A MEMBER OF THE ENVIRONMENTAL RESOURCES MANAGEMENT GROUP

TECHNICAL MEMORANDUM

DRY WELL/SEPTIC TANK INVENTORY AND TEST PIT/DRY WELL SOIL SAMPLING RESULTS FALL 1993

MALTA ROCKET FUEL AREA SITE

13 January 1994

ERM-Northeast, Inc.
501 New Karner Road
Suite 7
Albany, New York 12205

ERM

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1.0 *INTRODUCTION*

Additional investigations related to the dry well and septic tank inventory, soil sampling at the dry wells at the GE/Exxon Building, and soil sampling at the test pits associated with the investigation of geophysical anomalies have been completed pursuant to USEPA-approved scopes of work (SOW). The dry well and septic tank inventory program and the GE/Exxon Building dry well sampling program were described in Sections 3.6 and 3.7 of the Scope of Work for Additional RI Sampling dated 18 October 1993, which was approved by the USEPA in a letter dated 21 October 1993. The soil sampling program for the test pits associated with the investigation of geophysical anomalies was described in Section 3.0 of the RI Scope of Work for Additional Surface Geophysics and Test Pitting of Geophysical Anomalies dated 14 September 1993, which was approved by the USEPA in a letter dated 17 September 1993. The following document describes the objectives, methodologies, and findings for these investigations.

2.0 *OBJECTIVES*

The objectives of this additional investigation was to supplement the dry well and septic tank inventory presented in the Literature Search Report (LSR) and assess the subsurface soil quality beneath the dry wells at the GE/Exxon Building and within the test pits associated with the investigation of geophysical anomalies. The results of each of these investigations are presented in this document. An evaluation of the need for any additional investigation based on these results is provided in the accompanying Proposed Sampling Program to Establish the Extent of Contamination.

3.0 *DRY WELL AND SEPTIC TANK INVENTORY*

3.1 *Inventory Procedures*

An inventory of the dry wells and septic tanks at the MRFA Site was prepared and included in the LSR. These dry wells and septic tanks were sampled during the MRFA RI and are shown on Figure 1. This dry well and septic tank inventory was supplemented with design details including physical measurements of dimensions of the dry well or septic tank, inflow and outflow pipes, integrity and the type of construction materials, and a description of the contents during the Fall 1993 investigation. This additional information was obtained by revisiting and opening each of the dry wells and septic tanks, and measuring and recording the above information. This information was collected to the extent that these features were measurable without entering the dry well or septic tank.

3.2 *Inventory Results*

The dry well and septic tank inventory was completed on 29 October 1993 pursuant to the USEPA-approved SOW. The results for the dry well and septic tank inventory are presented on Table 1 and Table 2, respectively.

During the supplemental inventory, two previously unmentioned dry wells were discovered at Building 20. The construction of these dry wells is consistent with the construction of the other dry wells at Building 20 (Table 1). These dry wells are located southwest of Building 20 and the parking lot/cement pad, and appear to receive storm water runoff only.

4.0 *DRY WELL SOIL SAMPLING AT THE GE/EXXON BUILDING*

4.1 *Sampling Procedures*

There are a total of six dry wells located outside of the GE/Exxon Building as shown on Figure 2. Soil samples were collected from within each dry well pursuant to the USEPA-approved SOW. The first two foot interval at the base of the dry well was sampled by driving a standard two inch diameter, two foot long split spoon sampler either manually using a sledge hammer or using a 140 pound hammer and a drill rig.

Soil collected in the split spoons was transferred directly from the split spoon to the appropriate sample containers using a clean stainless steel spatula. A new pair of disposable gloves was used by sampling personnel for each sample to avoid potential cross contamination and ensure sample integrity. Following sample collection, the subsurface soil sample containers were placed on ice packs in a field cooler prior to shipment to the laboratory.

The sampling equipment, including stainless steel mixing bowls and spatulas, were decontaminated prior to sampling at each location according to the following procedure:

- Alconox wash
- Potable water rinse
- Analyte-free water rinse
- 10% nitric acid rinse
- Analyte-free water rinse
- Methanol rinse

- Hexane rinse
- Analyte-free water rinse
- Air dry

Following the cleaning procedure, the sampling equipment was wrapped in aluminum foil until the time of sampling. This cleaning procedure was in accordance with Section 5.9.5 of the USEPA-approved POP. The split spoon samplers were steam cleaned prior to use at each location. These cleaning procedures were performed to prevent possible cross contamination between sampling locations.

4.2 Sampling Results

A total of seven soil samples, including one duplicate, plus field blanks were collected from the six dry wells at the GE/Exxon Building. This dry well soil sampling program was completed on 11 October 1993 pursuant to the USEPA-approved SOW. These soil samples were submitted to the analytical laboratory for TCL Organic and TAL Inorganic plus boron analyses. The validated analytical results for these soil samples are summarized in Tables 3 through 7.

5.0 *TEST PIT SOIL SAMPLING*

5.1 *Sampling Procedures*

Seventy-one test pits were excavated at various areas of the MRFA Site to investigate geophysical anomalies identified using the terrain conductivity geophysical technique. Subsurface soil samples were collected from the test pits where evidence of hazardous substances (e.g., field PID screening measurement, stained soil, or containerized material) was found pursuant to the USEPA-approved SOW. Subsurface soil samples were collected from eight test pits excavated in five areas of the MRFA Site as follows:

P-19 (2-4')	Area D-2
P-22 (2-4')	Area D-2
P-35 (2-4')	Area D-4
P-57 (2-4')	Area S-1
P-68 (2-4')	Area D-5
P-70 (2-4')	Area D-5
P-78 (6-8')	Area D-1
P-81 (2-4')	Area D-1

The soil samples were collected either from the excavation or from the shovel of the backhoe depending on the depth from which the sample was obtained.

Soil samples for volatile organic compound analysis were collected by transferring soil directly into the appropriate sample containers using a clean stainless steel spatula to avoid possible loss of volatiles due to homogenization. Subsurface soil samples for the remaining analytical parameters were collected using a clean stainless steel hand trowel to transfer soil to a clean stainless steel mixing bowl in which the soil was homogenized. Following homogenization, the remaining sample containers

were filled by transferring soil from the mixing bowl to the appropriate sample containers using the hand trowel. A new pair of disposable gloves was used by sampling personnel for each sample to avoid potential cross contamination and ensure sample integrity. Following sample collection, the subsurface soil sample containers were placed on ice packs in a field cooler prior to shipment to the laboratory.

The sampling equipment, including stainless steel mixing bowls, hand trowels, and spatulas, were cleaned prior to sampling at each location according to the same procedure described in Section 4.1. This cleaning procedure was performed to prevent possible cross contamination between sampling locations.

During this test pit investigation, buried, emptied crushed drums were encountered at three locations. Two of these were located in Area S-1 and the third was located in Area D-1. The drums were left where they were encountered and covered with soil following notification to, and verbal approval from the USEPA.

