C312**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **F118416**

Sample Amt.: 1 Filter Lab File ID: 009B0801.D

% Moisture: 0 Decanted: N Date Received: 02/10/06

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/21/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	109	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **C313**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118417**
Sample Amt.: 1 Filter
Lab File ID: 010B0901.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/21/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	108	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **C314**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118418**
Sample Amt.: 1 Filter
Lab File ID: 011B1001.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/21/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	105	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **C315**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118419**
Sample Amt.: 1 Filter
Lab File ID: 012B1101.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/21/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	107	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **C316**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118420**
Sample Amt.: 1 Filter
Lab File ID: 013B1201.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/21/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	103	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **C317**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118421**
Sample Amt.: 1 Filter
Lab File ID: 008B0401.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/22/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	110	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **FBAHC**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **F118422**
Sample Amt.: 1 Filter
Lab File ID: 009B0501.D
% Moisture: 0
Decanted: N
Date Received: 02/10/06
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/22/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	110	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **FB1-0213**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Matrix: Filter Lab Sample ID: **FB1-0213**

Sample Amt.: 1 Filter Lab File ID: 004B0401.D

% Moisture: 0 Decanted: N Date Received: N/A

Extraction: Method Date Extracted: 02/13/06

Extract Vol.: 1.5 ml Date Analyzed: 02/20/06

Injection Vol.: 3.0 ul Dilution Factor: 1

GPC Cleanup: N pH: Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50.0		U
606-20-2	2,6-DNT	3.38	50.0	50.0		U
121-14-2	2,4-DNT	2.92	50.0	50.0		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50.0		U
121-82-4	RDX	2.09	50.0	50.0		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	90.0	60-140	

Comments:

1A

EXPLOSIVES ANALYSIS DATA SHEET

Field Sample ID: **FB2-0213**

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Matrix: Filter
Lab Sample ID: **FB2-0213**
Sample Amt.: 1 Filter
Lab File ID: 005B0101.D
% Moisture: 0
Decanted: N
Date Received: N/A
Extraction: Method
Date Extracted: 02/13/06
Extract Vol.: 1.5 ml
Date Analyzed: 02/22/06
Injection Vol.: 3.0 ul
Dilution Factor: 1
GPC Cleanup: N
pH:
Sulfur Cleanup: N

Concentration Units: ng/Filter

CAS #	Analyte	MDL	PQL	Result	Confirm	Q
98-95-3	NITROBENZENE	15.0	250	250		U
99-65-0	1,3-DNB	2.76	50.0	50		U
606-20-2	2,6-DNT	3.38	50.0	50		U
121-14-2	2,4-DNT	2.92	50.0	50		U
99-35-4	1,3,5-TNB	4.82	100	100		U
118-96-7	TNT	2.96	50.0	50		U
121-82-4	RDX	2.09	50.0	50		U
2691-41-0	HMX	13.3	250	250		U
99-65-0/606-20-2	1,3-DNB & 2,6-DNT [ECDB]	6.14	250		250	U
118-96-7/78-11-5	TNT & PETN [ECDB]	30.4	250		250	U

Surrogate	% Rec.	QC Limits	Qualifier
3,4-DNT	110	60-140	

Comments:

QC SUMMARY

EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLE SUMMARY

Analytical Method: SW8095
Lab Name: CH2M HILL ASL
Concentration Units: ng/Filter
LCS ID: BS1F0213

Matrix: Filter
LCSD ID: BD1F0213

SDG No.: F1184
Contract #: 333271.CE.GN
% Moisture: 0

Analyte	LCS Spike Added	LCS Sample Result	LCS % Rec.	LCSD Spike Added	LCSD Sample Result	LCSD % Rec.	% RPD	QC Limits % Rec.	QC Limits % RPD	Q
NITROBENZENE	375	389	104	375	404	108	3.8	60-140	30	
1,3-DNB	375	355	95	375	363	97	2.2	60-140	30	
2,6-DNT	375	376	100	375	388	103	3.1	60-140	30	
2,4-DNT	375	358	95	375	374	100	4.4	60-140	30	
1,3,5-TNB	375	300	80	375	264	70	12.8	60-140	30	
TNT	375	455	121	375	460	123	1.1	60-140	30	
RDX	375	318	85	375	315	84	0.9	60-140	30	
HMX	375	435	116	375	439	117	0.9	60-140	30	

Comments:

EXPLOSIVES MATRIX SPIKE/MATRIX SPIKE DUPLICATE SAMPLE SUMMARY

Analytical Method: SW8095
Lab Name: CH2M HILL ASL
Concentration Units: ng/Filter
LCS ID: BS2F0213

Matrix: Filter
LCSD ID: BD2F0213

SDG No.: F1184
Contract #: 333271.CE.GN
% Moisture: 0

Analyte	LCS Spike Added	LCS Sample Result	LCS % Rec.	LCSD Spike Added	LCSD Sample Result	LCSD % Rec.	% RPD	QC Limits % Rec.	QC Limits % RPD	Q
NITROBENZENE	375	387	103	375	385	103	0.5	60-140	30	
1,3-DNB	375	374	100	375	361	96	3.5	60-140	30	
2,6-DNT	375	404	108	375	403	107	0.2	60-140	30	
2,4-DNT	375	402	107	375	401	107	0.2	60-140	30	
1,3,5-TNB	375	356	95	375	314	84	12.5	60-140	30	
TNT	375	485	129	375	481	128	0.8	60-140	30	
RDX	375	339	90	375	325	87	4.2	60-140	30	
HMX	375	263	70	375	319	85	19.2	60-140	30	

Comments:

EXPLOSIVES METHOD BLANK SUMMARY

Field Sample ID: **FB1-0213**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN
Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184
Lab File ID: 004B0401.D Lab Sample ID: **FB1-0213**
Matrix: Filter Extraction: Method
GPC Cleanup: N Date Extracted: 02/13/06
Sulfur Cleanup: N Date Analyzed: 02/20/06
GC Column: RTX-TNT/ZB-50 Time Analyzed: 11:26
Instrument ID: GC-U

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed
01	BS1F0213	BS1F0213	C:\HPCHEM\1\DATA\022006B2\005B0201.D	02/20/06
02	BD1F0213	BD1F0213	C:\HPCHEM\1\DATA\022006B2\006B0301.D	02/20/06
03	A420	F118401	C:\HPCHEM\1\DATA\022006B2\007B0401.D	02/20/06
04	A421	F118402	C:\HPCHEM\1\DATA\022006B2\008B0501.D	02/20/06
05	A422	F118403	C:\HPCHEM\1\DATA\022006B2\009B0601.D	02/20/06
06	A423	F118404	C:\HPCHEM\1\DATA\022006B2\010B0701.D	02/20/06
07	A424	F118405	C:\HPCHEM\1\DATA\022006B2\011B0801.D	02/20/06
08	A425	F118406	C:\HPCHEM\1\DATA\022006B2\012B0901.D	02/20/06
09	FBAHA	F118407	C:\HPCHEM\1\DATA\022006B2\013B1001.D	02/20/06
10	B333	F118408	C:\HPCHEM\1\DATA\022006B2\014B1101.D	02/20/06
11	B334	F118409	C:\HPCHEM\1\DATA\022006B2\015B1201.D	02/20/06
12	B335	F118410	C:\HPCHEM\1\DATA\022006B2\016B1301.D	02/20/06
13	B336	F118411	C:\HPCHEM\1\DATA\022106B1\004B0301.D	02/21/06
14	B337	F118412	C:\HPCHEM\1\DATA\022106B1\005B0401.D	02/21/06
15	B338	F118413	C:\HPCHEM\1\DATA\022106B1\006B0501.D	02/21/06
16	B339	F118414	C:\HPCHEM\1\DATA\022106B1\007B0601.D	02/21/06
17	FBAHB	F118415	C:\HPCHEM\1\DATA\022106B1\008B0701.D	02/21/06
18	C312	F118416	C:\HPCHEM\1\DATA\022106B1\009B0801.D	02/21/06
19	C313	F118417	C:\HPCHEM\1\DATA\022106B1\010B0901.D	02/21/06
20	C314	F118418	C:\HPCHEM\1\DATA\022106B1\011B1001.D	02/21/06
21	C315	F118419	C:\HPCHEM\1\DATA\022106B1\012B1101.D	02/21/06
22	C316	F118420	C:\HPCHEM\1\DATA\022106B1\013B1201.D	02/21/06

Comments:

EXPLOSIVES METHOD BLANK SUMMARY

Field Sample ID: **FB2-0213**

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN
Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184
Lab File ID: 005B0101.D Lab Sample ID: **FB2-0213**
Matrix: Filter Extraction: Method
GPC Cleanup: N Date Extracted: 02/13/06
Sulfur Cleanup: N Date Analyzed: 02/22/06
GC Column: RTX-TNT/ZB-50 Time Analyzed: 11:47
Instrument ID: GC-U

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed
01	BS2F0213	BS2F0213	C:\HPCHEM\1\DATA\022206B2\006B0201.D	02/22/06
02	BD2F0213	BD2F0213	C:\HPCHEM\1\DATA\022206B2\007B0301.D	02/22/06
03	C317	F118421	C:\HPCHEM\1\DATA\022206B2\008B0401.D	02/22/06
04	FBAHC	F118422	C:\HPCHEM\1\DATA\022206B2\009B0501.D	02/22/06

Comments:

EXPLOSIVES INITIAL CALIBRATION

Lab Name: CH2M HILL/LAB/CVO
Lab Code: CVO Case No.: F1184 SAS No.: F1184
Instrument ID: GC-U
Initial Calibration ID: AEXP_25A

Contract #: 333271.CE.GN
SDG No.: F1184
Calibration Date(s): 02/13/06
Calibration Time(s): 19:26 - 22:14

	Pesticide Calibration	Lab File ID:
Std 1:	LEVEL1	003B0301.D
Std 2:	LEVEL2	004B0401.D
Std 3:	LEVEL3	005B0501.D
Std 4:	LEVEL4	006B0601.D
Std 5:	LEVEL5	007B0701.D
Std 6:	LEVEL6	008B0801.D
Std 7:	LEVEL7	009B0901.D

	Dicofol/Mirex Calibration	Lab File ID:
Std 1:		
Std 2:		
Std 3:		
Std 4:		
Std 5:		
Std 6:		
Std 7:		

GC Column: RTX-TNT Concentration Units: ng/ml

Analyte	STD 1	RF 1	STD 2	RF 2	STD 3	RF 3	STD 4	RF 4	STD 5	RF 5	STD 6	RF 6	STD 7	RF 7
NITROBENZENE	25.0	0.05879	50.0	0.06501	250	0.05459	500	0.05234	1250	0.04828	2500	0.04574	5000	0.04549
1,3-DNB	5.0	0.27184	10.0	0.29430	50.0	0.24479	100	0.23002	250	0.19706	500	0.17876	1000	0.15632
2,6-DNT	5.0	0.99175	10.0	1.04578	50.0	0.83284	100	0.75919	250	0.64267	500	0.57798	1000	0.51106
2,4-DNT	5.0	0.60595	10.0	0.63050	50.0	0.46145	100	0.42084	250	0.35965	500	0.32282	1000	0.28394
1,3,5-TNB	10.0	0.00212	50.0	0.00151	100	0.08842	250	0.17890	500	0.18165	1000	0.28222		
TNT	5.0	0.66830	10.0	0.55843	50.0	0.43182	100	0.37166	250	0.35370	500	0.42728	1000	0.43616
RDX	5.0	0.21761	10.0	0.24039	50.0	0.21321	100	0.22178	250	0.21696	500	0.20135	1000	0.20339
HMX	10.0	0.10117	50.0	0.04315	100	0.07657	250	0.07146	500	0.05280	1000	0.10017		
3,4-DNT (SS)	5.0	0.88633	10.0	0.87411	50.0	0.70337	100	0.65136	250	0.57404	500	0.52638	1000	0.48583
2,5-DNT [ISTD]	200	1.0	200	1.0	200	1.0	200	1.0	200	1.0	200	1.0	200	1.0

GC Column: ZB-50 Concentration Units: ng/ml

Analyte	STD 1	RF 1	STD 2	RF 2	STD 3	RF 3	STD 4	RF 4	STD 5	RF 5	STD 6	RF 6	STD 7	RF 7
NITROBENZENE	50	0.017577	250	0.016049	500	0.014753	1250	0.012648	2500	0.011234	5000	0.011922		
1,3-DNB & 2,6-DNT	20	0.615287	100	0.487081	200	0.424447	500	0.350582	1000	0.294979	2000	0.283508		
2,4-DNT	10	0.670230	50	0.480366	100	0.406682	250	0.344516	500	0.288847	1000	0.268301		
1,3,5-TNB	50	0.012792	100	0.074423	250	0.156968	500	0.209560	1000	0.207719				
TNT & PETN*	60	0.129000	300	0.097756	600	0.080125	1500	0.077411	3000	0.074614	6000	0.084193		
RDX	10	0.234023	50	0.186302	100	0.170972	250	0.140309	500	0.119390	1000	0.116662		
HMX	10	0.035947	50	0.104630	100	0.147137	250	0.152957	500	0.139303	1000	0.156789		
3,4-DNT (SS B)	10	0.964736	50	0.813454	100	0.722573	250	0.604190	500	0.511173	1000	0.484109		
2,5-DNT [ISTD]	200	1.000000	200	1.000000	200	1.000000	200	1.000000	200	1.000000	200	1.000000		

Comments:
* PETN NOT IN ANALYTE LIST FOR THIS PROJECT.

