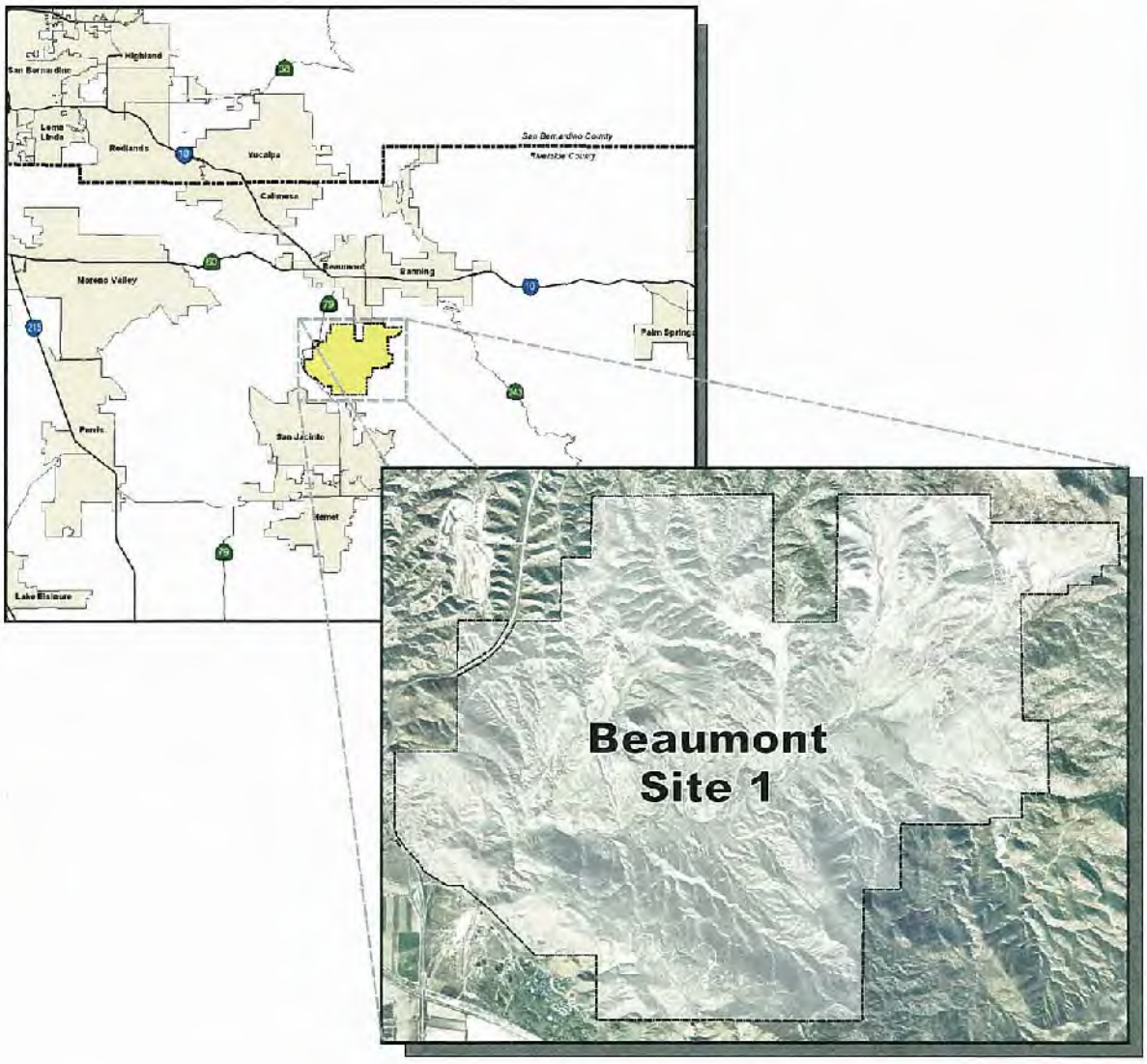
Lockheed Martin
Supplemental Soil Investigation
Sampling and Analysis Plan
Beaumont Site 1
Historical Operational Areas A, B, and C

Beaumont, California



LOCKHEED MARTIN

Tetra Tech, Inc.
3475 E Foothill Blvd.
Pasadena, California

TC# 13409 / December 2006

Lockheed Martin

Supplemental Soil Investigation Sampling and Analysis Plan

Beaumont Site 1

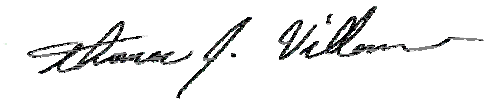
Historical Operational Areas A, B, and C

Beaumont, California

December 2006

Prepared for
Lockheed Martin Corporation
Corporate Energy, Environmental Safety and Health
Burbank, California

Prepared by
Tetra Tech, Inc.
San Bernardino, California



Thomas Villeneuve
Beaumont Program Manager

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APPENDICES

Acronyms

1,1-DCE	1,1-dichloroethene
1,1,1-TCA	1,1,1-trichloroethane
1,2-DCA	1,2-dichloroethane
bgs	below ground surface
BPA	Burn Pit Area
ESA	Environmental Site Assessment
HASP	Health and Safety Plan
LMC	Lockheed Martin Corporation
LPC	Lockheed Propulsion Company
mg/kg	milligrams/kilogram (parts per million)
mm	millimeter
µg/kg	micrograms per kilogram (parts per billion)
µg/L	micrograms per liter
MTBE	methyl tert butyl ether
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
ppbv	parts per billion by volume
QAPP	quality assurance project plan
REC	Recognized Environmental Condition
RMPA	Rocket Motor Production Area
SAP	Sampling and Analysis Plan
SRAM	short range attack missile
SVOC	semivolatile organic compound
TCE	trichloroethene
TPH	total petroleum hydrocarbons
VEW	vapor extraction well
VOC	volatile organic compound

SECTION 1
INTRODUCTION

On behalf of Lockheed Martin Corporation (LMC), Tetra Tech, Inc. has prepared the following Sampling and Analysis Plan (SAP) to perform a supplemental subsurface soil investigation in Historical Operational Area A (Eastern Aerojet Range), Area B (Rocket Motor Production Area), and Area C (Burn Pit Area) at LMC's Beaumont Site 1. In general, Beaumont Site 1 (also known as Potrero Creek) consists of approximately 9,100 acres and is located approximately 70 miles east of Los Angeles in the City of Beaumont, California (Figure 1-1). Historically, the facility was used primarily for the assembly and testing of rocket motors, and ballistics testing.

This subsurface soil investigation in Historical Operational Areas A, B, and C at Beaumont Site 1 are follow-on activities to site the investigation conducted between September 30 and November 11, 2004 (Tetra Tech, 2005). The proposed investigations will be conducted through a combined soil boring and soil gas sampling and analysis program. This SAP presents an overview of historical chemical usage and previous investigations conducted in Historical Operational Areas A, B, and C as defined in the Site 1 & 2, Phase I Environmental Site Assessment (Tetra Tech, 2003b) and the Soil Investigation Report, Historical Operational Areas A, B, and C (Tetra Tech, 2005). In addition, the SAP provides the proposed soil boring and soil gas sampling locations, sampling intervals, and analytical scheme. The information from this supplemental subsurface soil investigation will serve as a guide to delineate chemically impacted soil in Historical Operational Areas A, B, and C at Beaumont Site 1.

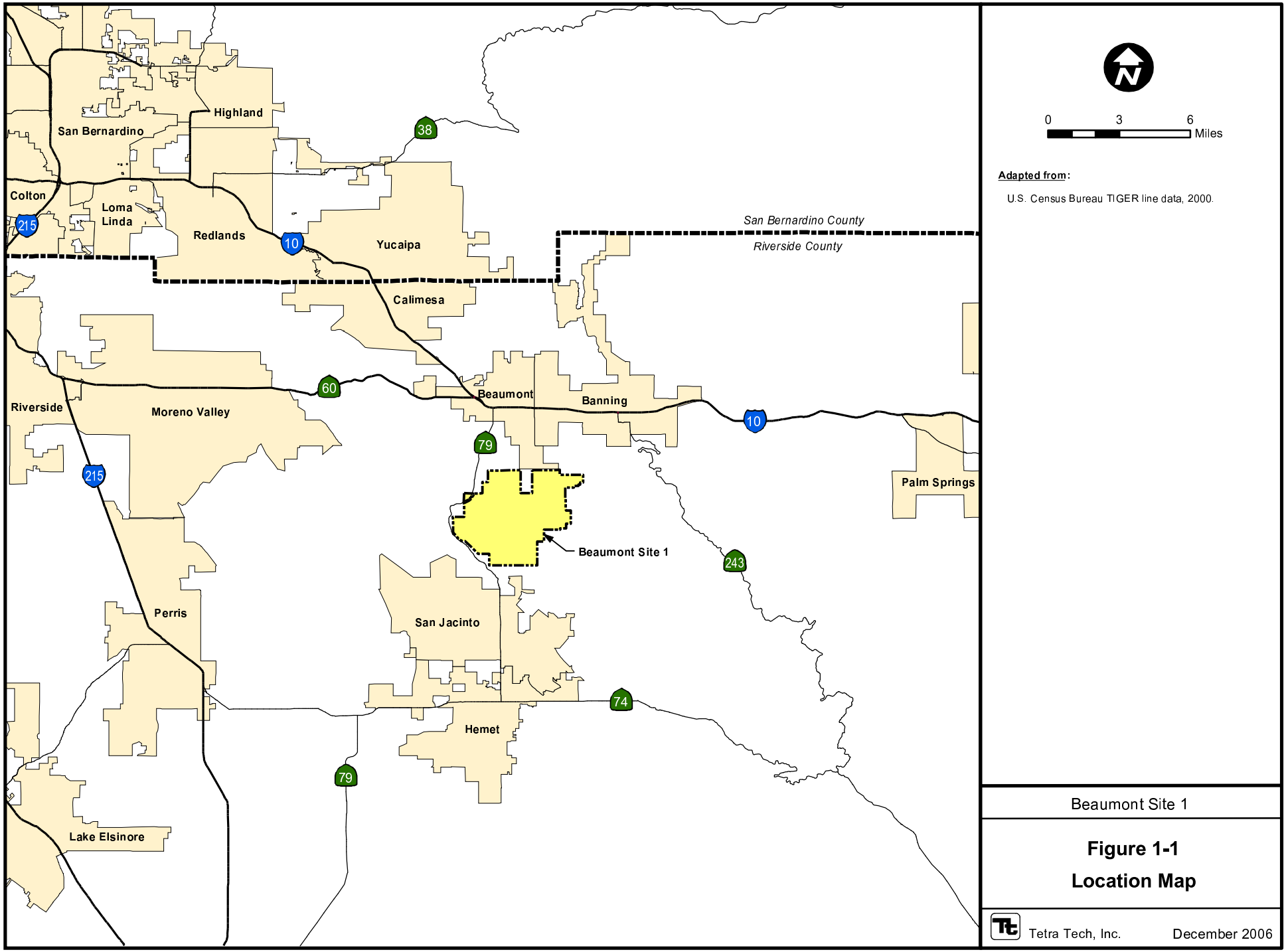
The Lockheed Beaumont Facilities, Preliminary Site Investigation Work Plan, Volume 1 (Tetra Tech, 2003c) presents a brief site history and summary of the technical approach to site investigations. The Work Plan also includes the Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HASP). The content of the Work Plan, QAPP, and HASP remain appropriate for implementation as part of this SAP, unless amended herein.

This SAP for Historical Operational Areas A, B, and C is organized as follows:

- Section 2 - Site History: This section provides a summary of historical operations and chemical usage at Historical Operational Areas A, B, and C and a summary of previous environmental investigations conducted in these areas.

- Section 3 – Sampling Approach: This section provides a description of the planned subsurface soil investigation. The information presented includes a list of each assessment feature, the rationale for assessment, and the proposed soil boring and soil gas/sampling locations, sampling intervals, and analytical scheme.

- Section 4 – References: This section lists all documents referenced for this SAP.


X:\GIS\LOCKHEED 13409-14\REGION.MXD
Highland
San Bernardino
Colton
Loma Linda
Redlands
Yucaipa
San Bernardino County
Riverside County
Calimesa
Riverside
Moreno Valley
Beaumont
Banning
Palm Springs
Beaumont Site 1
Perris
San Jacinto
Hemet
Lake Elsinore
38
10
215
60
79
243
74
0 3 6
Miles
Adapted from:
U.S. Census Bureau TIGER line data, 2000.
Beaumont Site 1
Figure 1-1
Location Map
Tetra Tech, Inc.
December 2006

SECTION 2
SITE HISTORY

2.1 AREA DESCRIPTION

Historical Operational Areas A, B, and C occupy the northeastern and eastern portion of Beaumont Site 1 (Figure 2-1). A brief description of each Area is presented below:

- Historical Operational Area A: Also known as the Eastern Aerojet Range (Avanti), Area A was primarily used by the Aerojet Corporation for research and development experimentation on several types of ammunition for long-range 30 millimeter (mm) weapons. Other unknown classified activities, such as the Avanti project, were conducted in this area.

- Historical Operational Area B: Also known as the Rocket Motor Production Area (RMPA), Area B was used for the processing and mixing of solid rocket motor propellant.

- Historical Operational Area C: Also known as the Burn Pit Area (BPA), Area C was used for the burning/burial of hazardous materials (solid rocket propellant), storage of chemicals, and testing of beryllium research motors.

2.2 PREVIOUS SITE INVESTIGATIONS

A total of 25 historical features have been identified as potential recognized environmental concerns (RECs) within Historical Operational Areas A, B, and C. Various soil investigations, soil gas surveys, and remediation activities have been performed in Historical Operational Areas A, B, and C of Beaumont Site 1 since 1986. Various reports were reviewed to identify areas of known or suspected chemical usage and/or storage. A summary of each document reviewed is presented in Table 2-1.

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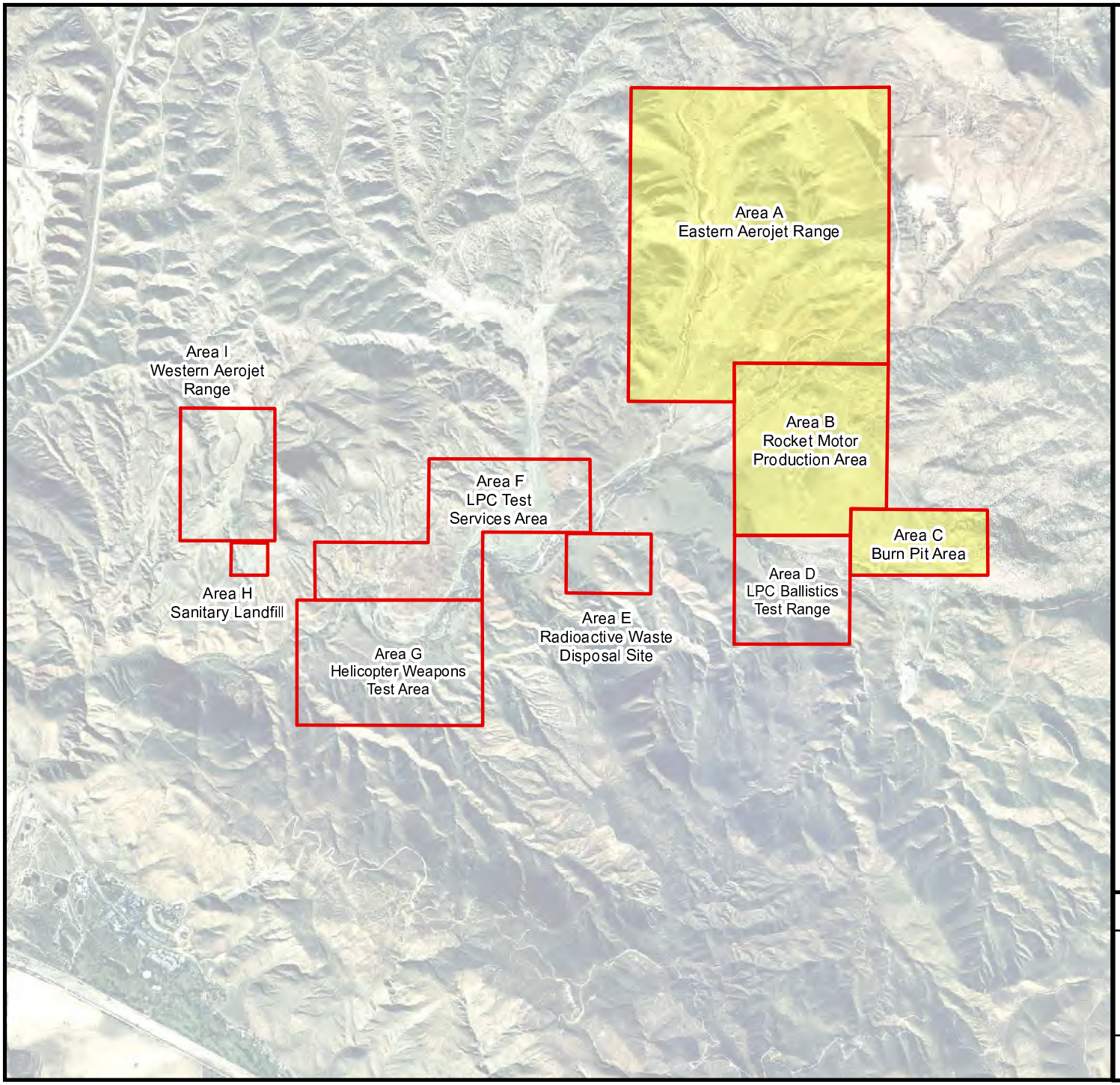

0 2,000 4,000 6,000 Feet

Adapted from:

2003 aerial photograph.