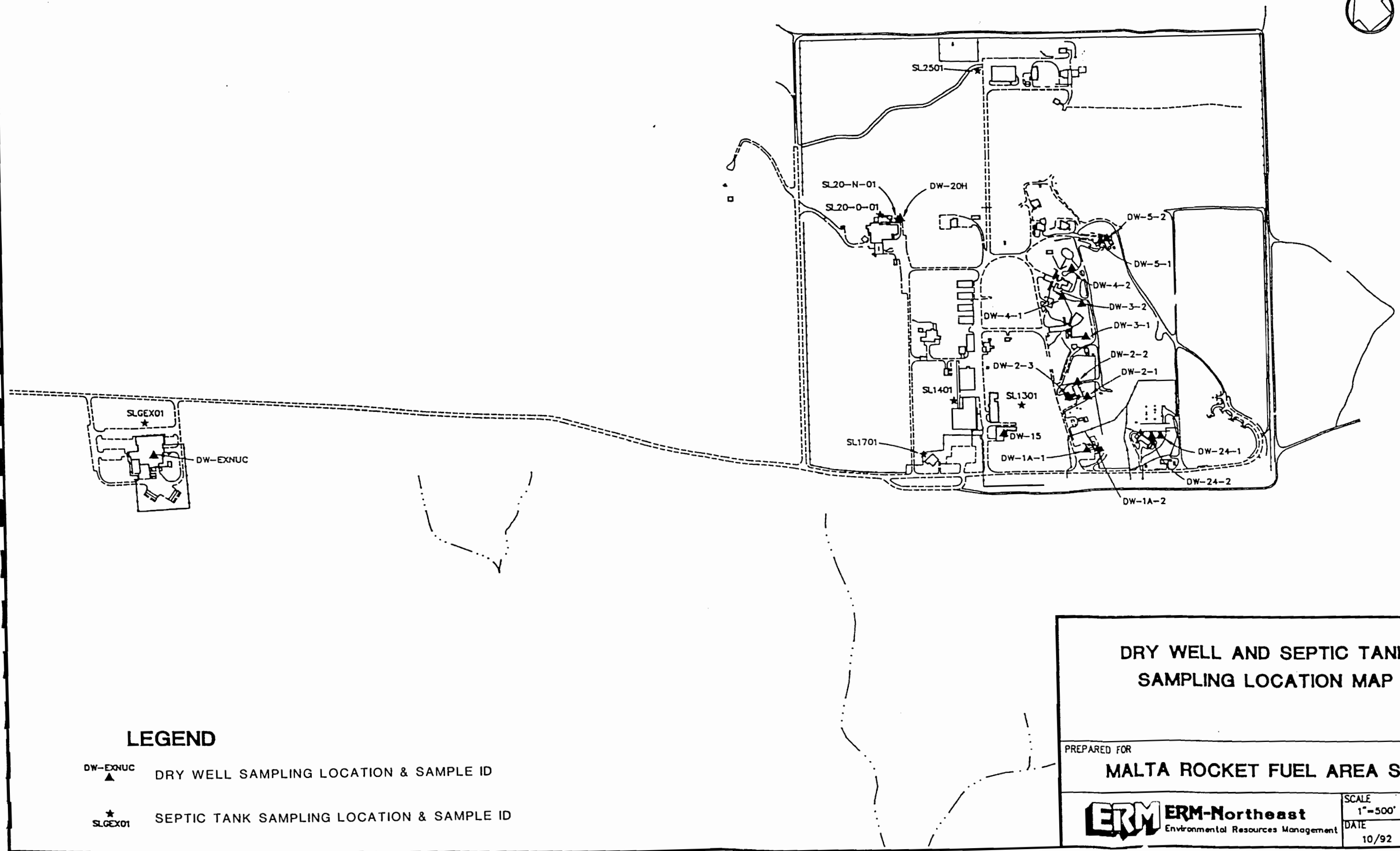
5.2 *Sampling Results*

A total of nine soil samples, including one duplicate, plus field blanks were collected from the eight test pits excavated during this investigation. The test pit excavation and soil sampling program was completed on 28 October 1993 pursuant to the USEPA-approved SOW. The soil samples were submitted to the analytical laboratory for TCL Organic and TAL Inorganic plus boron analysis. The validated analytical results for these soil samples are summarized in Tables 8 through 12.

6.0 *CONCLUSIONS*

The dry well and septic tank inventory and the subsurface soil sampling associated with the dry wells at the GE/Exxon Building and the test pits for investigating geophysical anomalies have been completed pursuant to the USEPA-approved SOWs. The results of these investigations were presented in the preceding sections. An evaluation of any additional site characterization based on the results of these investigations is provided in the accompanying Proposed Sampling Program to Establish the Extent of Contamination.

Figures



LEGEND

DW-EXNUC ▲ DRY WELL SAMPLING LOCATION & SAMPLE ID

★ SLGEX01 SEPTIC TANK SAMPLING LOCATION & SAMPLE ID

DRY WELL AND SEPTIC TANK SAMPLING LOCATION MAP

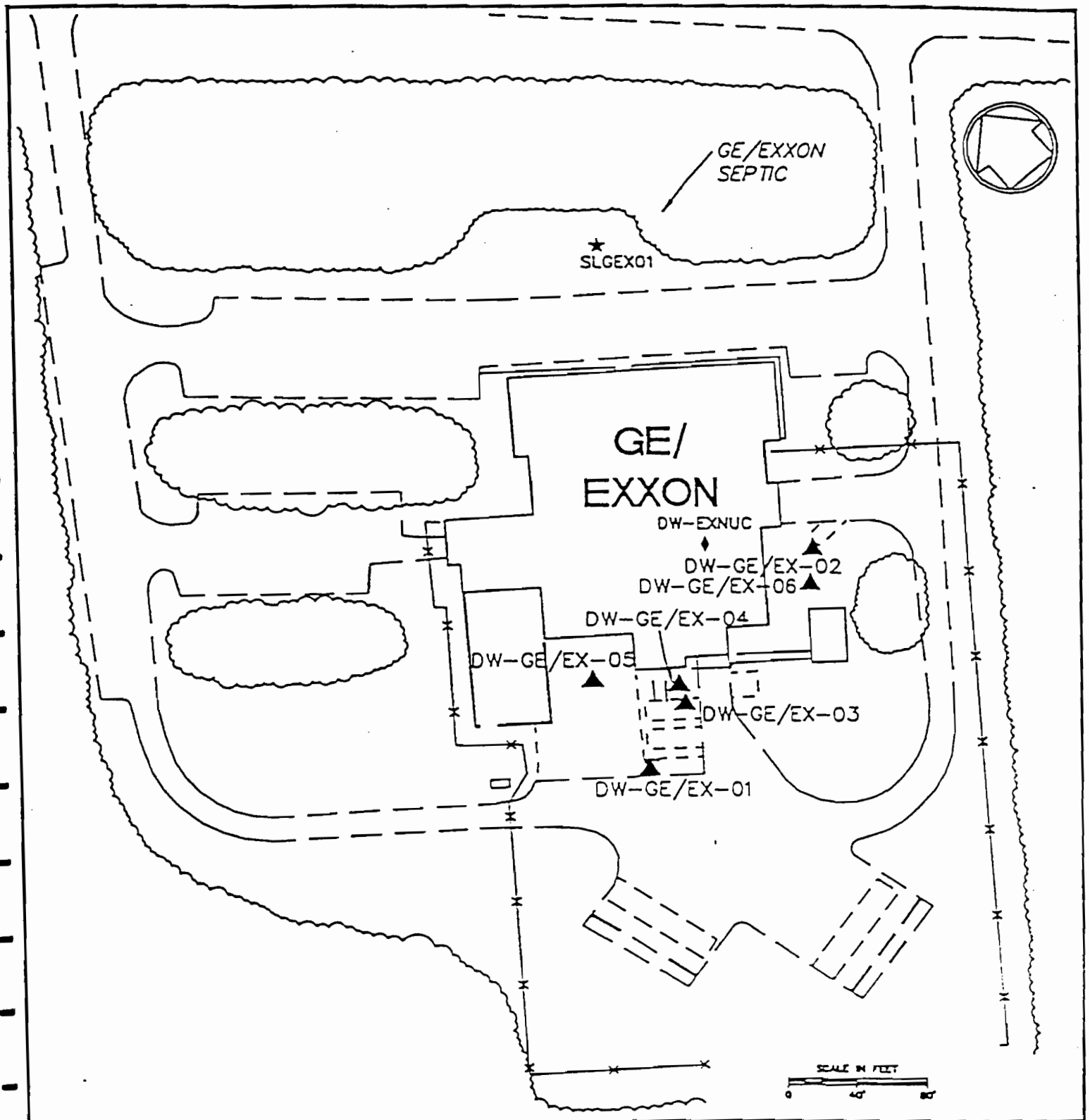
PREPARED FOR

MALTA ROCKET FUEL AREA SITE

ERM-Northeast
Environmental Resources Management

SCALE	FIGURE
1"=500'	1
DATE	
10/92	

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LEGEND

DW-EXNUC ♦	MRFA RI DRY WELL SAMPLING LOCATION & SAMPLE ID
SLGEX01 ★	MRFA RI SEPTIC TANK SAMPLING LOCATION & SAMPLE ID
DW-GE/EX-01 ▲	FALL 1993 DRY WELL SAMPLING LOCATION & SAMPLE ID

DRY WELL AND SEPTIC TANK LOCATION MAP · GE/EXXON BUILDING

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MALTA ROCKET FUEL AREA SITE

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SCALE 1"=80'

