Final

Perchlorate Addendum to the Human Health and Ecological Screening Values and PAH Background Summary Report

Fort McClellan
Calhoun County, Alabama

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Task Orders CK05 and CK10
Contract No. DACA21-96-D-0018
Shaw Project Nos. 774645 and 796887

September 2004

Revision 1

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List of Acronyms

EPA	U.S. Environmental Protection Agency
FTMC	Fort McClellan
IT	IT Corporation
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
SAP	installation-wide sampling and analysis plan
Shaw	Shaw Environmental, Inc.
SSSL	site-specific screening level

1.0 Introduction

Perchlorate is a potential contaminant of concern at certain U.S. Department of Defense installations because of its use as a solid propellant in rockets and missiles. Although perchlorate contamination is typically found at manufacturing plants, the species may be present at military installations as a result of weapons and ordnance training. To determine whether perchlorate is a contaminant of concern at Fort McClellan (FTMC), a U.S. Army installation undergoing closure under the Base Realignment and Closure process, Shaw Environmental, Inc. (Shaw), formerly IT Corporation (IT), evaluated perchlorate analytical data from 622 environmental samples collected at various parcels across the FTMC Main Post. The perchlorate sample locations are shown on Figure 1.

In addition, this report provides documentation for the derivation of the perchlorate site-specific screening levels (SSSL) for FTMC and serves as an addendum to the *Final Human Health and Ecological Screening Values and PAH Background Summary Report* (IT, 2000a). The perchlorate SSSLs presented herein were established after the issuance of the FTMC screening values document.

2.0 Perchlorate SSSLs

Perchlorate human health SSSLs were calculated for all potential current and future land-use receptor scenarios and exposure pathways at FTMC. Receptor scenarios, potential exposure pathways, SSSL calculation equations, and receptor scenario variable values are presented in the *Final Human Health and Ecological Screening Values and PAH Background Summary Report* (IT, 2000a). Toxicological and chemical-specific values, SSSLs, and a toxicological profile for perchlorate are presented in Appendix A of this report. The perchlorate SSSLs are summarized by medium and receptor in Table 1.

3.0 Methodology

This section summarizes the field sampling and analysis activities conducted by Shaw as part of the perchlorate study at FTMC. Field sampling was conducted in accordance with the FTMC installation-wide sampling and analysis plan (SAP) (IT, 2000b) and the various site-specific field sampling plans.

3.1 Surface and Depositional Soil Sampling

Two hundred and fifty surface and depositional soil samples were analyzed for perchlorate. Surface and depositional soil samples were collected from the uppermost foot of soil with either a direct-push sampling system or a stainless-steel hand auger using the methodology specified in the SAP (IT, 2000b).

3.2 Subsurface Soil Sampling

Two hundred and four subsurface soil samples were analyzed for perchlorate. Subsurface soil samples were collected from soil borings at depths greater than 1 foot below ground surface in the unsaturated zone. The soil borings were advanced and soil samples collected using the direct-push sampling procedures specified in the SAP (IT, 2000b).

3.3 Groundwater Sampling

Groundwater samples for perchlorate analysis were collected from 82 monitoring wells installed by Shaw at various parcels at FTMC. Groundwater sampling was performed following procedures outlined in the SAP (IT, 2000b). Groundwater was sampled after purging a minimum of three well volumes and after field parameters (e.g., temperature, pH, dissolved oxygen, specific conductivity, oxidation-reduction potential, and turbidity) stabilized. Purging and sampling were performed with a submersible or peristaltic pump equipped with Teflon™ tubing. Field parameters were measured using a calibrated water quality meter.

3.4 Surface Water Sampling

Forty-three surface water samples were analyzed for perchlorate. Surface water samples were collected in accordance with the procedures specified in the SAP (IT, 2000b). The surface water samples were collected by dipping a stainless-steel pitcher in the water and pouring the water into the sample containers or by dipping the sample containers directly in the water. Surface water samples were collected after field parameters had been measured using a calibrated water quality meter.

3.5 Sediment Sampling

Forty-three sediment samples were analyzed for perchlorate. Sediment samples were collected with a stainless-steel spoon in accordance with the procedures specified in the SAP (IT, 2000b).

3.6 Analytical Program

Perchlorate analyses were performed by EMAX Laboratories, Inc. using U.S. Environmental Protection Agency (EPA) Method 314.0.

4.0 Summary of Analytical Results

This section summarizes the perchlorate analytical results of 622 environmental samples collected at FTMC. The analytical results were compared to the perchlorate SSSLs (Section 2.0). The SSSLs were developed by Shaw for human health risk evaluations as part of the investigations performed under the Base Realignment and Closure Environmental Restoration Program at FTMC.

4.1 Surface and Depositional Soil Analytical Results

Perchlorate analysis was performed on 250 surface and depositional soil samples collected at various parcels at FTMC, as summarized in Table 2. Perchlorate was detected at only three surface soil sample locations (HR-87Q-MW03, HR-142Q-GP01, and HR-89Q-MW05), as shown on Figure 2. The maximum detected perchlorate concentration (0.793 milligrams per kilogram [mg/kg]) in HR-89Q-MW05 was below the residential human health SSSL (7.04 mg/kg).

4.2 Subsurface Soil Analytical Results

Perchlorate analysis was performed on 204 subsurface soil samples collected at various parcels at FTMC, as summarized in Table 3. Perchlorate was not detected at concentrations above the laboratory reporting limit in any of the subsurface soil samples.

4.3 Groundwater Analytical Results

Perchlorate analysis was performed on 82 groundwater samples collected at various parcels at FTMC, as summarized in Table 4. Perchlorate was detected at only five sample locations (HR-116Q-MW03, HR-116Q-MW07, HR-117Q-MW04, HR-201Q-MW01, and HR-181-MW03). The analytical results were flagged with a "J" data qualifier, indicating that the compound was positively identified but the concentrations were estimated. Perchlorate concentrations (0.0026 milligrams per liter [mg/L] and 0.002 mg/L) exceeded the residential human health SSSL (0.0014 mg/L) in two of the four samples (HR-117Q-MW04 and HR-181-MW03). Figure 2 shows the spatial distribution of perchlorate detections in groundwater.

4.4 Surface Water Analytical Results

Perchlorate analysis was performed on 43 surface water samples collected at various parcels at FTMC, as summarized in Table 5. Perchlorate was detected at only one sample location (HR-116Q-SW/SD03), as shown on Figure 2. The analytical result was flagged with a "J" data

estimated. The perchlorate concentration (0.0027 mg/L) in the sample was below the recreational site user human health SSSL (0.0142 mg/L).

4.5 Sediment Analytical Results

Perchlorate analysis was performed on 43 sediment samples collected at various parcels at FTMC, as summarized in Table 6. Perchlorate was not detected in any of the sediment samples.

5.0 Summary and Conclusions

Table 7 summarizes the perchlorate data by environmental medium, including detection frequency, maximum detected concentration, and number of results above SSSLs. Perchlorate was detected in only 9 of 622, or 1.4 percent of the environmental samples collected at FTMC.

Of the nine detected perchlorate results, only two groundwater samples had concentrations (0.002 and 0.0026 mg/L) exceeding the residential SSSL (0.0014 mg/L). The two samples represent 0.3 percent of the total number of samples analyzed for perchlorate at FTMC. The perchlorate results appear to be random and sporadic in distribution rather than indicative of a discrete source (Figure 2). Based on the infrequency of detection and on the low levels detected, perchlorate does not appear to be a contaminant of concern at FTMC.

6.0 References

IT Corporation (IT), 2000a, ***Final Human Health and Ecological Screening Values and PAH Background Summary Report, Fort McClellan, Calhoun County, Alabama***, July.

IT Corporation (IT), 2000b, ***Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun, County Alabama***, March.

TABLES

Table 1

Summary of Perchlorate Human Health SSSLs
Fort McClellan, Calhoun County, Alabama

Media	Soil (mg/kg)					Groundwater (mg/L)		
Exposure Scenario	Res	GK	Rec	CW	HW	Res	GK	CW
Perchlorate SSSL	7.04E+00	9.20E+01	5.69E+02	4.60E+01	1.53E+03	1.41E-03	9.20E-03	9.20E-03

Media	Surface Water (mg/L)	Sediment (mg/kg)
Exposure Scenario	Rec	Rec
Perchlorate SSSL	1.42E-02	1.09E+03

CW - Construction worker.
GK - Groundskeeper.
HW - Highway worker.
mg/kg - Milligrams per kilogram.
mg/L - Milligrams per liter.
Rec - Recreational site user.
Res - Residential.
SSSL - Site-specific screening level.