LEGEND

- Beaumont Site 1 Property Boundary
- Historical Operational Area Boundary
- Investigation Area

Beaumont Site 1

Figure 2-1

Historical Operational Area Map

Tetra Tech, Inc. December 2006

Table 2-1
Summary of Investigation and Remediation Documents Reviewed for Historical Operational Areas A, B, and C

Document Title, Author and Date	Report Findings
Hydrogeologic Study Report, Lockheed Propulsion Company, Beaumont Test Facilities, Radian Corporation, December 1986	This investigation details the findings of additional site characterization work in order to provide a better definition of the vertical and lateral extent of contamination in the soil vapor and groundwater and to gain a better understanding of the physical characteristics of the aquifer. During the investigation, soil vapor, soil, and groundwater samples were collected from areas near or adjacent to the burn pit area. Soil vapor analytical results showed that volatile organic compound (VOC) concentrations range from 50 to approximately 6,400 parts per billion by volume (ppbv) in shallow soils and generally increased with depth within the burn pit area. Soil samples collected during the investigation reported low concentrations of 1,2-dichloroethane (1,2-DCA); 1,1,1-trichloroethane (1,1,1-TCA); and trichloroethene (TCE). Although low concentrations of VOCs were detected in the soil samples collected, the high soil vapor concentrations suggest that some residual concentrations reside in the vadose zone soils. The total VOCs concentration ranged from 2.2 to 12,000 micrograms per liter (μg/L) in groundwater.
Final Source and Hydrologeologic Investigation, Lockheed Propulsion Company, Beaumont Test Facilities, Radian Corporation, February 1990	The source investigation involved removal of the low-level radioactive burial area and locating and sampling suspect areas within the previously identified sanitary landfill, burn pit areas, and rocket motor production area to identify waste materials and contaminant sources. Waste, soil, soil gas, and groundwater samples were collected and analyzed for VOCs, semi-volatile organic compounds (SVOCs), and metals during the investigation. The majority of the VOC and SVOC analytical results for soil and soil gas reported in the investigation were mostly assumed to have been due to laboratory contamination. However, validated reports of 1,1,1-TCA; 1,1-dichloroethene (1,1-DCE); TCE; tetrachloroethene (PCE) were detected at low concentrations in both soil and soil gas. Iron was also detected at low concentrations in soil.
Burn Pit Area Removal Action Report, Lockheed Propulsion Company, Beaumont Test Facilities, Radian Corporation, June 1993	This report documents the remediation activities performed at the burn pit area of the former Lockheed Propulsion Company Beaumont Site No. 1. The scope of work for this investigation included: 1) removing all burn pit wastes and 2) collecting confirmation soil samples to ensure that no burn pit or possible contaminated material remain. A total of nine burn pit areas were excavated and all debris removed and stockpiled. A total of 10 confirmation soil samples were collected from beneath the debris to ensure that no impacted soil or debris remained. Based on the analytical results, all underlying soils were considered to be clean. Approximately 48,600 cubic yards of topsoil and overburden soils were removed and replaced. Approximately 4,112 tons of non-hazardous material was excavated from the burn pits. Approximately 18.6 tons of specific wastes (e.g. a drum containing an oily substance, large chunks of unburned rocket propellant, and a blue burn rate modifier) were excavated from the burn pits and shipped off-site for disposal.
June 1996 Vapor Sampling Report, Lockheed Beaumont No. 1, Radian International LLC, October 10, 1996	Soil vapor samples were collected from 12 soil vapor wells and 3 air stripper locations and analyzed for volatile organic compounds using an on-site mobile laboratory. The results of the samples collected and analyzed in this round were compared to previous sampling results which indicated that the soil vapor concentrations are slowly diminishing over time.
August 1997 Vapor Sampling Report, Lockheed Beaumont No. 1, Revised, Radian International LLC, August 17, 1997	Soil vapor samples were collected from 16 soil vapor wells and 3 air stripper locations and analyzed for VOCs using an on-site mobile laboratory. After comparing results to previous sampling episodes, the soil vapor concentrations appear to be slowly diminishing over time. The same contaminants continue to be present with no new contaminants observed during this sampling round.

Table 2-1 (continued)
Summary of Investigation and Remediation Documents Reviewed for
Historical Operational Areas A, B, and C

Document Title, Author and Date	Report Findings
Supplemental Site Characterization Report, Beaumont Site 1, Lockheed Martin Corporation, Tetra Tech, Inc., September 2002	A total of 40 soil and soil gas samples were collected and analyzed from 20 locations (10 within the RMPA and 10 within the BPA) at depths of 5 and 15 feet below ground surface (bgs). Soil gas samples collected from within the BPA contained detectable concentrations of 1,1-DCE, 1,1-DCA, 1,1,1-TCA, and TCE. All detected VOCs in soil gas were within 250 feet of vapor extraction well VEW-11, which correlates to the areas of highest VOC-affected groundwater. Soil gas samples collected from the RMPA reported detectable concentrations of TCE, 1,1-DCE, and fuel components. The chlorinated solvents were detected near the former motor casing washout area. The fuel components were detected near the northern portion of the RMPA. Concentrations of perchlorate were present in 3 out of 10 soil samples collected at the BPA and 8 out of 10 soil samples from the RMPA. The maximum concentration of perchlorate in soil was 1,260 micrograms per kilogram (µg/kg).
Lockheed Beaumont, Site 1 & 2, Phase 1 Environmental Site Assessment, Lockheed Martin Corporation, Beaumont, California, Tetra Tech, March 2003	The Phase I ESA summarized available documentation regarding historical and current potential RECs that may have resulted from past and/or current property usage. The ESA reported: storage, handling, and disposal practices of chemicals and hazardous materials; historical process lines, storage vessels, underground storage tanks and other features that may have served as discharge points for chemicals; and the historical use and operations that may have environmentally affected the properties during the past 50 years. Fifty-four (54) historical or potential RECs were identified at Beaumont Site 1.
Soil Investigation Report, Historical Operational Areas A, B, and C, Beaumont Site 1, Lockheed Martin Corporation, Tetra Tech, Inc., August 2005	A total of 293 samples were collected and analyzed from 64 borings at depths ranging from 0.5 to 60 feet bgs. Soil samples were analyzed for one or more of the following constituents: VOCs, SVOCs, 1,4-dioxane, perchlorate, Title 22 metals, polychlorinated biphenyls (PCBs), total petroleum hydrocarbons (TPH) , and explosive residues. PCBs, 1,4-dioxane, and explosive residues were not detected at concentrations above their respective reporting limits. VOCs were detected at concentrations ranging from 0.93 to 700 µg/kg. SVOCs were detected at concentrations ranging from 0.59 to 4.5 milligrams per kilogram (mg/kg). Perchlorate was detected at concentrations ranging from 23.6 to 171,000 µg/kg. Metals were detected with arsenic detected at concentrations up to 60.8 mg/kg. In addition, soil gas concentrations above reporting limits were detected for TCE, PCE, 1,1-DCE, Freon-113, and 1,1,1-TCA.

2.2.1 Previous Investigations for Historical Operational Area A

A total of seven historical features (Figure 2-2) were identified as potential RECs within Historical Operational Area A during the Phase I ESA performed by Tetra Tech (Tetra Tech, 2003b). A brief summary of investigations performed by Tetra Tech at these features is presented in Table 2-2.

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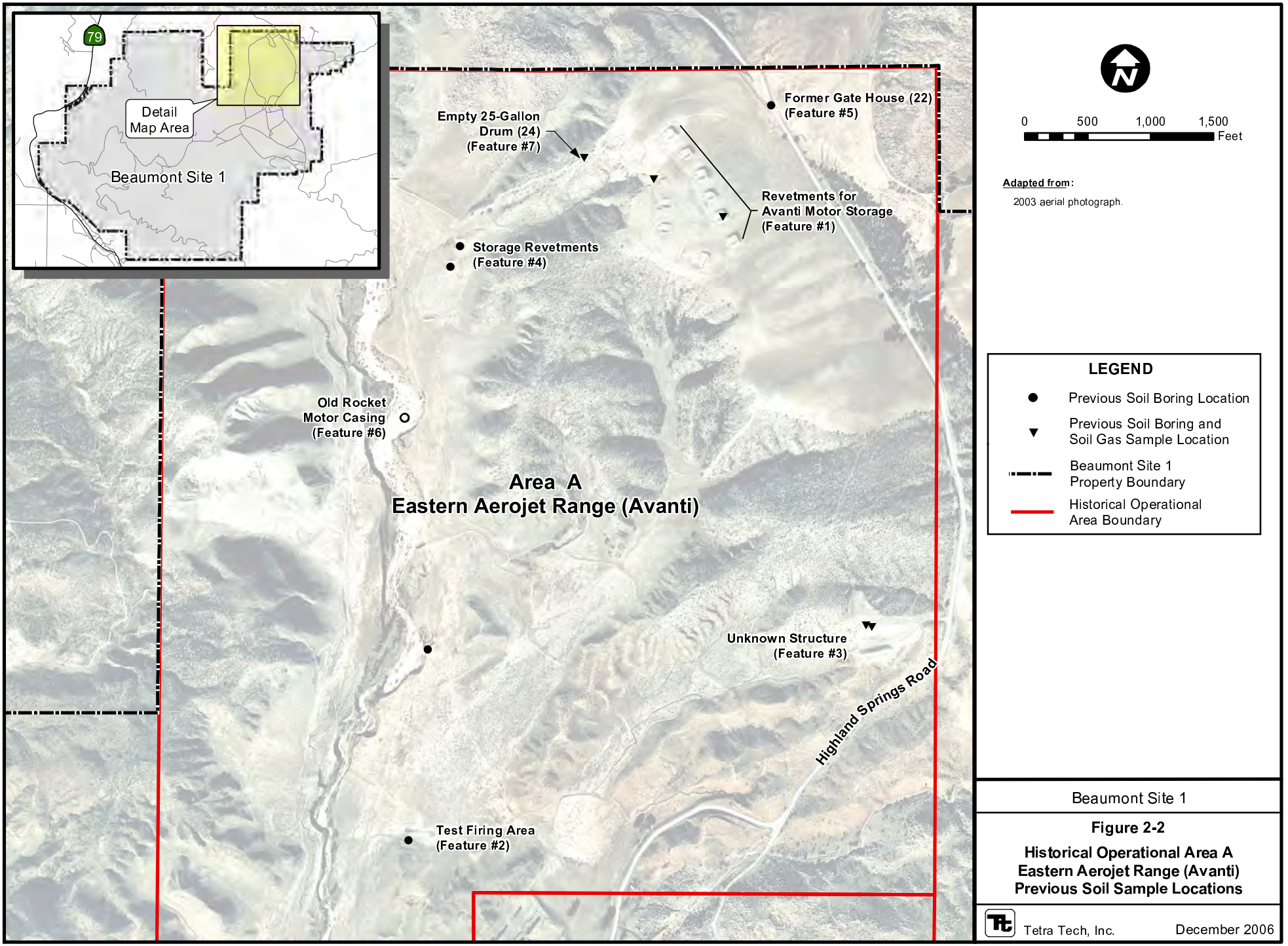

Beaumont Site 1

Figure 2-2

Historical Operational Area A
Eastern Aerojet Range (Avanti)
Previous Soil Sample Locations

Tetra Tech, Inc. December 2006

Table 2-2

Summary of Previous Investigations Performed by Tetra Tech within Historical Operational Area A

Feature No.	Feature Description	Source	Investigation Summary
1	Avanti Storage Revetments		The revetments were utilized for storage of explosive materials and motors. Chemicals stored and/or used at this feature are unknown.
		Tetra Tech, 2005	Two soil borings were drilled and sampled to 10 feet bgs at this feature. Soil samples were analyzed for VOCs, SVOCs, perchlorate, Title 22 metals, PCBs, TPH, 1,4-dioxane, and explosive residue. Perchlorate, PCBs, TPH, 1,4-dioxane, and explosive residues were not detected at concentrations above their respective reporting limits. VOCs (i.e., acetone, ethylbenzene, n-propylbenzene, and toluene) were detected at concentrations ranging from 0.95 to 34 µg/kg and are compounds associated with laboratory cross-contamination. One SVOC (bis[2-ethylhexyl]phthalate) was detected at a concentration of 0.59 mg/kg. Metals were detected with arsenic detected at concentrations up to 38.6 mg/kg. No further investigations are proposed for this feature.
2	Test Firing Area		The test firing area was utilized for research and development of experimentation on several types of rounds for long-range 30-mm weapons and possibly explosives.
		Tetra Tech, 2005	One soil boring was drilled and sampled to 10 feet bgs at this feature. Soil samples were analyzed for Title 22 metals and explosive residue. Explosive residues were not detected at concentrations above reporting limits. Metals were detected with arsenic detected at concentrations up to 2.38 mg/kg. No further investigations are proposed for this feature.
3	Unknown Structure		The structure consists of a concrete pad with hinged I-beams and gravel pad. The historical activities at this structure are unknown. Chemicals stored and/or used at this feature are unknown.
		Tetra Tech, 2005	Two soil borings were drilled and sampled to 10 feet bgs at this feature. Soil samples were analyzed for VOCs, SVOCs, 1,4-dioxane, and Title 22 metals. SVOCs and 1,4-dioxane were not detected at concentrations above their respective reporting limits. VOCs (i.e., 1,1-DCE, acetone, and toluene) were detected in samples at concentrations ranging from 1.0 to 38 µg/kg. Detected concentrations of acetone and toluene are associated with laboratory cross-contamination. Metals were detected with arsenic detected at concentrations up to 60.8 mg/kg. No further investigations are proposed for this feature.
4	Storage Revetments		The revetments were utilized for storage of explosive materials. Chemicals stored and/or used at this feature are unknown.
		Tetra Tech, 2005	Two soil borings were drilled and sampled to 10 feet bgs at this feature. Soil samples were analyzed for VOCs, PCBs, Title 22 metals, TPH, 1,4-dioxane, and explosive residues. VOCs, PCBs, TPH, 1,4-dioxane, and explosive residues were not detected at concentrations above their respective reporting limits. Metals were detected with arsenic detected at concentrations up to 26.8 mg/kg. No further investigations are proposed for this feature.
5	Gate House Area		The area consisted of an entrance gate with supporting guardhouse. An electric gate may have been used at this feature. PCBs in mineral oil and fuels may have been used at this feature.
		Tetra Tech, 2005	One soil boring was drilled and sampled to 5 feet bgs at this feature. Soil samples were analyzed for VOCs, PCBs, TPH, and 1,4-dioxane. VOCs, PCBs, TPH, and 1,4-dioxane were not detected at concentrations above their respective reporting limits. No further investigations are proposed for this feature.
6	Old Rocket Motor Casing		This area consisted of what appeared to be an old rocket motor casing. Upon further inspection it was determined to be a tank. The interior wall of the tank was coated with a tar-like substance. The former content and use of the tank are unknown. Due to a technical oversight, samples were collected one-third of a mile south of this feature.

Table 2-2 (continued)

Summary of Previous Investigations Performed by Tetra Tech within Historical Operational Area A

Feature No.	Feature Description	Source	Investigation Summary
6 (Cont.)	Old Rocket Motor Casing	Tetra Tech, 2005	One soil boring was drilled and sampled to 5 feet bgs at one-third of a mile south of this feature. Soil samples were analyzed for VOCs, SVOCs, perchlorate, Title 22 metals, and 1,4-dioxane. SVOCs, perchlorate, and 1,4-dioxane were not detected at concentrations above their respective reporting limits. VOCs (i.e., acetone and benzene) were detected at concentrations ranging from 1.3 to 26 µg/kg and are from compounds associated with laboratory cross-contamination. Metals were detected with arsenic detected at concentrations up to 2.27 mg/kg. No further investigations are proposed for the location sampled. However, the previously identified feature location will be further investigated for soil contamination.
7	55-Gallon Drum		This empty, rusted, 55-gallon drum was found approximately 200 feet east of Feature No. 1. The former content and use of the drum are unknown.
		Tetra Tech, 2005	One soil boring was drilled and sampled to 5 feet bgs at this feature. Soil samples were analyzed for VOCs, SVOCs, perchlorate, PCBs, Title 22 metals, and 1,4-dioxane. Perchlorate, PCBs, 1,4-dioxane, and SVOCs were not detected at concentrations above their respective reporting limits. VOCs (i.e., ethylbenzene, n-propylbenzene, and toluene) were detected at concentrations ranging from 1.3 to 4.7 µg/kg. Detected concentrations of acetone and toluene are associated with laboratory cross-contamination. Metals were detected with arsenic detected at concentrations up to 28.5 mg/kg. No further investigations are proposed for this feature.
Historical Operational Area A – Area Wide Investigation		Tetra Tech, 2005	A human health and ecological risk assessment will be performed for Historical Operational Area A. As part of the risk assessment, a background assessment will be performed to evaluate naturally occurring metals (e.g., arsenic) at Historical Operational Area A.