DATE 12/93

FIGURE 2

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Tables

TABLE 1
MALTA ROCKET FUEL AREA SITE
DRY WELL INVENTORY

Building No.	No. of Dry Wells	Type of Dry Well	Location Description	Dimensions	Construction Materials	Condition	Contents	Discharge Destination
1	6	1 floor drain w/o piping	base of west covered stairwell outside of door	round drain, 1'diam x 1.8'deep in concrete pad/floor	metal in concrete with metal basket	good	none	subsurface below drain
		1 floor drain with piping	base of center covered stairwell outside of door	round drain, 1'diam x 1.8'deep in concrete pad/floor	metal in concrete with metal basket	good	paint chips/sediment	to buried dry well according to architectural drawings
		1 floor drain with piping	base of east covered stairwell outside of door	round drain, 1'diam x 1.8'deep in concrete pad/floor	metal in concrete with metal basket	fair	rust/sediment	to buried dry well according to architectural drawings
		1 buried dry well (NF)	NE of building 1	Unknown	Unknown	Unknown	Unknown	subsurface if dry well is present
		1 buried dry well (NF)	SE of building 1	Unknown	Unknown	Unknown	Unknown	subsurface if dry well is present
		1 open sump	base of rear staircase	2.1'diam. x 2.1'deep	stainless steel	good	covered*	sump-no effluent
1A	0	NA	NA	NA	NA	NA	NA	NA
1B	1	1 buried dry well	NF	Unknown	Unknown	Unknown	Unknown	subsurface if dry well is present
2	5	1 floor drain without piping	base of west covered stairwell outside of door	round drain, 1'diam x 1.8'deep in concrete pad/floor	metal in concrete with metal basket	good	rust/sand	subsurface below drain
		1 floor drain with piping	base of center covered stairwell outside of door	1' x 1' x 0.2'deep in concrete pad/floor	metal grate set in concrete	good	crushed stone beneath	to buried dry well according to architectural drawings
		1 floor drain with piping	base of east covered stairwell outside of door	round drain, 1'diam x 1.8'deep in concrete pad/floor	metal in concrete with metal basket	good	none	to buried dry well according to architectural drawings
		1 buried dry well	N of bldg 2 surrounded by metal poles to prevent vehicle access	top of structure encountered 2' below grade during dry well drilling	Unknown	buried	Unknown	subsurface
		1 buried dry well	location based off architectural drawings and EM-31 measurements	Unknown	Unknown	buried	Unknown	subsurface if dry well is present
3	2	1 open dry well	west-quench pit	both 10'x10'x4'deep w/4'deepx3'wide drainage trough leading to each	both concrete block	fair	soil, grass, weeds, leaves	Muggetts Pond
		1 open dry well	east-quench pit			fair	soil, grass, weeds, leaves	Drainage Ditch
3A	0	NA	NA	NA	NA	NA	NA	NA
4	2	1 buried dry well	east-quench pit	4'deep x 3'wide drainage trough	concrete block	good	soil, grass, weeds, leaves	subsurface
		1 open swale	west-quench pit	u-shaped swale	grass	fair	soil, grass, weeds, leaves	Muggetts Pond
4A	0	NA	NA	NA	NA	NA	NA	NA
5	0	NA	NA	NA	NA	NA	NA	NA
5P	1	1 catch basin	northeast corner bldg 5P	2.65'x2.65'x3.2' deep	cast concrete	good	sediment/sand	underground pipe to Muggetts Pond
5A	1	1 catch basin	northwest corner bldg 5A	2.65'x2.65'x2.85' deep	cast concrete	good	sediment/sand	
6	0	NA	NA	NA	NA	NA	NA	NA
6A	1	1 floor drain in pit with piping	inside bldg 6A	4'x3'x6.5' deep interior concrete pit with metal grate at bottom	poured concrete	good	none	unknown-speculated to discharge to Muggetts Pond
7	0	NA	NA	NA	NA	NA	NA	NA
7B	0	NA	NA	NA	NA	NA	NA	NA
8	2	1 buried dry well (NF)	Unknown	Unknown	Unknown	Unknown	Unknown	subsurface if dry well is present
		1 buried dry well (NF)	Unknown	Unknown	Unknown	Unknown	Unknown	subsurface if dry well is present
9	2	1 buried dry well (NF)	Unknown	Unknown	Unknown	Unknown	Unknown	subsurface if dry well is present
		1 buried dry well (NF)	Unknown	Unknown	Unknown	Unknown	Unknown	subsurface if dry well is present
10	0	NA	NA	NA	NA	NA	NA	NA
11	0	NA	NA	NA	NA	NA	NA	NA
11A	0	NA	NA	NA	NA	NA	NA	NA
11B	0	NA	NA	NA	NA	NA	NA	NA
11C	0	NA	NA	NA	NA	NA	NA	NA
11D	0	NA	NA	NA	NA	NA	NA	NA

TABLE 1 (cont'd)
MALTA ROCKET FUEL AREA SITE
DRY WELL INVENTORY

Building No.	No. of Dry Wells	Type of Dry Well	Location Description	Dimensions	Construction Materials	Condition	Contents	Discharge Destination
12	0	NA	NA	NA	NA	NA	NA	NA
13	0	NA	NA	NA	NA	NA	NA	NA
14	0	NA	NA	NA	NA	NA	NA	NA
15	1	1 floor drain with piping	inside building between water tanks	round drain in concrete floor 1'diam. x 1.8'deep	metal in concrete with metal basket	fair	rust	underground pipe to drainage ditch
16(Guard Hse)	0	NA	NA	NA	NA	NA	NA	NA
17	0	NA	NA	NA	NA	NA	NA	NA
18	2	1 floor drain with piping	base of covered entry outside door	round drain in concrete floor 1'diam. x 1.8'deep	metal in concrete with metal basket	good	none	to bldg 18 drainage pit
		concrete pit in bldg 18 below 2 empty tanks formerly used for the storage of hydrogen peroxide	out flow pipe on bottom of western wall of concrete pit	8" pipe	poured concrete	good	none	to south end drainage ditch
18A	0	NA	NA	NA	NA	NA	NA	NA
18H	0	NA	NA	NA	NA	NA	NA	NA
20	3	1 dry well with manhole	NW corner bldg 20	8'diam x 10.1'deep	cinder blocks	good	sand and gravel bottom	subsurface
		1 dry well with manhole	NW corner, edge concrete pad	~4'wide x ~4'deep	cast concrete	good	water and sediment	unknown
		1 dry well with manhole	NW corner bldg 20W	8'diam x 10.1'deep	cinder blocks	good	sand bottom	subsurface
20H	1	1 catch basin	NW corner bldg 20H	2.75' x 2.75' x 5.2' deep	concrete blocks	good	sand/leaves/pine needles	NW direction
20W	0	NA	NA	NA	NA	NA	NA	NA
21	0	NA	NA	NA	NA	NA	NA	NA
22	0	NA	NA	NA	NA	NA	NA	NA
23	0	NA	NA	NA	NA	NA	NA	NA
23P	0	NA	NA	NA	NA	NA	NA	NA
24	2	1 catch basin	NE of bldg 24-to the left	2.1'x2.1'x4'deep	cast concrete	good	water, sediment	Muggett's Pond
		1 catch basin	NE of bldg 24 -to the right	2.1'x2.1'x2'deep	cast concrete	good	water, sediment	Drainage Ditch
25	0	NA	NA	NA	NA	NA	NA	NA
25A	0	NA	NA	NA	NA	NA	NA	NA
25G	0	NA	NA	NA	NA	NA	NA	NA
25H	0	NA	NA	NA	NA	NA	NA	NA
25S	0	NA	NA	NA	NA	NA	NA	NA
26	0	NA	NA	NA	NA	NA	NA	NA
27A	0	NA	NA	NA	NA	NA	NA	NA
27B	0	NA	NA	NA	NA	NA	NA	NA
27C	0	NA	NA	NA	NA	NA	NA	NA
27D	0	NA	NA	NA	NA	NA	NA	NA
28	0	NA	NA	NA	NA	NA	NA	NA
29	0	NA	NA	NA	NA	NA	NA	NA
30	0	NA	NA	NA	NA	NA	NA	NA
GE/Exxon	7	1 floor drain	along SE interior wall	round drain in concrete floor 0.55'diam x 0.9'deep	metal in concrete	good	none	subsurface
		1 dry well with manhole	manhole SE of building along edge of concrete pad	round 7.7'diam x 6'deep	cast concrete	good	water/sediment(natural soil)	subsurface
		1 dry well with manhole	adjacent to loading dock	round 3.6'diam x 4.5'deep	cast concrete	good	sand(natural)	subsurface
		1 dry well with manhole	23 feet SW of dry well adjacent to loading dock	round 8'diam x 14'deep	cinder block	good	sand(natural)	subsurface
		1 dry well with manhole	next to former radiation vault 13' from bldg	round 4'diam x 3.7'deep	cast concrete	good	gravel-sand bottom	subsurface
		1 dry well with manhole	next to former radiation vault 6' from bldg	round 4'diam x 3.6'deep	cast concrete	good	gravel-sand bottom	subsurface
		1 dry well with manhole marked "electric"	NW corner bldg on concrete pad	8'diam x 12.2'deep	cinder block	good	water/sediment(natural soil)	subsurface

Notes:
NF - Not Found during inventory. NA - Not Applicable.
* - Sump cleaned and sampled on 10/14/92. Freon-containing sludge and water removed and manifested.