Table 2

Surface and Depositional Soil Perchlorate Data Summary
Fort McClellan, Alabama

Sample			Perchlorate (mg/kg)			Result
Location	Number	Date	Result	Qual	SSSL	>SSSL
HR-142Q-GP01	YL0001	8-Feb-01	0.0319	J	7.04	No
HR-87Q-MW03	HL0007	5-Dec-00	0.0103	J	7.04	No
HR-89Q-MW05	QU0090	27-Jun-02	0.793		7.04	No
HR-114Q-GP01	JJ0008	11-Dec-00	ND		7.04	-
HR-114Q-GP02	JJ0010	11-Dec-00	ND		7.04	-
HR-114Q-GP03	JJ0012	11-Dec-00	ND		7.04	-
HR-114Q-GP04	JJ0014	1-Feb-01	ND		7.04	-
HR-114Q-MW01	JJ0001	11-Dec-00	ND		7.04	-
HR-114Q-MW02	JJ0003	11-Dec-00	ND		7.04	-
HR-114Q-MW03	JJ0005	11-Dec-00	ND		7.04	-
HR-115Q-MW01	JK0001	8-Dec-00	ND		7.04	-
HR-115Q-MW02	JK0003	7-Dec-00	ND		7.04	-
HR-115Q-MW03	JK0005	7-Dec-00	ND		7.04	-
HR-115Q-MW04	JK0009	8-Dec-00	ND		7.04	-
HR-115Q-MW05	JK0011	8-Dec-00	ND		7.04	-
HR-116Q-GP01	JL0031	7-Feb-01	ND		7.04	-
HR-116Q-GP02	JL0035	13-Dec-00	ND		7.04	-
HR-116Q-GP03	JL0037	9-Apr-01	ND		7.04	-
HR-116Q-GP04	JL0039	30-Jan-01	ND		7.04	-
HR-116Q-GP05	JL0041	2-Feb-01	ND		7.04	-
HR-116Q-GP06	JL0043	1-Feb-01	ND		7.04	-
HR-116Q-MW01	JL0001	30-Jan-01	ND		7.04	-
HR-116Q-MW02	JL0003	30-Jan-01	ND		7.04	-
HR-116Q-MW03	JL0005	13-Dec-00	ND		7.04	-
HR-116Q-MW04	JL0007	30-Jan-01	ND		7.04	-
HR-116Q-MW05	JL0009	1-Feb-01	ND		7.04	-
HR-116Q-MW06	JL0011	30-Jan-01	ND		7.04	-
HR-116Q-MW07	JL0013	13-Dec-00	ND		7.04	-
HR-116Q-MW08	JL0015	2-Apr-01	ND		7.04	-
HR-116Q-MW09	JL0017	2-Apr-01	ND		7.04	-
HR-116Q-MW10	JL0019	13-Dec-00	ND		7.04	-
HR-116Q-MW11	JL0021	1-Feb-01	ND		7.04	-
HR-116Q-MW12	JL0023	30-Jan-01	ND		7.04	-
HR-116Q-MW13	JL0025	30-Jan-01	ND		7.04	-
HR-116Q-MW14	JL0027	30-Jan-01	ND		7.04	-
HR-116Q-MW15	JL0029	14-Dec-00	ND		7.04	-
HR-117Q-GP01	JM0016	12-Dec-00	ND		7.04	-
HR-117Q-MW01	JM0001	31-Jan-01	ND		7.04	-
HR-117Q-MW02	JM0003	5-Feb-01	ND		7.04	-
HR-117Q-MW03	JM0005	31-Jan-01	ND		7.04	-
HR-117Q-MW04	JM0008	12-Dec-00	ND		7.04	-
HR-117Q-MW05	JM0010	31-Jan-01	ND		7.04	-
HR-117Q-MW06	JM0012	5-Feb-01	ND		7.04	-
HR-117Q-MW07	JM0014	31-Jan-01	ND		7.04	-
HR-117Q-MW08	JM0020	12-Dec-00	ND		7.04	-
HR-135Q-GP01	YR0005	4-Oct-00	ND		7.04	-
HR-135Q-GP02	YR0009	3-Oct-00	ND		7.04	-
HR-135Q-MW01	YR0001	3-Oct-00	ND		7.04	-
HR-135Q-MW02	YR0003	4-Oct-00	ND		7.04	-
HR-138Q-DEP01	YE0011	3-May-01	ND		7.04	-
HR-138Q-GP01	YE0001	31-Jan-01	ND		7.04	-
HR-138Q-GP02	YE0005	1-Feb-01	ND		7.04	-

Table 2

Surface and Depositional Soil Perchlorate Data Summary
Fort McClellan, Alabama

Sample			Perchlorate (mg/kg)			Result
Location	Number	Date	Result	Qual	SSSL	>SSSL
HR-138Q-GP03	YE0007	31-Jan-01	ND		7.04	-
HR-138Q-GP04	YE0009	31-Jan-01	ND		7.04	-
HR-139Q-GP01	YG0001	8-Feb-01	ND		7.04	-
HR-139Q-GP02	YG0003	7-Feb-01	ND		7.04	-
HR-140Q-GP01	YH0001	7-Feb-01	ND		7.04	-
HR-140Q-GP02	YH0003	8-Feb-01	ND		7.04	-
HR-141Q-DEP01	YJ0009	24-Apr-01	ND		7.04	-
HR-141Q-DEP02	YJ0010	3-May-01	ND		7.04	-
HR-141Q-GP01	YJ0001	7-Feb-01	ND		7.04	-
HR-141Q-GP02	YJ0003	11-Apr-01	ND		7.04	-
HR-141Q-GP03	YJ0005	9-Feb-01	ND		7.04	-
HR-141Q-GP04	YJ0007	8-Feb-01	ND		7.04	-
HR-142Q-DEP01	YL0005	24-Apr-01	ND		7.04	-
HR-142Q-DEP02	YL0006	24-Apr-01	ND		7.04	-
HR-142Q-GP02	YL0003	8-Feb-01	ND		7.04	-
HR-151Q-GP01	JP0003	13-Dec-00	ND		7.04	-
HR-151Q-GP02	JP0005	10-Apr-01	ND		7.04	-
HR-151Q-GP03	JP0008	10-Apr-01	ND		7.04	-
HR-151Q-GP04	JP0010	11-Dec-00	ND		7.04	-
HR-151Q-MW01	JP0001	14-Dec-00	ND		7.04	-
HR-181-MW01	RB0001	7-Feb-01	ND		7.04	-
HR-181-MW02	RB0005	6-Feb-01	ND		7.04	-
HR-181-MW03	RB0007	6-Feb-01	ND		7.04	-
HR-194-MW01	RC0001	6-Feb-01	ND		7.04	-
HR-194-MW02	RC0003	6-Feb-01	ND		7.04	-
HR-194-MW03	RC0005	6-Feb-01	ND		7.04	-
HR-200Q-GP01	JQ0001	28-Mar-01	ND		7.04	-
HR-200Q-GP02	JQ0003	28-Mar-01	ND		7.04	-
HR-201Q-DEP01	JR0006	28-Feb-01	ND		7.04	-
HR-201Q-MW01	JR0001	12-Dec-00	ND		7.04	-
HR-201Q-MW02	JR0003	12-Dec-00	ND		7.04	-
HR-221Q-DEP01	NB0008	18-Jul-01	ND		7.04	-
HR-221Q-DEP02	NB0009	18-Jul-01	ND		7.04	-
HR-221Q-GP01	NB0001	2-Apr-01	ND		7.04	-
HR-221Q-GP02	NB0003	2-Apr-01	ND		7.04	-
HR-221Q-GP03	NB0006	6-Apr-01	ND		7.04	-
HR-228Q-MW01	JS0001	5-Apr-01	ND		7.04	-
HR-228Q-MW02	JS0003	5-Apr-01	ND		7.04	-
HR-229Q-MW01	JT0001	6-Apr-01	ND		7.04	-
HR-231Q-MW01	JU0001	2-Apr-01	ND		7.04	-
HR-232Q-DEP01	EC0033	30-Mar-00	ND		7.04	-
HR-232Q-DEP02	EC0034	30-Mar-00	ND		7.04	-
HR-232Q-DEP03	EC0035	30-Mar-00	ND		7.04	-
HR-232Q-GP01	EC0001	28-Mar-00	ND		7.04	-
HR-232Q-GP02	EC0003	27-Mar-00	ND		7.04	-
HR-232Q-GP03	EC0005	27-Mar-00	ND		7.04	-
HR-232Q-GP04	EC0007	27-Mar-00	ND		7.04	-
HR-232Q-GP05	EC0011	27-Mar-00	ND		7.04	-
HR-232Q-GP06	EC0013	28-Mar-00	ND		7.04	-
HR-232Q-GP07	EC0015	28-Mar-00	ND		7.04	-
HR-232Q-GP08	EC0017	28-Mar-00	ND		7.04	-
HR-232Q-GP09	EC0019	28-Mar-00	ND		7.04	-

Table 2

Surface and Depositional Soil Perchlorate Data Summary
Fort McClellan, Alabama

Sample			Perchlorate (mg/kg)			Result
Location	Number	Date	Result	Qual	SSSL	>SSSL
HR-232Q-GP10	EC0021	28-Mar-00	ND		7.04	-
HR-232Q-GP11	EC0023	29-Mar-00	ND		7.04	-
HR-232Q-GP12	EC0025	29-Mar-00	ND		7.04	-
HR-232Q-GP13	EC0027	29-Mar-00	ND		7.04	-
HR-232Q-GP14	EC0031	29-Mar-00	ND		7.04	-
HR-232QX-DEP01	ECC0046	5-Mar-01	ND		7.04	-
HR-232QX-GP01	ECC0041	29-Jan-01	ND		7.04	-
HR-232QX-GP02	ECC0043	2-Feb-01	ND		7.04	-
HR-232QX-GP03	ECC0047	17-Apr-01	ND		7.04	-
HR-232QX-GP04	ECC0048	17-Apr-01	ND		7.04	-
HR-232QX-GP05	ECC0049	17-Apr-01	ND		7.04	-
HR-232QX-GP06	ECC0050	17-Apr-01	ND		7.04	-
HR-232QX-MW01	ECC0001	6-Feb-01	ND		7.04	-
HR-232QX-MW02	ECC0003	5-Feb-01	ND		7.04	-
HR-232QX-MW03	ECC0005	29-Jan-01	ND		7.04	-
HR-232QX-MW04	ECC0007	5-Feb-01	ND		7.04	-
HR-232QX-MW05	ECC0009	29-Jan-01	ND		7.04	-
HR-232QX-MW06	ECC0011	5-Apr-01	ND		7.04	-
HR-232QX-MW07	ECC0013	10-Apr-01	ND		7.04	-
HR-232QX-MW08	ECC0015	6-Feb-01	ND		7.04	-
HR-232QX-MW09	ECC0019	6-Feb-01	ND		7.04	-
HR-232QX-MW10	ECC0021	29-Jan-01	ND		7.04	-
HR-232QX-MW11	ECC0023	5-Feb-01	ND		7.04	-
HR-232QX-MW12	ECC0025	9-Apr-01	ND		7.04	-
HR-232QX-MW13	ECC0027	5-Apr-01	ND		7.04	-
HR-232QX-MW14	ECC0029	30-Mar-01	ND		7.04	-
HR-232QX-MW15	ECC0031	2-Feb-01	ND		7.04	-
HR-232QX-MW16	ECC0033	2-Feb-01	ND		7.04	-
HR-232QX-MW17	ECC0035	29-Jan-01	ND		7.04	-
HR-232QX-MW18	ECC0037	29-Jan-01	ND		7.04	-
HR-232QX-MW19	ECC0039	29-Jan-01	ND		7.04	-
HR-69Q-DEP01	HJJ0003	20-Aug-01	ND		7.04	-
HR-69Q-SS01	HJJ0001	15-Aug-01	ND		7.04	-
HR-70Q-SS01	HEE0001	16-Aug-01	ND		7.04	-
HR-70Q-SS02	HEE0002	16-Aug-01	ND		7.04	-
HR-71Q-SS01	HFF0001	16-Aug-01	ND		7.04	-
HR-73Q-GP01	JF0009	30-Mar-01	ND		7.04	-
HR-73Q-MW01	JF0001	30-Mar-01	ND		7.04	-
HR-73Q-MW02	JF0003	30-Mar-01	ND		7.04	-
HR-73Q-MW03	JF0005	5-Apr-01	ND		7.04	-
HR-73Q-MW04	JF0007	10-Apr-01	ND		7.04	-
HR-75Q-SS01	HGG0001	15-Aug-01	ND		7.04	-
HR-75Q-SS02	HGG0002	15-Aug-01	ND		7.04	-
HR-75Q-SS03	HGG0004	15-Aug-01	ND		7.04	-
HR-77Q-DEP01	HPP0003	25-Sep-01	ND		7.04	-
HR-77Q-SS01	HPP0001	16-Aug-01	ND		7.04	-
HR-78Q-SS01	HQQ0001	16-Aug-01	ND		7.04	-
HR-85Q-SS01	HSS0001	31-Oct-01	ND		7.04	-
HR-85Q-SS02	HSS0003	31-Oct-01	ND		7.04	-
HR-87Q-DEP01	HL0070	11-Jan-01	ND		7.04	-
HR-87Q-DEP02	HL0071	11-Jan-01	ND		7.04	-
HR-87Q-DEP03	HL0072	11-Jan-01	ND		7.04	-