EXPLOSIVES INITIAL CALIBRATION

Lab Name: CH2M HILL/LAB/CVO
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
Contract #: 333271.CE.GN
SDG No.: F1184
Instrument ID: GC-U
Calibration Date(s): 02/13/06
Initial Calibration ID: AEXP_25A
Calibration Time(s): 19:26 - 22:14

	Explosives Calibration	Lab File ID:
Std 1:	LEVEL1	003B0301.D
Std 2:	LEVEL2	004B0401.D
Std 3:	LEVEL3	005B0501.D
Std 4:	LEVEL4	006B0601.D
Std 5:	LEVEL5	007B0701.D
Std 6:	LEVEL6	008B0801.D
Std 7:	LEVEL7	009B0901.D

Std 1:		
Std 2:		
Std 3:		
Std 4:		
Std 5:		
Std 6:		
Std 7:		

GC Column: RTX-TNT
Concentration Units: ng/ml

Analyte	Curve Fit	Avg. RRF	% RSD	Mean % RSD	R or COD	Q
NITROBENZENE	Average Rsp/Amt	0.05289	13.6	30.8		
1,3-DNB	Quadratic	0.22473	22.3	30.8	0.99982	
2,6-DNT	Quadratic	0.76590	26.6	30.8	0.99975	
2,4-DNT	Quadratic	0.44073	30.6	30.8	0.99980	
1,3,5-TNB	Quadratic	0.12247	91.3	30.8	0.99804	
TNT	Quadratic	0.46391	24.0	30.8	0.99934	
RDX	Average Rsp/Amt	0.21638	6.0	30.8		
HMX	Quadratic	0.07422	32.1	30.8	0.99964	
3,4-DNT (SS)	Quadratic	0.67163	23.8		0.99985	
2,5-DNT (ISTD)	Average Rsp/Amt	1.00000	0.0			

GC Column: ZB-50
Concentration Units: ng/ml

Analyte	Curve Fit	Avg. RRF	% RSD	Mean % RSD	R or COD	Q
NITROBENZENE	Average Rsp/Amt	0.01403	17.8	34.2		
1,3-DNB & 2,6-DNT	Quadratic	0.40931	31.1	34.2	0.99906	
2,4-DNT	Quadratic	0.40982	36.5	34.2	0.99926	
1,3,5-TNB	Linear	0.13229	65.4	34.2	0.99561	
TNT & PETN*	Quadratic	0.09052	22.7	34.2	0.99982	
RDX	Quadratic	0.16128	28.0	34.2	0.99910	
HMX	Quadratic	0.12279	37.9	34.2	0.99931	
3,4-DNT (SS B)	Quadratic	0.68337	27.2		0.99917	
3,4-DNT (SS)	Average Rsp/Amt	1.00000	0.0			

Comments:

7A

EXPLOSIVES SECOND-SOURCE CALIBRATION VERIFICATION SUMMARY

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Instrument ID: GC-U Calibration Date(s): 02/13/06

Initial Calibration ID: AEXP_25A Calibration Time(s): 19:26 - 22:14

ICV ID: ICV-0213 CCV #1 ID: ICV2-0213 CCV #2 ID:

GC Column: RTX-TNT Concentration Units: ng/ml

Analyte	ICV			CCV #1			CCV #2			Q
	Expected	Found	% D	Expected	Found	% D	Expected	Found	% D	
NITROBENZENE				2500	2190	-12.4				
1,3-DNB	500	545	9.0							
2,6-DNT	500	493	-1.4							
2,4-DNT	500	512	2.5							
1,3,5-TNB	500	539	7.7							
TNT	500	603	20.6							
RDX	500	483	-3.4							
HMX	500	461	-7.9							

GC Column: ZB-50 Concentration Units: ng/ml

Analyte	ICV			CCV #1			CCV #2			Q
	Expected	Found	% D	Expected	Found	% D	Expected	Found	% D	
NITROBENZENE				2500	2345	-6.2				
1,3-DNB & 2,6-DNT	1000	1093	9.3							
2,4-DNT	500	546	9.2							
1,3,5-TNB	500	494	-1.3							
TNT & PETN*	3000	3365	12.2							
RDX	500	517	3.4							
HMX	500	443	-11.5							

Comments:

ICV1= ALL ANALYTES BUT NITROBENZENE. ICV2=NITROBENZENE ONLY.

* PETN NOT IN ANALYTE LIST FOR THIS PROJECT

7A

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: CH2M HILL/LAB/CVO — Contract #: 333271.CE.GN

Lab Code: CVO — Case No.: F1184 — SAS No.: F1184 — SDG No.: F1184

Instrument ID: GC-U — Calibration Date(s): 02/13/06

Initial Calibration ID: AEXP_25A — Calibration Time(s): 19:26 - 22:14

ICV ID: CV1-0220 — CCV #1 ID: CV2-0220 — CCV #2 ID:

GC Column: RTX-TNT — Concentration Units: ng/ml

Analyte	ICV			CCV #1			CCV #2			Q
	Expected	Found	% D	Expected	Found	% D	Expected	Found	% D	
NITROBENZENE	2500	2741	9.7	2500	2265	-9.4				
1,3-DNB	500	500	-0.1	500	469	-6.2				
2,6-DNT	500	522	4.4	500	497	-0.6				
2,4-DNT	500	479	-4.2	500	479	-4.1				
1,3,5-TNB	500	557	11.4	500	547	9.4				
TNT	500	569	13.8	500	571	14.2				
RDX	500	435	-13.1	500	504	0.7				
HMX	500	536	7.2	500	430	-14.0				

GC Column: ZB-50 — Concentration Units: ng/ml

Analyte	ICV			CCV #1			CCV #2			Q
	Expected	Found	% D	Expected	Found	% D	Expected	Found	% D	
NITROBENZENE	2500	2395	-4.2	2500	2488	-0.5				
1,3-DNB & 2,6-DNT	1000	1025	2.5	1000	1002	0.2				
2,4-DNT	500	500	0.0	500	494	-1.1				
1,3,5-TNB	500	568	13.6	500	498	-0.3				
TNT & PETN*	3000	3396	13.2	3000	3825	27.5				*
RDX	500	439	-12.3	500	556	11.2				
HMX	500	464	-7.1	500	700	40.1				*

Comments:

PETN NOT IN ANALYTE LIST FOR THIS PROJECT.

REFER TO CASE NARRATIVE FOR FAILURE.

7A

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
Instrument ID: GC-U
Calibration Date(s): 02/13/06
Initial Calibration ID: AEXP_25A
Calibration Time(s): 19:26 - 22:14
ICV ID: CV1-0221
CCV #1 ID: CV2-0221
CCV #2 ID:

GC Column: RTX-TNT
Concentration Units: ng/ml

Analyte	ICV			CCV #1			CCV #2			Q
	Expected	Found	% D	Expected	Found	% D	Expected	Found	% D	
NITROBENZENE	2500	2153	-13.9	2500	2129	-14.8				
1,3-DNB	500	487	-2.6	500	471	-5.7				
2,6-DNT	500	491	-1.7	500	474	-5.2				
2,4-DNT	500	483	-3.4	500	480	-4.0				
1,3,5-TNB	500	563	12.6	500	567	13.4				
TNT	500	569	13.7	500	570	14.0				
RDX	500	492	-1.6	500	553	10.6				
HMX	500	463	-7.4	500	561	12.3				

GC Column: ZB-50
Concentration Units: ng/ml

Analyte	ICV			CCV #1			CCV #2			Q
	Expected	Found	% D	Expected	Found	% D	Expected	Found	% D	
NITROBENZENE	2500	2512	0.5	2500	2243	-10.3				
1,3-DNB & 2,6-DNT	1000	1023	2.3	1000	1051	5.1				
2,4-DNT	500	507	1.5	500	531	6.1				
1,3,5-TNB	500	569	13.8	500	632	26.3				*
TNT & PETN*	3000	3425	14.2	3000	3619	20.6				*
RDX	500	438	-12.3	500	542	8.3				
HMX	500	440	-12.0	500	528	5.6				

Comments:
PETN NOT IN ANALYTE LIST FOR THIS PROJECT.
REFER TO CASE NARRATIVE FOR FAILURE.

7A

EXPLOSIVES CALIBRATION VERIFICATION SUMMARY

Lab Name: CH2M HILL/LAB/CVO Contract #: 333271.CE.GN

Lab Code: CVO Case No.: F1184 SAS No.: F1184 SDG No.: F1184

Instrument ID: GC-U Calibration Date(s): 02/13/06

Initial Calibration ID: AEXP_25A Calibration Time(s): 19:26 - 22:14

ICV ID: CV1-0222 CCV #1 ID: CV2-0222 CCV #2 ID:

GC Column: RTX-TNT Concentration Units: ng/ml

Analyte	ICV			CCV #1			CCV #2			Q
	Expected	Found	% D	Expected	Found	% D	Expected	Found	% D	
NITROBENZENE	2500	2219	-11.2	2500	2160	-13.6				
1,3-DNB	500	484	-3.2	500	462	-7.6				
2,6-DNT	500	495	-1.1	500	482	-3.6				
2,4-DNT	500	498	-0.3	500	505	1.0				
1,3,5-TNB	500	558	11.6	500	560	12.0				
TNT	500	563	12.7	500	566	13.2				
RDX	500	517	3.4	500	476	-4.8				
HMX	500	451	-9.8	500	428	-14.5				

GC Column: ZB-50 Concentration Units: ng/ml

Analyte	ICV			CCV #1			CCV #2			Q
	Expected	Found	% D	Expected	Found	% D	Expected	Found	% D	
NITROBENZENE	2500	2748	9.9	2500	2425	-3.0				
1,3-DNB & 2,6-DNT	1000	1076	7.6	1000	1032	3.2				
2,4-DNT	500	529	5.9	500	529	5.9				
1,3,5-TNB	500	568	13.6	500	632	26.4				*
TNT & PETN*	3000	3304	10.1	3000	3375	12.5				
RDX	500	496	-0.8	500	606	21.1				*
HMX	500	514	2.7	500	532	6.4				

Comments:

PETN NOT IN ANALYTE LIST FOR THIS PROJECT.