TABLE 2
MALTA ROCKET FUEL AREA SITE
SEPTIC TANK INVENTORY

Building No.	No. of Septic Tanks	Location Description	Dimensions	Construction Materials	Condition	Contents	No. of Cesspools	Dimensions	Construction Materials	Condition	Contents
1	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1A	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1B	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3A	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4A	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5A	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5P	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
6A	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
7B	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
8	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
9	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
10	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11A	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11B	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11C	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
11D	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
12	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
13	1	walkway SE of bldg	3' x 3 'x 9.5' deep	concrete	good	liquid, sludge	2	8'diam x 12.9'deep	cinder blocks	good	sand(natural) bottom
14	1	N of bldg in low area	5.5' x 5.5' x 13' deep	concrete	fair	liquid, sludge	4	8'diam x 12'deep	cinder blocks	fair	sand(natural) bottom
15	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

NF - Not found during inventory.

NA - Not applicable.

TABLE 2 (cont'd)
MALTA ROCKET FUEL AREA SITE
SEPTIC TANK INVENTORY

Building No.	No. of Septic Tanks	Location Description	Dimensions	Construction Materials	Condition	Contents	No. of Cesspools	Dimensions	Construction Materials	Condition	Contents
16(Guard Hse)	1 (NF)	under parking area	Unknown	Unknown	Unknown	Unknown	NF	Unknown	Unknown	Unknown	Unknown
17	1	north of bldg,along fence	3' x 3' x 9' deep	concrete	good	liquid, sludge	1	8'diam x 11.75'deep	cinder blocks	fair	roots, soil/sand and silt
18	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18A	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
18H	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
20	2	new system east comer of bldg 20	opening-3.3' x 7.5'deep	concrete	good	liquid, sludge	0	NA	NA	NA	NA
		old system north comer of bldg 20	3' x 3' x 11.25'deep	concrete block	good	liquid	1	8'diam x 14.8'deep	cinder blocks	good	soil(natural) bottom
20W	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
22	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
23P	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
24	1 (NF)	N of bldg	Unknown	Unknown	Unknown	Unknown	1	8'diam x 8.2'deep	cinder blocks	good	soil(natural) bottom
25	1	between bldg 25S and Area S-8	5' x 5' x 9'deep	concrete	good	liquid, sludge	4 (NF)	Unknown	Unknown	buried	Unknown
25A	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25G	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25H	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
25S	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
26	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27A	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27C	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
27D	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
28	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
29	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GE/Exxon	1	north of bldg entrance	(2) 5'diam x 8.5'deep	concrete	good	liquid, sludge	0	NA	NA	NA	NA

Notes:
NF - Not found during inventory.
NA - Not applicable.

TABLE 3
MALTA ROCKET FUEL AREA SITE
GE/EXXON BUILDING DRY WELL ANALYTICAL RESULTS
INORGANIC ANALYTES

ANALYTE	DW-GE/EX-1	DW-GE/EX-2	DW-DUP (DUP of 2)	DW-GE/EX-3	DW-GE/EX-4	DW-GE/EX-5	DW-GE/EX-5	DW-EXNUC	FB01101193
Aluminum	6490.00	5560.00	5070.00	3850.00	3750.00	5000.00	3940.00	5730.00	48.40 B
Antimony	8.30 U J	6.10 U J	8.60 U J	9.00 U J	9.90 U J	6.80 U J	10.30 U J	3.70 B J	52.60 U
Arsenic	2.80	2.00	1.90	2.10	2.30	2.40	2.20	4.90 J	1.20 U
Barium	23.50 B	23.70	22.80 B	14.40 B	12.90 B	19.80 B	20.40 B	21.20 B	0.90 U
Beryllium	0.34 B	0.30 B	0.25 B	0.21 B	0.21 B	0.26 B	0.20 B	0.33 B	0.30 U
Cadmium	0.64 B J	0.38 U	0.54 U	0.56 U	0.62 U	0.94 J	0.64 U	0.39 B	3.30 U
Calcium	7040.00 J	14900.00 J	14100.00 J	9300.00 J	11300.00 J	1520.00 J	37500.00 J	19500.00	57.70 B
Chromium	8.20	7.90	7.00	5.10	5.10	6.20	5.20	11.40 J	2.50 U
Cobalt	4.20 B	3.40 B	3.40 B	3.10 B	3.50 B	2.80 B	2.70 B	3.80 B	4.90 U
Copper	14.40	11.20	9.80	8.90	9.20	58.10	12.60	53.40 J	3.70 U
Iron	13900.00	13000.00	12200.00	9300.00	9660.00	14000.00	9170.00	14200.00	81.30 B
Lead	4.50	8.90	6.00	3.20	3.00	51.40	35.80	12.20	0.79 U
Magnesium	4300.00	5280.00	4540.00	2240.00	2070.00	1520.00	3690.00	8230.00	57.50 B
Manganese	297.00 J	194.00 J	181.00 J	218.00 J	227.00 J	103.00 J	229.00 J	293.00 J	1.00 B
Mercury	0.03 U	0.03 U	0.04 U	0.03 U	0.04 U	0.02 B	0.03 U	0.03 B J	0.07 U
Nickel	10.50	9.40	8.80	7.10	7.50 B	8.70	8.40	10.70	4.10 U
Potassium	1260.00 J	811.00	683.00 B	611.00 B	604.00 B	440.00 B	682.00 B	650.00	725.00 U
Selenium	0.12 U J	0.19 U J	0.16 U J	0.18 U J	0.19 U J	0.20 U J	0.23 U J	0.19 U	1.10 U
Silver	1.10 U	0.77 U	1.10 U	1.10 U	1.30 U	0.86 U	1.30 U	0.43 U	6.70 U
Sodium	65.70 B	107.00 B	79.80 B	61.80 B	55.40 B	33.80 B	76.40 B	46.50 B	65.70 U
Thallium	0.14 U	0.21 U	0.17 U	0.20 U	0.21 U	0.22 U	0.25 U	0.27 U	1.20 U
Vanadium	13.50	12.10	11.10	9.50	9.50	17.90	9.90	14.30	3.30 U
Zinc	52.70 J	41.80 J	37.10 J	19.80 J	22.40 J	185.00 J	63.50 J	150.00 J	14.50 B
Cyanide	0.65 U	0.69 U	0.77 U	0.63 U	0.64 U	0.69 U	0.63 U	0.49 U J	10.00 U
Boron	15.70 U	11.50 U	16.30 U	17.10 U	18.80 U	12.80 U	19.50 U	12.20 U	99.60 U

Notes:

1. All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)) except FB01101193 which is in micrograms per liter (ug/l = parts per billion (ppb)).
2. U = Analyte was not detected.
3. J = Semi-quantitative value due to QA/QC data validation requirements.
4. B = Value is above the Instrument Detection Limit (IDL) but below the Contract Required Detection Limit (CRDL).