Table 2

Surface and Depositional Soil Perchlorate Data Summary
Fort McClellan, Alabama

Sample			Perchlorate (mg/kg)			Result
Location	Number	Date	Result	Qual	SSSL	>SSSL
HR-87Q-DEP04	HL0075	11-Jan-01	ND		7.04	-
HR-87Q-DEP05	HL0076	17-Jan-01	ND		7.04	-
HR-87Q-DEP06	HL0077	17-Jan-01	ND		7.04	-
HR-87Q-DEP07	HL0078	17-Jan-01	ND		7.04	-
HR-87Q-GP01	HL0043	6-Dec-00	ND		7.04	-
HR-87Q-GP02	HL0045	4-Dec-00	ND		7.04	-
HR-87Q-GP03	HL0047	4-Dec-00	ND		7.04	-
HR-87Q-GP04	HL0049	4-Dec-00	ND		7.04	-
HR-87Q-GP05	HL0051	4-Dec-00	ND		7.04	-
HR-87Q-GP06	HL0054	4-Dec-00	ND		7.04	-
HR-87Q-GP07	HL0056	6-Dec-00	ND		7.04	-
HR-87Q-GP08	HL0058	5-Dec-00	ND		7.04	-
HR-87Q-GP09	HL0060	5-Dec-00	ND		7.04	-
HR-87Q-GP10	HL0064	4-Dec-00	ND		7.04	-
HR-87Q-MW01	HL0001	6-Dec-00	ND		7.04	-
HR-87Q-MW02	HL0003	6-Dec-00	ND		7.04	-
HR-87Q-MW04	HL0009	5-Dec-00	ND		7.04	-
HR-87Q-MW05	HL0011	9-Apr-01	ND		7.04	-
HR-87Q-MW09	HL0020	5-Dec-00	ND		7.04	-
HR-87Q-MW10	HL0026	5-Dec-00	ND		7.04	-
HR-87Q-MW11	HL0024	5-Dec-00	ND		7.04	-
HR-87Q-MW12	HL0022	7-Dec-00	ND		7.04	-
HR-87Q-MW13	HL0030	5-Dec-00	ND		7.04	-
HR-87Q-MW14	HL0032	6-Dec-00	ND		7.04	-
HR-87Q-MW15	HL0034	6-Dec-00	ND		7.04	-
HR-87Q-MW16	HL0036	6-Dec-00	ND		7.04	-
HR-87Q-MW17	HL0038	7-Dec-00	ND		7.04	-
HR-87Q-MW18	HL0041	7-Dec-00	ND		7.04	-
HR-87Q-MW19	HL0066	6-Dec-00	ND		7.04	-
HR-89Q-DEP01	QU0093	16-Jul-02	ND		7.04	-
HR-89Q-DEP02	QU0094	16-Jul-02	ND		7.04	-
HR-89Q-DEP03	QU0096	16-Jul-02	ND		7.04	-
HR-89Q-DEP04	QU0097	16-Jul-02	ND		7.04	-
HR-89Q-DEP05	QU0098	16-Jul-02	ND		7.04	-
HR-89Q-GP01	QU0001	24-Jun-02	ND		7.04	-
HR-89Q-GP02	QU0003	24-Jun-02	ND		7.04	-
HR-89Q-GP03	QU0006	21-Jun-02	ND		7.04	-
HR-89Q-GP04	QU0008	25-Jun-02	ND		7.04	-
HR-89Q-GP05	QU0010	27-Jun-02	ND		7.04	-
HR-89Q-GP06	QU0012	27-Jun-02	ND		7.04	-
HR-89Q-GP07	QU0015	27-Jun-02	ND		7.04	-
HR-89Q-GP08	QU0017	27-Jun-02	ND		7.04	-
HR-89Q-GP09	QU0019	27-Jun-02	ND		7.04	-
HR-89Q-GP10	QU0022	27-Jun-02	ND		7.04	-
HR-89Q-GP11	QU0024	11-Jul-02	ND		7.04	-
HR-89Q-GP12	QU0026	27-Jun-02	ND		7.04	-
HR-89Q-GP13	QU0029	27-Jun-02	ND		7.04	-
HR-89Q-GP14	QU0031	12-Jul-02	ND		7.04	-
HR-89Q-GP15	QU0033	12-Jul-02	ND		7.04	-
HR-89Q-GP16	QU0035	11-Jul-02	ND		7.04	-
HR-89Q-GP17	QU0037	12-Jul-02	ND		7.04	-
HR-89Q-GP18	QU0039	27-Jun-02	ND		7.04	-

Table 2

Surface and Depositional Soil Perchlorate Data Summary
Fort McClellan, Alabama

Sample			Perchlorate (mg/kg)			Result
Location	Number	Date	Result	Qual	SSSL	>SSSL
HR-89Q-GP19	QU0042	11-Jul-02	ND		7.04	-
HR-89Q-GP20	QU0044	10-Jul-02	ND		7.04	-
HR-89Q-GP21	QU0046	28-Jun-02	ND		7.04	-
HR-89Q-GP22	QU0048	10-Jul-02	ND		7.04	-
HR-89Q-GP23	QU0050	28-Jun-02	ND		7.04	-
HR-89Q-GP24	QU0052	27-Jun-02	ND		7.04	-
HR-89Q-GP25	QU0054	11-Jul-02	ND		7.04	-
HR-89Q-GP26	QU0056	28-Jun-02	ND		7.04	-
HR-89Q-GP27	QU0058	27-Jun-02	ND		7.04	-
HR-89Q-GP28	QU0060	11-Jul-02	ND		7.04	-
HR-89Q-GP29	QU0062	10-Jul-02	ND		7.04	-
HR-89Q-GP30	QU0064	10-Jul-02	ND		7.04	-
HR-89Q-GP31	QU0066	10-Jul-02	ND		7.04	-
HR-89Q-GP32	QU0068	21-Jun-02	ND		7.04	-
HR-89Q-GP33	QU0070	24-Jun-02	ND		7.04	-
HR-89Q-GP34	QU0072	27-Jun-02	ND		7.04	-
HR-89Q-GP35	QU0074	27-Jun-02	ND		7.04	-
HR-89Q-GP36	QU0077	28-Jun-02	ND		7.04	-
HR-89Q-GP37	QU0079	11-Jul-02	ND		7.04	-
HR-89Q-MW01	QU0081	25-Jun-02	ND		7.04	-
HR-89Q-MW02	QU0084	27-Jun-02	ND		7.04	-
HR-89Q-MW03	QU0086	27-Jun-02	ND		7.04	-
HR-89Q-MW04	QU0088	11-Jul-02	ND		7.04	-
HR-91Q-DEP01	JH0033	7-Mar-01	ND		7.04	-
HR-91Q-GP01	JH0021	28-Mar-01	ND		7.04	-
HR-91Q-GP02	JH0023	28-Mar-01	ND		7.04	-
HR-91Q-GP03	JH0027	9-Apr-01	ND		7.04	-
HR-91Q-GP04	JH0029	28-Mar-01	ND		7.04	-
HR-91Q-GP05	JH0031	29-Mar-01	ND		7.04	-
HR-91Q-MW01	JH0001	28-Mar-01	ND		7.04	-
HR-91Q-MW02	JH0003	2-Apr-01	ND		7.04	-
HR-91Q-MW03	JH0005	28-Mar-01	ND		7.04	-
HR-91Q-MW04	JH0007	28-Mar-01	ND		7.04	-
HR-91Q-MW05	JH0011	2-Apr-01	ND		7.04	-
HR-91Q-MW06	JH0013	2-Apr-01	ND		7.04	-
HR-91Q-MW07	JH0015	29-Mar-01	ND		7.04	-
HR-91Q-MW08	JH0017	29-Mar-01	ND		7.04	-
HR-91Q-MW09	JH0019	28-Mar-01	ND		7.04	-
SAR-RC-DEP02	HE1002	1-Apr-00	ND		7.04	-
SAR-RC-DEP08	HJ1004	1-Apr-00	ND		7.04	-
SAR-RC-DEP11	HJ1007	1-Apr-00	ND		7.04	-
SAR-RC-DEP12	HJ1008	1-Apr-00	ND		7.04	-
250 Samples			**3 Detections**		**1.2% of Total**	

J - Compound was positively identified; reported value is an estimated concentration.
mg/kg - Milligrams per kilogram.
ND - Not detected above reporting limit.
Qual - Data validation qualifier.
SSSL - Site-specific screening level.