REFER TO CASE NARRATIVE FOR FAILURE. CONFIRMATION RUN ON 02/23/06, CV1-0223 & CV2-0223

EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
GC Column: RTX-TNT/ZB-50
Start Date: 02/13/06
End Date: 02/13/06
Instrument ID: GC-U
Start Time: 19:26
End Time: 23:09

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	LEVEL1	LEVEL1	C:\HPCHEM\1\DATA\021306B2\003B0301.D	02/13/06	19:26
02	LEVEL2	LEVEL2	C:\HPCHEM\1\DATA\021306B2\004B0401.D	02/13/06	19:54
03	LEVEL3	LEVEL3	C:\HPCHEM\1\DATA\021306B2\005B0501.D	02/13/06	20:22
04	LEVEL4	LEVEL4	C:\HPCHEM\1\DATA\021306B2\006B0601.D	02/13/06	20:50
05	LEVEL5	LEVEL5	C:\HPCHEM\1\DATA\021306B2\007B0701.D	02/13/06	21:18
06	LEVEL6	LEVEL6	C:\HPCHEM\1\DATA\021306B2\008B0801.D	02/13/06	21:46
07	LEVEL7	LEVEL7	C:\HPCHEM\1\DATA\021306B2\009B0901.D	02/13/06	22:14
08	ICV-0213	ICV-0213	C:\HPCHEM\1\DATA\021306B2\010B1001.D	02/13/06	22:41
09	ICV2-0213	ICV2-0213	C:\HPCHEM\1\DATA\021306B2\011B1101.D	02/13/06	23:09

Comments:

EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
GC Column: RTX-TNT/ZB-50
Start Date: 02/20/06
End Date: 02/20/06
Instrument ID: GC-U
Start Time: 10:58
End Time: 17:24

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	CV1-0220	CV1-0220	C:\HPCHEM\1\DATA\022006B2\003B0301.D	02/20/06	10:58
02	FB1-0213	FB1-0213	C:\HPCHEM\1\DATA\022006B2\004B0401.D	02/20/06	11:26
03	BS1F0213	BS1F0213	C:\HPCHEM\1\DATA\022006B2\005B0201.D	02/20/06	12:24
04	BD1F0213	BD1F0213	C:\HPCHEM\1\DATA\022006B2\006B0301.D	02/20/06	12:46
05	A420	F118401	C:\HPCHEM\1\DATA\022006B2\007B0401.D	02/20/06	13:08
06	A421	F118402	C:\HPCHEM\1\DATA\022006B2\008B0501.D	02/20/06	13:34
07	A422	F118403	C:\HPCHEM\1\DATA\022006B2\009B0601.D	02/20/06	13:59
08	A423	F118404	C:\HPCHEM\1\DATA\022006B2\010B0701.D	02/20/06	14:25
09	A424	F118405	C:\HPCHEM\1\DATA\022006B2\011B0801.D	02/20/06	14:51
10	A425	F118406	C:\HPCHEM\1\DATA\022006B2\012B0901.D	02/20/06	15:16
11	FBAHA	F118407	C:\HPCHEM\1\DATA\022006B2\013B1001.D	02/20/06	15:42
12	B333	F118408	C:\HPCHEM\1\DATA\022006B2\014B1101.D	02/20/06	16:07
13	B334	F118409	C:\HPCHEM\1\DATA\022006B2\015B1201.D	02/20/06	16:33
14	B335	F118410	C:\HPCHEM\1\DATA\022006B2\016B1301.D	02/20/06	16:58
15	CV2-0220	CV2-0220	C:\HPCHEM\1\DATA\022006B2\017B1401.D	02/20/06	17:24

Comments:

EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
GC Column: RTX-TNT/ZB-50
Start Date: 02/21/06
End Date: 02/21/06
Instrument ID: GC-U
Start Time: 09:44
End Time: 17:08

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	CV1-0221	CV1-0221	C:\HPCHEM\1\DATA\022106B1\003B0201.D	02/21/06	09:44
02	B336	F118411	C:\HPCHEM\1\DATA\022106B1\004B0301.D	02/21/06	10:07
03	B337	F118412	C:\HPCHEM\1\DATA\022106B1\005B0401.D	02/21/06	10:30
04	B338	F118413	C:\HPCHEM\1\DATA\022106B1\006B0501.D	02/21/06	10:52
05	B339	F118414	C:\HPCHEM\1\DATA\022106B1\007B0601.D	02/21/06	11:15
06	FBAHB	F118415	C:\HPCHEM\1\DATA\022106B1\008B0701.D	02/21/06	11:37
07	C312	F118416	C:\HPCHEM\1\DATA\022106B1\009B0801.D	02/21/06	12:00
08	C313	F118417	C:\HPCHEM\1\DATA\022106B1\010B0901.D	02/21/06	12:22
09	C314	F118418	C:\HPCHEM\1\DATA\022106B1\011B1001.D	02/21/06	12:45
10	C315	F118419	C:\HPCHEM\1\DATA\022106B1\012B1101.D	02/21/06	13:07
11	C316	F118420	C:\HPCHEM\1\DATA\022106B1\013B1201.D	02/21/06	13:30
12	CV2-0221	CV2-0221	C:\HPCHEM\1\DATA\022106B1\016B0402.D	02/21/06	17:08

Comments:

EXPLOSIVES ANALYTICAL SEQUENCE

Lab Name: CH2M HILL/LAB/CVO
Contract #: 333271.CE.GN
Lab Code: CVO
Case No.: F1184
SAS No.: F1184
SDG No.: F1184
GC Column: RTX-TNT/ZB-50
Start Date: 02/22/06
End Date: 02/23/06
Instrument ID: GC-U
Start Time: 10:13
End Time: 13:28

	Field Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed
01	CV1-0222	CV1-0222	C:\HPCHEM\1\DATA\022206B2\003B0201.D	02/22/06	10:13
02	FB2-0213	FB2-0213	C:\HPCHEM\1\DATA\022206B2\005B0101.D	02/22/06	11:47
03	BS2F0213	BS2F0213	C:\HPCHEM\1\DATA\022206B2\006B0201.D	02/22/06	12:09
04	BD2F0213	BD2F0213	C:\HPCHEM\1\DATA\022206B2\007B0301.D	02/22/06	12:31
05	C317	F118421	C:\HPCHEM\1\DATA\022206B2\008B0401.D	02/22/06	12:53
06	FBAHC	F118422	C:\HPCHEM\1\DATA\022206B2\009B0501.D	02/22/06	13:16
07	CV2-0222	CV2-0222	C:\HPCHEM\1\DATA\022206B2\010B0601.D	02/22/06	13:38
08	CV1-0223*	CV1-0223*	C:\HPCHEM\1\DATA\022306B1\003B0201.D	02/23/06	07:57
09	FB2-0213*	FB2-0213*	C:\HPCHEM\1\DATA\022306B1\005B0401.D	02/23/06	08:41
10	BS2F0213*	BS2F0213*	C:\HPCHEM\1\DATA\022306B1\006B0501.D	02/23/06	09:03
11	BD2F0213*	BD2F0213*	C:\HPCHEM\1\DATA\022306B1\007B0601.D	02/23/06	09:25
12	C317*	F118421*	C:\HPCHEM\1\DATA\022306B1\008B0701.D	02/23/06	09:48
13	FBAHC*	F118422*	C:\HPCHEM\1\DATA\022306B1\009B0801.D	02/23/06	10:10
14	CV3-0223*	CV3-0223*	C:\HPCHEM\1\DATA\022306B1\010B1001.D	02/23/06	10:32

Comments:
*Confimation runs for these samples were performed on 02/23/06.

CH2MHILL
Applied Sciences Laboratory

Monday, February 27, 2006

CH2M HILL
Applied Sciences Laboratory
2300 NW Walnut Blvd
Corvallis, OR
97330-3538
P.O. Box 428
Corvallis, OR
97339-0428
Tel 541.752.4271
Fax 541.752.0276

MDL Replicate Information

Method:	Extraction Method:	Matrix:	Units	Instrument:	Mass/Vol:	Ext Vol:
SW8095	METHOD	FILTER	NG/FIL	GCB		

Comment: E-BAM filter media, 1.5ml FV

CAS_NO	PARAMETER	MDL Date	MDL	R1	R2	R3	R4	R5	R6	R7	R8	Mean	Std.Dev.	Spike Lev.
99-35-4	1,3,5-TNB	08/24/2005	4.82	31.09	29.86	26.88	29.34	30.86	27.27	27.64	29.24	29.0	1.607	15
99-65-0	1,3-DNB	08/24/2005	2.76	21.61	21.51	21.5	19.94	23.07	21.81	22.42	21.06	21.6	0.9213	15
121-14-2	2,4-Dinitrotoluene	08/24/2005	2.92	21.96	22.43	21.9	20.34	23.45	22.41	23.05	21.37	22.1	0.9724	15
606-20-2	2,6-Dinitrotoluene	08/24/2005	3.38	21.51	21.81	21.49	19.53	23.23	21.93	22.72	20.87	21.6	1.127	15
35572-78-2	2-AM-4,6-DNT	08/24/2005	1.75	23.37	23.63	23.22	23.4	24.62	24.47	24.16	23.14	23.8	0.5828	15
88-72-2	2-NT	08/24/2005	13.5	109.4	107.4	109.2	101.6	117.3	110.6	112.5	107.4	109	4.509	75
618-87-1	3,5-DNA	08/24/2005	2.37	20.37	20.99	20.02	19.5	21.85	20.36	21.52	20.2	20.6	0.7908	15
99-08-1	3-NT	08/24/2005	13.5	108.7	109.8	109	101.2	117	110.8	112.2	106.9	110	4.501	75
1946-51-0	4-AM-2,6-DNT	08/24/2005	2.63	40.62	40.72	40.48	39.43	41.93	41.17	41.8	39.81	40.8	0.8773	15
99-99-0	4-NT	08/24/2005	13.2	109.1	107.1	109	101.8	116.7	110.7	112.7	106.7	109	4.411	75
2691-41-0	HMX	08/24/2005	13.3	26.18	25.43	32.82	33.18	38.39	27	31.77	28.39	30.4	4.431	15
55-63-0	NG	08/24/2005	24.2	89.32	83.67	85.95	75.99	104.2	91.66	86.65	84.54	87.8	8.089	75
98-95-3	Nitrobenzene	08/24/2005	15.0	105.5	103.4	106.3	98.07	115.6	107.8	107.7	103.6	106	4.986	75
78-11-5	PETN	08/24/2005	27.4	15.48	9.011	10.08	0.4519	30.56	17.82	8.731	5.998	12.3	9.123	75
121-82-4	RDX	08/24/2005	2.09	21.41	21.28	21.04	20.4	22.59	21.6	21.69	20.52	21.3	0.6972	15
479-45-8	TETRYL	08/24/2005	4.34	20.22	23.82	19.87	21.59	21.92	19.57	19.78	21.36	21.0	1.449	15
118-96-7	TNT	08/24/2005	2.96	22.62	21.14	21.15	20.63	23.58	21.44	22.09	21.02	21.7	0.9873	15