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TABLE 4
MALTA ROCKET FUEL AREA SITE
GE/EXXON BUILDING DRY WELL ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS

COMPOUND*	DW-GE/EX-1	DW-GE/EX-2	DW-DUP (DUP of 2)	DW-GE/EX-3	DW-GE/EX-4	DW-GE/EX-5	DW-GE/EX-6	DW-EXNUC	FB01101193
METHYLENE CHLORIDE	11.0 U J	12.0 U J	12.0 U J	12.0 U J	11.0 U J	12.0 U J	11.0 U J	10.0 U	3.0 J
ACETONE	11.0 U J	12.0 U J	12.0 U J	2.0 J	11.0 U J	12.0 U J	5.0 J	10.0 U	10.0 U
TOLUENE	11.0 U J	12.0 U J	12.0 U J	12.0 U J	11.0 U J	12.0 U J	11.0 U J	10.0 U	1.0 J
XYLENE (TOTAL)	11.0 U J	12.0 U J	12.0 U J	12.0 U J	11.0 U J	12.0 U J	11.0 U J	10.0 U	1.0 J

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except FB01101193 which is in micrograms per liter (ug/l = ppb).
2. * = Only compounds that were detected in one or more samples are listed.
3. U = Compound was not detected.
4. J = Semi-quantitative value due to QA/QC data validation requirements.

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TABLE 5
MALTA ROCKET FUEL AREA SITE
GE/EXXON BUILDING DRY WELL ANALYTICAL RESULTS
TARGET SEMI-VOLATILE ORGANIC COMPOUNDS

COMPOUND*	DW-GE/EX-1	DW-GE/EX-2	DW-DUP (DUP of 2)	DW-GE/EX-3	DW-GE/EX-4	DW-GE/EX-5	DW-GE/EX-6	DW-EXNUC	FB01101193
4-METHYLPHENOL	370.0 U J	37.0 J	30.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
NAPHTHALENE	370.0 U J	21.0 J	410.0 U J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
2-METHYLNAPHTHALENE	370.0 U J	28.0 J	410.0 U J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
ACENAPHTHENE	370.0 U J	140.0 J	26.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
DIBENZOFURAN	370.0 U J	90.0 J	410.0 U J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
FLUORENE	370.0 U J	190.0 J	32.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
PHENANTHRENE	370.0 U J	1800.0	390.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
ANTHRACENE	370.0 U J	400.0 J	92.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
CARBAZOLE	370.0 U J	250.0 J	97.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
FLUORANTHENE	370.0 U J	2300.0	760.0 J	350.0 U J	360.0 U J	37.0 J	360.0 U J	340.0 U	10.0 U
PYRENE	370.0 U J	1700.0	650.0 J	350.0 U J	360.0 U J	38.0 J	360.0 U J	340.0 U	10.0 U
BENZO(A)ANTHRACENE	370.0 U J	900.0	370.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
CHRYSENE	370.0 U J	980.0	440.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
BIS(2-ETHYLHEXYL)PHTHALATE	370.0 U J	410.0 U J	410.0 U J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	2200.0	5.0 B J
BENZO(B)FLUORANTHENE	370.0 U J	980.0	480.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
BENZO(K)FLUORANTHRENE	370.0 U J	960.0	460.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
BENZO(A)PYRENE	370.0 U J	1000.0	460.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
BUTYLBENZYLPHTHALATE	370.0 U J	410.0 U J	410.0 U J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	860.0	10.0 U
DI-N-BUTYLPHTHALATE	370.0 U J	410.0 U J	410.0 U J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	58.0 J	10.0 U
INDENO(1,2,3-CD)PYRENE	370.0 U J	380.0 J	180.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
DIBENZ(A,H)ANTHRACENE	370.0 U J	180.0 J	410.0 U J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U
BENZO(G,H,I)PERYLENE	370.0 U J	360.0 J	180.0 J	350.0 U J	360.0 U J	410.0 U J	360.0 U J	340.0 U	10.0 U

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except FB01101193 which is in micrograms per liter (ug/l = ppb).
2. * = Only compounds that were detected in one or more samples are listed.
3. U = Compound was not detected.
4. J = Semi-quantitative value due to QA/QC data validation requirements.
5. B = Compound was detected in associated method blank.

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TABLE 6
MALTA ROCKET FUEL AREA SITE
GE/EXXON BUILDING DRY WELL ANALYTICAL RESULTS
SEMI-VOLATILE ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

COMPOUND	DW-GE/EX-1		DW-GE/EX-2		DW-DUP (DUP of 2)		DW-GE/EX-3		DW-GE/EX-4		DW-GE/EX-5		DW-GE/EX-6		DW-EXNUC		FB01101193	
2-PENTANONE, 4-HYDROXY-4-METHYL-	12000.00	R	6800.00	R	7400.00	R	12000.00	R	12000.00	R	13000.00	R	12000.00	R			14.00	NJB
11H-BENZO[A]FLUORENE			490.00	NJ														
11H-BENZO[B]FLUORENE			280.00	NJ														
BENZO(E)PYRENE			820.00	NJ	500.00	NJ												
BUTYLATED HYDROXYTOLUENE																	2.00	NJ
DOCOSANE															110.00	NJ		
DODECANOIC ACID											98.00	NJ						
DOTRIACONTANE									330.00	NJ	120.00	NJ						
ETHANOL, 2-BUTOXY-, PHOSPHATE															130.00	NJ		
HENTRIACONTANE			840.00	NJ	710.00	J			330.00	NJ								
HEPTACOSANE			360.00	NJ	250.00	NJ			74.00	NJ					79.00	NJ		
NONACOSANE									260.00	NJ								
OCTACOSANE									220.00	NJ	130.00	NJ						
PENTACOSANE			340.00	NJ	260.00	NJ									110.00	NJ		
PERYLENE			550.00	NJ														
TETRATRIACONTANE									250.00	NJ								
TRIACONTANE			1300.00	NJ	880.00	NJ			310.00	NJ	100.00	NJ			100.00	NJ		
TRICOSANE															110.00	NJ		
TRITRIACONTANE									300.00	NJ								
UNKNOWN ALIPHATIC ACID											84.00	J						
UNKNOWN ALIPHATIC COMPOUNDS			4450.00	J	3510.00	J					92.00	J						
UNKNOWN ALIPHATIC KETONES															130.00	J		
UNKNOWN C31-ALKANE															110.00	J		
UNKNOWN ALKANE W/PAH			480.00	J	170.00	J												
UNKNOWN ALKANES					600.00	J												
UNKNOWN ALKANOLS			1630.00	J	550.00	J												
UNKNOWN ALKENE															200.00	J		
UNKNOWN C4-ALKYLBENZENE			440.00	J	200.00	J												
UNKNOWN AROMATIC HYDROCARBON															110.00	J		
UNKNOWN PHENANTHRENE DERIVATIVE			240.00	J														
UNKNOWN PHTHALATE															180.00	J		
UNKNOWN POLYCYCLIC HYDROCARBONS															210.00	J		
UNKNOWN SILOXANES															443.00	J		
ASSORTED UNKNOWNS	90.00	R	4130.00	J	1910.00	J	96.00	R			792.00	J	98.00	R	500.00	J	12.00	JB

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except FB01101193 which is in micrograms per liter (ug/l = ppb).
2. J = Semi-quantitative value due to QA/QC data validation requirements.
3. B = Compound was detected in associated method blank.
4. N = Compound was identified with a Chemical Abstracts Services (CAS) number.
5. R = Analysis rejected.

TABLE 7
MALTA ROCKET FUEL AREA SITE
GE/EXXON BUILDING DRY WELL ANALYTICAL RESULTS
PESTICIDE/PCB COMPOUNDS

COMPOUND*	DW-GE/EX-1	DW-GE/EX-2	DW-DUP (DUP of 2)	DW-GE/EX-3	DW-GE/EX-4	DW-GE/EX-5	DW-GE/EX-6	DW-EXNUC	FB01101193
ALPHA-CHLORDANE	1.90 U J	1.80 J	2.90 P J	1.80 U J	1.80 U J	2.10 U J	1.90 U J	1.70 U	0.05 U
GAMMA-CHLORDANE	1.90 U J	1.40 J	2.60 J	1.80 U J	1.80 U J	2.10 U J	1.90 U J	1.70 J	0.05 U
AROCLOR-1254	37.00 U J	40.00 U	40.00 U J	35.00 U J	35.00 U J	41.00 U J	36.00 U J	59.00 N J	1.00 U
AROCLOR-1260	37.00 U J	22.00 J	40.00 U J	35.00 U J	35.00 U J	41.00 U J	36.00 U J	19.00 N J	1.00 U

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except FB01101193 which is in micrograms per liter (ug/l = ppb).
2. * = Only compounds that were detected in one or more samples are listed.
3. U = Compound was not detected.
4. J = Semi-quantitative value due to QA/QC data validation requirements.
5. P = >25% difference for detected concentrations between the two GC columns. The lower value is reported.
6. N = >50% difference for detected concentrations between the two GC columns. The lower value is reported.