Table 3

Subsurface Soil Perchlorate Data Summary
Fort McClellan, Alabama

Sample				Perchlorate (mg/kg)			
Location	Number	Date	Depth (ft bgs)	Result	Qual	SSSL	Result >SSSL
HR-114Q-GP01	JJ0009	11-Dec-00	4 - 5	ND		7.04	-
HR-114Q-GP02	JJ0011	11-Dec-00	3 - 4	ND		7.04	-
HR-114Q-GP03	JJ0013	11-Dec-00	5 - 6	ND		7.04	-
HR-114Q-GP04	JJ0015	1-Feb-01	4 - 6	ND		7.04	-
HR-114Q-MW01	JJ0002	11-Dec-00	5 - 6	ND		7.04	-
HR-114Q-MW02	JJ0004	11-Dec-00	3 - 4	ND		7.04	-
HR-114Q-MW03	JJ0006	11-Dec-00	6 - 8	ND		7.04	-
HR-115Q-MW01	JK0002	8-Dec-00	11 - 12	ND		7.04	-
HR-115Q-MW02	JK0004	7-Dec-00	8 - 9	ND		7.04	-
HR-115Q-MW03	JK0006	7-Dec-00	2 - 4	ND		7.04	-
HR-115Q-MW04	JK0010	8-Dec-00	5 - 6	ND		7.04	-
HR-115Q-MW05	JK0012	8-Dec-00	9 - 11	ND		7.04	-
HR-116Q-GP01	JL0034	7-Feb-01	6 - 7	ND		7.04	-
HR-116Q-GP02	JL0036	13-Dec-00	5 - 6	ND		7.04	-
HR-116Q-GP03	JL0038	9-Apr-01	3 - 4	ND		7.04	-
HR-116Q-GP04	JL0040	30-Jan-01	6 - 7	ND		7.04	-
HR-116Q-GP05	JL0042	2-Feb-01	11 - 12	ND		7.04	-
HR-116Q-GP06	JL0044	1-Feb-01	4 - 6	ND		7.04	-
HR-116Q-MW01	JL0002	30-Jan-01	11 - 12	ND		7.04	-
HR-116Q-MW02	JL0004	30-Jan-01	6 - 7	ND		7.04	-
HR-116Q-MW03	JL0006	13-Dec-00	4 - 6	ND		7.04	-
HR-116Q-MW04	JL0008	30-Jan-01	3 - 4	ND		7.04	-
HR-116Q-MW05	JL0010	1-Feb-01	1 - 2	ND		7.04	-
HR-116Q-MW06	JL0012	30-Jan-01	10 - 12	ND		7.04	-
HR-116Q-MW07	JL0014	13-Dec-00	4 - 5	ND		7.04	-
HR-116Q-MW08	JL0016	2-Apr-01	11 - 12	ND		7.04	-
HR-116Q-MW09	JL0018	2-Apr-01	5 - 6	ND		7.04	-
HR-116Q-MW10	JL0020	13-Dec-00	8 - 9	ND		7.04	-
HR-116Q-MW11	JL0022	1-Feb-01	7 - 8	ND		7.04	-
HR-116Q-MW12	JL0024	30-Jan-01	8 - 9	ND		7.04	-
HR-116Q-MW13	JL0026	30-Jan-01	5 - 6	ND		7.04	-
HR-116Q-MW14	JL0028	30-Jan-01	6 - 7	ND		7.04	-
HR-116Q-MW15	JL0030	14-Dec-00	5 - 6	ND		7.04	-
HR-117Q-GP01	JM0017	12-Dec-00	4 - 6	ND		7.04	-
HR-117Q-MW01	JM0002	31-Jan-01	8 - 9	ND		7.04	-
HR-117Q-MW02	JM0004	5-Feb-01	6 - 7	ND		7.04	-
HR-117Q-MW03	JM0006	31-Jan-01	4 - 6	ND		7.04	-
HR-117Q-MW04	JM0009	12-Dec-00	11 - 12	ND		7.04	-
HR-117Q-MW05	JM0011	31-Jan-01	7 - 8	ND		7.04	-
HR-117Q-MW06	JM0013	5-Feb-01	2 - 4	ND		7.04	-
HR-117Q-MW07	JM0015	31-Jan-01	11 - 12	ND		7.04	-
HR-117Q-MW08	JM0021	12-Dec-00	6 - 7	ND		7.04	-
HR-135Q-GP01	YR0008	4-Oct-00	3 - 5	ND		7.04	-
HR-135Q-GP02	YR0010	3-Oct-00	5 - 7	ND		7.04	-
HR-135Q-MW01	YR0002	3-Oct-00	10 - 12	ND		7.04	-
HR-135Q-MW02	YR0004	4-Oct-00	4 - 6	ND		7.04	-
HR-138Q-GP01	YE0002	31-Jan-01	9 - 11	ND		7.04	-
HR-138Q-GP02	YE0006	1-Feb-01	4 - 5	ND		7.04	-
HR-138Q-GP03	YE0008	31-Jan-01	7 - 8	ND		7.04	-
HR-138Q-GP04	YE0010	31-Jan-01	10 - 11	ND		7.04	-
HR-139Q-GP01	YG0002	8-Feb-01	10 - 11	ND		7.04	-
HR-139Q-GP02	YG0004	7-Feb-01	9 - 11	ND		7.04	-
HR-140Q-GP01	YH0002	7-Feb-01	7 - 8	ND		7.04	-
HR-140Q-GP02	YH0004	8-Feb-01	1 - 2	ND		7.04	-
HR-141Q-GP01	YJ0002	7-Feb-01	5 - 6	ND		7.04	-

Table 3

Subsurface Soil Perchlorate Data Summary
Fort McClellan, Alabama

Sample				Perchlorate (mg/kg)			
Location	Number	Date	Depth (ft bgs)	Result	Qual	SSSL	Result >SSSL
HR-141Q-GP02	YJ0004	11-Apr-01	3 - 4	ND		7.04	-
HR-141Q-GP03	YJ0006	9-Feb-01	2 - 4	ND		7.04	-
HR-141Q-GP04	YJ0008	8-Feb-01	2 - 4	ND		7.04	-
HR-142Q-GP01	YL0002	8-Feb-01	1 - 4	ND		7.04	-
HR-142Q-GP02	YL0004	8-Feb-01	9 - 10	ND		7.04	-
HR-151Q-GP01	JP0004	13-Dec-00	4 - 5	ND		7.04	-
HR-151Q-GP02	JP0006	10-Apr-01	1 - 2	ND		7.04	-
HR-151Q-GP03	JP0009	10-Apr-01	2 - 3	ND		7.04	-
HR-151Q-GP04	JP0011	11-Dec-00	1 - 3	ND		7.04	-
HR-151Q-MW01	JP0002	14-Dec-00	11 - 12	ND		7.04	-
HR-181-MW01	RB0002	7-Feb-01	4 - 6	ND		7.04	-
HR-181-MW02	RB0006	6-Feb-01	5 - 7	ND		7.04	-
HR-181-MW03	RB0008	6-Feb-01	6 - 8	ND		7.04	-
HR-194-MW01	RC0002	6-Feb-01	8 - 10	ND		7.04	-
HR-194-MW02	RC0004	6-Feb-01	8 - 10	ND		7.04	-
HR-194-MW03	RC0006	6-Feb-01	10 - 12	ND		7.04	-
HR-200Q-GP01	JQ0002	28-Mar-01	3 - 4	ND		7.04	-
HR-200Q-GP02	JQ0004	28-Mar-01	4 - 5	ND		7.04	-
HR-201Q-MW01	JR0002	12-Dec-00	4 - 5	ND		7.04	-
HR-201Q-MW02	JR0004	12-Dec-00	8 - 10	ND		7.04	-
HR-221Q-GP01	NB0002	2-Apr-01	3 - 4	ND		7.04	-
HR-221Q-GP02	NB0005	2-Apr-01	8 - 9	ND		7.04	-
HR-221Q-GP03	NB0007	6-Apr-01	5 - 6	ND		7.04	-
HR-228Q-MW01	JS0002	5-Apr-01	7 - 8	ND		7.04	-
HR-228Q-MW02	JS0004	5-Apr-01	5 - 7	ND		7.04	-
HR-229Q-MW01	JT0002	6-Apr-01	5 - 6	ND		7.04	-
HR-231Q-MW01	JU0003	2-Apr-01	5 - 6	ND		7.04	-
HR-232Q-GP01	EC0002	28-Mar-00	4 - 8	ND		7.04	-
HR-232Q-GP02	EC0004	27-Mar-00	8 - 12	ND		7.04	-
HR-232Q-GP03	EC0006	27-Mar-00	2 - 4	ND		7.04	-
HR-232Q-GP04	EC0010	27-Mar-00	8 - 12	ND		7.04	-
HR-232Q-GP05	EC0012	27-Mar-00	4 - 8	ND		7.04	-
HR-232Q-GP06	EC0014	28-Mar-00	8 - 12	ND		7.04	-
HR-232Q-GP07	EC0016	28-Mar-00	8 - 12	ND		7.04	-
HR-232Q-GP08	EC0018	28-Mar-00	4 - 7	ND		7.04	-
HR-232Q-GP09	EC0020	28-Mar-00	8 - 12	ND		7.04	-
HR-232Q-GP10	EC0022	28-Mar-00	8 - 12	ND		7.04	-
HR-232Q-GP11	EC0024	29-Mar-00	8 - 12	ND		7.04	-
HR-232Q-GP12	EC0026	29-Mar-00	8 - 12	ND		7.04	-
HR-232Q-GP13	EC0028	29-Mar-00	8 - 12	ND		7.04	-
HR-232Q-GP14	EC0032	29-Mar-00	8 - 12	ND		7.04	-
HR-232QX-GP01	ECC0042	29-Jan-01	9 - 10	ND		7.04	-
HR-232QX-GP02	ECC0044	2-Feb-01	9 - 12	ND		7.04	-
HR-232QX-MW01	ECC0002	6-Feb-01	7 - 8	ND		7.04	-
HR-232QX-MW02	ECC0004	5-Feb-01	3 - 4	ND		7.04	-
HR-232QX-MW03	ECC0006	29-Jan-01	11 - 12	ND		7.04	-
HR-232QX-MW04	ECC0008	5-Feb-01	11 - 12	ND		7.04	-
HR-232QX-MW05	ECC0010	29-Jan-01	10 - 11	ND		7.04	-
HR-232QX-MW06	ECC0012	5-Apr-01	8 - 9	ND		7.04	-
HR-232QX-MW07	ECC0014	10-Apr-01	6 - 7	ND		7.04	-
HR-232QX-MW08	ECC0018	6-Feb-01	9 - 10	ND		7.04	-
HR-232QX-MW09	ECC0020	6-Feb-01	11 - 12	ND		7.04	-
HR-232QX-MW10	ECC0022	29-Jan-01	5 - 6	ND		7.04	-
HR-232QX-MW11	ECC0024	5-Feb-01	7 - 8	ND		7.04	-
HR-232QX-MW12	ECC0026	9-Apr-01	11 - 12	ND		7.04	-