2.2.2 Previous Investigations for Historical Operational Area B

A total of 14 historical features were identified as potential RECs within Historical Operational Area B during the Phase I ESA (Figure 2-3 and 2-4) performed by Tetra Tech (Tetra Tech, 2003b). A brief summary of the investigations performed by Tetra Tech at Historical Operational Area B features is presented in Table 2-3.

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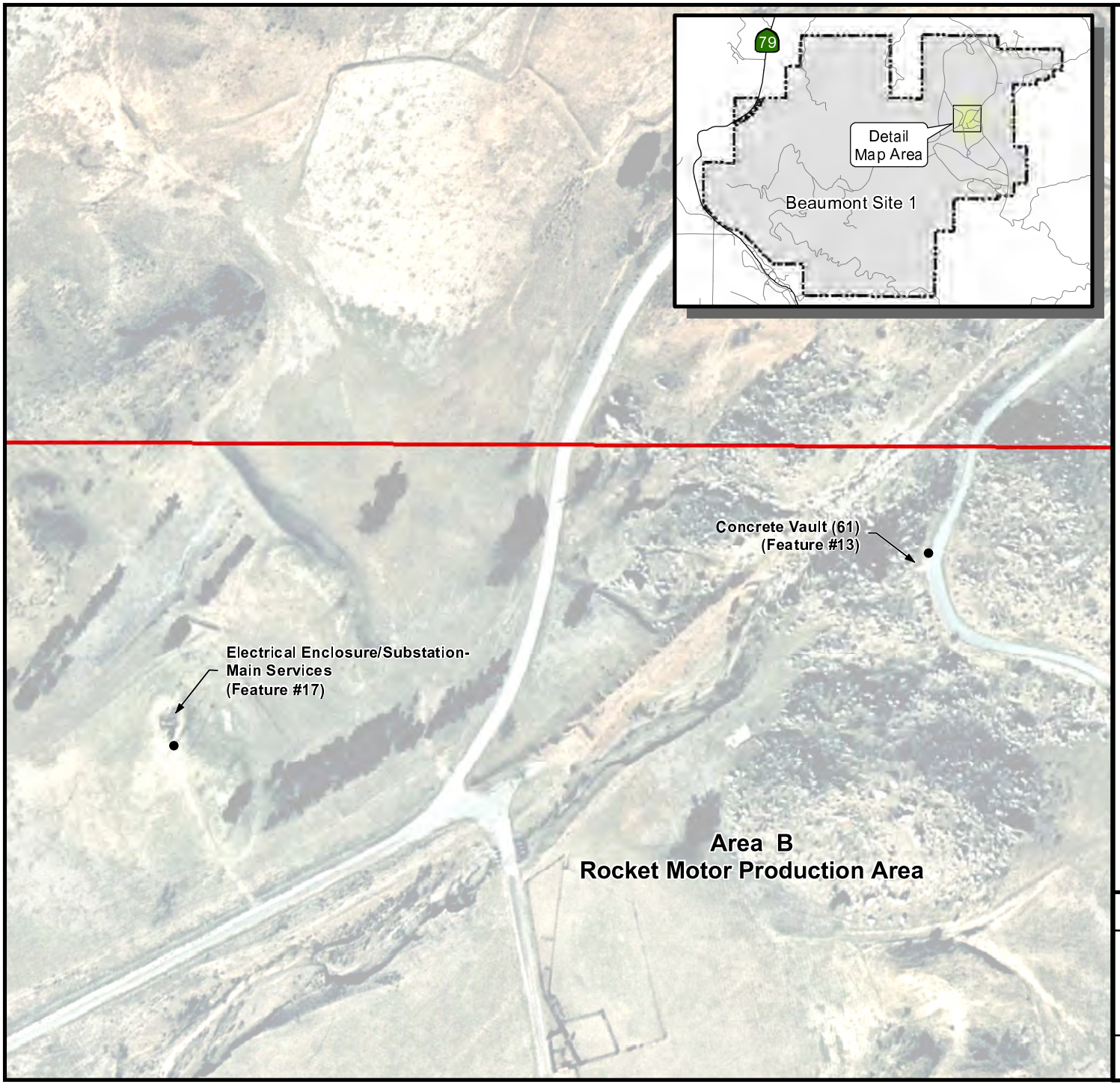

N

0 100 200 300
Feet

Adapted from:

2003 aerial photograph.

LEGEND

- Previous Soil Sample Location
- Historical Operational Area Boundary
- Historic Site or Assessment Finding Location

Beaumont Site 1

Figure 2-3
Historical Operational Area B
Rocket Motor Production Area
(Northern Portion)
Previous Soil Sample Locations

Tetra Tech, Inc. December 2006

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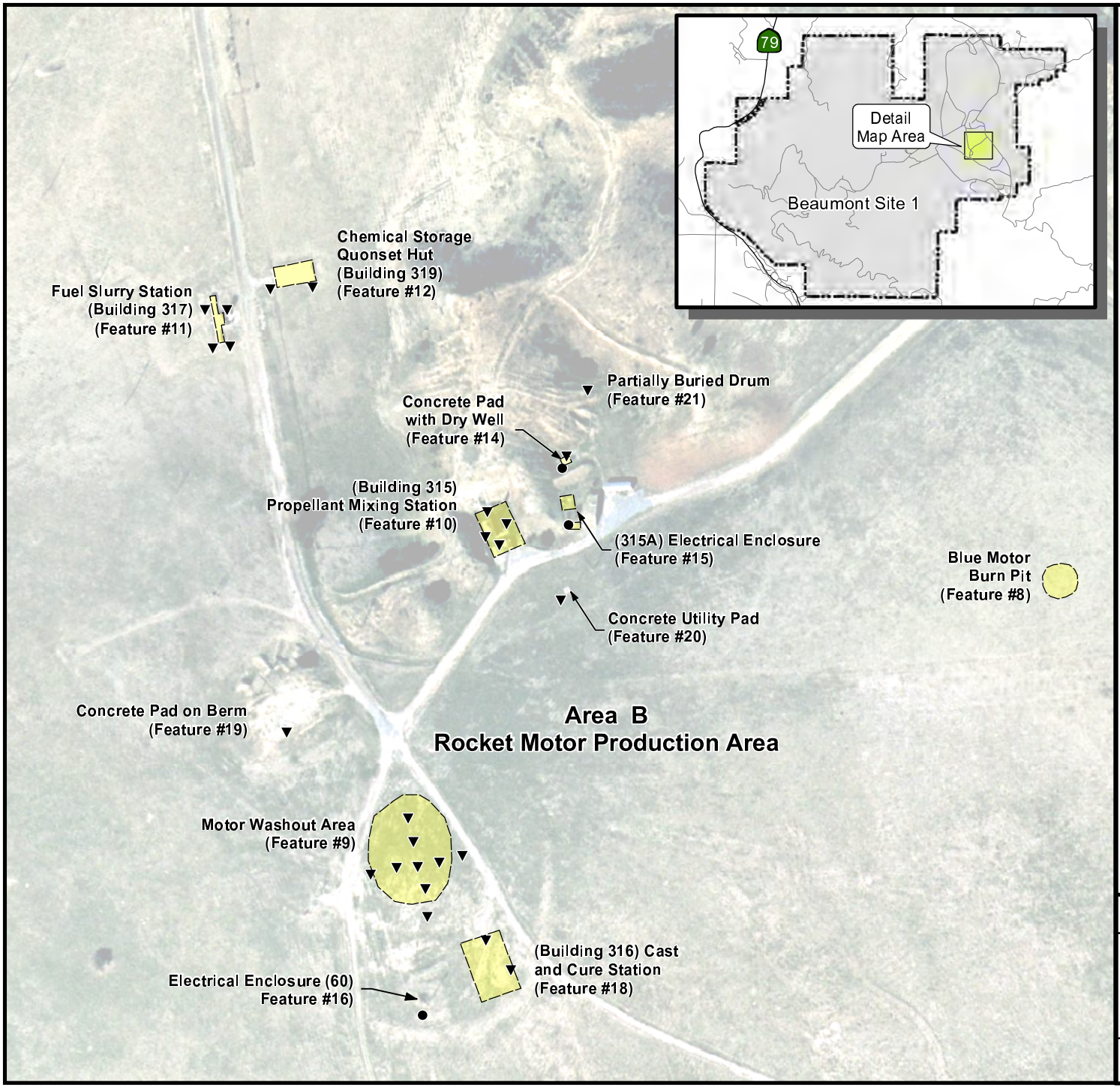

0 100 200 300 Feet

Adapted from:

2003 aerial photograph.

LEGEND

- Previous Soil Sample Location
- Previous Soil Boring and Soil Gas Sample Location
- Historic Site or Assessment Finding Location

Beaumont Site 1

Figure 2-4
Historical Operational Area B
Rocket Motor Production Area
(Southern Portion)
Previous Soil Sample Locations

Tetra Tech, Inc. December 2006

Table 2-3

Summary of Previous Investigations Performed by Tetra Tech within Historical Operational Area B

Feature No.	Feature Description	Source	Investigation Summary
8	Blue Motor Burn Pit		Four short-range attack missile (SRAM) motors with Maloy Blue propellant were reported to have been burned and disposed of at this location. Solvents, ammonium perchlorate, ferrocene, and diesel fuels were reported to have been used at the feature.
		Tetra Tech, 2005	Two soil borings were drilled and sampled to 20 feet bgs. Soil samples were analyzed for VOCs, SVOCs, perchlorate, Title 22 metals, PCBs, TPH, and 1,4-dioxane. SVOCs, perchlorate and 1,4-dioxane were not detected at concentrations above their respective reporting limits. TPH was detected at a concentration of 6.8 mg/kg. VOC (i.e., acetone and ethanol) concentrations ranged from 23 to 700 µg/kg. Detected concentrations of acetone are associated with laboratory cross-contamination. Metals were detected at low concentrations. A limited soil gas survey for VOCs and fuel hydrocarbons was also performed. No VOCs or fuel hydrocarbons were detected in soil gas. No further investigations are proposed for this feature.
9	Motor Washout Area		Defective solid rocket propellant was washed out of the motor casings with a high-pressure water jet in this area. The water slurry produced from the washout activities was collected in a lined catch basin and later brought to the burn pit landfill for incineration. Additionally, a flamethrower was applied to the ground surface of the washout area to burn off any residual propellant. Solvents, ammonium perchlorate, ferrocene, and diesel fuels were reported to have been used at the feature.
		Tetra Tech, 2002	Two soil borings and soil gas locations were drilled to approximately 15 feet bgs in the vicinity of the motor washout area. Samples were analyzed for VOCs, 1,4-dioxane, and perchlorate. Perchlorate was reported with a maximum concentration of 178 µg/kg in soil. VOCs and 1,4-dioxane were not detected at concentrations above their respective reporting limits. VOCs were not detected above their reporting limits in soil gas.
		Tetra Tech, 2005	Nine soil borings were drilled and sampled to 40 feet bgs at this feature. The soil samples were analyzed for VOCs, SVOCs, perchlorate, Title 22 metals, TPH and 1,4-dioxane. SVOCs, TPH and 1,4-dioxane were not detected at concentrations above their respective reporting limits. VOCs (i.e., acetone, chloroform, methylene chloride, and TCE) were detected at concentrations ranging from 1.2 to 64 µg/kg. Detected concentrations of acetone and methylene chloride are associated with laboratory cross-contamination. Perchlorate was detected at concentrations ranging from 26.7 to 1,250 µg/kg. Metals were detected with arsenic detected at concentrations up to 9.98 mg/kg. TCE and 1,1-DCE were detected in soil gas at concentrations up to 1.2 µg/L and 0.9 µg/L, respectively. Further investigations are proposed to provide additional soil contamination delineation.
10	Propellant Mixing Station (Bldg 315)		This feature consisted of a 300-gallon mixer. At the mix station, dry oxidizer, primarily ammonium perchlorate, was blended in the mixer with liquid ingredients consisting of butadiene derivatives and a burn rate modifier (primarily ferrocene). Solvents, ammonium perchlorate, ferrocene, and other fuels were reported to have been used at the feature.
		Tetra Tech, 2002	Two soil and soil gas borings were drilled to approximately 15 feet bgs in the vicinity of the former propellant mixing station. Samples were collected and analyzed for VOCs, perchlorate, and 1,4-dioxane. Perchlorate was detected to a maximum concentration of 1,260 µg/kg. VOCs and 1,4-dioxane were not detected at concentrations above their respective reporting limits. VOCs were not detected above their reporting limits in soil gas.

Table 2-3 (continued)
Summary of Previous Investigations Performed by Tetra Tech
within Historical Operational Area B

Feature No.	Feature Description	Source	Investigation Summary
10 (Cont.)	Propellant Mixing Station (Bldg 315)	Tetra Tech, 2005	Four soil borings were drilled and sampled to 40 feet bgs at this feature. The soil samples were analyzed for VOCs, SVOCs, perchlorate, Title 22 metals, TPH, and 1,4-dioxane. 1,4-dioxane was not detected at concentrations above the reporting limit. Low levels of TPH, perchlorate, Title 22 metals, SVOCs and VOCs (i.e., acetone and toluene) were detected in samples from this feature. The TPH concentrations ranged from 27 to 620 mg/kg. Perchlorate concentrations ranged from 29 to 4,610 µg/kg. VOC concentrations were 1.1 and 26 µg/kg. Detected concentrations of acetone and toluene are associated with laboratory cross-contamination. Detected concentrations of SVOCs (polyaromatic hydrocarbons, phthalates, and phenols) ranged from 0.66 to 4.5 mg/kg. Metals were detected with arsenic detected at concentrations up to 18.1 mg/kg. Further investigations are proposed to provide additional soil contamination delineation.
11	Fuel Slurry Station (Bldg 317)		The Fuel Slurry Station was used primarily to weigh and premix liquid fuel prior to propellant mixing activities. Perchlorate and solvents (primarily butadiene) were used at this feature.
		Tetra Tech, 2002	Two soil and soil gas borings were drilled and sampled to approximately 15 feet bgs in the vicinity of the fuel slurry station. Samples were analyzed for VOCs, perchlorate and 1,4-dioxane. 1,4-dioxane was not detected at concentrations above its reporting limit in soil. Perchlorate was reported with a maximum concentration of 88.4 µg/kg in soil. VOCs were reported above their reporting limits. Methyl-tert butyl ether (MTBE) was reported at a maximum concentration of 1.5 µg/L in soil gas.
		Tetra Tech, 2005	Four soil borings were drilled and sampled to 40 feet bgs at this location. Soil samples were analyzed for VOCs, SVOCs, and perchlorate. A limited soil gas survey was performed for VOCs. VOCs (i.e., 1,1-dichloroethane, acetone, benzene, toluene, and trichloroethane) were detected at concentrations ranging 0.93 to 50 µg/kg. Detected concentrations of acetone, benzene, and toluene are associated with laboratory cross-contamination. Perchlorate was detected at concentrations ranging from 29.2 to 328 µg/kg. TCE and 1,1-DCE were detected in the soil gas. Further investigations are proposed to provide additional soil contamination delineation.
12	Chemical Storage Quonset Hut		This 40- by 80-foot storage building was possibly used to store perchlorate, solvents, ferrocene, and other chemicals.
		Tetra Tech, 2002	Two soil and soil gas borings were drilled and sampled to approximately 15 feet bgs in the vicinity of the chemical storage Quonset hut. The samples were analyzed for VOCs, perchlorate, and 1,4-dioxane. VOCs, perchlorate, and 1,4-dioxane were not detected at concentrations above their respective reporting limits in soil. Benzene, toluene and xylenes were detected in the soil gas samples at concentrations of 0.5 µg/L, 0.8 µg/L and 1.5 µg/L, respectively.
		Tetra Tech, 2005	Two soil borings were drilled and sampled to 20 feet bgs at this location. Soil samples were analyzed for VOCs, SVOCs, perchlorate, 1,4-dioxane, Title 22 metals, PCBs, and TPH. VOCs, SVOCs, 1,4, dioxane, TPH, and PCBs were not detected at concentrations above their respective reporting limit. Perchlorate concentrations were detected at concentrations ranging from 23.6 to 95.8 µg/kg. Metals were detected with arsenic detected at concentrations up to 9.51 mg/kg. A limited soil gas survey was performed for this feature. TCE was detected in the soil gas at 20 feet bgs. No further investigations are proposed for this feature.