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TABLE 8
MALTA ROCKET FUEL AREA SITE
1993 TEST PIT ANALYTICAL RESULTS
INORGANIC ANALYTES

	Area S-1	Area D-1		Area D-2		Area D-4	Area D-5		
								P-68 4'-6'	
ANALYTE	P-57 2'-4'	P-78 6'-8'	P-81 2'-4'	P-19 2'-4'	P-22 2'-4'	P-35 2'-4'	P-68 2'-4'	(Dup of P-68 2'-4')	P-70 2'-4'
Aluminum	5500.00	3620.00	5770.00	5590.00	6910.00	3770.00	5140.00	5820.00	16600.00
Antimony	7.80 U J	10.80 U J	10.40 U J	8.40 U J	10.30 U J	8.20 U J	9.10 U J	7.80 U J	12.10 U J
Arsenic	1.60	2.90	2.40	3.10	1.70	1.40 B	1.60	1.90	0.65 B
Barium	14.40 B	13.70 B	20.30 B	87.20	28.00 B	14.70 B	18.70 B	20.20 B	80.40
Beryllium	0.25 B	0.16 B	0.27 B	0.50 B	0.27 B	0.19 B	0.23 B	0.22 B	0.38 B
Cadmium	0.49 U	0.68 U	0.65 U	3.90 J	0.64 U	0.51 U	0.57 U	0.49 U	60.80
Calcium	326.00 B	13000.00	674.00 B	3940.00	1370.00	6830.00	4240.00	4020.00	4240.00
Chromium	5.40	3.90	5.60 J	33.90	9.20	4.30	5.70	6.00	14.30
Cobalt	3.00 B	3.00 B	3.20 B	5.30 B	7.00 B	2.80 B	2.90 B	3.10 B	5.50 B
Copper	7.80	9.00 J	72.30 J	550.00	33.40	7.50	8.30	8.20	14.60
Iron	8990.00	8260.00	9230.00	20200.00	10300.00	7870.00	9200.00	9250.00	14100.00
Lead	3.70	4.10 J	11.10 J	46.50	13.80	2.40	4.50	7.10	106.00
Magnesium	1350.00	2240.00	1400.00	2480.00	1560.00	1820.00	1610.00	1710.00	2550.00
Manganese	190.00	218.00	210.00	199.00	204.00	161.00	207.00	219.00	290.00
Mercury	0.04 U	0.03 U	0.12	1.50	0.09	0.04 U	0.03 U	0.03 U	0.05 U
Nickel	6.90	7.20 B	7.80 B	112.00	7.50 B	6.00 B	7.10	7.30	11.50
Potassium	432.00 B	664.00 B	552.00 B	649.00 B	491.00 B	463.00 B	620.00 B	624.00 B	18200.00
Selenium	0.17 U	0.24 U J	0.19 U	0.25 U	0.15 U	0.18 U	0.18 U	0.18 U	0.25 U J
Silver	0.99 U	1.40 U J	1.90 B J	2.40	2.00	1.00 U	1.20 U	0.99 U	1.80 B
Sodium	24.20 B	49.40 B	31.70 B	172.00 B	47.40 B	40.80 B	45.00 B	44.20 B	408.00 B
Thallium	0.18 U	0.26 U	0.21 U	0.28 U	0.16 U	0.19 U	0.19 U	0.20 U	0.28 U
Vanadium	10.10	8.20 B	10.20	914.00	12.90	8.50	10.40	11.10	15.20
Zinc	16.80 R	20.70	57.90	301.00	70.10	17.30	21.90	22.60	25.00
Cyanide	0.62 U	0.62 U	0.50 U	0.67 U	0.62 U	0.63 U	0.50 U	0.49 U	0.68 U
Boron	14.80 U	20.50 U	19.80 U	15.80 U	19.40 U	15.50 U	17.30 U	14.70 U	23.00 U

Notes:

1. All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)) except the seven equipment blanks which are in micrograms per liter (ug/l = parts per billion (ppb)).
2. U = Analyte was not detected.
3. J = Semi-quantitative value due to QA/QC data validation requirements.
4. B = Value is above the Instrument Detection Limit (IDL) but below the Contract Required Detection Limit (CRDL).

TABLE 8 (cont'd)
MALTA ROCKET FUEL AREA SITE
1993 TEST PIT ANALYTICAL RESULTS
INORGANIC ANALYTES

ANALYTE	FB1101293		FB1101393		FB1101593		FB1102193		FB1102693		FB1102793		FB1102893	
Aluminum	44.60	U	44.50	U	44.60	U	44.60	U	44.80	U	44.80	U	44.80	U
Antimony	52.50	U	52.40	U	52.50	U	52.40	U	52.70	U	52.60	U	52.70	U
Arsenic	1.20	U	1.20	U	1.20	U	1.20	U	1.20	U	0.99	U	0.99	U
Barium	0.89	U	0.89	U	0.89	U	0.89	U	0.90	U	0.90	U	0.90	U
Beryllium	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U
Cadmium	3.30	U	3.30	U	3.30	U	3.30	U	3.30	U	3.30	U	3.30	U
Calcium	23.20	B	15.30	U	15.30	U	26.80	B	35.10	B	21.20	B	15.40	U
Chromium	2.50	U	2.50	U	2.50	U	2.50	U	2.50	U	2.50	U	2.50	U
Cobalt	4.90	U	4.90	U	4.90	U	4.90	U	4.90	U	4.90	U	4.90	U
Copper	3.70	U	3.70	U	3.70	U	3.70	U	3.70	U	3.70	U	3.70	U
Iron	12.00	B	9.30	U	9.30	U	9.30	U	37.60	B	17.10	B	9.40	U
Lead	0.80	U	0.79	U	0.80	U	1.10	B J	0.80	U	1.10	B	0.60	U
Magnesium	27.30	U	27.30	U	27.30	U	27.30	U	27.40	U	27.40	U	27.40	U
Manganese	0.60	U	1.00	B	0.60	U	0.60	U	0.74	B	0.60	U	0.60	U
Mercury	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U	0.07	U
Nickel	4.10	U	4.10	U	4.10	U	4.10	U	4.10	U	4.10	U	4.10	U
Potassium	724.00	U	722.00	U	724.00	U	723.00	U	727.00	U	726.00	U	727.00	U
Selenium	1.10	U	1.10	U	1.10	U	1.10	U J	1.10	U	1.10	U	1.10	U
Silver	6.70	U	6.60	U	6.70	U	6.70	U	6.70	U	6.70	U J	6.70	U J
Sodium	65.60	U	98.70	B	65.80	B	65.50	U	69.60	B	65.80	U	87.30	B
Thallium	1.20	U	1.20	U	1.20	U	1.20	U	1.20	U	1.20	U J	1.20	U J
Vanadium	3.30	U	3.30	U	3.30	U	3.30	U	3.30	U	3.30	U	3.30	U
Zinc	12.50	B	12.40	B	8.30	B	29.30		10.00	B	3.10	U	3.10	U
Cyanide	10.00	U	10.00	U	10.00	U	10.00	U	8.30	U	8.30	U	8.30	U
Boron	99.40	U	99.20	U	99.40	U	99.30	U	99.80	U	99.70	U	99.80	U

Notes:

1. All concentrations are in milligrams per kilogram (mg/kg = parts per million (ppm)) except the seven equipment blanks which are in micrograms per liter (ug/l = parts per billion (ppb)).
2. U = Analyte was not detected.
3. J = Semi-quantitative value due to QA/QC data validation requirements.
4. B = Value is above the Instrument Detection Limit (IDL) but below the Contract Required Detection Limit (CRDL).