Table 3

Subsurface Soil Perchlorate Data Summary
Fort McClellan, Alabama

Sample				Perchlorate (mg/kg)			
Location	Number	Date	Depth (ft bgs)	Result	Qual	SSSL	Result >SSSL
HR-232QX-MW13	ECC0028	5-Apr-01	7 - 8	ND		7.04	-
HR-232QX-MW14	ECC0030	30-Mar-01	4 - 6	ND		7.04	-
HR-232QX-MW15	ECC0032	2-Feb-01	8 - 12	ND		7.04	-
HR-232QX-MW16	ECC0034	2-Feb-01	10 - 12	ND		7.04	-
HR-232QX-MW17	ECC0036	29-Jan-01	11 - 12	ND		7.04	-
HR-232QX-MW18	ECC0038	29-Jan-01	7 - 8	ND		7.04	-
HR-232QX-MW19	ECC0040	29-Jan-01	7 - 8	ND		7.04	-
HR-73Q-GP01	JF0010	30-Mar-01	11 - 12	ND		7.04	-
HR-73Q-MW01	JF0002	30-Mar-01	5 - 6	ND		7.04	-
HR-73Q-MW02	JF0004	30-Mar-01	5 - 6	ND		7.04	-
HR-73Q-MW03	JF0006	5-Apr-01	4 - 5	ND		7.04	-
HR-73Q-MW04	JF0008	10-Apr-01	7 - 8	ND		7.04	-
HR-87Q-GP01	HL0044	6-Dec-00	9 - 10	ND		7.04	-
HR-87Q-GP02	HL0046	4-Dec-00	9 - 11	ND		7.04	-
HR-87Q-GP03	HL0048	4-Dec-00	7 - 9	ND		7.04	-
HR-87Q-GP04	HL0050	4-Dec-00	10 - 12	ND		7.04	-
HR-87Q-GP05	HL0053	4-Dec-00	9 - 11	ND		7.04	-
HR-87Q-GP06	HL0055	4-Dec-00	10 - 12	ND		7.04	-
HR-87Q-GP07	HL0057	6-Dec-00	5 - 6	ND		7.04	-
HR-87Q-GP08	HL0059	5-Dec-00	5 - 6	ND		7.04	-
HR-87Q-GP09	HL0063	5-Dec-00	10 - 12	ND		7.04	-
HR-87Q-GP10	HL0065	4-Dec-00	4 - 6	ND		7.04	-
HR-87Q-MW01	HL0002	6-Dec-00	6 - 7	ND		7.04	-
HR-87Q-MW02	HL0006	6-Dec-00	11 - 12	ND		7.04	-
HR-87Q-MW03	HL0008	5-Dec-00	5 - 6	ND		7.04	-
HR-87Q-MW04	HL0010	5-Dec-00	3 - 4	ND		7.04	-
HR-87Q-MW05	HL0012	9-Apr-01	9 - 10	ND		7.04	-
HR-87Q-MW09	HL0021	5-Dec-00	4 - 6	ND		7.04	-
HR-87Q-MW10	HL0029	5-Dec-00	4 - 6	ND		7.04	-
HR-87Q-MW11	HL0025	5-Dec-00	4 - 4	ND		7.04	-
HR-87Q-MW12	HL0023	7-Dec-00	2 - 4	ND		7.04	-
HR-87Q-MW13	HL0031	5-Dec-00	5 - 6	ND		7.04	-
HR-87Q-MW14	HL0033	6-Dec-00	11 - 12	ND		7.04	-
HR-87Q-MW15	HL0035	6-Dec-00	11 - 12	ND		7.04	-
HR-87Q-MW16	HL0037	7-Dec-00	4 - 5	ND		7.04	-
HR-87Q-MW17	HL0040	7-Dec-00	6 - 7	ND		7.04	-
HR-87Q-MW18	HL0042	7-Dec-00	1 - 31	ND		7.04	-
HR-87Q-MW19	HL0067	6-Dec-00	8 - 10	ND		7.04	-
HR-89Q-GP01	QU0002	24-Jun-02	1 - 2	ND		7.04	-
HR-89Q-GP02	QU0005	24-Jun-02	1 - 2	ND		7.04	-
HR-89Q-GP03	QU0007	21-Jun-02	3 - 4	ND		7.04	-
HR-89Q-GP04	QU0009	25-Jun-02	2 - 3	ND		7.04	-
HR-89Q-GP05	QU0011	27-Jun-02	2 - 3	ND		7.04	-
HR-89Q-GP06	QU0014	27-Jun-02	2 - 3	ND		7.04	-
HR-89Q-GP07	QU0016	27-Jun-02	3 - 4	ND		7.04	-
HR-89Q-GP08	QU0018	27-Jun-02	1 - 2	ND		7.04	-
HR-89Q-GP09	QU0021	27-Jun-02	1 - 2	ND		7.04	-
HR-89Q-GP10	QU0023	27-Jun-02	3 - 4	ND		7.04	-
HR-89Q-GP11	QU0025	11-Jul-02	1.5 - 2.5	ND		7.04	-
HR-89Q-GP12	QU0028	27-Jun-02	3 - 4	ND		7.04	-
HR-89Q-GP13	QU0030	28-Jun-02	2 - 3	ND		7.04	-
HR-89Q-GP14	QU0032	12-Jul-02	3 - 4	ND		7.04	-
HR-89Q-GP15	QU0034	12-Jul-02	2 - 3	ND		7.04	-
HR-89Q-GP16	QU0036	11-Jul-02	1 - 2	ND		7.04	-
HR-89Q-GP17	QU0038	12-Jul-02	2 - 3	ND		7.04	-

Table 3

Subsurface Soil Perchlorate Data Summary
Fort McClellan, Alabama

Sample				Perchlorate (mg/kg)			
Location	Number	Date	Depth (ft bgs)	Result	Qual	SSSL	Result >SSSL
HR-89Q-GP18	QU0041	27-Jun-02	3 - 4	ND		7.04	-
HR-89Q-GP19	QU0043	11-Jul-02	2 - 3	ND		7.04	-
HR-89Q-GP20	QU0045	10-Jul-02	1.5 - 2.5	ND		7.04	-
HR-89Q-GP21	QU0047	28-Jun-02	3 - 4	ND		7.04	-
HR-89Q-GP22	QU0049	10-Jul-02	1 - 2	ND		7.04	-
HR-89Q-GP23	QU0051	28-Jun-02	3 - 4	ND		7.04	-
HR-89Q-GP24	QU0053	27-Jun-02	3 - 4	ND		7.04	-
HR-89Q-GP25	QU0055	11-Jul-02	2 - 3	ND		7.04	-
HR-89Q-GP26	QU0057	28-Jun-02	2 - 3	ND		7.04	-
HR-89Q-GP27	QU0059	27-Jun-02	3 - 4	ND		7.04	-
HR-89Q-GP28	QU0061	11-Jul-02	2.5 - 3.5	ND		7.04	-
HR-89Q-GP29	QU0063	10-Jul-02	1 - 2	ND		7.04	-
HR-89Q-GP30	QU0065	10-Jul-02	1.5 - 2.5	ND		7.04	-
HR-89Q-GP31	QU0067	10-Jul-02	3 - 4	ND		7.04	-
HR-89Q-GP32	QU0069	21-Jun-02	1 - 2	ND		7.04	-
HR-89Q-GP33	QU0071	24-Jun-02	1 - 2	ND		7.04	-
HR-89Q-GP34	QU0073	27-Jun-02	1.5 - 2.5	ND		7.04	-
HR-89Q-GP35	QU0075	27-Jun-02	1.5 - 2.5	ND		7.04	-
HR-89Q-GP36	QU0078	28-Jun-02	3 - 4	ND		7.04	-
HR-89Q-GP37	QU0080	11-Jul-02	3 - 4	ND		7.04	-
HR-89Q-MW01	QU0083	25-Jun-02	3 - 4	ND		7.04	-
HR-89Q-MW02	QU0085	27-Jun-02	3 - 4	ND		7.04	-
HR-89Q-MW03	QU0087	27-Jun-02	2 - 3	ND		7.04	-
HR-89Q-MW04	QU0089	11-Jul-02	2 - 3	ND		7.04	-
HR-89Q-MW05	QU0092	27-Jun-02	3 - 4	ND		7.04	-
HR-91Q-GP01	JH0022	28-Mar-01	4 - 5	ND		7.04	-
HR-91Q-GP02	JH0024	28-Mar-01	2 - 3	ND		7.04	-
HR-91Q-GP03	JH0028	9-Apr-01	11 - 12	ND		7.04	-
HR-91Q-GP04	JH0030	28-Mar-01	4 - 5	ND		7.04	-
HR-91Q-GP05	JH0032	29-Mar-01	11 - 12	ND		7.04	-
HR-91Q-MW01	JH0002	28-Mar-01	1 - 4	ND		7.04	-
HR-91Q-MW02	JH0004	2-Apr-01	5 - 6	ND		7.04	-
HR-91Q-MW03	JH0006	28-Mar-01	4 - 5	ND		7.04	-
HR-91Q-MW04	JH0008	28-Mar-01	1 - 2	ND		7.04	-
HR-91Q-MW05	JH0012	2-Apr-01	3 - 4	ND		7.04	-
HR-91Q-MW06	JH0014	2-Apr-01	5 - 6	ND		7.04	-
HR-91Q-MW07	JH0016	29-Mar-01	7 - 8	ND		7.04	-
HR-91Q-MW08	JH0018	29-Mar-01	8 - 10	ND		7.04	-
HR-91Q-MW09	JH0020	28-Mar-01	4 - 6	ND		7.04	-
		204 Samples		0 Detections		0% of Total	

ft bgs - Feet below ground surface.
J - Compound was positively identified; reported value is an estimated concentration.
mg/kg - Milligrams per kilogram.
ND - Not detected above reporting limit.
Qual - Data validation qualifier.
SSSL - Site-specific screening level.