CHAIN OF CUSTODY/SHIPPING DOCUMENTS

F1184

#	Sample ID	XRF analysis performed?	ID of original roll	Other Items of note	
60	A366	no	OP1 13JAN06		
61	A367	no	OP1 13JAN06		
62	A368	no	OP1 13JAN06		
63	A369	no	OP1 13JAN06		
64	A370	no	OP1 13JAN06		
65	A371	no	OP1 13JAN06		
66	A372	no	OP1 13JAN06		
67	A373	no	OP1 13JAN06		
68	A374	no	OP1 13JAN06		
69	A375	no	OP1 13JAN06		
70	A376	no	OP1 13JAN06		
71	A377	no	OP1 13JAN06		
72	A378	no	OP1 13JAN06		
73	A379	no	OP1 13JAN06		
74	A380	no	OP1 13JAN06		
75	A381	no	OP1 13JAN06		
76	A382	no	OP1 13JAN06		
77	A383	no	OP1 13JAN06		
78	A384	no	OP1 13JAN06		
79	A385	no	OP1 13JAN06		
80	A386	no	OP1 13JAN06		
81	A387	no	OP1 13JAN06		
82	A388	no	OP1 13JAN06		
83	A389	no	OP1 13JAN06		
84	A390	no	OP1 13JAN06		
85	A391	no	OP1 13JAN06		
86	A392	no	OP1 13JAN06		
87	A393	no	OP1 13JAN06		
88	A394	no	OP1 13JAN06		
89	A395	no	OP1 13JAN06		
90	A396	no	OP1 13JAN06		
91	A397	no	OP1 13JAN06		
92	A398	no	OP1 13JAN06		
93	A399	no	OP1 13JAN06		
94	A400	no	OP1 13JAN06		
95	A401	no	OP1 13JAN06		
96	A402	no	OP1 13JAN06		
97	A403	no	OP1 13JAN06		
98	A404	no	OP1 13JAN06		
99	A405	no	OP1 13JAN06		
100	A406	no	OP1 13JAN06		
101	A407	no	OP1 13JAN06		
102	A408	no	OP1 13JAN06		
103	A409	no	OP1 13JAN06		
104	A410	no	OP1 13JAN06		
105	A411	no	OP1 13JAN06		
106	A412	no	OP1 13JAN06		
107	A413	no	OP1 13JAN06		
108	A414	no	OP1 13JAN06		
109	A415	no	OP1 13JAN06		
110	A416	no	OP1 13JAN06		
111	A417	no	OP1 13JAN06		
112	A418	no	OP1 13JAN06		
113	A419	no	OP1 13JAN06		
114	A420	yes	OP1 13JAN06		1
115	A421	yes	OP1 13JAN06		2
116	A422	yes	OP1 13JAN06		3
117	A423	yes	OP1 13JAN06		4
118	A424	yes	OP1 13JAN06		5
119	A425	yes	OP1 13JAN06		6
120	FBAHA	yes	OP1 13JAN06		7

Reliquished by: [signature] date: 2/8/06

Received by: KMcKinley date: 2/10/06

F1184

Cooper Environmental Chain of Custody Form
10180 SW Nimbus Ave. Ste. J6
Portland, OR 97223
503-670-8335

#	Sample ID	XRF analysis performed?	ID of original roll	Other Items of note	
1	B307	no	BH 13JAN06		
2	B308	no	BH 13JAN06		
3	B309	no	BH 13JAN06		
4	B310	no	BH 13JAN06		
5	B311	no	BH 13JAN06		
6	B312	no	BH 13JAN06		
7	B313	no	BH 13JAN06		
8	B314	no	BH 13JAN06		
9	B315	no	BH 13JAN06		
10	B316	no	BH 13JAN06		
11	B317	no	BH 13JAN06		
12	B318	no	BH 13JAN06		
13	B319	no	BH 13JAN06		
14	B320	no	BH 13JAN06		
15	B321	no	BH 13JAN06		
16	B322	no	BH 13JAN06		
17	B323	no	BH 13JAN06		
18	B324	no	BH 13JAN06		
19	B325	no	BH 13JAN06		
20	B326	no	BH 13JAN06		
21	B327	no	BH 13JAN06		
22	B328	no	BH 13JAN06		
23	B329	no	BH 13JAN06		
24	B330	no	BH 13JAN06		
25	B331	no	BH 13JAN06		
26	B332	no	BH 13JAN06		
27	B333	yes	BH 13JAN06		8
28	B334	yes	BH 13JAN06		9
29	B335	yes	BH 13JAN06		10
30	B336	yes	BH 13JAN06		11
31	B337	yes	BH 13JAN06		12
32	B338	yes	BH 13JAN06		13
33	B339	yes	BH 13JAN06		14
34	FBAHB	yes	BH 13JAN06		15

Reliquished by: [signature] date: 2/8/06

Received by: KMcKinley date: 2/10/06

F 1184

Cooper Environmental Chain of Custody Form
10180 SW Nimbus Ave. Ste. J6
Portland, OR 97223
503-670-8335

#	Sample ID	XRF analysis performed?	ID of original roll	Other Items of note	
1	C307	no	OP5 13JAN06		
2	C308	no	OP5 13JAN06		
3	C309	no	OP5 13JAN06		
4	C310	no	OP5 13JAN06		
5	C311	no	OP5 13JAN06		
6	C312	yes	OP5 13JAN06		16
7	C313	yes	OP5 13JAN06		17
8	C314	yes	OP5 13JAN06		18
9	C315	yes	OP5 13JAN06		19
10	C316	yes	OP5 13JAN06		20
11	C317	yes	OP5 13JAN06		21
12	FBAHC	yes	OP5 13JAN06		22

Reliquished by: _____ date: 2/8/06

Received by: Kathy McKinley date: 2/10/06

F 1184

Cooper Environmental Chain of Custody Form
10180 SW Nimbus Ave. Ste. J6
Portland, OR 97223
503-670-8335

#	Sample ID	XRF analysis performed?	ID of original roll	Other Items of note
1	A307	no	OP1 13JAN06	
2	A308	no	OP1 13JAN06	
3	A309	no	OP1 13JAN06	
4	A310	no	OP1 13JAN06	
5	A311	no	OP1 13JAN06	
6	A312	no	OP1 13JAN06	
7	A313	no	OP1 13JAN06	
8	A314	no	OP1 13JAN06	
9	A315	no	OP1 13JAN06	
10	A316	no	OP1 13JAN06	
11	A317	no	OP1 13JAN06	
12	A318	no	OP1 13JAN06	
13	A319	no	OP1 13JAN06	
14	A320	no	OP1 13JAN06	
15	A321	no	OP1 13JAN06	
16	A322	no	OP1 13JAN06	
17	A323	no	OP1 13JAN06	
18	A324	no	OP1 13JAN06	
19	A325	no	OP1 13JAN06	
20	A326	no	OP1 13JAN06	
21	A327	no	OP1 13JAN06	
22	A328	no	OP1 13JAN06	
23	A329	no	OP1 13JAN06	
24	A330	no	OP1 13JAN06	
25	A331	no	OP1 13JAN06	
26	A332	no	OP1 13JAN06	
27	A333	no	OP1 13JAN06	
28	A334	no	OP1 13JAN06	
29	A335	no	OP1 13JAN06	
30	A336	no	OP1 13JAN06	
31	A337	no	OP1 13JAN06	
32	A338	no	OP1 13JAN06	
33	A339	no	OP1 13JAN06	
34	A340	no	OP1 13JAN06	
35	A341	no	OP1 13JAN06	
36	A342	no	OP1 13JAN06	
37	A343	no	OP1 13JAN06	
38	A344	no	OP1 13JAN06	
39	A345	no	OP1 13JAN06	
40	A346	no	OP1 13JAN06	
41	A347	no	OP1 13JAN06	
42	A348	no	OP1 13JAN06	
43	A349	no	OP1 13JAN06	
44	A350	no	OP1 13JAN06	
45	A351	no	OP1 13JAN06	
46	A352	no	OP1 13JAN06	
47	A353	no	OP1 13JAN06	
48	A354	no	OP1 13JAN06	
49	A355	no	OP1 13JAN06	
50	A356	no	OP1 13JAN06	
51	A357	no	OP1 13JAN06	
52	A358	no	OP1 13JAN06	
53	A359	no	OP1 13JAN06	
54	A360	no	OP1 13JAN06	
55	A361	no	OP1 13JAN06	
56	A362	no	OP1 13JAN06	
57	A363	no	OP1 13JAN06	
58	A364	no	OP1 13JAN06	
59	A365	no	OP1 13JAN06	

CH2MHILL
Analytical Services

Sample Receipt Record

Batch Number: F1184 Date received: 2/10/04

Client/Project Vieques Island

VERIFICATION OF SAMPLE CONDITIONS (verify all items) * HD = Client Hand delivered Samples

Observation	YES	NO
Radiological Screening for AFCEE		X
Were custody seals intact and on the outside of the cooler?		X
If yes, Where? Front____ Rear____ Lt Side____ Rt Side____		
Type of packing material: Ice Blue Ice Bubble wrap Box		
Was the Chain of Custody inside the cooler?	X	
Was the Chain of Custody properly filled out?	X	
Were the sample containers in good condition?	X	
Containers supplied by ASL?		X
Any sample with < 1/2 holding time remaining? If so contact LPM		X
Was there ice in the cooler? Enter temp. C		NA
All VOCs free of air bubbles ?		NA

If the answer to any of the questions above is NO, a Sample Receipt Exceptions Report Must be written.

VERIFICATION OF SAMPLE PRESERVATION (verify all preserved samples except HAAs, HANs and CH)

Sample No	Nutrients pH <2	Metals pH <2	Volatiles pH <2	Cyanides pH >12	TOC pH <2	TOX pH <2	Other (specify)	N/A (soils/unpres)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								

LOGIN AND pH VERIFICATIONS PERFORMED BY

KMcKinley 2/10/04 1045
Date/Time

Date/Time

Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: A421
Report ID: AH

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.04536	+/-	0.02308	0.00000	+/-	0.00000	0.04536	+/-	0.02308	NR	+/-	NR
Cr	0.00638	+/-	0.00259	0.00000	+/-	0.00000	0.00638	+/-	0.00259	NR	+/-	NR
Fe	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Ni	0.00274	+/-	0.00174	0.00388	+/-	0.00171	0.00114	+/-	0.00244	NR	+/-	NR
Cu	0.03995	+/-	0.00261	0.02762	+/-	0.00246	0.01233	+/-	0.00358	NR	+/-	NR
As	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Cd	0.01731	+/-	0.00695	0.00879	+/-	0.00758	0.00852	+/-	0.01029	NR	+/-	NR
Sn	0.03656	+/-	0.01452	0.00000	+/-	0.00000	0.03656	+/-	0.01452	NR	+/-	NR
Hg	0.00926	+/-	0.00188	0.00000	+/-	0.00000	0.00926	+/-	0.00188	NR	+/-	NR
Pb	0.00237	+/-	0.00174	0.00283	+/-	0.00181	0.00047	+/-	0.00251	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

Cooper Environmental Services
XRF Analytical Quality Assurance Report

Client: CH2MHill
Analysis Period: February 1st through 3rd, 2005
Batch ID: AH

1. Precision Data

Micromatter Multi-elemental Quality Control Standard: Multi 13391

QC Standard Results

Analyte	n	µg/cm²			c.v.	%E
		Calib.	Meas.	S.D.		
Si	3	9.66	9.93	0.15	1.51	2.75
V	3	10.61	10.51	0.06	0.58	-0.95
Ni	3	10.79	10.45	0.20	1.90	-3.09
Pb	3	21.41	20.86	0.05	0.23	-2.56
Cd	3	5.51	5.47	0.04	0.67	-0.75
Se	3	3.92	3.90	0.01	0.32	-0.57

2. Accuracy Data

Spectra Acquired 2/7/06

NIST Standard Reference Materials: SRM 1228, SRM 987

Analyte/ SRM	n	Certified Value(µg/cm²)	Measured Value (µg/cm²)					% Rec.
			High	Low	Average			
Ca 1228	1	19.0 +/- 1.3	20.20	20.20	20.20	+/-	0.00	106.5
V 1228	1	3.95 +/- 0.5	4.26	4.26	4.26	+/-	0.00	107.7
Mn 1228	1	4.11 +/- 0.47	4.36	4.36	4.36	+/-	0.00	106.0
Ti 987	1	11.86 +/- 1.6	12.74	12.74	12.74	+/-	0.00	107.4
Fe 987	1	14.5 +/- .53	14.41	14.41	14.41	+/-	0.00	99.3
Zn 987	1	5.49 +/- .53	5.96	5.96	5.96	+/-	0.00	108.5
Pb 987	1	22.83 +/- 1.24	23.29	23.29	23.29	+/-	0.00	102.0

NIST: National Institute of Standards and Technology
% Rec: Percent Recovery = (Experimental/Given) x 100
n: Number of Observations
S.D.: Standard Deviation
c.v.: Coefficient of Variation = (S.D./Measured) x 100
% E: Percent Error = [(Measured-Calibrated)/Calibrated] x 100

Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: B336
Report ID: AH

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.00000	+/-	0.00000	0.02650	+/-	0.02050	0.02650	+/-	0.02050	NR	+/-	NR
Cr	0.00000	+/-	0.00000	0.00410	+/-	0.00232	0.00410	+/-	0.00232	NR	+/-	NR
Fe	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Ni	0.00000	+/-	0.00000	0.00040	+/-	0.00160	0.00040	+/-	0.00160	NR	+/-	NR
Cu	0.04068	+/-	0.00244	0.03843	+/-	0.00255	0.00226	+/-	0.00353	5.7	+/-	8.9
As	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Cd	0.02017	+/-	0.00698	0.00000	+/-	0.00000	0.02017	+/-	0.00698	NR	+/-	NR
Sn	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Hg	0.00429	+/-	0.00193	0.00692	+/-	0.00185	0.00263	+/-	0.00267	NR	+/-	NR
Pb	0.00501	+/-	0.00170	0.00159	+/-	0.00177	0.00342	+/-	0.00245	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: C317
Report ID: AH

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.22187	+/-	0.03300	0.27207	+/-	0.03230	0.05020	+/-	0.04617	NR	+/-	NR
Cr	0.00581	+/-	0.00289	0.00000	+/-	0.00000	0.00581	+/-	0.00289	NR	+/-	NR
Fe	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Ni	0.00211	+/-	0.00183	0.00000	+/-	0.00000	0.00211	+/-	0.00183	NR	+/-	NR
Cu	0.39353	+/-	0.00530	0.40399	+/-	0.00518	0.01046	+/-	0.00741	2.6	+/-	1.9
As	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Cd	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Sn	0.04693	+/-	0.01649	0.00000	+/-	0.00000	0.04693	+/-	0.01649	NR	+/-	NR
Hg	0.00284	+/-	0.00221	0.00401	+/-	0.00220	0.00117	+/-	0.00312	NR	+/-	NR
Pb	0.00394	+/-	0.00203	0.00526	+/-	0.00199	0.00132	+/-	0.00284	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

CH2MHILL *Applied Sciences Laboratory*

Project Name: Vieques Naval Training Range
Project ID: 333271.CE.GN
Project Manager: Jodi Lee/SLC
Date Received: 03/06/06

Method 8095 Explosives/Energetics

Reportable Values

Analyte Name / Lab ID / Client ID	F129607 B489	F129606 FBAIA	F129605 A431	F129604 A430	F129603 A429	F129602 A428	F129601 A427	BS1F0307 FILTER SPIKE	FB1-0307 FILTER BLANK
NITROBENZENE	250 U	250 U	250 U	250 U	250 U	250 U	250 U	117%	250 U
1,3-DNB	50 U	50 U	50 U	50 U	50 U	50 U	50 U	96%	50 U
2,6-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	105%	50 U
2,4-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100%	50 U
1,3,5-TNB	100 U	100 U	100 U	100 U	100 U	100 U	100 U	108%	100 U
TNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	126%	50 U
RDX	50 U	50 U	50 U	50 U	50 U	50 U	50 U	88%	50 U
HMX	250 U	250 U	250 U	250 U	250 U	250 U	250 U	75%	250 U
3,4-DNT [SS], % Recovery	104%	99%	102%	103%	101%	107%	95%	106%	86%

Analyte Name / Lab ID / Client ID	F129614 FBAIB	F129613 B497	F129612 B496	F129611 B495	F129610 B494	F129609 B491	F129608 B490
NITROBENZENE	250 U	250 U	250 U	250 U	250 U	250 U	250 U
1,3-DNB	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,6-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,4-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U
1,3,5-TNB	100 U	100 U	100 U	100 U	100 U	100 U	100 U
TNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U
RDX	50 U	50 U	50 U	50 U	50 U	50 U	50 U
HMX	250 U	250 U	250 U	250 U	250 U	250 U	250 U
3,4-DNT [SS], % Recovery	106%	111%	110%	115%	106%	97%	97%

U = not detected at specified level.

CH2M HILL
Applied Sciences Group

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Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: A428
Report ID: Al

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.13940	+/-	0.02124	0.21259	+/-	0.02153	0.07319	+/-	0.03025	NR	+/-	NR
Cr	0.01485	+/-	0.00230	0.00000	+/-	0.00000	0.01485	+/-	0.00230	NR	+/-	NR
Fe	0.34528	+/-	0.00699	0.35538	+/-	0.00700	0.01010	+/-	0.00989	2.9	+/-	2.8
Ni	0.00018	+/-	0.00161	0.00474	+/-	0.00157	0.00456	+/-	0.00225	NR	+/-	NR
Cu	0.02005	+/-	0.00253	0.02974	+/-	0.00273	0.00969	+/-	0.00372	NR	+/-	NR
As	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Cd	0.00000	+/-	0.00000	0.00669	+/-	0.00694	0.00669	+/-	0.00694	NR	+/-	NR
Sn	0.01822	+/-	0.01434	0.00000	+/-	0.00000	0.01822	+/-	0.01434	NR	+/-	NR
Hg	0.00273	+/-	0.00189	0.00000	+/-	0.00000	0.00273	+/-	0.00189	NR	+/-	NR
Pb	0.00775	+/-	0.00170	0.00815	+/-	0.00176	0.00040	+/-	0.00245	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

Cooper Environmental Services
XRF Analytical Quality Assurance Report

Client: CH2MHill
Analysis Period: Feb 24th through the 28th, 2006
Batch ID: AI

1. Precision Data

Micromatter Multi-elemental Quality Control Standard: Multi 13391

QC Standard Results

Analyte	n	µg/cm²			c.v.	%E
		Calib.	Meas.	S.D.		
Si	3	9.66	9.51	0.21	2.24	-1.59
V	3	10.61	10.17	0.21	2.04	-4.14
Ni	3	10.79	10.60	0.19	1.79	-1.70
Pb	3	21.41	20.86	0.17	0.79	-2.56
Cd	3	5.51	5.41	0.02	0.32	-1.91
Se	3	3.92	3.88	0.02	0.64	-1.02

2. Accuracy Data

Spectra Acquired 2/7/06

NIST Standard Reference Materials: SRM 1228, SRM 987

Analyte/ SRM	n	Certified Value(µg/cm²)	Measured Value (µg/cm²)					% Rec.
			High	Low	Average			
Ca 1228	1	19.0 +/- 1.3	20.20	20.20	20.20	+/-	0.00	106.5
V 1228	1	3.95 +/- 0.5	4.26	4.26	4.26	+/-	0.00	107.7
Mn 1228	1	4.11 +/- 0.47	4.36	4.36	4.36	+/-	0.00	106.0
Ti 987	1	11.86 +/- 1.6	12.74	12.74	12.74	+/-	0.00	107.4
Fe 987	1	14.5 +/- .53	14.41	14.41	14.41	+/-	0.00	99.3
Zn 987	1	5.49 +/- .53	5.96	5.96	5.96	+/-	0.00	108.5
Pb 987	1	22.83 +/- 1.24	23.29	23.29	23.29	+/-	0.00	102.0

NIST: National Institute of Standards and Technology
% Rec: Percent Recovery = (Experimental/Given) x 100
n: Number of Observations
S.D.: Standard Deviation
c.v.: Coefficient of Variation = (S.D./Measured) x 100
% E: Percent Error = [(Measured-Calibrated)/Calibrated] x 100

Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: B496
Report ID: AI

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.04537	+/-	0.01886	0.06622	+/-	0.01764	0.02085	+/-	0.02582	NR	+/-	NR
Cr	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Fe	0.14603	+/-	0.00486	0.12998	+/-	0.00475	0.01605	+/-	0.00679	11.6	+/-	4.9
Ni	0.00000	+/-	0.00000	0.00139	+/-	0.00152	0.00139	+/-	0.00152	NR	+/-	NR
Cu	0.04157	+/-	0.00247	0.03682	+/-	0.00243	0.00475	+/-	0.00347	12.1	+/-	8.8
As	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Cd	0.00000	+/-	0.00000	0.00324	+/-	0.00725	0.00324	+/-	0.00725	NR	+/-	NR
Sn	0.00878	+/-	0.01349	0.00000	+/-	0.00000	0.00878	+/-	0.01349	NR	+/-	NR
Hg	0.00394	+/-	0.00172	0.00000	+/-	0.00000	0.00394	+/-	0.00172	NR	+/-	NR
Pb	0.00266	+/-	0.00158	0.00737	+/-	0.00159	0.00471	+/-	0.00224	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

CH2MHILL *Applied Sciences Laboratory*

Project Name: Vieques Naval Training Range
Project ID: 333271.CE.GN
Project Manager: Jodi Lee/SLC
Date Received: 03/20/06

Method 8095 Explosives/Energetics

Reportable Values

Analyte Name / Lab ID / Client ID	F138913 B534	F138912 B533	F138911 B532	F138910 B530	F138907 A529	F138906 A528	F138905 A527	F138904 A526	F138903 A525	F138902 A524	BS1F0321 FILTER SPIKE	FB1-0321 FILTER BLANK
NITROBENZENE	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	110%	250 U
1,3-DNB	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	113%	50 U
2,6-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	113%	50 U
2,4-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	118%	50 U
1,3,5-TNB	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	103%	100 U
TNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	115%	50 U
RDX	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	101%	50 U
HMX	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	87%	250 U
3,4-DNT [SS], % Recovery	77%	81%	77%	80%	89%	92%	86%	83%	85%	80%	112%	80%

Analyte Name / Lab ID / Client ID	F138925 C542	F138924 C541	F138923 C540	F138922 C539	F138921 C538	F138920 C537	F138917 B538	F138916 B537	F138915 B536	F138914 B535		
NITROBENZENE	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U		
1,3-DNB	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U		
2,6-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U		
2,4-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U		
1,3,5-TNB	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U		
TNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U		
RDX	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U		
HMX	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U		
3,4-DNT [SS], % Recovery	77%	77%	77%	80%	82%	80%	78%	78%	76%	76%		

U = not detected at specified level.

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CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**A521**	**Lab Sample ID:**	**F138901**
Project Name:	Vieques Naval Training Range	Date Received:	3/20/2006
Sampling Date:	3/9/2006	Report Revision No.:	0
Sampling Time:	Not Provided	Reported By:	JG
Type:	Grab	Reviewed By:	
Matrix:	Air		
Basis:	As Received		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**B524**	**Lab Sample ID:**	**F138908**
Project Name:	Vieques Naval Training Range	Date Received:	3/20/2006
Sampling Date:	3/9/2006	Report Revision No.:	0
Sampling Time:	Not Provided	Reported By:	JG
Type:	Grab	Reviewed By:	
Matrix:	Air		
Basis:	As Received		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.67		µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