Table 2-3 (continued)
Summary of Previous Investigations Performed by Tetra Tech
within Historical Operational Area B

Feature No.	Feature Description	Source	Investigation Summary
13	Vault - Proposed		This concrete vault structure was possibly used for utilities or an electrical transformer. PCBs may have been used at this feature.
		Tetra Tech, 2005	One soil boring was drilled and sampled to 5 feet bgs at this location. Samples collected were analyzed for PCBs and VOCs. PCBs were not detected at this feature. One VOC (i.e., acetone) was detected at a concentration of 35 µg/kg. The detected concentration of acetone is associated with laboratory cross-contamination. No further investigations are proposed for this feature.
14	Pad with Dry Well		This feature consists of a concrete pad with an adjacent dry well. Historical use of the pad and dry well is unknown.
		Tetra Tech, 2005	Two soil borings were drilled and sampled to 5 feet (dry well) and 10 feet bgs at this location. Samples collected were analyzed for VOCs, SVOCs, perchlorate, Title 22 metals, PCBs and TPH. SVOCs, PCBs, 1,4-dioxane, and TPH were not detected at concentrations above their respective reporting limits. Perchlorate was detected at concentrations ranging from 312 to 20,400 µg/kg. One VOC (i.e., acetone) was detected at a concentration of 62 µg/kg. Metals were detected with arsenic detected at concentrations up to 3.39 mg/kg. A soil gas survey was also performed for this feature. VOCs were not detected in the soil gas. Further investigations are proposed to provide additional soil contamination delineation.
15	Electrical Enclosure – Bldg 315A		This structure possibly housed an electrical transformer. PCBs may have been used at this feature.
		Tetra Tech, 2005	One soil boring was drilled and sampled to 5 feet bgs at this location. Samples were analyzed for PCBs and VOCs. PCBs were not detected at concentrations above the reporting limits. VOCS (i.e., acetone and benzene) were detected at concentrations ranging from 1.6 to 130 µg/kg. The detected concentrations of acetone and benzene are associated with laboratory cross-contamination. No further investigations are proposed for this feature.
16	Electrical Enclosure – South of Motor Washout Area		This structure possibly housed an electrical transformer. PCBs may have been used at this feature.
		Tetra Tech, 2005	One soil boring was drilled and sampled to 5 feet bgs at this location. Samples were analyzed for PCBs and VOCs. PCBs were not detected at concentrations above the reporting limits. One VOC (i.e., acetone) was detected at a concentration of 32 µg/kg. The detected concentration of acetone is associated with laboratory cross-contamination. No further investigations are proposed for this feature.
17	Electrical Enclosure/Sub-Station Main Service		This structure possibly housed an electrical transformer. PCBs may have been used at this feature.
		Tetra Tech, 2005	One soil boring was drilled and sampled to 5 feet bgs at this location. Samples collected were analyzed for PCBs and VOCs. PCBs and VOCs were not detected above their respective reporting limits. No further investigations are proposed for this feature.
18	Cast and Cure Station		After the propellant mixing process, the mix was brought to the Cast and Cure Station for casting and curing by heating the propellant cast to 140˚ F for several days. Perchlorate and possibly solvents (primarily butadiene) were used at this feature.
		Tetra Tech, 2002	Two soil and soil gas borings were drilled and sampled to approximately 15 feet bgs in the vicinity of the fuel slurry station. The samples were analyzed for VOCs, perchlorate and 1,4-dioxane. VOCs and 1,4-dioxane were not detected at concentrations above their respective reporting limits. Perchlorate was detected with a maximum concentration of 47.1 µg/kg. VOCs were not detected above their reporting limits in soil gas.

Table 2-3 (continued)
Summary of Previous Investigations Performed by Tetra Tech
within Historical Operational Area B

Feature No.	Feature Description	Source	Investigation Summary
18 (Cont.)	Cast and Cure Station	Tetra Tech, 2005	Two soil borings were drilled and sampled to 20 feet bgs at this location. Samples collected were analyzed for VOCs, 1,4-dioxane, SVOCs, perchlorate, and Title 22 metals. VOCs, 1,4-dioxane, and SVOCs were not detected at concentrations above their respective reporting limits. Perchlorate concentrations in soil samples ranged from 62.3 to 9,976 µg/kg. One VOC (i.e., acetone) was detected at a concentration of 62 µg/kg. The detected concentration of acetone is associated with laboratory cross-contamination. Metals were detected with arsenic detected at concentrations up to 2.99 mg/kg. A limited soil gas survey was also performed for this feature. TCE was detected in the soil gas at 20 feet bgs. Further investigations are proposed to provide additional soil contamination delineation.
19	Pad on Berm		This feature appears to have been used as a test stand. Chemicals stored and/or used at this feature are unknown.
		Tetra Tech, 2005	One soil boring was drilled and sampled to 5 feet bgs at this location. Samples were analyzed for VOCs, SVOCs, perchlorate, 1,4-dioxane, Title 22 metals, and PCBs. VOCs, SVOCs, PCBs, and 1,4-dioxane were not detected at concentrations above their respective reporting limits. Perchlorate concentrations ranged from 85.3 to 90.6 µg/kg. Metals were detected with arsenic detected at concentrations up to 7.48 mg/kg. Further investigations are proposed to provide additional soil contamination delineation.
20	Pad South of Mix Station Bunker – Bldg 315A		This concrete pad appears to have been used as a utility pad.
		Tetra Tech, 2005	One soil boring was drilled and sampled to 5 feet bgs at this location. Samples were analyzed for VOCs, SVOCs, perchlorate, 1,4-dioxane, Title 22 metals, and PCBs. SVOCs, perchlorate, 1,4-dioxane, and PCBs were not detected at concentrations above their respective reporting limits. Perchlorate concentrations ranged from 310 to 402 µg/kg. One VOC (i.e., acetone) was detected at a concentration of 49 µg/kg. The detected concentration of acetone is associated with laboratory cross-contamination. Metals were detected at low concentrations. Further investigations are proposed to provide additional soil contamination delineation.
21	55-Gallon Drum		This empty, rusted, 55-gallon drum is partially buried. The former content and use of the drum is unknown. PCBs and other chemicals may have been used at this feature.
		Tetra Tech, 2005	One soil boring was drilled and sampled to 5 feet bgs at this location. Samples collected were analyzed for VOCs, SVOCs, perchlorate, 1,4-dioxane, Title 22 metals, and PCBs. SVOCs, perchlorate, 1,4-dioxane, and PCBs were not detected at concentrations above their respective reporting limits. One VOC (i.e., acetone) was detected at concentrations ranging from 28 to 49 µg/kg. The detected concentration of acetone is associated with laboratory cross-contamination. Metals were detected with arsenic detected at concentrations up to 1.72 mg/kg. No further investigations are proposed for this feature.
Historical Operational Area B – Area Wide Investigation		Tetra Tech, 2005	A human health and ecological risk assessment will be performed for Historical Operational Area B. As part of the risk assessment, a background assessment will be performed to evaluate naturally occurring metals (e.g., arsenic) at Historical Operational Area B.

2.2.3 Previous Investigations for Historical Operational Area C

A total of four (4) historical features were identified as potential RECs within Historical Operational Area C during the Phase I ESA (Figure 2-5) performed by Tetra Tech (Tetra Tech, 2003b). Two historical features, Burn Pit Landfill (Feature No. 22) and Beryllium Motor Test Stand (Feature No. 24) were previously investigated. A brief summary of the previous investigations performed at these features is presented in Table 2-4.

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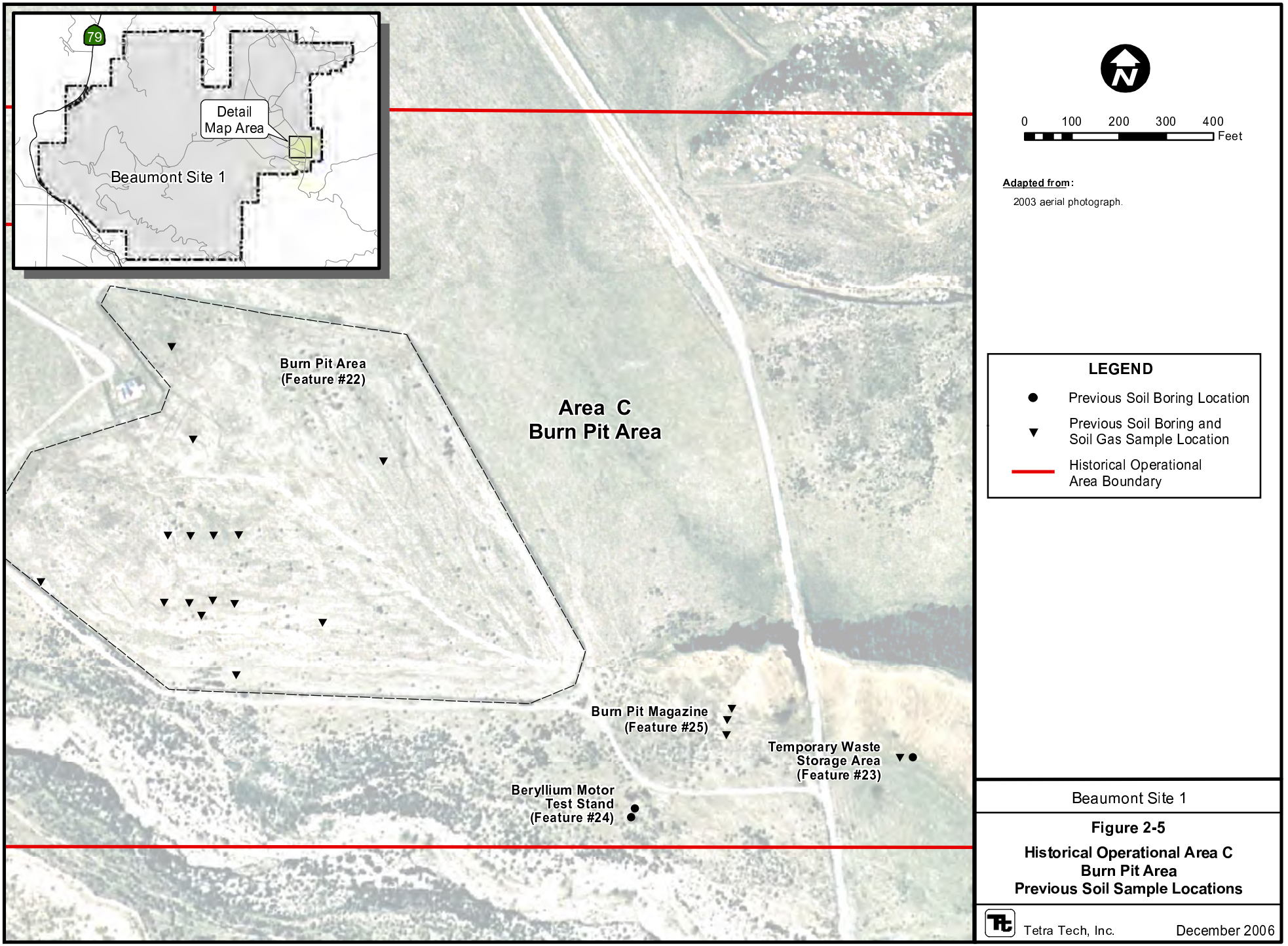

Beaumont Site 1

Figure 2-5

Historical Operational Area C
Burn Pit Area
Previous Soil Sample Locations

Tetra Tech, Inc. December 2006

Table 2-4

Summary of Previous Investigations within Historical Operational Area C

Feature No.	Feature Description	Source	Investigation Summary
22	Burn Pit Landfill		Waste material from both Beaumont Sites was placed in trenches, incinerated, and buried in the burn pit landfill area. Materials burned in the trenches included: ammonium perchlorate, diesel fuel, wet propellant, dry propellant, out-of-specification propellant, adhesives, resin, metal drums, plastic bags, paper, and solvents. Burn pits were approximately 6 to 8 feet wide by 50 to 100 feet long and 4 to 6 feet deep. A total of 20 to 40 burn pits were previously reported to be within the burn pit landfill area.
		Radian, 1990	In 1990, a total of eight (8) shallow exploratory trenches approximately 3 feet wide and 5 to 6 feet deep were excavated to determine the lateral extent of the burn pit area. Samples were collected from the waste material excavated from the trenches and analyzed for VOCs, SVOCs, metals and nitrates. VOCs, SVOCs and metals were detected above their respective reporting limits from the waste material samples. Four composite soil samples were collected from beneath the burn material layer and analyzed for VOCs, SVOCs, metals and nitrates. Due to quality control issues (i.e., sample handling, blank contamination) with the samples, the VOC and SVOC analytical results were deemed to be invalid. In addition to the trenching activities, five soil borings were drilled within the burn pit trenches and samples were collected from beneath the burn waste. The samples were analyzed for VOCs. Only 1,1,1-TCA was detected above the reporting limit at a concentration of 35 µg/kg.
		Radian, 1992	Soil gas probes were drilled and installed within the Burn Pit Area at depths ranging from 4 inches to 78 feet bgs. Analytical results from the surface probes (4 inches bgs) reported low total VOC concentrations ranging from 1 to 23 parts per billion (ppb). The results from the shallow probes (3.5 to 7 feet bgs) reported total VOC concentrations ranging from 50 to approximately 6,400 ppb. The analytical results from the deeper probes reported a maximum total soil gas VOC concentration of 1,000,000 ppbv.
		Radian, 1992	In 1992, Radian Corporation performed a burn pit remedial action program within the burn pit landfill. During the removal activities, a total of nine (9) trenches were identified and 21 former burn pits were excavated. Approximately 18.6 tons of specific wastes (i.e., drums, unburned rocket propellant, and blue burn rate modifier) were excavated from the trenches. Overall, 48,600 cubic yards of soil was removed and later backfilled into the excavation trenches. Confirmation soil samples were collected from below the excavated materials and analyzed for Title 22 metals, VOCs, and SVOCs. Analytical results from the confirmation soil samples detected metal concentrations below their respective total threshold limit concentrations and below ten times soluble threshold limit concentrations. Additionally, no VOCs or SVOCs were reported above their respective method detection limits. None of the confirmation soil samples were analyzed for perchlorate and 1,4-dioxane.
		Tetra Tech, 2002	A total of 10 soil and soil gas borings were drilled to an approximate depth of 15 feet bgs within the burn pit area. A total of 10 soil and soil gas samples were collected and analyzed for VOCs, 1,4-dioxane, and perchlorate. Perchlorate was reported at a maximum concentration of 259 µg/kg in soil. Neither VOCs nor 1,4-dioxane was reported above their respective reporting limits in soil. The maximum concentration of VOCs (1,1-dichloroethane) was 152 µg/L in soil gas.

Table 2-4 (continued)

Summary of Previous Investigations within Historical Operational Area C

Feature No.	Feature Description	Source	Investigation Summary
22 (Cont.)	Burn Pit Landfill	Tetra Tech, 2005	Fifteen soil borings were drilled and sampled from 10 to 40 feet and 5 to 60 feet bgs at this location. The soil samples collected were analyzed for VOCs, SVOCs, 1-4-dioxane, perchlorate, Title 22 metals, and TPH. SVOCs, TPH, and 1,4-dioxane were not detected at concentrations above their respective reporting limits. Perchlorate was detected at concentrations ranging from 22.6 to 171,000 µg/kg. VOCs (i.e., acetone, benzene, chloroethane, and toluene) were detected at concentrations ranging from 1.1 to 40 µg/kg. The detected concentrations of acetone, benzene, and toluene are associated with laboratory cross-contamination. Metals were detected with arsenic detected at concentrations up to 1.20 mg/kg. A limited soil gas survey for VOCs will be performed for this feature. TCE, PCE, 1,1-DCE, 1,1,1-TCA and Freon-113 were detected in the soil gas. Further investigations are proposed to provide additional soil contamination delineation.
23	Temporary Storage Area		This concrete pad area was used to temporarily store 55-gallon waste storage drums prior to incinerating activities. The contents of the drums are unknown.
		Tetra Tech, 2005	Two soil borings were drilled to 20 feet bgs at this location. Samples were analyzed for VOCs, SVOCs, perchlorate, Title 22 metals, and 1,4-dioxane. SVOCs and 1,4-dioxane were not detected at concentrations above their respective reporting limits. Perchlorate was detected at concentrations ranging from 43.6 to 505 µg/kg. One VOC (i.e., acetone) was detected at concentrations ranging from 26 to 45 µg/kg. The detected concentration of acetone is associated with laboratory cross-contamination. Metals were detected with arsenic detected at concentrations up to 1.31 mg/kg. No VOCs were detected in soil gas samples. Further investigations are proposed to provide additional soil contamination delineation.
24	Beryllium Motor Test Stand		This concrete pad with test mount was reported to have been used to test an experimental beryllium motor.
		Radian, 1986b	Beryllium sampling was conducted in the area. The beryllium analytical results were reported at low concentrations over a wide area and concluded to be representative of background levels.
		Tetra Tech, 2005	Two soil borings were drilled to 5 feet bgs at this location. Samples collected were analyzed for VOCs and PCBs. PCBs were not detected above the reporting limits. VOCs (i.e., acetone and benzene) were detected at concentrations ranging from 2 to 85 µg/kg. The detected concentrations of acetone and benzene are associated with laboratory cross-contamination. No further investigations are proposed for this feature.
25	Burn Pit Magazine		This feature consists of a concrete pad that was used as an equipment storage area. The type of chemicals stored at this feature are unknown.
		Tetra Tech, 2005	Three soil borings were drilled to 5 feet bgs at this location. Samples were analyzed for VOCs, SVOCs, 1,4-dioxane, and TPH. SVOCs, 1,4-dioxane, and TPH were not detected at concentrations above their respective reporting limits. VOCs (i.e., acetone and benzene) were detected at concentrations ranging from 39 to 46 µg/kg. The detected concentrations of acetone and benzene are associated with laboratory cross-contamination. No further investigations are proposed for this feature.
Historical Operational Area C – Area Wide Investigation		Tetra Tech, 2005	A human health and ecological risk assessment will be performed for Historical Operational Area C. As part of the risk assessment, a background assessment will be performed to evaluate naturally occurring metals (e.g., arsenic) at Historical Operational Area C.