Table 4

Groundwater Perchlorate Data Summary
Fort McClellan, Alabama

(Page 1 of 2)

Sample			Perchlorate (mg/L)			Result
Location	Number	Date	Result	Qual	SSSL	>SSSL
HR-116Q-MW03	JL3003	15-May-01	0.00122	J	0.00141	No
HR-116Q-MW07	JL3008	17-May-01	0.00133	J	0.00141	No
HR-117Q-MW04	JM3004	2-May-01	0.00255	J	0.00141	Yes
HR-181-MW03	RB3003	26-Apr-01	0.00202	J	0.00141	Yes
HR-201Q-MW01	JR3001	25-Apr-01	0.00127	J	0.00141	No
HR-114Q-MW01	JJ3001	17-May-01	ND		0.00141	-
HR-114Q-MW02	JJ3002	9-May-01	ND		0.00141	-
HR-114Q-MW03	JJ3003	7-May-01	ND		0.00141	-
HR-115Q-MW01	JK3001	16-Apr-01	ND		0.00141	-
HR-115Q-MW02	JK3002	12-Apr-01	ND		0.00141	-
HR-115Q-MW03	JK3003	11-Apr-01	ND		0.00141	-
HR-115Q-MW04	JK3005	12-Apr-01	ND		0.00141	-
HR-115Q-MW05	JK3006	10-Apr-01	ND		0.00141	-
HR-116Q-MW02	JL3002	16-May-01	ND		0.00141	-
HR-116Q-MW05	JL3005	26-Apr-01	ND		0.00141	-
HR-116Q-MW06	JL3007	17-May-01	ND		0.00141	-
HR-116Q-MW08	JL3009	30-May-01	ND		0.00141	-
HR-117Q-MW01	JM3001	15-May-01	ND		0.00141	-
HR-117Q-MW02	JM3002	30-May-01	ND		0.00141	-
HR-117Q-MW03	JM3003	6-Jun-01	ND		0.00141	-
HR-117Q-MW05	JM3005	15-May-01	ND		0.00141	-
HR-117Q-MW06	JM3006	27-Jun-01	ND		0.00141	-
HR-117Q-MW07	JM3007	11-May-01	ND		0.00141	-
HR-117Q-MW08	JM3008	7-May-01	ND		0.00141	-
HR-135Q-MW01	YR3001	31-Oct-00	ND		0.00141	-
HR-135Q-MW02	YR3002	1-Nov-00	ND		0.00141	-
HR-151Q-MW01	JP3001	23-Apr-01	ND		0.00141	-
HR-181-MW01	RB3001	25-Apr-01	ND		0.00141	-
HR-181-MW02	RB3002	27-Apr-01	ND		0.00141	-
HR-201Q-MW02	JR3002	24-Apr-01	ND		0.00141	-
HR-228Q-MW02	JS3002	14-May-01	ND		0.00141	-
HR-232QX-MW01	ECC3001	27-Apr-01	ND		0.00141	-
HR-232QX-MW02	ECC3002	10-May-01	ND		0.00141	-
HR-232QX-MW03	ECC3003	17-Apr-01	ND		0.00141	-
HR-232QX-MW04	ECC3004	17-Apr-01	ND		0.00141	-
HR-232QX-MW05	ECC3005	1-May-01	ND		0.00141	-
HR-232QX-MW06	ECC3006	18-Apr-01	ND		0.00141	-
HR-232QX-MW07	ECC3007	24-Apr-01	ND		0.00141	-
HR-232QX-MW08	ECC3008	1-May-01	ND		0.00141	-
HR-232QX-MW09	ECC3009	21-May-01	ND		0.00141	-
HR-232QX-MW10	ECC3010	25-Apr-01	ND		0.00141	-
HR-232QX-MW11	ECC3011	4-Jun-01	ND		0.00141	-
HR-232QX-MW14	ECC3014	24-May-01	ND		0.00141	-
HR-232QX-MW15	ECC3015	6-Jun-01	ND		0.00141	-
HR-232QX-MW16	ECC3016	1-May-01	ND		0.00141	-
HR-232QX-MW17	ECC3017	16-Apr-01	ND		0.00141	-
HR-232QX-MW18	ECC3018	16-Apr-01	ND		0.00141	-
HR-232QX-MW19	ECC3019	26-Apr-01	ND		0.00141	-

Table 4

Groundwater Perchlorate Data Summary
Fort McClellan, Alabama

Sample			Perchlorate (mg/L)			Result
Location	Number	Date	Result	Qual	SSSL	>SSSL
HR-69Q-MW01	HJJ3001	6-Nov-01	ND		0.00141	-
HR-69Q-MW02	HJJ3002	14-Nov-01	ND		0.00141	-
HR-70Q-MW01	HEE3001	6-Nov-01	ND		0.00141	-
HR-71Q-MW01	HFF3001	5-Nov-01	ND		0.00141	-
HR-73Q-MW02	JF3002	10-May-01	ND		0.00141	-
HR-73Q-MW03	JF3005	18-Apr-01	ND		0.00141	-
HR-75Q-MW01	HGG3001	8-Oct-01	ND		0.00141	-
HR-75Q-MW04	HGG3005	11-Oct-01	ND		0.00141	-
HR-77Q-MW01	HPP3001	7-Nov-01	ND		0.00141	-
HR-77Q-MW02	HPP3002	13-Nov-01	ND		0.00141	-
HR-77Q-MW03	HPP3004	5-Nov-01	ND		0.00141	-
HR-77Q-MW04	HPP3005	6-Nov-01	ND		0.00141	-
HR-78Q-MW01	HQQ3001	7-Nov-01	ND		0.00141	-
HR-78Q-MW02	HQQ3002	10-Nov-01	ND		0.00141	-
HR-78Q-MW03	HQQ3004	8-Nov-01	ND		0.00141	-
HR-85Q-MW01	HSS3001	8-Nov-01	ND		0.00141	-
HR-85Q-MW02	HSS3002	1-Nov-01	ND		0.00141	-
HR-85Q-MW03	HSS3004	6-Nov-01	ND		0.00141	-
HR-85Q-MW05	HSS3006	2-Nov-01	ND		0.00141	-
HR-87Q-MW05	HL3006	1-Jun-01	ND		0.00141	-
HR-87Q-MW12	HL3013	22-May-01	ND		0.00141	-
HR-87Q-MW14	HL3017	10-May-01	ND		0.00141	-
HR-87Q-MW15	HL3018	18-May-01	ND		0.00141	-
HR-89Q-MW02	QU3002	17-Jul-02	ND		0.00141	-
HR-89Q-MW03	QU3004	15-Jul-02	ND		0.00141	-
HR-89Q-MW04	QU3005	16-Jul-02	ND		0.00141	-
HR-89Q-MW05	QU3006	23-Jul-02	ND		0.00141	-
HR-91Q-MW01	JH3001	22-May-01	ND		0.00141	-
HR-91Q-MW03	JH3003	27-Jun-01	ND		0.00141	-
HR-91Q-MW04	JH3004	28-Jun-01	ND		0.00141	-
HR-91Q-MW06	JH3006	16-May-01	ND		0.00141	-
HR-91Q-MW07	JH3007	23-May-01	ND		0.00141	-
HR-91Q-MW08	JH3008	15-May-01	ND		0.00141	-
HR-91Q-MW09	JH3009	22-May-01	ND		0.00141	-
82 Samples			**5 Detections**		**6.1% of Total**	

J - Compound was positively identified; reported value is an estimated concentration.
mg/L - Milligrams per liter.
ND - Not detected above reporting limit.
Qual - Data validation qualifier.
SSSL - Site-specific screening level.