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TABLE 9
MALTA ROCKET FUEL AREA SITE
1993 TEST PIT ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS

	Area S-1	Area D-1		Area D-2		Area D-4	Area D-5		
TARGET COMPOUND*	P-57 2'-4'	P-78 6'-8'	P-81 2'-4'	P-19 2'-4'	P-22 2'-4'	P-35 2'-4'	P-68 2'-4'	P-68 4'-6' (Dup of 2'-4')	P-70 2'-4'
METHYLENE CHLORIDE	10.0 U J	11.0 U J	11.0 U J	11.0 U	11.0 U	11.0 U	11.0 U J	11.0 U J	12.0 U J
CHLOROFORM	10.0 U J	11.0 U J	11.0 U J	3.0 J	11.0 U	11.0 U	11.0 U J	11.0 U J	12.0 U J
CARBON TETRACHLORIDE	10.0 U J	190.0 J	11.0 U J	11.0 U	11.0 U	11.0 U	11.0 U J	11.0 U J	12.0 U R
TRICHLOROETHENE	10.0 U J	550.0 DJ	11.0 U J	11.0 U	11.0 U	11.0 U	11.0 U J	11.0 U J	12.0 U R
TETRACHLOROETHENE	10.0 U J	2200.0 EDJ	3.0 J	11.0 U	11.0 U	11.0 U	11.0 U J	11.0 U J	12.0 U R
TOLUENE	10.0 U J	21.0 J	11.0 U J	11.0 U	11.0 U	11.0 U	11.0 U J	11.0 U J	12.0 U R
XYLENE (TOTAL)	10.0 U J	71.0 J	11.0 U J	11.0 U	11.0 U	11.0 U	11.0 U J	11.0 U J	12.0 U R
TICs									
CYCLOHEXANE, ETHYL		1600.0 NJ							
CYCLOTETRASILOXANE, OCTAMETHYL	7.0 NJ								
DECANE				31.0 NJ					
UNKNOWN DIMETHYLCYCLOHEXANE		900.0 J							
UNKNOWN ETHYLMETHYLCYCLOHEXANE		1200.0 J							
UNKNOWN SUBSTITUTED CYCLOHEXANE		1000.0 J							
UNKNOWN ALKANES		8230.0 J							

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except the seven equipment blanks which are in micrograms per liter (ug/l = ppb).
2. * = Only compounds that were detected in one or more samples are listed.
3. U = Compound was not detected.
4. J = Semi-quantitative value due to QA/QC data validation requirements.
5. E = Result is above instrument calibration range.
6. D = Result is from secondary dilution analysis.
7. R = Analysis rejected.
8. NA = Not analyzed.

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TABLE 9 (cont'd)
MALTA ROCKET FUEL AREA SITE
1993 TEST PIT ANALYTICAL RESULTS
VOLATILE ORGANIC COMPOUNDS

TARGET COMPOUND*	FB1101293		FB1101393		FB1101593		FB1102193		FB1102693		FB1102793	FB1102893	
METHYLENE CHLORIDE	3.0	J	2.0	J	3.0	J	2.0	J	1.0	J	NA	2.0	J
CHLOROFORM	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
CARBON TETRACHLORIDE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
TRICHLOROETHENE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
TETRACHLOROETHENE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
TOLUENE	1.0	J	1.0	J	10.0	U	10.0	U	10.0	U	NA	10.0	U
XYLENE (TOTAL)	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
TICs													
CYCLOHEXANE, ETHYL											NA		
CYCLOTETRASILOXANE, OCTAMETHYL											NA		
DECANE											NA		
UNKNOWN DIMETHYLCYCLOHEXANE											NA		
UNKNOWN ETHYLMETHYLCYCLOHEXANE											NA		
UNKNOWN SUBSTITUTED CYCLOHEXANE											NA		
UNKNOWN ALKANES											NA		

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except the seven equipment blanks which are in micrograms per liter (ug/l = ppb).
2. * = Only compounds that were detected in one or more samples are listed.
3. U = Compound was not detected.
4. J = Semi-quantitative value due to QA/QC data validation requirements.
5. E = Result is above instrument calibration range.
6. D = Result is from secondary dilution analysis.
7. R = Analysis rejected.
8. NA = Not analyzed.

TABLE 10
MALTA ROCKET FUEL AREA SITE
1993 TEST PIT ANALYTICAL RESULTS
TARGET SEMI-VOLATILE ORGANIC COMPOUNDS

	Area S-1	Area D-1		Area D-2		Area D-4	Area D-5		
								P-68 4'-6'	
TARGET COMPOUND*	P-57 2'-4'	P-78 6'-8'	P-81 2'-4'	P-19 2'-4'	P-22 2'-4'	P-35 2'-4'	P-68 2'-4'	(Dup of 2'-4')	P-70 2'-4'
2-METHYLPHENOL	350.0 U J	22000.0 U J	360.0 U J	1300.0 U J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	33.0 J
4-METHYLPHENOL	350.0 U J	22000.0 U J	360.0 U J	1300.0 U J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	220.0 J
2,4-DIMETHYLPHENOL	350.0 U J	22000.0 U J	360.0 U J	1300.0 U J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	190.0 J
NAPHTHALENE	350.0 U J	22000.0 U J	360.0 U J	1300.0 U J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	460.0 U J
FLUORANTHENE	350.0 U J	22000.0 U J	360.0 U J	250.0 J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	460.0 U J
PHENANTHRENE	350.0 U J	22000.0 U J	360.0 U J	1300.0 U J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	91.0 J
PYRENE	350.0 U J	22000.0 U J	360.0 U J	220.0 J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	460.0 U J
BENZO(A)ANTHRACENE	350.0 U J	22000.0 U J	360.0 U J	120.0 J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	460.0 U J
CHRYSENE	350.0 U J	22000.0 U J	360.0 U J	180.0 J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	110.0 J
BIS(2-ETHYLHEXYL)PHTHALATE	350.0 U J	22000.0 U J	360.0 U J	1300.0 U J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	460.0 U J
BENZO(B)FLUORANTHENE	350.0 U J	22000.0 U J	360.0 U J	210.0 J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	460.0 U J
BENZO(K)FLUORANTHRENE	350.0 U J	22000.0 U J	360.0 U J	170.0 J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	460.0 U J
BENZO(A)PYRENE	350.0 U J	22000.0 U J	360.0 U J	160.0 J	350.0 U J	350.0 U J	350.0 U J	350.0 U J	460.0 U J

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except the seven equipment blanks which are in micrograms per liter (ug/l = ppb).
2. * = Only compounds that were detected in one or more samples are listed.
3. U = Compound was not detected.
4. J = Semi-quantitative value due to QA/QC data validation requirements.
5. B = Compound was detected in associated method blank.
6. NA = Not analyzed.

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TABLE 10 (cont'd)
MALTA ROCKET FUEL AREA SITE
1993 TEST PIT ANALYTICAL RESULTS
TARGET SEMI-VOLATILE ORGANIC COMPOUNDS

TARGET COMPOUND*	FB1101293		FB1101393		FB1101593		FB1102193		FB1102693		FB1102793	FB1102893	
2-METHYLPHENOL	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
4-METHYLPHENOL	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
2,4-DIMETHYLPHENOL	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
NAPHTHALENE	10.0	U	10.0	U	10.0	U	10.0	U	0.5	J	NA	10.0	U
FLUORANTHENE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
PHENANTHRENE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
PYRENE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
BENZO(A)ANTHRACENE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
CHRYSENE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
BIS(2-ETHYLHEXYL)PHTHALATE	14.0	B	34.0	B	25.0	B	5.0	B J	10.0	B	NA	3.0	B J
BENZO(B)FLUORANTHENE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
BENZO(K)FLUORANTHRENE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U
BENZO(A)PYRENE	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	NA	10.0	U

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except the seven equipment blanks which are in micrograms per liter (ug/l = ppb).
2. * = Only compounds that were detected in one or more samples are listed.
3. U = Compound was not detected.
4. J = Semi-quantitative value due to QA/QC data validation requirements.
5. B = Compound was detected in associated method blank.
6. NA = Not analyzed.