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CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**B525**	**Lab Sample ID:**	**F138909**
Project Name:	Vieques Naval Training Range	Date Received:	3/20/2006
Sampling Date:	3/9/2006	Report Revision No.:	0
Sampling Time:	Not Provided	Reported By:	JG
Type:	Grab	Reviewed By:	
Matrix:	Air		
Basis:	As Received		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.66		µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	C535	**Lab Sample ID:**	F138918
Project Name:	Vieques Naval Training Range	Date Received:	3/20/2006
Sampling Date:	3/9/2006	Report Revision No.:	0
Sampling Time:	Not Provided	Reported By:	JG
Type:	Grab	Reviewed By:	
Matrix:	Air		
Basis:	As Received		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**C536**	**Lab Sample ID:**	**F138919**
Project Name:	Vieques Naval Training Range	Date Received:	3/20/2006
Sampling Date:	3/9/2006	Report Revision No.:	0
Sampling Time:	Not Provided	Reported By:	JG
Type:	Grab	Reviewed By:	
Matrix:	Air		
Basis:	As Received		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**METHOD BLANK**	**Lab Sample ID:**	**F1389**
Project Name:	Vieques Naval Training Range	Date Received:	NA
Sampling Date:	NA	Report Revision No.:	0
Sampling Time:	NA	Reported By:	JG
Type:	QC	Reviewed By:	
Matrix:	Air		
Basis:	NA		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**A521**	**Lab Sample ID:**	**F138901**
Project Name:	Vieques Naval Training Range	Date Received:	3/20/2006
Sampling Date:	3/9/2006	Report Revision No.:	0
Sampling Time:	Not Provided	Reported By:	JG
Type:	Grab	Reviewed By:	
Matrix:	Air		
Basis:	As Received		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**B524**	**Lab Sample ID:**	**F138908**
Project Name:	Vieques Naval Training Range	Date Received:	3/20/2006
Sampling Date:	3/9/2006	Report Revision No.:	0
Sampling Time:	Not Provided	Reported By:	JG
Type:	Grab	Reviewed By:	
Matrix:	Air		
Basis:	As Received		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.67		µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**B525**	**Lab Sample ID:**	**F138909**
Project Name:	Vieques Naval Training Range	Date Received:	3/20/2006
Sampling Date:	3/9/2006	Report Revision No.:	0
Sampling Time:	Not Provided	Reported By:	JG
Type:	Grab	Reviewed By:	
Matrix:	Air		
Basis:	As Received		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.66		µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**C535**	**Lab Sample ID:**	**F138918**
Project Name:	Vieques Naval Training Range	Date Received:	3/20/2006
Sampling Date:	3/9/2006	Report Revision No.:	0
Sampling Time:	Not Provided	Reported By:	JG
Type:	Grab	Reviewed By:	
Matrix:	Air		
Basis:	As Received		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**C536**	**Lab Sample ID:**	**F138919**
Project Name:	Vieques Naval Training Range	Date Received:	3/20/2006
Sampling Date:	3/9/2006	Report Revision No.:	0
Sampling Time:	Not Provided	Reported By:	JG
Type:	Grab	Reviewed By:	
Matrix:	Air		
Basis:	As Received		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

CH2M HILL Applied Sciences Laboratory

Client Information		Lab Information	
Client Sample ID:	**METHOD BLANK**	**Lab Sample ID:**	**F1389**
Project Name:	Vieques Naval Training Range	Date Received:	NA
Sampling Date:	NA	Report Revision No.:	0
Sampling Time:	NA	Reported By:	JG
Type:	QC	Reviewed By:	
Matrix:	Air		
Basis:	NA		

Analyte	MRL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Arsenic, As	1.3	1.3	U	µg/filter	SW6010B	4/3/2006
Cadmium, Cd	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Chromium, Cr	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Copper, Cu	0.50	0.50	U	µg/filter	SW6010B	4/3/2006
Iron, Fe	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Lead, Pb	0.25	0.25	U	µg/filter	SW6010B	4/3/2006
Nickel, Ni	1.0	1.0	U	µg/filter	SW6010B	4/3/2006
Phosphorous, P	5.0	5.0	U	µg/filter	SW6010B	4/3/2006
Tin, Sn	1.3	1.3	U	µg/filter	SW6010B	4/3/2006

U=Not detected at specified reporting limits

Cooper Environmental Services
XRF Analytical Quality Assurance Report

Client: CH2MHill
Analysis Period: March 16th and 17th, 2006
Batch ID: AJ

1. Precision Data

Micromatter Multi-elemental Quality Control Standard: Multi 13391

QC Standard Results

Analyte	n	µg/cm²			c.v.	%E
		Calib.	Meas.	S.D.		
Si	2	9.66	10.04	0.21	2.13	3.89
V	2	10.61	10.14	0.51	4.99	-4.38
Ni	2	10.79	10.63	0.13	1.23	-1.46
Pb	2	21.41	21.00	0.04	0.17	-1.93
Cd	2	5.51	5.45	0.07	1.27	-1.21
Se	2	3.92	3.88	0.00	0.11	-0.93

2. Accuracy Data

Spectra Acquired 3/18/06

NIST Standard Reference Materials: SRM 1228, SRM 987

Analyte/ SRM	n	Certified Value(µg/cm²)	Measured Value (µg/cm²)					% Rec.
			High	Low	Average			
Ca 1228	1	19.0 +/- 1.3	20.43	20.43	20.43	+/-	0.00	107.7
V 1228	1	3.95 +/- 0.5	4.21	4.21	4.21	+/-	0.00	106.7
Mn 1228	1	4.11 +/- 0.47	4.36	4.36	4.36	+/-	0.00	106.0
Ti 987	1	11.86 +/- 1.6	11.98	11.98	11.98	+/-	0.00	101.0
Fe 987	1	14.5 +/- .53	14.13	14.13	14.13	+/-	0.00	97.3
Zn 987	1	5.49 +/- .53	5.81	5.81	5.81	+/-	0.00	105.8
Pb 987	1	22.83 +/- 1.24	22.57	22.57	22.57	+/-	0.00	98.8

NIST: National Institute of Standards and Technology
% Rec: Percent Recovery = (Experimental/Given) x 100
n: Number of Observations
S.D.: Standard Deviation
c.v.: Coefficient of Variation = (S.D./Measured) x 100
% E: Percent Error = [(Measured-Calibrated)/Calibrated] x 100

Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: A529
Report ID: AJ

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.02562	+/-	0.02339	0.11349	+/-	0.02244	0.08788	+/-	0.03241	NR	+/-	NR
Cr	0.00627	+/-	0.00252	0.00566	+/-	0.00251	0.00061	+/-	0.00355	NR	+/-	NR
Fe	0.39676	+/-	0.00859	0.44331	+/-	0.00861	0.04655	+/-	0.01216	11.1	+/-	2.9
Ni	0.00000	+/-	0.00000	0.00120	+/-	0.00172	0.00120	+/-	0.00172	NR	+/-	NR
Cu	0.00395	+/-	0.00269	0.01011	+/-	0.00264	0.00616	+/-	0.00377	NR	+/-	NR
As	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Cd	0.00000	+/-	0.00000	0.02599	+/-	0.00669	0.02599	+/-	0.00669	NR	+/-	NR
Sn	0.00668	+/-	0.01614	0.02958	+/-	0.01460	0.02289	+/-	0.02177	NR	+/-	NR
Hg	0.00148	+/-	0.00196	0.00000	+/-	0.00000	0.00148	+/-	0.00196	NR	+/-	NR
Pb	0.00981	+/-	0.00186	0.00719	+/-	0.00179	0.00262	+/-	0.00258	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: B524
Report ID: AJ

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.02625	+/-	0.02121	0.04945	+/-	0.02283	0.02320	+/-	0.03116	NR	+/-	NR
Cr	0.14338	+/-	0.00412	0.14621	+/-	0.00454	0.00283	+/-	0.00613	2.0	+/-	4.2
Fe	0.52988	+/-	0.00846	0.53808	+/-	0.00883	0.00820	+/-	0.01223	1.5	+/-	2.3
Ni	0.01625	+/-	0.00199	0.01981	+/-	0.00194	0.00356	+/-	0.00278	NR	+/-	NR
Cu	0.09110	+/-	0.00325	0.08542	+/-	0.00318	0.00568	+/-	0.00455	6.4	+/-	5.2
As	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Cd	0.01867	+/-	0.00704	0.01416	+/-	0.00720	0.00452	+/-	0.01006	NR	+/-	NR
Sn	0.01808	+/-	0.01536	0.00973	+/-	0.01454	0.00835	+/-	0.02115	NR	+/-	NR
Hg	0.00396	+/-	0.00193	0.00000	+/-	0.00000	0.00396	+/-	0.00193	NR	+/-	NR
Pb	0.00442	+/-	0.00174	0.00584	+/-	0.00162	0.00143	+/-	0.00238	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: C539
Report ID: AJ

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.07033	+/-	0.01959	0.07589	+/-	0.01921	0.00556	+/-	0.02743	NR	+/-	NR
Cr	0.00000	+/-	0.00000	0.00610	+/-	0.00239	0.00610	+/-	0.00239	NR	+/-	NR
Fe	0.27274	+/-	0.00697	0.27618	+/-	0.00711	0.00344	+/-	0.00995	1.3	+/-	3.6
Ni	0.00249	+/-	0.00163	0.00000	+/-	0.00000	0.00249	+/-	0.00163	NR	+/-	NR
Cu	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
As	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Cd	0.01618	+/-	0.00757	0.01429	+/-	0.00772	0.00189	+/-	0.01081	NR	+/-	NR
Sn	0.00000	+/-	0.00000	0.03014	+/-	0.01571	0.03014	+/-	0.01571	NR	+/-	NR
Hg	0.00221	+/-	0.00187	0.00487	+/-	0.00196	0.00265	+/-	0.00271	NR	+/-	NR
Pb	0.00594	+/-	0.00187	0.00477	+/-	0.00177	0.00117	+/-	0.00258	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

CH2MHILL *Applied Sciences Laboratory*

Project Name: Vieques Naval Training Range
Project ID: 333271.CE.GN
Project Manager: Jodi Lee/SLC
Date Received: 04/13/06

Method 8095 Explosives/Energetics

Reportable Values

Analyte Name / Lab ID / Client ID	F152610 A563	F152609 A562	F152608 A561	F152607 A560	F152606 A559	F152605 A558	F152604 A557	F152603 A556	F152602 A555	F152601 A554	BS1F0417 BLANK SPIKE	FB1-0417 FILTER BLANK
NITROBENZENE	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	101%	250 U
1,3-DNB	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	96%	50 U
2,6-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	102%	50 U
2,4-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	103%	50 U
1,3,5-TNB	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	125%	100 U
TNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	142%	50 U
RDX	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	109%	50 U
HMX	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	124%	250 U
3,4-DNT [SS], % Recovery	104%	126%	149%	108%	102%	100%	98%	105%	104%	102%	116%	96%

Analyte Name / Lab ID / Client ID	F152620 B596	F152619 B595	F152618 B594	F152617 B593	F152616 B592	F152615 A568	F152614 A567	F152613 A566	F152612 A565	F152611 A564
NITROBENZENE	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
1,3-DNB	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,6-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,4-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
1,3,5-TNB	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
TNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
RDX	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
HMX	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
3,4-DNT [SS], % Recovery	107%	108%	115%	107%	103%	112%	96%	101%	94%	116%

U = not detected at specified level.

CH2MHILL *Applied Sciences Laboratory*

Project Name: Vieques Naval Training Range
Project ID: 333271.CE.GN
Project Manager: Jodi Lee/SLC
Date Received: 04/13/06

Method 8095 Explosives/Energetics

Reportable Values

Analyte Name / Lab ID / Client ID	F152642 FBAKC	F152641 C585	BS3F0417 BLANK SPIKE	FB3-0417 FILTER BLANK	F152643 FBAKA	BS1F0503 BLANK SPIKE	FB1-0503 FILTER BLANK
NITROBENZENE	250 U	250 U	99%	250 U	250 U	107%	250 U
1,3-DNB	50 U	50 U	94%	50 U	50 U	99%	50 U
2,6-DNT	50 U	50 U	97%	50 U	50 U	105%	50 U
2,4-DNT	50 U	50 U	99%	50 U	50 U	101%	50 U
1,3,5-TNB	100 U	100 U	111%	100 U	100 U	116%	100 U
TNT	50 U	50 U	140%	50 U	50 U	133%	50 U
RDX	50 U	50 U	100%	50 U	50 U	93%	50 U
HMX	250 U	250 U	91%	250 U	250 U	97%	250 U
3,4-DNT [SS], % Recovery	103%	101%	119%	103%	93%	98%	102%

U = not detected at specified level.