Table 5

Surface Water Perchlorate Data Summary
Fort McClellan, Alabama

Sample			Perchlorate (mg/L)			Result
Location	Number	Date	Result	Qual	SSSL	>SSSL
HR-116Q-SW/SD03	JL2003	27-Feb-01	0.00266	J	0.0142	No
HR-114Q-SW/SD01	JJ2001	28-Feb-01	ND		0.0142	-
HR-115Q-SW/SD01	JK2001	28-Feb-01	ND		0.0142	-
HR-115Q-SW/SD02	JK2002	28-Feb-01	ND		0.0142	-
HR-116Q-SW/SD01	JL2001	27-Feb-01	ND		0.0142	-
HR-116Q-SW/SD02	JL2002	27-Feb-01	ND		0.0142	-
HR-116Q-SW/SD04	JL2004	27-Feb-01	ND		0.0142	-
HR-117Q-SW/SD01	JM2001	28-Feb-01	ND		0.0142	-
HR-117Q-SW/SD02	JM2002	28-Feb-01	ND		0.0142	-
HR-138Q-SW/SD02	YE2002	3-May-01	ND		0.0142	-
HR-138Q-SW/SD03	YE2003	2-May-01	ND		0.0142	-
HR-138Q-SW/SD04	YE2004	25-Apr-01	ND		0.0142	-
HR-138Q-SW/SD05	YE2005	24-Apr-01	ND		0.0142	-
HR-139Q-SW/SD01	YG2001	25-Apr-01	ND		0.0142	-
HR-140Q-SW/SD01	YH2001	25-Apr-01	ND		0.0142	-
HR-141Q-SW/SD02	YJ2002	3-May-01	ND		0.0142	-
HR-151Q-SW/SD01	JP2001	28-Feb-01	ND		0.0142	-
HR-232Q-SW/SD03	EC2005	30-Mar-00	ND		0.0142	-
HR-232Q-SW/SD05	EC2007	30-Mar-00	ND		0.0142	-
HR-232QX-SW/SD01	ECC2001	1-Mar-01	ND		0.0142	-
HR-232QX-SW/SD02	ECC2002	1-Mar-01	ND		0.0142	-
HR-232QX-SW/SD03	ECC2003	1-Mar-01	ND		0.0142	-
HR-232QX-SW/SD04	ECC2004	1-Mar-01	ND		0.0142	-
HR-232QX-SW/SD05	ECC2005	1-Mar-01	ND		0.0142	-
HR-232QX-SW/SD06	ECC2006	6-Mar-01	ND		0.0142	-
HR-232QX-SW/SD08	ECC2008	6-Mar-01	ND		0.0142	-
HR-232QX-SW/SD09	ECC2011	6-Mar-01	ND		0.0142	-
HR-73Q-SW/SD01	JF2001	6-Mar-01	ND		0.0142	-
HR-78Q-SW/SD01	HQQ2001	26-Sep-01	ND		0.0142	-
HR-85Q-SW/SD01	HSS2001	25-Sep-01	ND		0.0142	-
HR-85Q-SW/SD02	HSS2002	30-Aug-01	ND		0.0142	-
HR-85Q-SW/SD03	HSS2003	5-Aug-02	ND		0.0142	-
HR-85Q-SW/SD04	HSS2004	5-Aug-02	ND		0.0142	-
HR-87Q-SW/SD06	HL2006	17-Jan-01	ND		0.0142	-
SAR-RC-SW/SD01	HE2001	1-Apr-00	ND		0.0142	-
SAR-RC-SW/SD03	HE2003	1-Apr-00	ND		0.0142	-
SAR-RC-SW/SD04	HF2001	1-Apr-00	ND		0.0142	-
SAR-RC-SW/SD05	HJ2001	1-Apr-00	ND		0.0142	-
SAR-RC-SW/SD06	HJ2002	1-Apr-00	ND		0.0142	-
SAR-RC-SW/SD07	HJ2003	1-Apr-00	ND		0.0142	-
SAR-RC-SW/SD09	HJ2005	1-Apr-00	ND		0.0142	-
SAR-RC-SW/SD10	HJ2006	7-Apr-00	ND		0.0142	-
SAR-RC-SW/SD13	HJ2009	1-Apr-00	ND		0.0142	-
	43 Samples		**1 Detection**		**2.3% of Total**	

J - Compound was positively identified; reported value is an estimated concentration.
mg/L - Milligrams per liter.
ND - Not detected above reporting limit.
Qual - Data validation qualifier.
SSSL - Site-specific screening level.

Table 6

Sediment Perchlorate Data Summary
Fort McClellan, Alabama

Sample			Perchlorate (mg/kg)			Result
Location	Number	Date	Result	Qual	SSSL	>SSSL
HR-114Q-SW/SD01	JJ1001	28-Feb-01	ND		1090	-
HR-115Q-SW/SD01	JK1001	28-Feb-01	ND		1090	-
HR-115Q-SW/SD02	JK1002	28-Feb-01	ND		1090	-
HR-116Q-SW/SD01	JL1001	27-Feb-01	ND		1090	-
HR-116Q-SW/SD02	JL1002	27-Feb-01	ND		1090	-
HR-116Q-SW/SD03	JL1003	27-Feb-01	ND		1090	-
HR-116Q-SW/SD04	JL1004	27-Feb-01	ND		1090	-
HR-117Q-SW/SD01	JM1001	28-Feb-01	ND		1090	-
HR-117Q-SW/SD02	JM1002	28-Feb-01	ND		1090	-
HR-138Q-SW/SD02	YE1003	3-May-01	ND		1090	-
HR-138Q-SW/SD03	YE1004	2-May-01	ND		1090	-
HR-138Q-SW/SD04	YE1005	25-Apr-01	ND		1090	-
HR-138Q-SW/SD05	YE1006	24-Apr-01	ND		1090	-
HR-139Q-SW/SD01	YG1001	25-Apr-01	ND		1090	-
HR-140Q-SW/SD01	YH1001	25-Apr-01	ND		1090	-
HR-141Q-SW/SD02	YJ1002	3-May-01	ND		1090	-
HR-151Q-SW/SD01	JP1001	28-Feb-01	ND		1090	-
HR-232Q-SW/SD03	EC1004	30-Mar-00	ND		1090	-
HR-232Q-SW/SD05	EC1006	30-Mar-00	ND		1090	-
HR-232QX-SW/SD01	ECC1001	1-Mar-01	ND		1090	-
HR-232QX-SW/SD02	ECC1002	1-Mar-01	ND		1090	-
HR-232QX-SW/SD03	ECC1003	1-Mar-01	ND		1090	-
HR-232QX-SW/SD04	ECC1004	1-Mar-01	ND		1090	-
HR-232QX-SW/SD05	ECC1005	1-Mar-01	ND		1090	-
HR-232QX-SW/SD06	ECC1006	6-Mar-01	ND		1090	-
HR-232QX-SW/SD08	ECC1008	6-Mar-01	ND		1090	-
HR-232QX-SW/SD09	ECC1009	6-Mar-01	ND		1090	-
HR-73Q-SW/SD01	JF1001	6-Mar-01	ND		1090	-
HR-78Q-SW/SD01	HQQ1001	26-Sep-01	ND		1090	-
HR-85Q-SW/SD01	HSS1001	25-Sep-01	ND		1090	-
HR-85Q-SW/SD02	HSS1002	30-Aug-01	ND		1090	-
HR-85Q-SW/SD03	HSS1003	5-Aug-02	ND		1090	-
HR-85Q-SW/SD04	HSS1004	5-Aug-02	ND		1090	-
HR-87Q-SW/SD06	HL1006	17-Jan-01	ND		1090	-
SAR-RC-SW/SD01	HE1001	1-Apr-00	ND		1090	-
SAR-RC-SW/SD03	HE1003	1-Apr-00	ND		1090	-
SAR-RC-SW/SD04	HF1001	1-Apr-00	ND		1090	-
SAR-RC-SW/SD05	HJ1001	1-Apr-00	ND		1090	-
SAR-RC-SW/SD06	HJ1002	1-Apr-00	ND		1090	-
SAR-RC-SW/SD07	HJ1003	1-Apr-00	ND		1090	-
SAR-RC-SW/SD09	HJ1005	1-Apr-00	ND		1090	-
SAR-RC-SW/SD10	HJ1006	1-Apr-00	ND		1090	-
SAR-RC-SW/SD13	HJ1009	1-Apr-00	ND		1090	-
	43 Samples		0 Detections		0% of Total	

mg/kg - Milligrams per kilogram.
ND - Not detected above reporting limit.
Qual - Data validation qualifier.
SSSL - Site-specific screening level.

Table 7

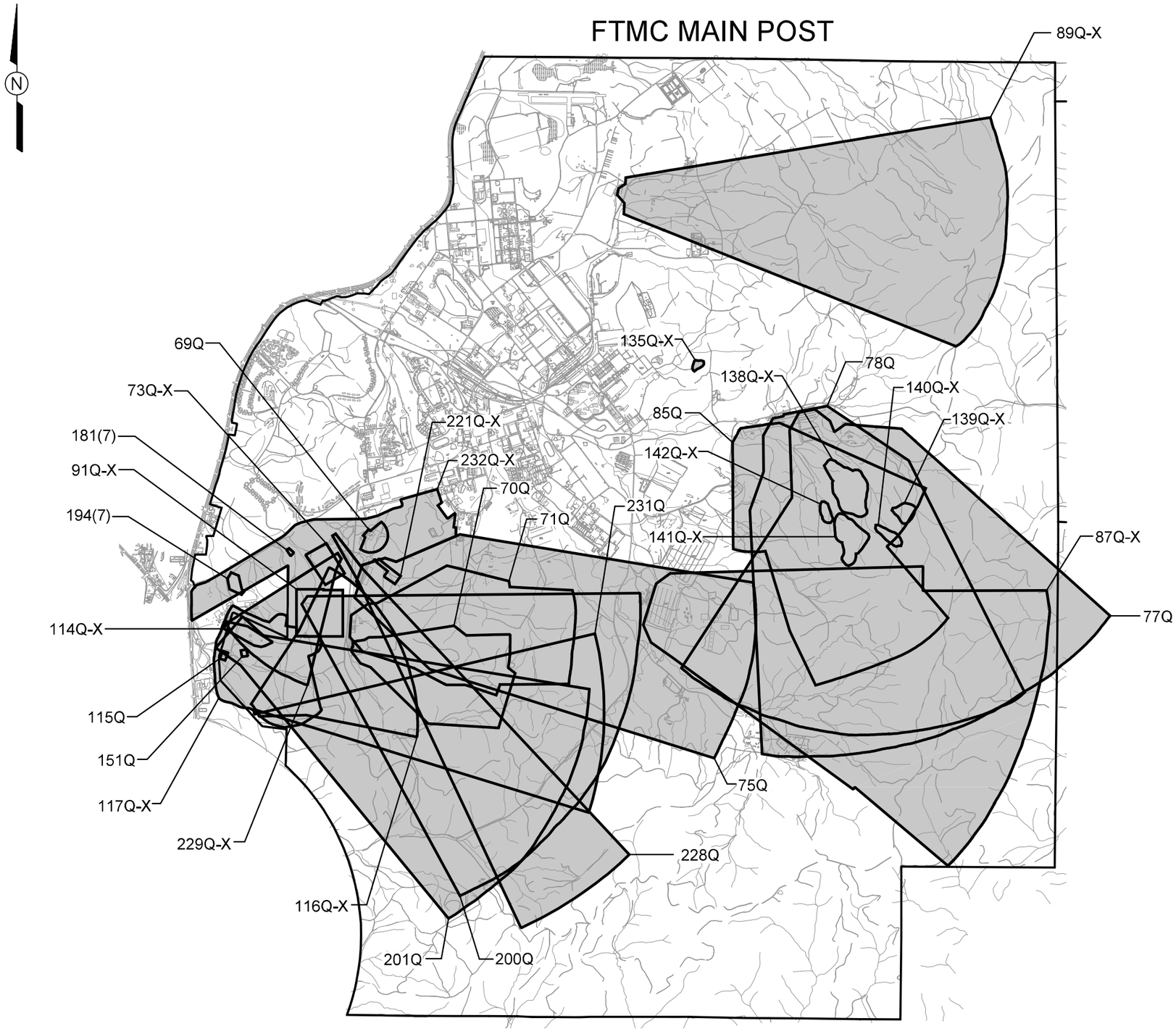
Perchlorate Data Summary
Fort McClellan, Calhoun County, Alabama