SECTION 3
INVESTIGATION APPROACH

3.1 INTRODUCTION

The subsurface soil investigation program is based on assessing site-specific features (i.e., burn pits, wash out areas, and subsurface structures, etc.) to complete a general overall assessment of the subsurface soil at Beaumont Site 1. Class 1 or Class 2 soil borings will be completed to provide additional information to the area of impact identified in the Soil Investigation Report for Historical Operational Areas A, B, and C at Beaumont Site 1 (Tetra Tech, 2005). "Class I" soil borings will address potential deep soil impacts by drilling method. "Class II" soil borings will address areas where impacts are not expected to extend into deep soils and direct push and hand auger techniques can be used to collect samples. The Class 1 borings will be completed to slightly above the groundwater table based on water level measurements from September 2005 to evaluate the potential for impact to groundwater. Only those features identified in Section 2 as requiring additional characterization are discussed below. Sampling locations were selected to further delineate the affected area. If impacts to soil were not delineated in any specific direction during previous investigations, soil sampling has been proposed to fill the data gap. Additional sampling may be required if this supplemental soil investigation program does not fully delineate impacts to soil from historical operations.

Additional maps are provided in Appendix A for each of the Historical Operational Areas. These maps include an operational area overview of the locations of previous and planned borings, existing monitoring wells; feature maps at a larger scale with locations of previous and planned borings, existing monitoring wells; and maps with graphical representations of perchlorate results from previous borings.

As specified in the Soil Investigation Work Plan I (Tetra Tech, 2003c), the locations of all sampling points will be surveyed in the field using global positioning surveying (GPS) techniques. The surveyed locations will be provided in the investigation report to be completed after the activities described in this supplemental sampling and analysis plan are complete.

3.2 FEATURE SPECIFIC INVESTIGATION SCHEME

3.2.1 Historical Operational Area A (Eastern Aerojet Range)

Based on a review of previous investigations, one (1) feature of potential concern was identified in Historical Operational Area A as requiring supplemental investigation. A detailed description of the feature and planned soil boring is presented in Table 3-1, shown in Figure 3-1, and discussed in the following section. One Class 2 soil boring will be used to delineate the area of impact.

Planned Class 2 Soil Boring

Based on a review of data from previous soil investigations, one (1) Class 2 soil boring has been planned for Historical Operational Area A, as follows:

Feature No. 6 — *Old Rocket Motor Casing* is located in the northwestern portion of Historical Operational Area A. One (1) soil boring is proposed to characterize potential soil impact at the Old Rocket Motor Casing area. Soil samples collected at this feature will be analyzed for VOCs, SVOCs, perchlorate, Title 22 Metals, and 1,4-dioxane.

3.2.2 Historical Operational Area B (Rocket Motor Production Area)

Based on a review of previous investigations, seven (7) features of potential concern were identified in Historical Operational Area B as requiring supplemental investigation. A detailed description of each feature and planned soil borings is presented in Table 3-1, shown in Figure 3-2, and discussed in the following section. Class I soil borings will be used to further the area of impact. Two groundwater monitoring wells are proposed and will be drilled to a depth of about 15 feet below static groundwater. At the monitoring well locations, soil samples will be collected above the groundwater table.

Planned Class 1 Soil Borings

Based on a review of data from previous soil investigations, a total of twenty (20) Class 1 soil borings have been planned for Historical Operational Area B, as follows:

Feature No. 9 — *Motor Washout Area* is located in the south central portion of Historical Operational Area B. Perchlorate was detected in soil samples collected from soil borings at this feature (Tetra Tech, 2005). Three (3) additional soil borings are

Table 3-1
Summary of Sampling and Analysis Plan for Historical Operational Areas A through C

Feature No.	Historical Operational Area	Feature	Borehole No.	Borehole Class	Supplemental Soil Investigation Sampling Plan Approach					Number Tested Samples		Analytical Scheme of Tested Soil Samples				
					Number of Soil Borings	Depth	Number of Soil Gas Points	Depth	Sampling Interval	Soil	Soil Gas	VOCs Method 8260B	SVOCs Method 8270C	Perchlorate Method 314.6	Title 22 Metals	1,4-dioxane Method 8270SIM
6	A	Old Rocket Motor Casing	A6-HAS1	Class 2	1	5' bgs	-	-	Soil borings 0.5' and 5'	2	-	2	2	2	2	2
9	B	Motor Washout Area	B9-HSAS1 to B9-HSAS3	Class 1	3	20' bgs	-	-	Soil borings 0.5', 5', 10', 15' and 20'	9	-	-	-	9	-	-
10	B	Propellant Mixing Station (Bldg 315)	B10-HSAS4 to B10-HSAS7	Class 1	4	30' bgs	-	-	Soil borings 0.5', 5', 10', 15', 20', 25' and 30'	15	-	-	-	15	-	-
11	B	Fuel Slurry Station (Bldg 317)	B11-HSAS8 to B11-HSAS10 And B11-GS8 to B11-GS10	Class 1	3	30' bgs	3	30' bgs	Soil borings 0.5', 5', 10', 15', 20', 25' and 30' Soil gas probes 10', 20', and 30'	9	9	-	-	9	-	-
14	B	Pad with Dry Well	B14-HSAS11 to B14-HSAS13	Class 1	3	30' bgs	-	-	Soil borings 0.5', 5', 10', 15', 20', 25' and 30'	9	-	-	-	9	-	-
18	B	Cast and Cure Station (Bldg 316)	B18-HSAS14 to B18-HSAS16	Class 1	3	20' bgs	-	-	Soil borings 0.5', 5', 10', 15' and 20'	9	-	-	-	9	-	-
19	B	Pad on Berm	B19-HSAS17 to B19-HSAS18	Class 1	2	20' bgs	-	-	Soil borings 0.5', 5', 10', 15' and 20'	6	-	-	-	6	-	-
20	B	Pad South of Mix Station Bunker (Bldg 315A)	B20-HSAS19 to B20-HSAS20	Class 1	2	30' bgs	-	-	Soil borings 0.5', 5', 10', 15', 20', 25' and 30'	3	-	-	-	3	-	-

Table 3-1
Summary of Sampling and Analysis Plan for Historical Operational Areas A through C

Feature No.	Historical Operational Area	Feature	Borehole No.	Borehole Class	Supplemental Soil Investigation Sampling Plan Approach					Number Tested Samples		Analytical Scheme of Tested Soil Samples				
					Number of Soil Borings	Depth	Number of Soil Gas Points	Depth	Sampling Interval	Soil	Soil Gas	VOCs Method 8260B	SVOCs Method 8270C	Perchlorate Method 314.6	Title 22 Metals	1,4-dioxane Method 8270SIM
22	C	Burn Pit Landfill	C22-HSAS21 to C22-HSAS26 and C22-GS21 to C22-GS26	Class 1	6	4-60' bgs 2-50’ bgs	6	4-50' bgs 2-40’ bgs	<u>Soil borings</u> *C22-HSAS21 to C22-HSAS24* 0.5', 5', 10', 15', 20’, 25’, 30’, 35’, 40’, 45’, 50’, 55’, and 60' *C22-HSAS25 to C22-HSAS26* 0.5', 5', 10', 15', 20’, 25’, 30’, 35’, 40’, 45’, and 50’ <u>Soil gas probes</u> *C22-GS21 to C22-GS24* 10', 20’, 30’, 40’, and 50’ *C22-GS25 to C22-GS26* 10', 20’, 30’, and 40’	18	28	18	-	18	-	-
23	C	Temporary Storage Area	C22-HSAS-27 and C22-HSAS-28	Class 1	2	2-40’bgs	-	-	<u>Soil borings</u> 0.5', 5', 10', 15', 20’, 25’, 30’, 35’ and 40’	6	-	-	-	-	-	-
New AOC	C		C23-SS1 to C23SSS8	Surface Samples	8	0.5’bgs	-	-	<u>Surface Samples</u> 0.5’	8	-	-	-	-	8 (Beryllium only)	-

One borehole at Features 10 and 14 will be converted to a groundwater monitoring well.
“Class I” soil borings will address potential deep soil impacts by drilling method.
“Class II” soil borings will address areas where impacts are not expected to extend into deep soils and direct push and hand auger techniques can be used to collect samples.
bgs- below ground surface
Soil gas probes will be placed within boring of same locational number.

The sample label shall consist of:

“C” = Historical Operational Area
Number = Feature Number
“HSA”= Hollow Stem Auger or “G” = Soil Gas
“S”=Supplemental Soil Investigation
Number = Activity Number
Sample Depth

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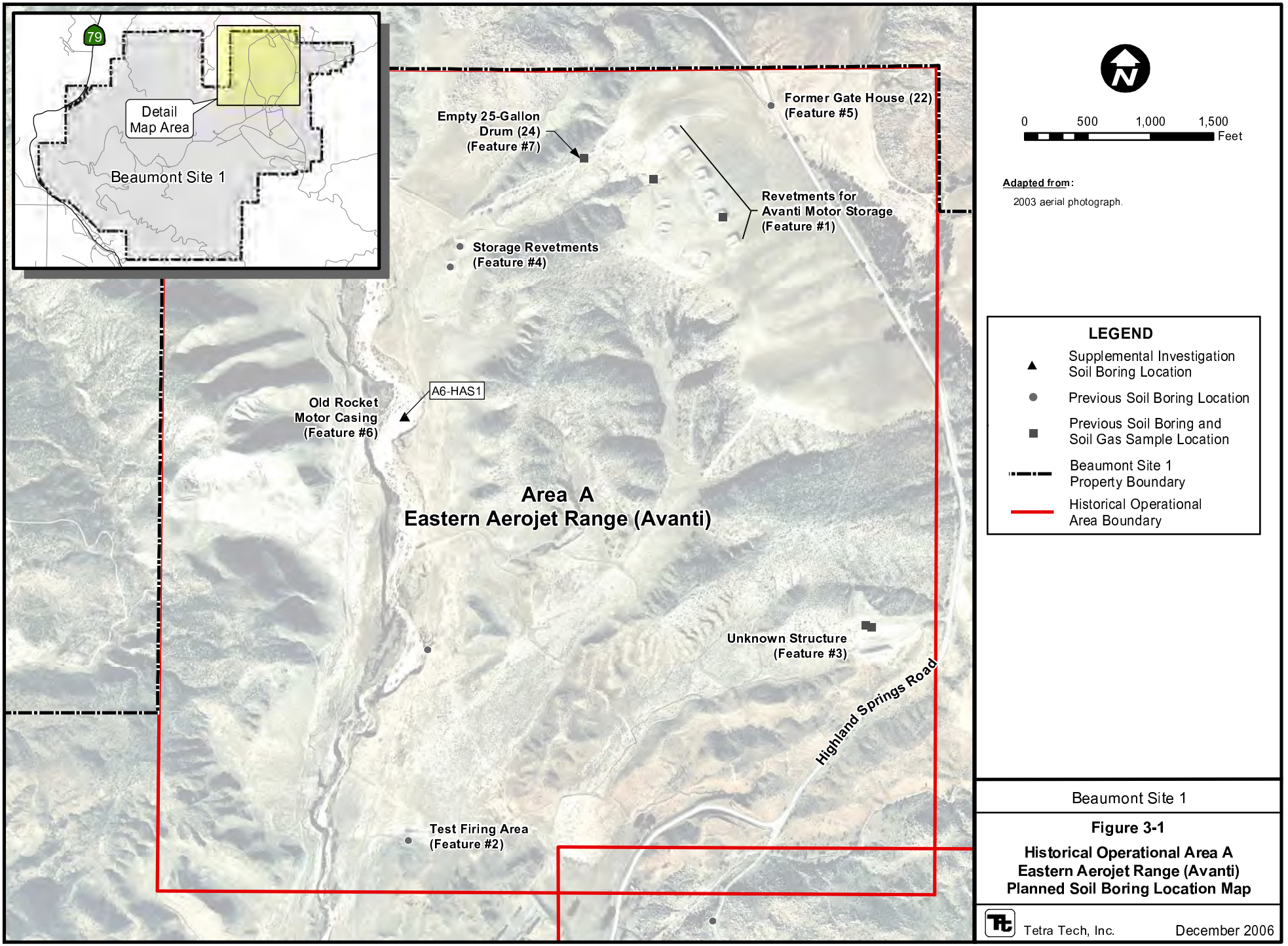

Beaumont Site 1

Figure 3-1

Historical Operational Area A
Eastern Aerojet Range (Avanti)
Planned Soil Boring Location Map

Tetra Tech, Inc. December 2006

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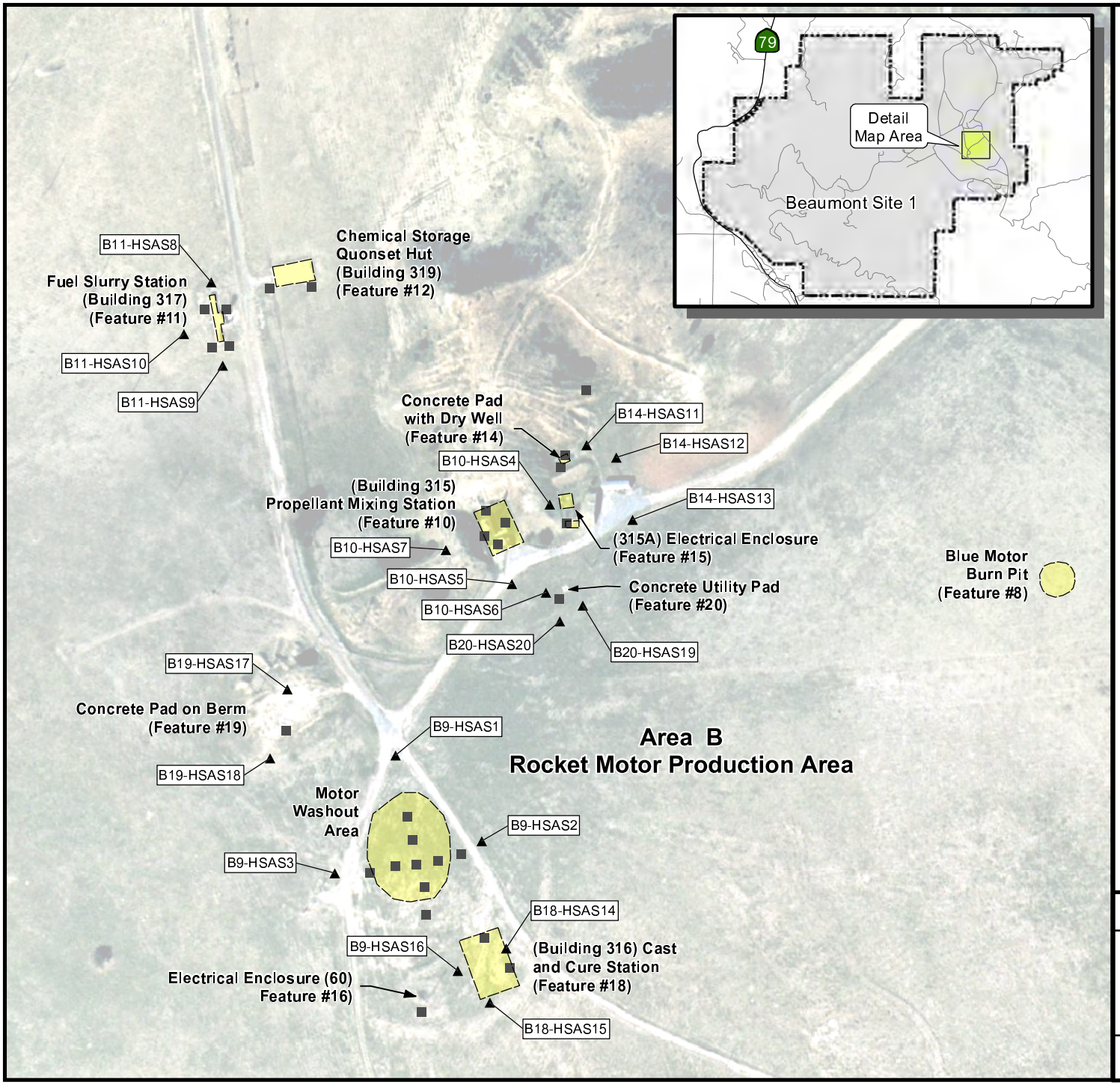

Beaumont Site 1

Figure 3-2
Historical Operational Area B
Rocket Motor Production Area
(Southern Portion)
Planned Soil Boring Location Map

Tetra Tech, Inc.