CH2MHILL Applied Sciences Laboratory

Project Name: Vieques Naval Training Range
Project ID: 333271.CE.GN
Project Manager: Jodi Lee/SLC
Date Received: 04/13/06

Method 8095 Explosives/Energetics

Reportable Values

Analyte Name / Lab ID / Client ID	F152630 C574	F152629 C573	F152628 FBAKB	F152627 B603	F152626 B602	F152625 B601	F152624 B600	F152623 B599	F152622 B598	F152621 B597	BS1F0417 BLANK SPIKE	FB2-0417 FILTER BLANK
NITROBENZENE	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	95%	250 U
1,3-DNB	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	85%	50 U
2,6-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	88%	50 U
2,4-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	89%	50 U
1,3,5-TNB	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	113%	100 U
TNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	126%	50 U
RDX	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	87%	50 U
HMX	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	86%	250 U
3,4-DNT [SS], % Recovery	105%	101%	111%	108%	102%	105%	105%	108%	102%	95%	99%	111%

Analyte Name / Lab ID / Client ID	F152640 C584	F152639 C583	F152638 C582	F152637 C581	F152636 C580	F152635 C579	F152634 C578	F152633 C577	F152632 C576	F152631 C575
NITROBENZENE	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
1,3-DNB	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,6-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2,4-DNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
1,3,5-TNB	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
TNT	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
RDX	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
HMX	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
3,4-DNT [SS], % Recovery	109%	108%	106%	110%	119%	109%	110%	112%	113%	106%

U = not detected at specified level.

Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: B596
Report ID: AK

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.14298	+/-	0.03245	0.16673	+/-	0.03351	0.02376	+/-	0.04665	NR	+/-	NR
Cr	0.01823	+/-	0.00412	0.01199	+/-	0.00415	0.00624	+/-	0.00585	NR	+/-	NR
Fe	6.31081	+/-	0.02642	6.78056	+/-	0.02744	0.46975	+/-	0.03809	7.2	+/-	0.6
Ni	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Cu	0.03759	+/-	0.00404	0.04600	+/-	0.00417	0.00841	+/-	0.00580	NR	+/-	NR
As	0.00000	+/-	0.00000	0.00419	+/-	0.00118	0.00419	+/-	0.00118	NR	+/-	NR
Cd	0.01938	+/-	0.00706	0.02034	+/-	0.00683	0.00096	+/-	0.00982	NR	+/-	NR
Sn	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Hg	0.00706	+/-	0.00200	0.00000	+/-	0.00000	0.00706	+/-	0.00200	NR	+/-	NR
Pb	0.02432	+/-	0.00213	0.02503	+/-	0.00211	0.00070	+/-	0.00300	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: C573
Report ID: AK

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.02218	+/-	0.03073	0.12189	+/-	0.02740	0.09971	+/-	0.04117	NR	+/-	NR
Cr	0.01802	+/-	0.00395	0.00604	+/-	0.00382	0.01198	+/-	0.00550	NR	+/-	NR
Fe	6.76034	+/-	0.02645	5.69599	+/-	0.02464	1.06435	+/-	0.03615	17.1	+/-	0.6
Ni	0.00837	+/-	0.00207	0.00000	+/-	0.00000	0.00837	+/-	0.00207	NR	+/-	NR
Cu	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
As	0.00265	+/-	0.00113	0.00000	+/-	0.00000	0.00265	+/-	0.00113	NR	+/-	NR
Cd	0.01714	+/-	0.00706	0.00297	+/-	0.00733	0.01417	+/-	0.01018	NR	+/-	NR
Sn	0.00710	+/-	0.01524	0.00913	+/-	0.01438	0.00204	+/-	0.02095	NR	+/-	NR
Hg	0.00189	+/-	0.00198	0.00642	+/-	0.00187	0.00452	+/-	0.00272	NR	+/-	NR
Pb	0.01701	+/-	0.00204	0.01820	+/-	0.00191	0.00119	+/-	0.00279	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

Cooper Environmental Services Replicate Report

Client: CH2MHILL
Sample ID: A559
Report ID: AK

Element	Original Analysis			Replicate Analysis			Difference			Relative Percent Difference[a]		
	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	Conc. (µg/cm²)	+/-	Unc. (µg/cm²)	RPD	+/-	Unc. In RPD
P	0.11751	+/-	0.03407	0.18325	+/-	0.03473	0.06574	+/-	0.04865	NR	+/-	NR
Cr	0.01318	+/-	0.00456	0.01691	+/-	0.00473	0.00373	+/-	0.00657	NR	+/-	NR
Fe	7.72839	+/-	0.02909	8.17205	+/-	0.02902	0.44366	+/-	0.04108	5.6	+/-	0.5
Ni	0.00000	+/-	0.00000	0.00096	+/-	0.00224	0.00096	+/-	0.00224	NR	+/-	NR
Cu	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
As	0.00364	+/-	0.00136	0.00412	+/-	0.00131	0.00048	+/-	0.00189	NR	+/-	NR
Cd	0.02589	+/-	0.00777	0.02743	+/-	0.00742	0.00154	+/-	0.01074	NR	+/-	NR
Sn	0.05419	+/-	0.01626	0.00000	+/-	0.00000	0.05419	+/-	0.01626	NR	+/-	NR
Hg	0.00000	+/-	0.00000	0.00000	+/-	0.00000	0.00000	+/-	0.00000	ND	+/-	ND
Pb	0.01997	+/-	0.00247	0.02823	+/-	0.00232	0.00826	+/-	0.00339	NR	+/-	NR

a. Relative Percent Difference is not reported if the concentration is less than 10 times the uncertainty
NR = Value not reported because the concentration is not 10 times greater than the uncertainty
ND = Non Detect

Cooper Environmental Services
XRF Analytical Quality Assurance Report

Client: CH2MHill
Analysis Period: April 7th, 8th & 11th, 2006
Batch ID: AK

1. Precision Data

Micromatter Multi-elemental Quality Control Standard: Multi 13391

QC Standard Results

Analyte	n	µg/cm²			c.v.	%E
		Calib.	Meas.	S.D.		
Si	3	9.66	10.00	0.18	1.81	3.54
V	3	10.61	10.39	0.28	2.69	-2.06
Ni	3	10.79	10.65	0.08	0.78	-1.29
Pb	3	21.41	20.84	0.17	0.80	-2.67
Cd	3	5.51	5.39	0.14	2.54	-2.16
Se	3	3.92	3.88	0.02	0.41	-1.07

2. Accuracy Data

Spectra Acquired 3/18/06

NIST Standard Reference Materials: SRM 1228, SRM 987

Analyte/ SRM	n	Certified Value(µg/cm²)	Measured Value (µg/cm²)					% Rec.
			High	Low	Average			
Ca 1228	1	19.0 +/- 1.3	20.43	20.43	20.43	+/-	0.00	107.7
V 1228	1	3.95 +/- 0.5	4.21	4.21	4.21	+/-	0.00	106.7
Mn 1228	1	4.11 +/- 0.47	4.36	4.36	4.36	+/-	0.00	106.0
Ti 987	1	11.86 +/- 1.6	11.98	11.98	11.98	+/-	0.00	101.0
Fe 987	1	14.5 +/- .53	14.13	14.13	14.13	+/-	0.00	97.3
Zn 987	1	5.49 +/- .53	5.81	5.81	5.81	+/-	0.00	105.8
Pb 987	1	22.83 +/- 1.24	22.57	22.57	22.57	+/-	0.00	98.8

NIST: National Institute of Standards and Technology
% Rec: Percent Recovery = (Experimental/Given) x 100
n: Number of Observations
S.D.: Standard Deviation
c.v.: Coefficient of Variation = (S.D./Measured) x 100
% E: Percent Error = [(Measured-Calibrated)/Calibrated] x 100

AIR MONITORING SITE VISIT LOG				
	OP - 1	OP - 5	Boat House	Control Unit
Date	13JAN06	13JAN06	13JAN06	
Time (Unit is set to GMT {Local Time + 4})	0945	1130	1024	
mg/m³ 00:00 Real-Time Concentration and Time	0.009	0.00	-0.005	
mg/m³ 00:00 Hourly Concentration and last Hour	0.006	0.00	0.010	
FLOW: LMP Standard Flow	17.0	0.0	16.9	
WS: M/S Wind Speed	7.6	8.5	5.7	
WD: DEG Wind Direction	118°	126°	114°	
AT: C Ambient Temperature	15.5	279.9	17.6	
FT: C Filter Temperature	28.1	27.2	27.0	
RHi: % Relative Humidity Internal	57%	58%	59%	
RHx: % Relative Humidity External	18%	41%	17%	
BV: V Battery Voltage (< 10.5 Change-Out)	12°	11.2	10.8	
FLOW: SLMP Actual Flow	16.7	0.0	16.7	
Delta-Cal Flow SLMP (Acceptable Range 16.34 - 17.00)	747	28.9	751	
Delta-Cal Temp C	24.3	759	25.0	
Delta-Cal Pressure MM	16.84	4.35	16.56	
Data & Error Log Downloaded? (Yes/No)	yes	yes	yes	
Tape Sample Collected? (Yes/No)	yes	yes	yes	
New Tape Installed? (Yes/No)	NO	NO	NO	
Annotated tape w/date & time? (Yes/No)	yes	yes	yes	
Leak Check Performed? (Acceptable Range <1.5 lpm)	NO	NO	NO	
Flow Calibration Perform?	NO	NO	NO	

this was incorrect

Field Observations:

(Note any meteorological conditions and range operations that may affect air quality. Examples: recent range fires, disposal operations, dry & dusty roads, welding & cutting torch operations, regional volcanic activity, heavy-machinery operations, etc.)

Disposal operation 12 JAN 06

Equipment Maintenance & Calibration:

(Examples: flow calibration, cleaning, battery change-out, etc.)

Flow cal on OPS – not working correctly
May need new pump

Additional Comments:

(Name & Signature of Field Technician)

STANDARD	MAKE & MODEL	SERIAL NO.	DATE CERTIFIED
Flow Meter	BGI Inc. Delta-Cal	396	15 Nov 2004
Temperature	BGI Inc. Delta-Cal	396	15 Nov 2004
Pressure	BGI Inc. Delta-Cal	396	15 Nov 2004

AIR MONITORING SITE VISIT LOG

	OP - 1	OP - 5	Boat House	Control Unit
Date 2/16/06	START-UP FOR 2/17/06 BIP			
Time (Unit is set to GMT [Local Time + 4])	1545 PRT 1945			
mg/m³ 00:00 Real-Time Concentration and Time	0.00			
mg/m³ 00:00 Hourly Concentration and last Hour	Just Starting 0.00			
FLOW: LMP Standard Flow	16.7			
WS: M/S Wind Speed	10.8			
WD: DEG Wind Direction	104			
AT: C Ambient Temperature	15.7			
FT: C Filter Temperature	25.6			
RHi: % Relative Humidity Internal	65%			
RHx: % Relative Humidity External	40%			
BV: V Battery Voltage (< 10.5 Change-Out)	11.9			
FLOW: SLMP Actual Flow	16.7			
Delta-Cal Flow SLMP (Acceptable Range 16.34 - 17.00)	—			
Delta-Cal Temp C	—			
Delta-Cal Pressure MM	—			
Data & Error Log Downloaded? (Yes/No)	No			
Tape Sample Collected? (Yes/No)	No			
New Tape Installed? (Yes/No)	No			
Annotated tape w/date & time? (Yes/No)	Yes			
Leak Check Performed? (Acceptable Range <1.5 lpm)	No			
Flow Calibration Perform?	No			

Field Observations:

(Note any meteorological conditions and range operations that may affect air quality. Examples: recent range fires, disposal operations, dry & dusty roads, welding & cutting torch operations, regional volcanic activity, heavy-machinery operations, etc.)

Gravel being delivered and leveled on Road INSIDE Gate 4 Very Dusty

Equipment Maintenance & Calibration:

(Examples: flow calibration, cleaning, battery change-out, etc.)