Environmental Media Sampled	Samples Collected	Detects[a]	Percent Detects	Maximum Detected Concentration[b]	SSSL[b]	>SSSL
Surface & Depositional Soil	250	3	1.2%	**0.793**	7.04	0
Subsurface Soil	204	0	0.0%	ND	7.04	0
Groundwater	82	5	6.1%	**0.00255**	0.00141	2
Surface Water	43	1	2.3%	**0.00266**	0.01420	0
Sediment	43	0	0.0%	ND	1090	0
Totals	**622**	**9**	**1.4%**			**2**

[a] Eight of the nine perchlorate detections were "J"-flagged, indicating that the results were estimated.
[b] Soil and sediment values are in milligrams per kilogram (mg/kg); water values are in milligrams per liter (mg/L).
ND - Not detected.
SSSL - Site-specific screening level.

FIGURES

FTMC MAIN POST



LEGEND

PARCELS ON FTMC MAIN POST WITH PERCHLORATE DATA

FIGURE 1
SITE MAP
PERCHLORATE SAMPLE LOCATIONS

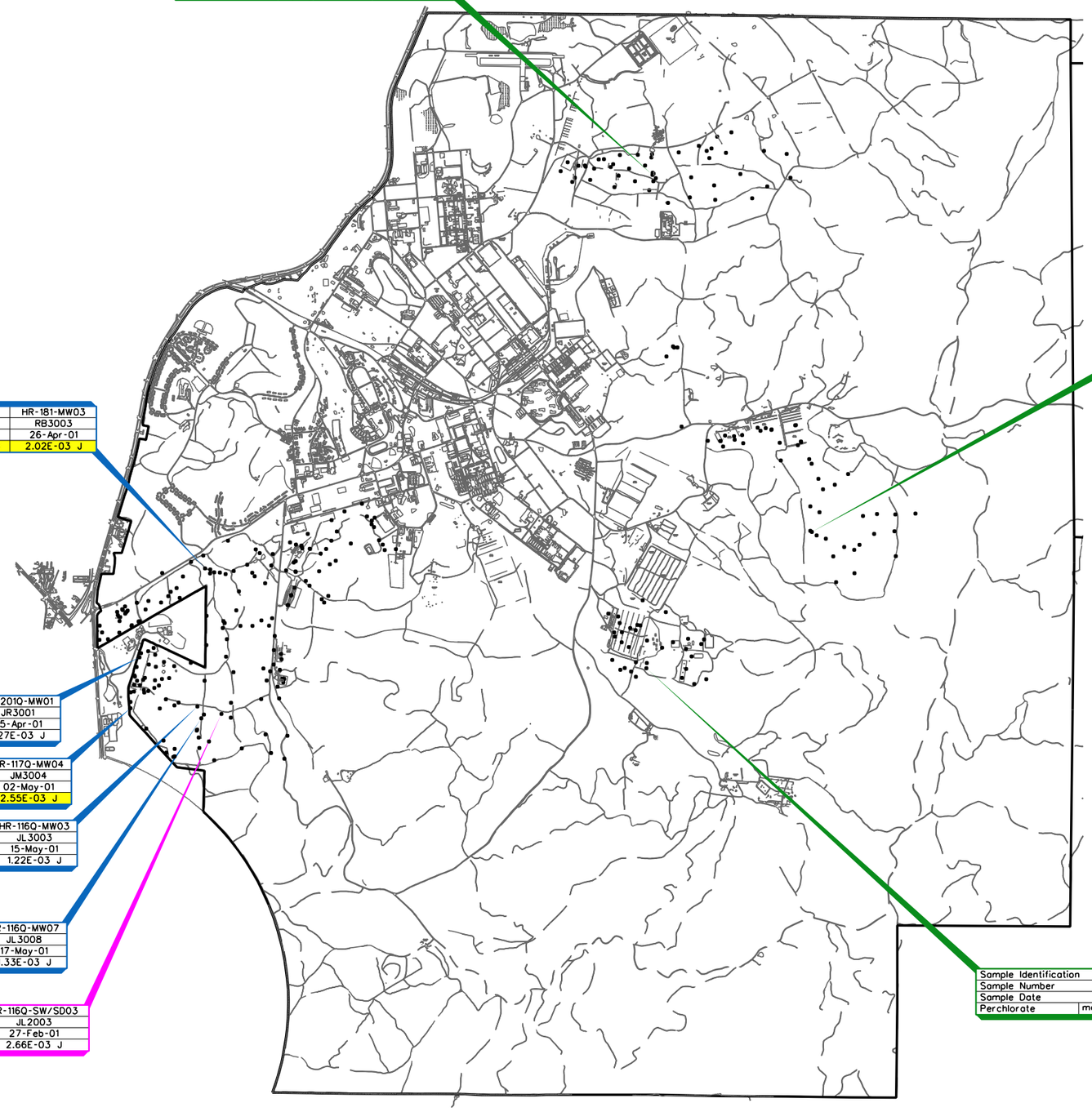
U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

SCALE
0 4000 8000 FEET

Shaw™ Shaw Environmental, Inc.

DWG. NO.: ...\796887es.849
PROJ. NO.: 783149
INITIATOR: T. WINTON
PROJ. MGR.: J. YACOUB
DRAFT. CHCK. BY:
ENGR. CHCK. BY: S. MORAN
DATE LAST REV.:
DRAWN BY:
STARTING DATE: 09/21/04
DRAWN BY: D. BOMAR
9/22/2004 3:00:55 PM
dbomar
c:\cadd\design\796887es.849

FTMC MAIN POST



Sample Identification		SSSL	HR-89Q-MW05
Sample Number			QU0090
Sample Date			27-Jun-02
Perchlorate	mg/kg	7.04E+00	7.93E-01

Sample Identification		SSSL	HR-142Q-GP01
Sample Number			YL0001
Sample Date			08-Feb-01
Perchlorate	mg/kg	7.04E+00	3.19E-02 J

Sample Identification		SSSL	HR-181-MW03
Sample Number			RB3003
Sample Date			26-Apr-01
Perchlorate	mg/L	1.41E-03	2.02E-03 J

Sample Identification		SSSL	HR-201Q-MW01
Sample Number			JR3001
Sample Date			25-Apr-01
Perchlorate	mg/L	1.41E-03	1.27E-03 J

Sample Identification		SSSL	HR-117Q-MW04
Sample Number			JM3004
Sample Date			02-May-01
Perchlorate	mg/L	1.41E-03	2.55E-03 J

Sample Identification		SSSL	HR-116Q-MW03
Sample Number			JL3003
Sample Date			15-May-01
Perchlorate	mg/L	1.41E-03	1.22E-03 J

Sample Identification		SSSL	HR-116Q-MW07
Sample Number			JL3008
Sample Date			17-May-01
Perchlorate	mg/L	1.41E-03	1.33E-03 J

Sample Identification		SSSL	HR-116Q-SW/SD03
Sample Number			JL2003
Sample Date			27-Feb-01
Perchlorate	mg/L	1.42E-02	2.66E-03 J

Sample Identification		SSSL	HR-87Q-MW03
Sample Number			HL0007
Sample Date			05-Dec-00
Perchlorate	mg/kg	7.04E+00	1.03E-02 J

LEGEND

- PAVED ROADS AND PARKING
- ● PERCHLORATE SAMPLE LOCATION (622 SAMPLES FROM 310 LOCATIONS)
- J — COMPOUND WAS POSITIVELY IDENTIFIED; REPORTED VALUE IS AN ESTIMATED CONCENTRATION
- SSSL — SITE-SPECIFIC SCREENING LEVEL
- mg/kg — MILLIGRAMS PER KILOGRAM
- mg/L — MILLIGRAMS PER LITER
- EXCEEDS SSSL

SAMPLE MEDIUM

- SOIL
- GROUNDWATER
- SURFACE WATER

SCALE

0 4000 8000 FEET

FIGURE 2
PERCHLORATE DETECTED AT FORT McCLELLAN

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

Shaw Environmental, Inc.

DWG. NO.: ...\796887es.842 | PROJ. NO.: 796887
INITIATOR: G. SISCO | PROJ. MGR.: J. YACOUB
DRAFT. CHCK. BY: | ENGR. CHCK. BY: S. MORAN
DATE LAST REV.: | DRAWN BY:
STARTING DATE: 08/02/04 | DRAWN BY: D. BOMAR
9/22/2004 2:53:28 PM
dbomar c:\cadd\design\796887es.842