TABLE 11
MALTA ROCKET FUEL AREA SITE
1993 TEST PIT ANALYTICAL RESULTS
SEMI-VOLATILE ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

	Area S-1	Area D-1		Area D-2		Area D-4		Area D-5	
COMPOUND	P-57 2'-4'	P-78 6'-8'	P-81 2'-4'	P-19 2'-4'	P-22 2'-4'	P-35 2'-4'	P-68 2'-4'	P-68 4'-6' (Dup of 2'-4')	P-70 2'-4'
2-MERCAPTOBENZOTHIAZOLE									
2-PENTANONE, 4-HYDROXY-4-METHYL-	5200.0 R	9400.0 R	5400.0 R	18000.0 R	6300.0 R	5700.0 R			7400.0 R
ANTHRACENE, 2-METHYL-									270.0 NJ
BENZOTHIAZOLE									
BIPHENYL		14000.0 NJ							
BUTYLATED HYDROXYTOLUENE									
CYCLOTETRASILOXANE, OCTAMETHYL-		38000.0 NJ							
DIPHENYL ETHER		96000.0 NJ							
DODECANE				1000.0 NJ					
DODECANOIC ACID									
NONACOSANE					150.0 NJ				
PENTADECANE, 2,6,10,14-TETRAMETHYL-		5900.0 NJ							
PHOSPHINE OXIDE, TRIPHENYL-									
TETRADECANE				1400.0 NJ					
TRIACONTANE					100.0 NJ				
TRIDECANE				1000.0 NJ					
UNKNOWN ALIPHATIC ACID ESTER	89.0 J				81.0 J				
UNKNOWN ALKANES	340.0 J	108400.0 J		5500.0 J					
UNKNOWN ALKYLCYCLOHEXANES		10500.0 J							
UNKNOWN AROMATIC COMPOUNDS									3740.0 J
UNKNOWN BENZENESULFONAMIDE				3000.0 J					
UNKNOWN CYCLOALKENE						76.0 J			500.0 J
UNKNOWN DIMETHYLBIPHENYL									340.0 J
UNKNOWN HALOGENATED COMPOUND				1000.0 J					
UNKNOWN METHYLBENZENESULFONAMIDE				3000.0 J					
UNKNOWN PHENOL DERIVATIVES									
UNKNOWN PHOSPHORIC ACID ESTERS				2500.0 J					
UNKNOWN POLYCYCLIC HYDROCARBONS				2900.0 J					
ASSORTED UNKNOWNS	383.0 J	12700.0 J		10800.0 J	423.0 J		745.0 J	160.0 J	7980.0 J

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except the seven equipment blanks which are in micrograms per liter (ug/l = ppb).
2. J = Semi-quantitative value due to QA/QC data validation requirements.
3. B = Compound was detected in associated method blank.
4. N = Compound was identified with a Chemical Abstracts Services (CAS) number.
5. R = Analysis rejected.
6. X = Suspected laboratory contaminant.
7. NA = Not analyzed.

TABLE 11 (cont'd)
MALTA ROCKET FUEL AREA SITE
1993 TEST PIT ANALYTICAL RESULTS
SEMI-VOLATILE ORGANIC TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

COMPOUND	FB1101293		FB1101393		FB1101593		FB1102193		FB1102693		FB1102793	FB1102893	
2-MERCAPTOBENZOTHIAZOLE											NA	5.0	NJ
2-PENTANONE, 4-HYDROXY-4-METHYL-	22.0	NJB	24.0	NJB	21.0	NJB	9.0	NJB	12.0	NJB	NA	15.0	NJB
ANTHRACENE, 2-METHYL-											NA		
BENZOTHIAZOLE											NA	3.0	NJ
BIPHENYL											NA		
BUTYLATED HYDROXYTOLUENE									3.0	NJ	NA		
CYCLOTETRASILOXANE, OCTAMETHYL-											NA		
DIPHENYL ETHER											NA		
DODECANE											NA		
DODECANOIC ACID											NA	7.0	NJ
NONACOSANE											NA		
PENTADECANE, 2,6,10,14-TETRAMETHYL-											NA		
PHOSPHINE OXIDE, TRIPHENYL-	2.0	NJX									NA		
TETRADECANE											NA		
TRIACONTANE											NA		
TRIDECANE											NA		
UNKNOWN ALIPHATIC ACID ESTER											NA		
UNKNOWN ALKANES											NA		
UNKNOWN ALKYLCYCLOHEXANES											NA		
UNKNOWN AROMATIC COMPOUNDS											NA		
UNKNOWN BENZENESULFONAMIDE											NA		
UNKNOWN CYCLOALKENE											NA		
UNKNOWN DIMETHYLBIPHENYL											NA		
UNKNOWN HALOGENATED COMPOUND											NA		
UNKNOWN METHYLBENZENESULFONAMIDE											NA		
UNKNOWN PHENOL DERIVATIVES					23.0	J					NA	13.0	J
UNKNOWN PHOSPHORIC ACID ESTERS											NA		
UNKNOWN POLYCYCLIC HYDROCARBONS											NA		
ASSORTED UNKNOWNS	8.0	BJ	5.0	BJ	10.0	BJ	2.0	J	3.0	BJ	NA	2.0	J

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except the seven equipment blanks which are in micrograms per liter (ug/l = ppb).
2. J = Semi-quantitative value due to QA/QC data validation requirements.
3. B = Compound was detected in associated method blank.
4. N = Compound was identified with a Chemical Abstracts Services (CAS) number.
5. R = Analysis rejected.
6. X = Suspected laboratory contaminant.
7. NA = Not analyzed.

TABLE 12
MALTA ROCKET FUEL AREA SITE
1993 TEST PIT ANALYTICAL RESULTS
PESTICIDE/PCB COMPOUNDS

	Area S-1	Area D-1		Area D-2		Area D-4	Area D-5		
COMPOUND*	P-57 2'-4'	P-78 6'-8'	P-81 2'-4'	P-19 2'-4'	P-22 2'-4'	P-35 2'-4'	P-68 2'-4'	P-68 4'-6' (Dup of 2'-4')	P-70 2'-4'
ALDRIN	1.80 U J	1.20 J	1.90 U J	9.90 U	1.80 U J	1.80 U J	1.80 U J	1.80 U J	1.40 JP
HEPTACHLOR EPOXIDE	1.80 U J	0.92 JP	1.90 U J	9.90 U	1.80 U J	1.80 U J	1.80 U J	1.80 U J	2.40 U J
4,4'-DDE	3.50 U J	3.60 U J	3.60 U J	14.00 JZ	2.20 JPZ	3.50 U J	3.50 U J	3.50 U J	4.70 U J
ENDOSULFAN II	3.50 U J	2.30 JPZ	3.60 U J	19.00 U	3.50 U J	3.50 U J	3.50 U J	3.50 U J	4.70 U J
4,4'-DDD	3.50 U J	2.60 JPZ	3.60 U J	19.00 U	3.50 U J	3.50 U J	3.50 U J	3.50 U J	4.70 U J
4,4'-DDT	2.00 U JP	18.00 U J	3.60 U J	27.00 JPZ	5.10 JPZ	3.50 U J	3.50 U J	3.50 U J	4.70 U J
ENDRIN ALDEHYDE	3.50 U J	6.00 JPZ	3.60 U J	29.00 JPZ	3.50 U J	3.50 U J	3.50 U J	3.50 U J	4.70 U J
AROCLOR 1260	35.00 U J	120.00 J	190.00 J	1500.00	160.00 J	35.00 U J	35.00 U J	35.00 U J	47.00 U J

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except the seven equipment blanks which are in micrograms per liter (ug/l = ppb).
2. * = Only compounds that were detected in one or more samples are listed.
3. U = Compound was not detected.
4. J = Semi-quantitative value due to QA/QC data validation requirements.
5. P = >25% difference for detected concentrations between the two GC columns. The lower value is reported.
6. Z = Suspected laboratory contaminant.
7. NA = Not analyzed.

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TABLE 12 (cont'd)
MALTA ROCKET FUEL AREA SITE
1993 TEST PIT ANALYTICAL RESULTS
PESTICIDE/PCB COMPOUNDS

COMPOUND*	FB1101293	FB1101393	FB1101593	FB1102193	FB1102693	FB1102793	FB1102893
ALDRIN	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	0.05 U
HEPTACHLOR EPOXIDE	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	NA	0.05 U
4,4'-DDE	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U
ENDOSULFAN II	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U
4,4'-DDD	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U
4,4'-DDT	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U
ENDRIN ALDEHYDE	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U
AROCLOR 1260	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	NA	1.00 U

Notes:

1. All concentrations are in micrograms per kilogram (ug/kg = parts per billion (ppb)) except the seven equipment blanks which are in micrograms per liter (ug/l = ppb).
2. * = Only compounds that were detected in one or more samples are listed.
3. U = Compound was not detected.
4. J = Semi-quantitative value due to QA/QC data validation requirements.
5. P = >25% difference for detected concentrations between the two GC columns. The lower value is reported.
6. Z = Suspected laboratory contaminant.
7. NA = Not analyzed.