December 2006

proposed to further delineate perchlorate contamination to the east, west and north of the Motor Washout Area where the limits of soil impact have not been defined. Soil samples collected at this feature will be analyzed for perchlorate.

Feature No. 10

Propellant Mixing Station (Building 315) is located in the central portion of Historical Operational Area B. Perchlorate was detected in soil samples collected from soil borings at this feature (Tetra Tech, 2005). Four (4) additional soil borings are proposed to further delineate perchlorate contamination to the east, west and south of the Propellant Mix Station where the limits of soil impact have not been defined. Soil samples collected at this feature will be analyzed for perchlorate.

One groundwater monitoring well is proposed to be installed at Feature No. 10 to determine if soil impact at this feature has impacted groundwater. The monitoring well will be installed in the boring of B10-HSAS5. This monitoring well will be installed, developed and sampled in accordance with the procedures described in the Final Groundwater Well Installation Work Plan (Tetra Tech, 2004) and the Revised Groundwater Sampling and Analysis Plan (Tetra Tech, 2003a). It is estimated that the monitoring well may be up to 30 feet in depth, but shallow bedrock may be encountered due to the proximity of the feature to bedrock outcrops. The well is expected be installed with up to 20 feet of screen. The screen length was selected to be 20 feet because water level fluctuations exceeding 25 feet have been observed in years of high rainfall. However, the exact depth of the monitoring well and the length of the screen interval will be based on site conditions and will be determined in the field by the geologist. The collected groundwater sample will be analyzed for VOCs, 1,4-dioxane, and perchlorate. If impacted groundwater is detected, further assessment will be performed under the groundwater characterization program.

Feature No. 11

Fuel Slurry Station (Building 317) is located in the central portion of Historical Operational Area B. Perchlorate was detected in soil samples collected from soil borings at this feature (Tetra Tech, 2005). Three (3) additional soil borings are proposed to further delineate perchlorate contamination to the southeast, southwest and northeast of the Fuel Slurry Station. Soil samples collected at this feature will be analyzed for perchlorate where the limits of soil impact have not been defined.

A limited soil gas survey will be performed for VOCs with soil gas probes placed in the borings drilled for soil sampling.

Feature No. 14 — *Pad with Dry Well* is located in the central portion of Historical Operational Area B. Perchlorate was detected in soil samples collected from soil borings at this feature (Tetra Tech, 2005). Three (3) additional soil borings are proposed to further delineate perchlorate contamination to the north and east of the Pad with Dry Well where the limits of soil impact have not been defined. Soil borings drilled and sampled to the east of Feature No. 10 (Propellant Mixing Station) may also provide information relevant to this feature. Soil samples collected at this feature will be analyzed for perchlorate.

One groundwater monitoring well is proposed to be installed at Feature No. 14 to determine if soil impact at this feature has impacted groundwater. The monitoring well will be installed in the boring of B14-HSAS11 near the pad. This monitoring well will be installed, developed and sampled as described for the monitoring well at Feature 10. If impacted groundwater is detected, further assessment will be performed under the groundwater characterization program.

Feature No. 18 — *Cast and Cure Station (Building 316)* is located in the southern portion of Historical Operational Area B. Perchlorate was detected in soil samples collected from soil borings at this feature (Tetra Tech, 2005). Three (3) additional soil borings are proposed to further delineate perchlorate contamination to the east, west and south of the Cast and Cure Station. Soil samples collected at this feature will be analyzed for perchlorate.

Feature No. 19 — *Pad on Berm* is located in the southern portion of Historical Operational Area B. Perchlorate was detected in soil samples collected from soil borings at this feature (Tetra Tech, 2005). Two (2) additional soil borings are proposed to further delineate perchlorate contamination to the north and south of the Pad on Berm where the limits of soil impact have not been defined. Soil samples collected at this feature will be analyzed for perchlorate.

Feature No. 20 — *Pad South of Mix Station Bunker (Building 315A)* is located in the central portion of Historical Operational Area B. Perchlorate was detected in soil samples collected from soil borings at this feature (Tetra Tech, 2005). Two (2) additional soil borings are proposed to further delineate perchlorate contamination to the southeast and southwest of the Pad South of the Mix Station Bunker where the

limits of soil impact have not been defined. Soil samples collected at this feature will be analyzed for perchlorate.

3.2.3 Historical Operational Area C (Burn Pit Area)

Based on a review of previous investigations, a total of two (2) historical features were identified in Historical Operational Area C as requiring additional investigation. A detailed description of each feature and the planned soil and soil gas boring locations are presented in Table 3-1, shown in Figure 3-3 and 3-4, and discussed in the following section.

Planned Class 1 Soil Borings and Soil Gas Points

Based on a review of data from previous soil investigations, a total of eight (8) Class 1 soil borings have been planned for Historical Operational Area C, as follows:

Feature No. 22. *Burn Pit Landfill* is located in the eastern portion of Historical Operational Area C. Perchlorate was detected in soil samples collected from soil borings at this feature, and TCE and 1-1-DCE was detected in soil gas (Tetra Tech, 2005). Six (6) additional soil borings are proposed to further delineate perchlorate contamination to the southeast and southwest of the Burn Pit Landfill where the limits of soil impact have not been defined and unevaluated former pits are located. Should impacts to soil be detected in pits in these areas, additional borings may be required. Soil samples collected at this feature will be analyzed for perchlorate and VOCs. Up to 10 soil samples may be tested for dioxins and furans by Method 8290 and n-nitrosodimethylamine (NDMA) by Method 1625A. The samples tested for dioxins and furans and NDMA will be selected based on assessment of soil from the boring. Samples will be selected from locations beneath burn pits below any fill materials that were placed during the remediation of the burn pit area. A limited soil gas survey will be performed for VOCs.

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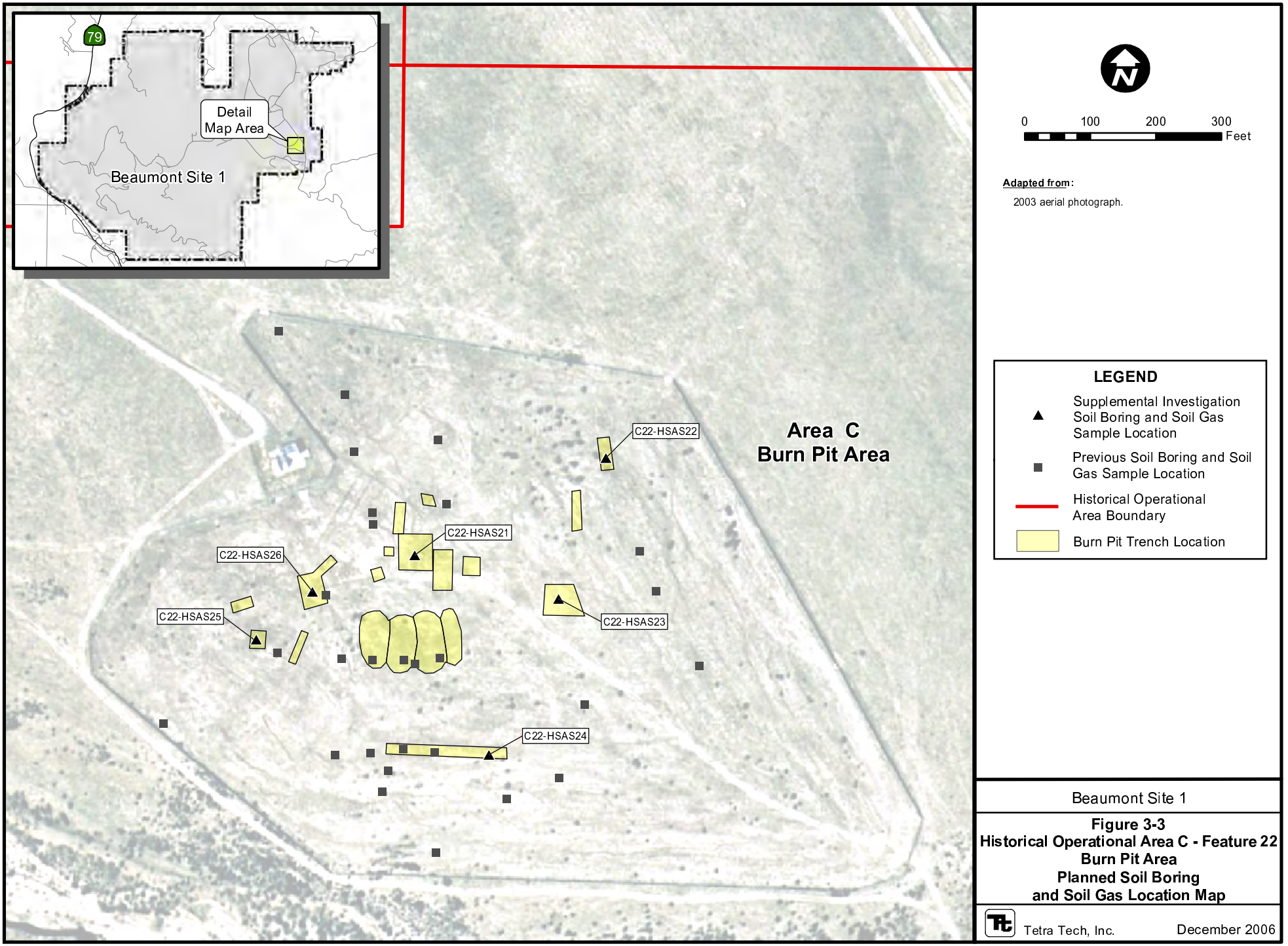

Beaumont Site 1

Figure 3-3
Historical Operational Area C - Feature 22
Burn Pit Area
Planned Soil Boring
and Soil Gas Location Map

Tetra Tech, Inc. December 2006

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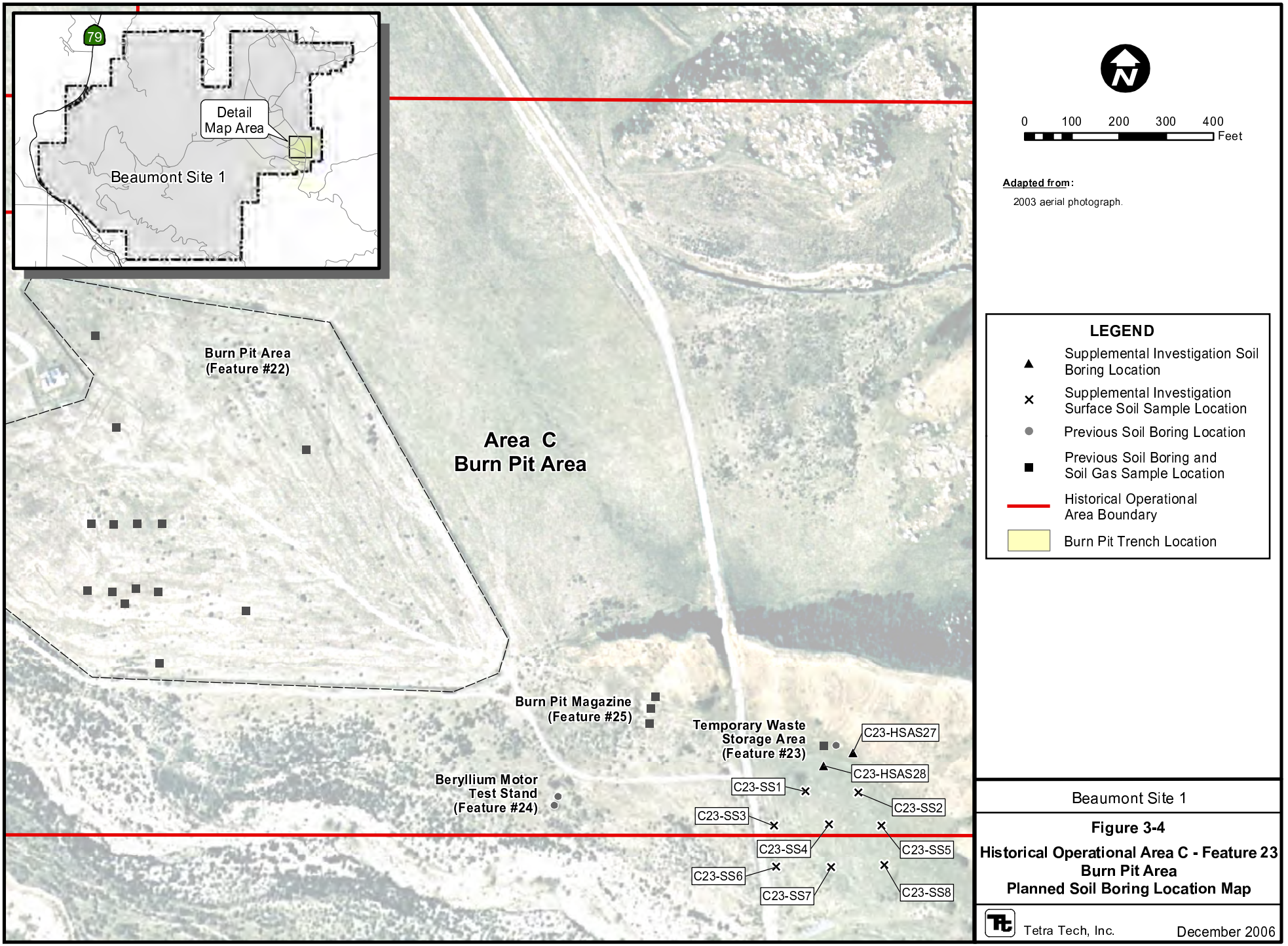

Adapted from:

2003 aerial photograph.

LEGEND

- Supplemental Investigation Soil Boring Location
- Supplemental Investigation Surface Soil Sample Location
- Previous Soil Boring Location
- Previous Soil Boring and Soil Gas Sample Location
- Historical Operational Area Boundary
- Burn Pit Trench Location

Beaumont Site 1

Figure 3-4

Historical Operational Area C - Feature 23
Burn Pit Area
Planned Soil Boring Location Map

Tetra Tech, Inc.

December 2006

Feature No. 23. *Temporary Storage Area* is located in the eastern portion of Operational Area C. Perchlorate was detected in soil samples collected from the soil boring at this feature (Tetra Tech, 2005). Two (2) additional borings are proposed to further delineate perchlorate contamination to the east and south of the Temporary Storage Area.

Soil samples at this feature will be analyzed for perchlorate. A discussion of surface sampling south of Feature 23 is presented in Section 3.2.5.

3.2.4 Percolation Tests

Percolation tests are also proposed to provide preliminary data for evaluation of potential future remedial actions. The percolation tests will provide an initial assessment of the ability to deliver an electron donor to support bioremediation of potentially affected soils at Beaumont Site 1. The percolation tests will provide a preliminary evaluation on the feasibility of percolating treatment fluid through the vadose zone to groundwater. This information will be used to design treatability tests. The percolation tests will be conducted at Feature No. 9 in Historical Operational Area B and at Feature No. 22 in Historical Operational Area C.

Percolation testing will consist of drilling holes with minimum 10-inch diameter augers to various depths, saturation of the surrounding soils with water, and measurement of the rate of water percolation. The percolation test holes will be drilled to the test depths shown in Table 3-2 at the locations shown in Figures 3-5 and 3-6. Approximately 2 feet of coarse sand will be placed at the base of the borehole through the augers. Piping consisting of a 5-foot section of PVC drain pipe and sufficient solid pipe to reach ground surface will be installed in the borehole through the augers. Coarse sand will be placed through the augers around the bottom 6 feet of the piping while the augers are being withdrawn. A one-foot layer of bentonite will be placed on top of the sand. After the sand pack and bentonite is placed, the drill rig will be moved from the drilling location.

Table 3-2
Summary of Percolation Tests

Feature No.	Historical Operational Area	Feature	Percolation Test Number	Test Depths (feet bgs)
9	B	Motor Washout Area	B9-PERCA	10
22	C	Burn Pit Landfill	C22-PERCB	10, 20, 30, and 40
22	C	Burn Pit Landfill	C22-PERCC	10, 20, 30, and 40

bgs- below ground surface

The percolation test will consist of a soak period followed by monitoring of the rate of percolation. During the soak period, potable water will be poured down the piping and maintained at a level approximately 5 feet from the bottom of the piping. The water level will be measured with a transducer or water level indicator every 10 to 15 minutes and water added as needed to bring the level back to about 5 feet from the bottom of the piping. After 4 hours of soaking, the rate of percolation will be measured. To measure the rate of percolation, a transducer or water level indicator will be lowered to the base of the piping and the water level will again be brought to the 5-foot level. The transducer will be left in the piping to monitor water level drop until the water level has dropped below the base of the piping or 12 hours have passed, whichever is shorter.

At the completion of the test, the piping will be pulled from the borehole and the borehole backfilled with bentonite.

The drop in water level will be qualitatively evaluated to determine the relative ease of infiltrating an electron donor into potentially affected soils.