Additional Comments:

(Name & Signature of Field Technician)

STANDARD	MAKE & MODEL	SERIAL NO.	DATE CERTIFIED
Flow Meter	BGI Inc. Delta-Cal	396	15 Nov 2004
Temperature	BGI Inc. Delta-Cal	396	15 Nov 2004
Pressure	BGI Inc. Delta-Cal	396	15 Nov 2004

AIR MONITORING SITE VISIT LOG

	OP - 1	OP - 5	Boat House	Control Unit
Date	3/7/06	3/7/06	3/7/06	
Time (Unit to set to GMT (Local Time + 4))	1833	1813 / clock reset to 1852	1711	clock is 1 hr behind should be 1811
mg/m³ 00:00 Real-Time Concentration and Time	0.032 1880	0.00	0.022 1700	
mg/m³ 00:00 Hourly Concentration and last Hour	0.000	0.000	0.025	
FLOW: LMP Standard Flow	16.6	10.1	16.9	
WS: M/S Wind Speed	4.8	4.9	2.7	
WD: DEG Wind Direction	151	167	139	
AT: C Ambient Temperature	19.4	31	18.9	
FT: C Filter Temperature	31.6	29.4	32.3	
RHi: % Relative Humidity Internal	47	49	36	
RHx: % Relative Humidity External	36	70	21	
BV: V Battery Voltage (< 10.5 Change-Out)	11.9	16.2	11.7	
FLOW: SLMP Actual Flow	16.7	16.6	16.7	
Delta-Cal Flow SLMP (Acceptable Range 16.34 – 17.00)	16.92	8.07 ②	17.15 ①	
Delta-Cal Temp C	26.8	26.1	28.9	
Delta-Cal Pressure MM	748	744	751	
Data & Error Log Downloaded? (Yes/No)	No	No	No	
Tape Sample Collected? (Yes/No)	No	No	No	
New Tape Installed? (Yes/No)	No	No	No	
Annotated tape w/date & time? (Yes/No)	Yes	Yes	Yes	
Leak Check Performed? (Acceptable Range <1.5 lpm)	No	No	No	

Field Observations:

(Note any meteorological conditions and range operations that may affect air quality. Examples: recent range fires, disposal operations, dry & dusty roads, welding & cutting torch operations, regional volcanic activity, heavy-machinery operations, etc.)

Dry & dusty roads, heavy machinery operating on range

Equipment Maintenance & Calibration:

(Examples: flow calibration, cleaning, battery change-out, etc.)

Additional Comments:

① Flow calibrated; post-cal flow = 16.7

② Flow calibrated; pump is set at 16.7 but only draws at around 8.1 lpm

Timothy Menk

(Name & Signature of Field Technician)

STANDARD	MAKE & MODEL	SERIAL NO.	DATE CERTIFIED
Flow Meter	BGI Inc. Delta-Cal	396	15 Nov 2004
Temperature	BGI Inc. Delta-Cal	396	15 Nov 2004
Pressure	BGI Inc. Delta-Cal	396	15 Nov 2004

AIR MONITORING SITE VISIT LOG

	OP - 1	OP - 5	Boat House	Control Unit
Date	3/15/06	3/15/06	3/15/06	
Time (Unit is set to GMT [Local Time + 4])	14:17	#2	15:16	
mg/m³ 00:00 Real-Time Concentration and Time	0.00 ~~00:00~~ 14:45		0.006 15:15	
mg/m³ 00:00 Hourly Concentration and last Hour	0.00		0.011	
FLOW: LMP Standard Flow	16.9		17.2	
WS: M/S Wind Speed	6.8 m/s		3.1	
WD: DEG Wind Direction	100°		96°	
AT: C Ambient Temperature	17.9 C		16.6	
FT: C Filter Temperature	28.5		31.5	
RHi: % Relative Humidity Internal	57%		39%	
RHx: % Relative Humidity External	29%		18%	
BV: V Battery Voltage (< 10.5 Change-Out)	11.9		11.6	
FLOW: SLMP Actual Flow	16.7		16.8	
Delta-Cal Flow SLMP (Acceptable Range 16.34 - 17.00)	#1		16.60	
Delta-Cal Temp C			28.5	
Delta-Cal Pressure MM			754	
Data & Error Log Downloaded? (Yes/No)			YES	
Tape Sample Collected? (Yes/No)			NO	
New Tape Installed? (Yes/No)			NO	
Annotated tape w/date & time? (Yes/No)			YES	
Leak Check Performed? (Acceptable Range <1.5 lpm)			NO	

#1 did not calibrate because of problems w/ repeater.

#2 OP5 not run when we arrived on site.

Field Observations:

(Note any meteorological conditions and range operations that may affect air quality. Examples: recent range fires, disposal operations, dry & dusty roads, welding & cutting torch operations, regional volcanic activity, heavy-machinery operations, etc.)

Dusty roads; fire on range 3/8/06 & 3/9/06

Equipment Maintenance & Calibration:

(Examples: flow calibration, cleaning, battery change-out, etc.)

No flow calibration conducted

Additional Comments:

(Name & Signature of Field Technician)

STANDARD	MAKE & MODEL	SERIAL NO.	DATE CERTIFIED
Flow Meter	BGI Inc. Delta-Cal	396	15 Nov 2004
Temperature	BGI Inc. Delta-Cal	396	15 Nov 2004
Pressure	BGI Inc. Delta-Cal	396	15 Nov 2004

AIR MONITORING SITE VISIT LOG

	OP - 1	OP - 5	Boat House	Control Unit
Date	03/31/2006	3/31/2006	03/31/2006	
Time (Unit is set to GMT [Local Time + 4])	15:37		15:34	
mg/m³ 00:00 Real-Time Concentration and Time	.012		0.009	
mg/m³ 00:00 Hourly Concentration and last Hour	.009		0.009	
FLOW: LMP Standard Flow	16.7		16.7	
WS: M/S Wind Speed	3.3		4.4	
WD: DEG Wind Direction	231		176	
AT: C Ambient Temperature	27.2		27.3	
FT: C Filter Temperature	31.6		31.9	
RHi: % Relative Humidity Internal	41%		36	
RHx: % Relative Humidity External	15%		20	
BV: V Battery Voltage (< 10.5 Change-Out)	13.0		13.4	
FLOW: SLMP Actual Flow	16.3		16.5	
Delta-Cal Flow SLMP (Acceptable Range 16.34 – 17.00)	—		—	
Delta-Cal Temp C	—		—	
Delta-Cal Pressure MM	—		—	
Data & Error Log Downloaded? (Yes/No)	NO		NO	
Tape Sample Collected? (Yes/No)	yes		yes	
New Tape Installed? (Yes/No)	yes		yes	
Annotated tape w/date & time? (Yes/No)	yes		yes	
Leak Check Performed? (Acceptable Range <1.5 lpm)	NO		NO	

Field Observations:

(Note any meteorological conditions and range operations that may affect air quality. Examples: recent range fires, disposal operations, dry & dusty roads, welding & cutting torch operations, regional volcanic activity, heavy-machinery operations, etc.)

Fire 03/29/06

Equipment Maintenance & Calibration:

(Examples: flow calibration, cleaning, battery change-out, etc.)

Additional Comments:

Sanitized KMFe to retrieve data

(Name & Signature of Field Technician)

STANDARD	MAKE & MODEL	SERIAL NO.	DATE CERTIFIED
Flow Meter	BGI Inc. Delta-Cal	396	15 Nov 2004
Temperature	BGI Inc. Delta-Cal	396	15 Nov 2004
Pressure	BGI Inc. Delta-Cal	396	15 Nov 2004

E-BAM
CALIBRATION/FLOW CHECK/AUDIT
FORMER VIEQUES NAVAL TRAINING RANGE

Calibration Date: 3.24.06	Time Started: 1330	Time Finished:
Field Operator: H. Blackwell	Auditor: J. Lee	
Station/Site #: OP.1 (#1)	Monitor S/N: E4351	Last Cal:

INSTRUMENT CHECKS

Leak Check: (≤1.5 LPM)

Pressure, Temperature and Flow Transfer Standard (name & model): BGI Inc, Delta-Cal

S/N: 396	Cert. Date: 15-Nov-2004
True Pressure:	E-BAM Display:
True Temperature:	E-BAM Display:
True Flow:	E-BAM Display:

CALIBRATIONS

Temperature Sensor Calibration

E-BAM Temp. Display:	Standard Temperature:	Diff. in Degrees:	Adjusted E-BAM Temp:

Temperature criteria ≤ ± 2.0 degrees

Pressure Sensor Calibration

E-BAM Press Display:	Standard Pressure:	Diff. In Pressure:	Adjusted E-BAM Press:

Pressure criteria ≤ ± 10 mm Hg

Flow Calibration

E-BAM Flow Display:	Standard Flow:	% Difference:	Adjusted E-BAM Flow:

Flow range criteria ≤ ± 2.0 %

Flow Verification/Audit

E-BAM Display:	Standard Reading:	% Difference:	Verifi. Criteria	Audit Criteria
16.5	16.48	0.1%	Flow ≤ ± 2.0 % (16.34 to 17.00)	Flow ≤ ± 4.0 % (16.00 to 17.34)

Comments:

COPY TO DATA MANAGER

Calibration Date: 3.24.06	Time Started: 1215	Time Finished:
Field Operator: H. Blackwell	Auditor: J. Lee	
Station/Site #: Boathouse (2)	Monitor S/N: E4353	Last Cal:

INSTRUMENT CHECKS

Leak Check: (≤1.5 LPM)	
Pressure, Temperature and Flow Transfer Standard (name & model): BGI Inc, Delta-Cal	
S/N: 396	Cert. Date: 15-Nov-2004
True Pressure:	E-BAM Display:
True Temperature:	E-BAM Display:
True Flow:	E-BAM Display:

CALIBRATIONS

Temperature Sensor Calibration

E-BAM Temp. Display:	Standard Temperature:	Diff. in Degrees:	Adjusted E-BAM Temp:

Temperature criteria ≤ ± 2.0 degrees

Pressure Sensor Calibration

E-BAM Press Display:	Standard Pressure:	Diff. In Pressure:	Adjusted E-BAM Press:

Pressure criteria ≤ ± 10 mm Hg

Flow Calibration

E-BAM Flow Display:	Standard Flow:	% Difference:	Adjusted E-BAM Flow:

Flow range criteria ≤ ± 2.0 %

Flow Verification/Audit

E-BAM Display:	Standard Reading:	% Difference:	Verifi. Criteria	Audit Criteria
16.4	16.55	-0.9%	Flow ≤ ± 2.0 % (16.34 to 17.00)	Flow ≤ ± 4.0 % (16.00 to 17.34)

Comments:

COPY TO DATA MANAGER

Calibration Date: 3.24.06	Time Started: 1400	Time Finished:
Field Operator: H. Blackwell	Auditor: J. Lee	
Station/Site #: OP.5 (#5)	Monitor S/N: E4354	Last Cal:

INSTRUMENT CHECKS

Leak Check: (≤1.5 LPM)	
Pressure, Temperature and Flow Transfer Standard (name & model): BGI Inc, Delta-Cal	
S/N: 396	Cert. Date: 15-Nov-2004
True Pressure:	E-BAM Display:
True Temperature:	E-BAM Display:
True Flow:	E-BAM Display:

CALIBRATIONS

Temperature Sensor Calibration

E-BAM Temp. Display:	Standard Temperature:	Diff. in Degrees:	Adjusted E-BAM Temp:

Temperature criteria ≤ ± 2.0 degrees

Pressure Sensor Calibration

E-BAM Press Display:	Standard Pressure:	Diff. In Pressure:	Adjusted E-BAM Press:

Pressure criteria ≤ ± 10 mm Hg

Flow Calibration

E-BAM Flow Display:	Standard Flow:	% Difference:	Adjusted E-BAM Flow:

Flow range criteria ≤ ± 2.0 %

Flow Verification/Audit

E-BAM Display:	Standard Reading:	% Difference:	Verifi. Criteria	Audit Criteria
16.5	16.61	-0.7%	Flow ≤ ± 2.0 % (16.34 to 17.00)	Flow ≤ ± 4.0 % (16.00 to 17.34)

Comments:

COPY TO DATA MANAGER