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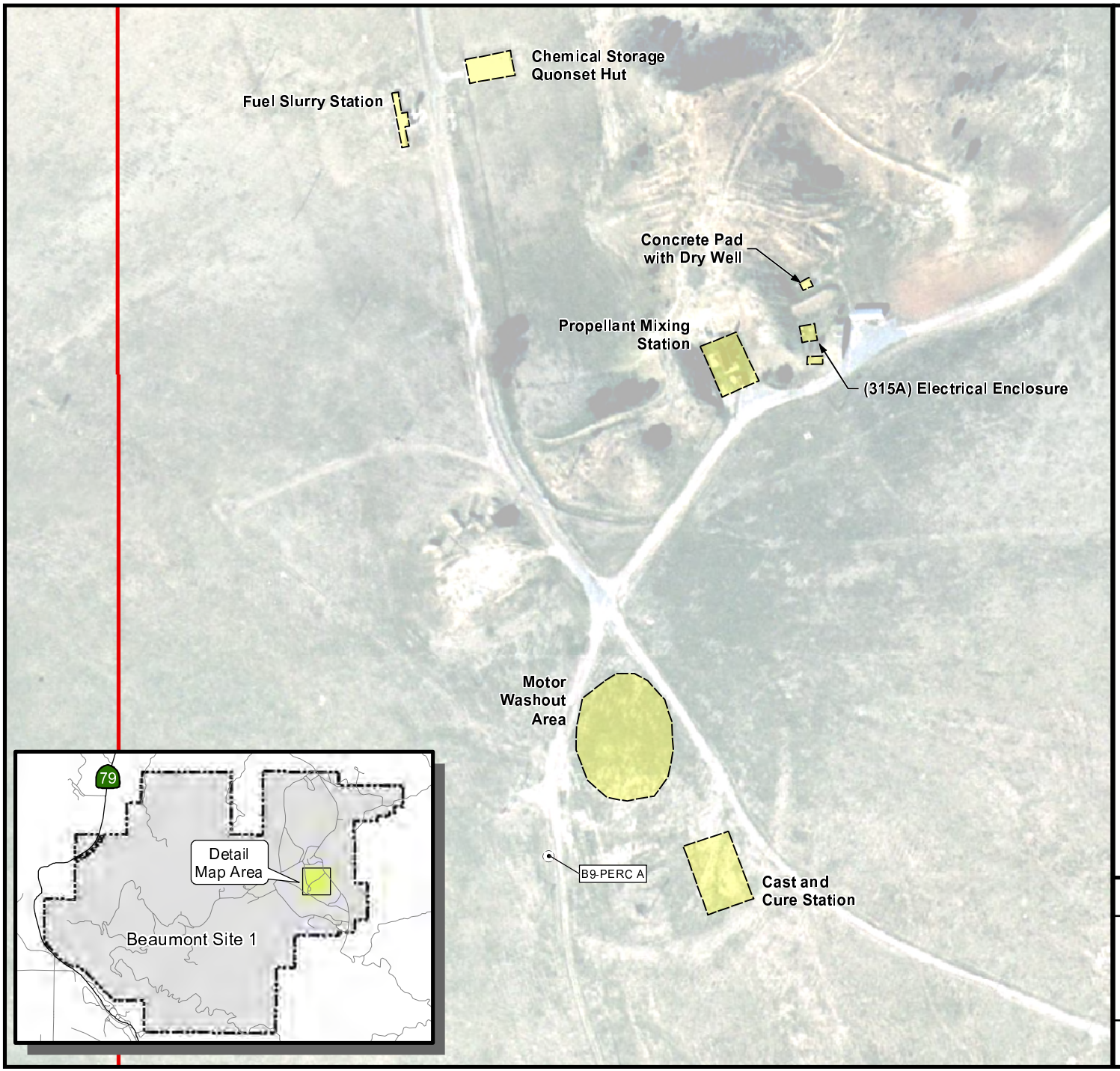

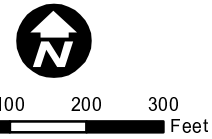

Adapted from:

2003 aerial photograph.

LEGEND

- Percolation Test Location
- Historic Site or Assessment Finding Location

Beaumont Site 1

Figure 3-5
Historical Operational Area B
Rocket Motor Production Area
(Southern Portion)
Planned Percolation Test Location Map

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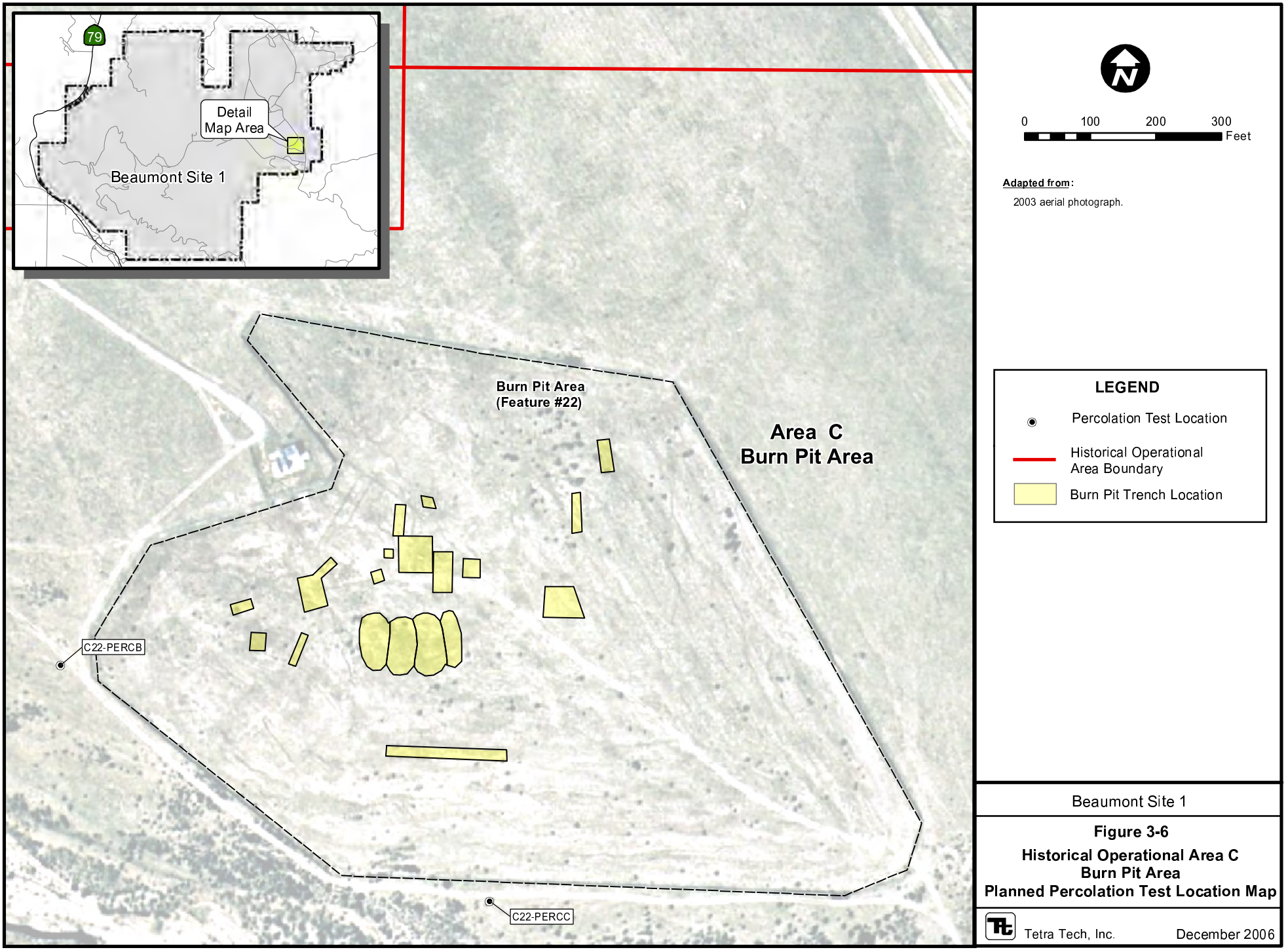

Beaumont Site 1

Figure 3-6

Historical Operational Area C
Burn Pit Area
Planned Percolation Test Location Map

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3.2.5 Potentially Uncharacterized Features

During recent interviews with two former Lockheed Propulsion Company (LPC) employees with personal knowledge of historical activities at Site 1, additional area rocket motor test areas and burn pits were tentatively identified. Three to four tests of a rocket motor reportedly may have occurred near the intersection of Historical Operational Areas B, C, and D, which may have included firing of a 50-caliber machine gun into rocket motors. Testing of a perchlorate-based propellant with aluminum was believed to have been performed east of the Burn Pit Area. The former employee also believed that testing of the beryllium motors occurred to the south of the Temporary Waste Storage Area (Feature 25) and east of current Burn Pit Landfill (Feature 22). Additional burn pits may have been located between the Feature 22 boundary and the Propellant Mix Station (Feature 10).

A geophysical survey will be performed in the areas identified as containing the potential uncharacterized features. The geophysical survey will measure electrical conductivity in a grid pattern with approximate spacing of 10 feet over the surface area shown in Figure 3-7. An electromagnetic induction instrument, Geonics model EM-31 or equivalent, will be used to measure the apparent electrical conductivity of the ground at the burn pit landfill. This instrument is used to locate trenches or pits containing metallic and/or nonmetallic debris.

Surface soil sampling is proposed south of the Temporary Waste Storage Area (Feature 25) in the area identified as a beryllium motor test location. Since testing of these motors that used beryllium as a propellant would have caused impacts to surface soil and beryllium has low mobility in soils, the soil samples will be taken from the ground surface to 0.5 feet in depth using hand sampling techniques at the locations shown in Figure 3-4. The soil samples will be tested for beryllium.

3.3 SOIL INVESTIGATION PROGRAM

The following subsections present the planned drilling and soil gas probe locations along with the sampling depths and analytical scheme in Historical Operational Areas A, B, and C of Beaumont Site 1. No changes to the soil investigations described in this Sampling and Analysis Plan will be implemented without prior approval from the DTSC.

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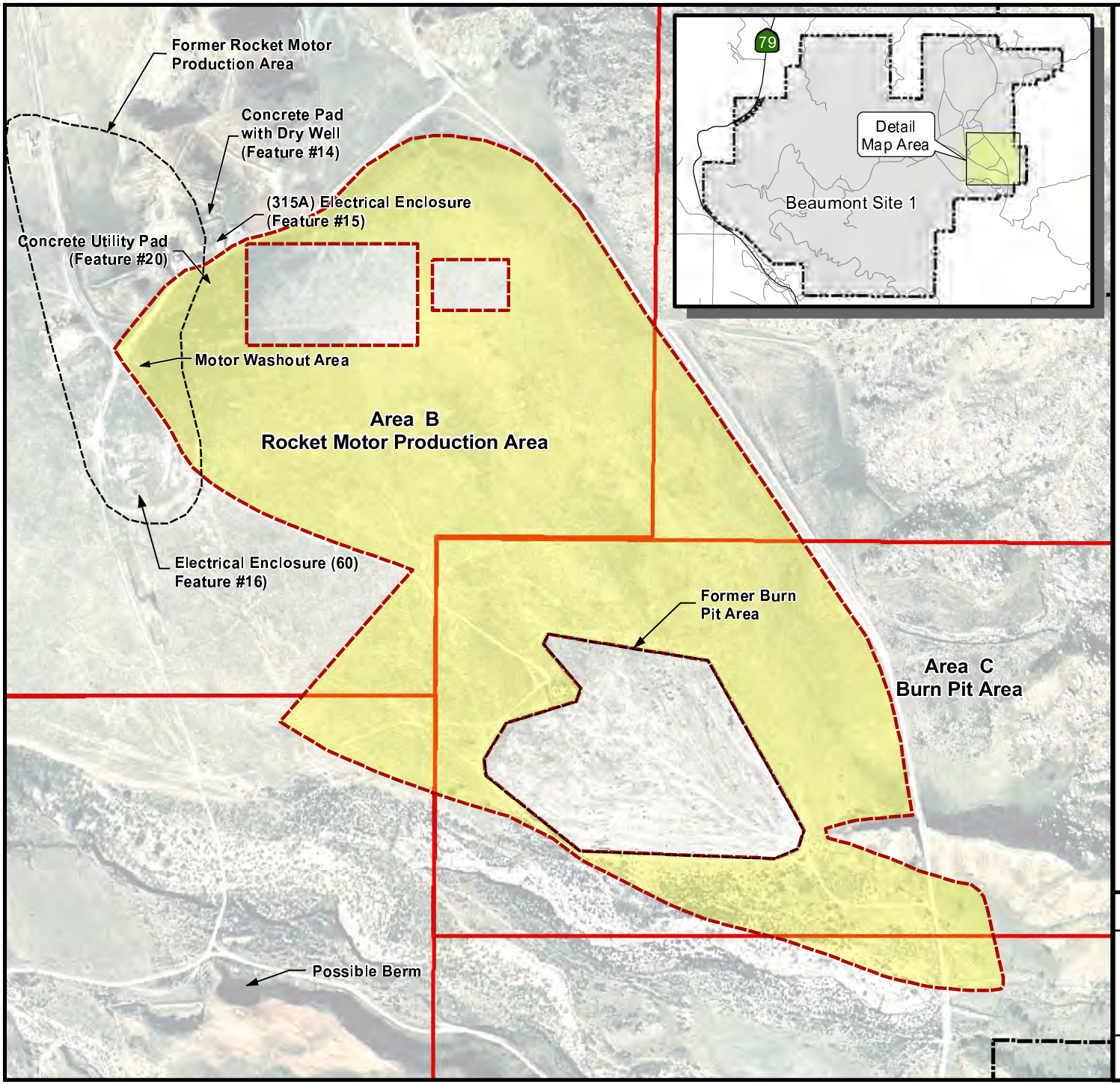

0 200 400 600 Feet

Adapted from:

2003 aerial photograph.

LEGEND

- Beaumont Site 1 Property Boundary
- Historical Operational Area Boundary
- Geophysical Survey Area

Note:

Possible berm south of Ballistics Tunnel corresponds to location of Class A Storage survey area boundary.

Beaumont Site 1

Figure 3-7

Geophysical Survey Area

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3.3.1 Soil Boring Investigation

Based on the data from previous soil investigations, a total of 10 assessment features were identified within Historical Operational Areas A, B, and C as requiring additional delineation of contamination. These features will be assessed by drilling and sampling subsurface soil at or near to the feature. Figures 3-1 through 3-4 show the locations of the 10 assessment features in Historical Operational Areas A, B, and C. Table 3-1 presents the features identified as requiring further information to delineate soil impact, number of soil borings, soil gas probes, assessment depths, and feature specific analyses. The sampling procedure and analytical protocols for the soil sampling program are presented in the Site Specific Quality Assurance Project Plan (QAPP) in Appendix A of the Site Investigation Work Plan, (Tetra Tech, 2003c). Quality assurance samples will include trip blanks for VOC testing, equipment blanks, and replicate samples. Trip blanks for VOC testing and equipment blanks will be taken daily and replicate samples will be taken at a frequency of 10% of the environmental samples. The data will be validated based on US Environmental Protection Agency standards. An evaluation will be made of laboratory procedures for quality control issues identified during data validation.

Class 1 Soil Borings

Based on historical operations and findings, a total of 28 Class I soil borings will be drilled within Historical Operational Areas B and C, as shown in Figures 3-2 through 3-4. Twenty (20) borings are within Historical Operational Area B and 8 are within Historical Operational Area C. The 28 Class 1 soil borings will involve drilling 940 linear feet and collecting a total of 84 soil samples.

Two groundwater monitoring wells will be installed in borings in Historical Operational Area B.

Test Sample Selection Protocol

A minimum of three samples will be selected for testing from each boring. The samples shall be selected based on conditions encountered during drilling and information from previous investigations. Additional samples may also be selected if indicated by field conditions that the minimum three samples per boring are not sufficient to establish the vertical extent and range of impacts to soil in a boring.

For borings deeper than 20 ft bgs, one sample shall be selected from the depth of interval of 0 to 10 ft bgs. For borings away from the likely source of contamination, sample shall be selected for testing such that (in the approximate order of priority):

- If OVA readings of a sample exceed 10 times background, the sample shall be selected for testing;
- If during drilling, staining or odors are noted indicative of a chemical release, soil samples shall be selected for testing at a minimum interval of 10 ft throughout the impacted depths in the boring;
- The test sample selected shall be at a depth equal to or deeper than the shallowest sample in which contamination was found in the nearest boring closer to the likely source;
- The degree of impact with depth in nearby boring shall be considered (e.g. if contamination at 5 feet in depth in the nearby boring is 100 times that of the 0.5 foot sample, the selected sample should be at 5 or 10 feet, depending on field conditions);
- The selected test sample should contain fine-grained materials (e.g. a sample with fine-grained material would be selected over a clean sand); and
- If no contamination was detected in the 0 to10 ft range in the nearby boring, the 10 ft bgs sample shall be selected for testing if the main contaminant of concern is perchlorate and the 5 ft bgs sample shall be selected for testing if the main contaminant of concern is PCBs.

A minimum of two samples shall be selected from the depth interval of 15 ft bgs to total depth based on the following (in the approximate order of priority):

- If OVA readings of a sample exceed 10 times background, the sample shall be selected for testing.
- If during drilling, staining or odors are noted indicative of a chemical release, soil samples shall be selected for testing at a minimum interval of 10 ft throughout the impacted depths in the boring and a sample 10 ft below the impacted interval or the deepest sample in the boring, whichever is shallowest, shall also be selected.
- Depending on soil type as described above, one of the two deepest samples shall be selected for testing;
- The test sample selected shall be at a depth equal to or deeper than the sample with the highest concentration of the contaminant of concern at or below 15 ft bgs in the nearest boring closer to the likely source considering the degree of impact as discussed above; and
- The selected test sample should contain fine-grained materials (e.g. a sample with fine-grained material would be selected over a clean sand).

For borings drilled to 20 feet, two samples shall be selected from the depth of interval of 0 to 15 ft bgs as described above and 20 foot sample shall be selected for testing unless otherwise indicated by field conditions.

For borings within possible source areas such as the Burn Pit Area, the following procedures shall be used for test sample selection for the depth interval of 0 to 10 ft bgs:

- If OVA readings of a sample exceed 10 times background, the sample shall be selected for testing.
- In the Burn Pit Area the 10 foot sample shall be selected because the remedial action removed surface soils (unless evidence of burned or stained soils is observed during drilling);
- If evidence of burned or stained soils is observed during drilling in the Burn Pit Area, these soils shall be selected for tested; and
- The selected test sample should contain fine-grained materials (e.g. a sample with fine-grained material would be selected over a clean sand).

Class 2 Soil Borings

Based on historical operations and findings, one (1) Class 2 soil boring will be drilled within Historical Operational Area A, as shown in Figure 3-1. The Class 2 soil boring will involve drilling 5 linear feet and collecting a total of 2 soil samples.

3.3.2 Soil Gas Survey

In conjunction with the soil boring program, a limited soil gas survey will also be performed to further delineate volatile organic compounds (VOCs) in the soil pore space. A total of three (3) soil gas sampling locations are planned within Historical Operational Area B and six (6) soil gas sampling locations within Historical Operational Area C. Three to five soil gas probes will be placed within a soil boring at depths of 10 to 50 feet bgs. Overall, a total of 37 soil vapor probes will be installed and sampled for VOCs using modified EPA Test Method 8260B. Table 3-1 presents a summary of the sample locations and the soil gas sampling depths. The soil gas sample locations are shown in Figures 3-2 and 3-3.

The sampling procedure and analytical protocols for the limited soil gas program are presented in the Site Specific QAPP in Appendix A of the Site Investigation Work Plan (Tetra Tech, 2003c).

3.3.3 Percolation Tests

Three sets of percolation tests will be performed in Historical Operational Areas B and C. The tests will be performed to test the relative percolation rate of soils from 10 feet bgs to about 10 feet above the water table. Test depths are provided in Table 3-2 and the test locations are shown in Figures 3-5 and 3-6.

3.3.4 Geophysical Survey and Surface Soil Sampling

A geophysical survey will be performed in the area shown in Figure 3-7 to attempt to locate buried metallic and non-metallic debris associated with former testing operations. These areas were identified as possible former test locations of rocket motors and burn pits during recent interviews with former LPC employees.

Eight surface soil samples will be collected south of Feature 23 in Historical Operational Area C as shown in Figure 3-4. The soil samples will be tested for beryllium to assess potential impacts from beryllium rocket motor testing.

SECTION 4
REFERENCES

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Appendix A

Supplemental Information

Previous Soil Boring and Monitoring Well Locations

Previous Soil Boring Perchlorate Results

Appendix A

Supplemental Information

Previous Soil Boring and Monitoring Well Locations

Previous Soil Boring Perchlorate Results

List of Figures

X:\GIS\LOCKHEED 17915\AREA A.MXD

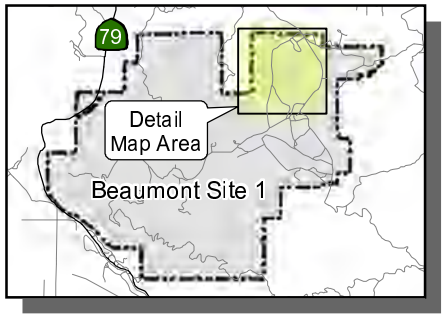
0 500 1,000 1,500 Feet

Adapted from:

2003 aerial photograph.

LEGEND

- Monitoring Well Location
- A-6-HAS1 — Supplemental Investigation Soil Boring Location
- A-6-HA2 — Previous Soil Boring Location
- A-3-DP5 — Previous Soil Boring and Soil Gas Sample Location
- Beaumont Site 1 Property Boundary
- Historical Operational Area Boundary



Beaumont Site 1

Figure A-1
Historical Operational Area A
Eastern Aerojet Range (Avanti)
Previous and Planned Soil Borings, and Existing Monitoring Wells

Tetra Tech, Inc.

December 2006

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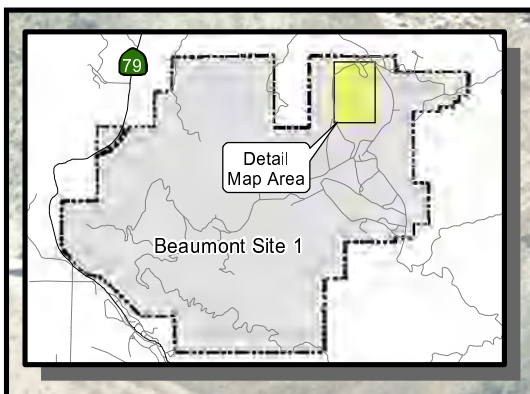


A-7-HA3
ND

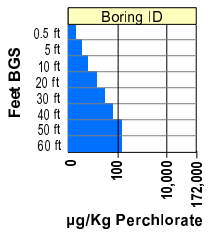
A-1-DP1
ND

A-1-DP2
ND

A-6-HA2
ND

LEGEND

- Soil Boring Location
- Historical Operational Unit Boundary



Note: Beaumont Site 2 property boundary from Hillwig-Goodrow survey, May 2004.

Adapted from: February 2002 aerial photograph.

0 100 200 Feet

Beaumont Site 1

Figure A-2
Historical Operational Area A
Eastern Aerojet Range (Avanti)
Previous Soil Boring Perchlorate Results

Tetra Tech, Inc. December 2006

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Beaumont Site 1

Figure A-3
Historical Operational Area B
Rocket Motor Production Area
Previous and Planned Soil Borings, and Existing Monitoring Wells

Tetra Tech, Inc. December 2006

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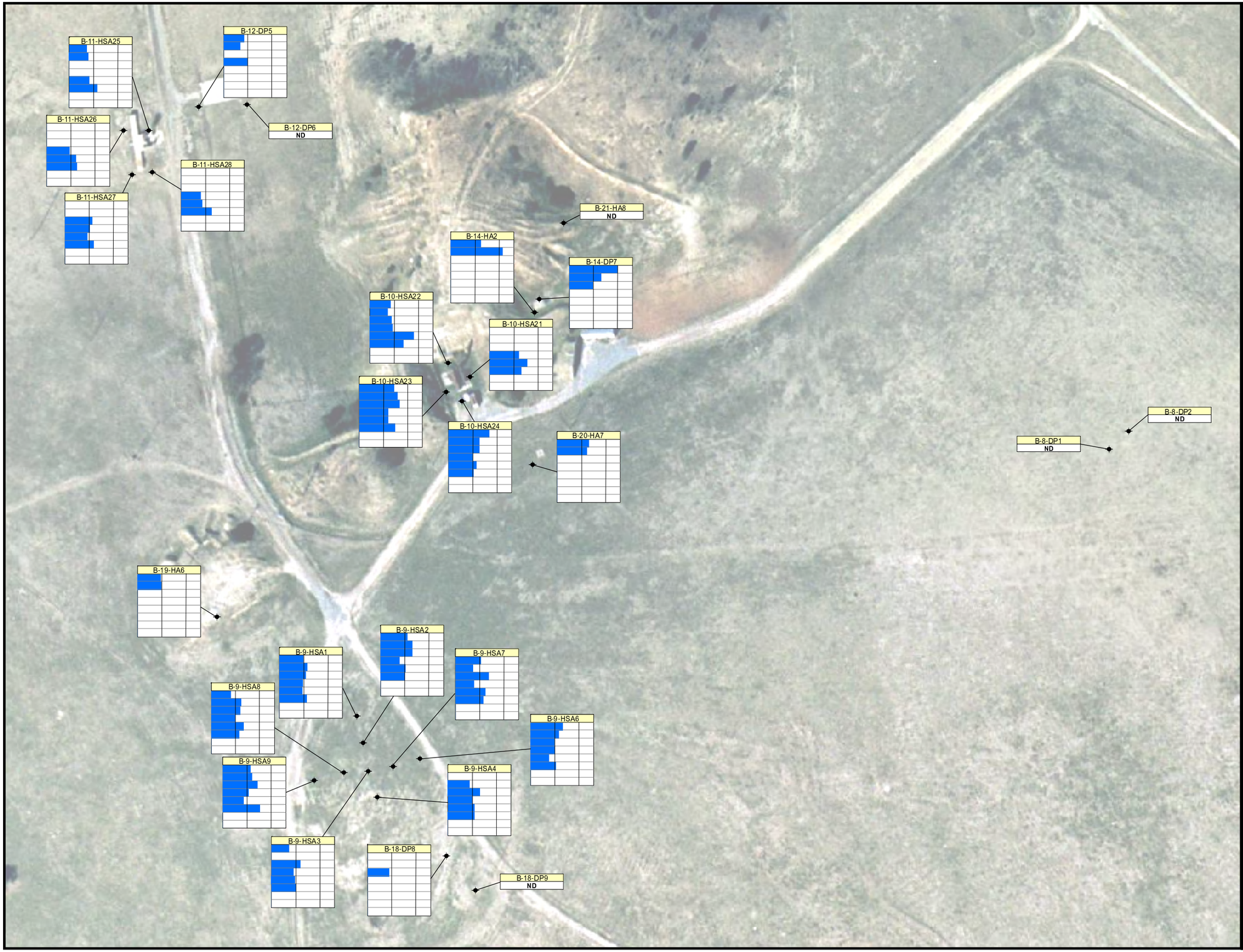

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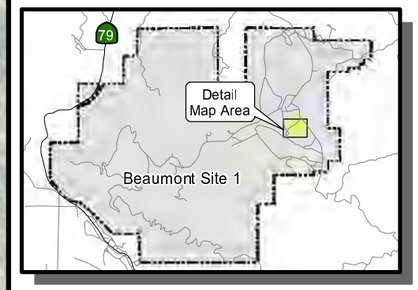
0 100 200 Feet



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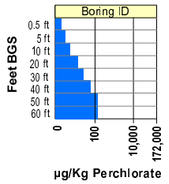

Soil Boring Location

Historical Operational Unit Boundary

Note: Beaumont Site 2 property boundary from Hillwig-Goodrow survey, May 2004.

Adapted from: February 2002 aerial photograph.

Beaumont Site 1

Figure A-4
Historical Operational Area B
Rocket Motor Production Area
Previous Soil Boring Perchlorate Results

Tetra Tech, Inc. December 2006

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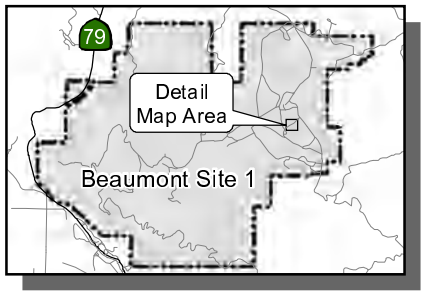
0 50 100 150 Feet

Adapted from: February 2002 aerial photograph.

LEGEND

- Monitoring Well Location
- A-6-HAS1 — Supplemental Investigation Soil Boring Location
- A-6-HA2 — Previous Soil Boring Location
- A-3-DP5 — Previous Soil Boring and Soil Gas Sample Location
- Beaumont Site 1 Property Boundary



Beaumont Site 1

Figure A-5
Historical Operational Area B
Rocket Motor Production Area
(Central East Portion)
Previous and Planned Soil Borings, and Existing Monitoring Wells

Tetra Tech, Inc. December 2006

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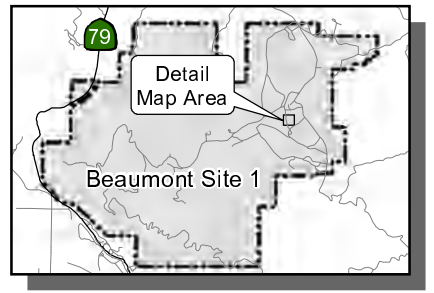
Adapted from: February 2002 aerial photograph.

LEGEND

- Monitoring Well Location
- A-6-HAS1 ▲ Supplemental Investigation Soil Boring Location
- A-6-HA2 ● Previous Soil Boring Location
- A-3-DP5 ■ Previous Soil Boring and Soil Gas Sample Location
- Beaumont Site 1 Property Boundary



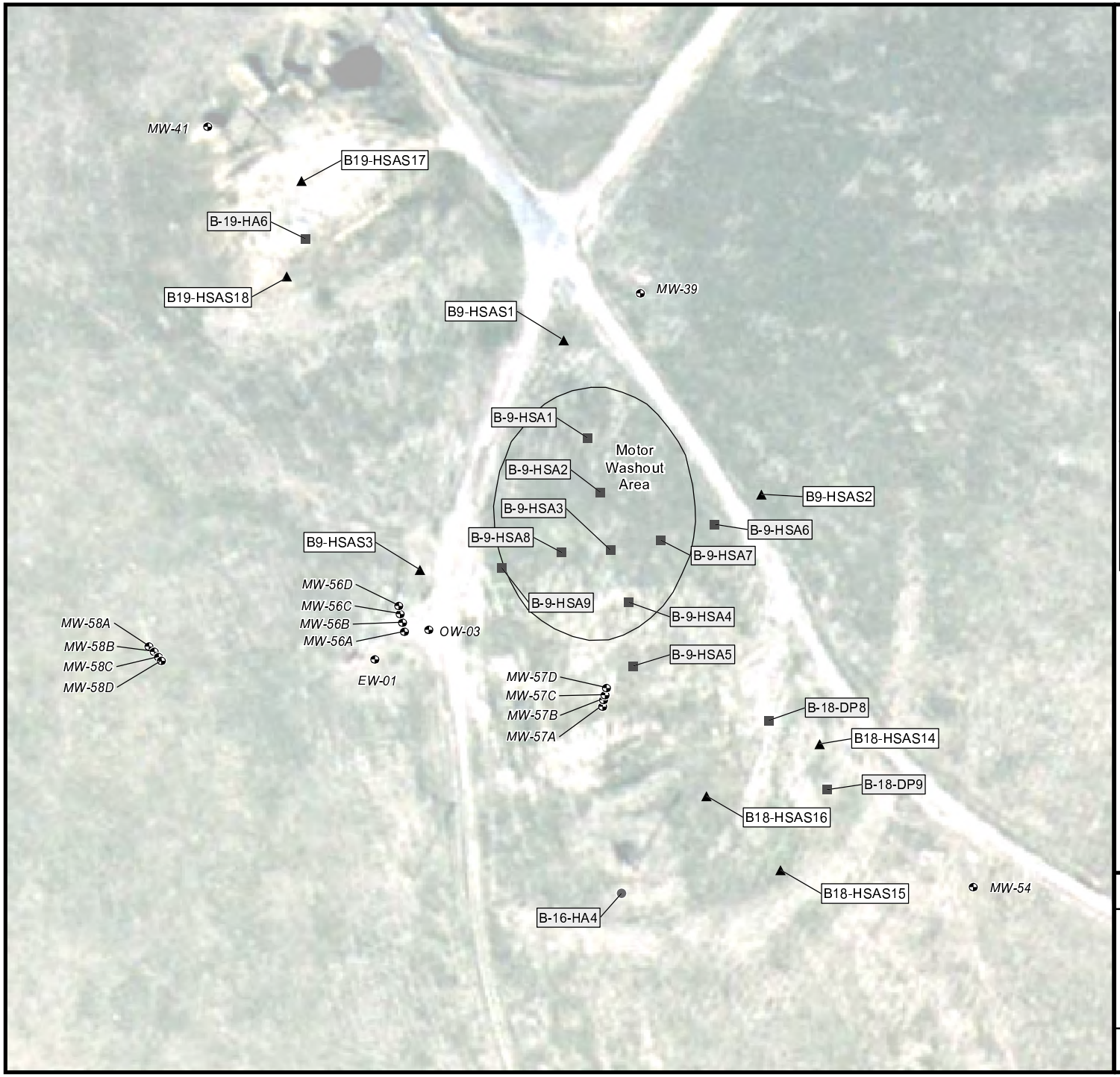
Beaumont Site 1

Figure A-6
Historical Operational Area B
Rocket Motor Production Area
(Central West Portion)
Previous and Planned Soil Borings, and Existing Monitoring Wells

Tetra Tech, Inc.

December 2006

X:\GIS\LOCKHEED 17915\AREA B FIG 1.MXD



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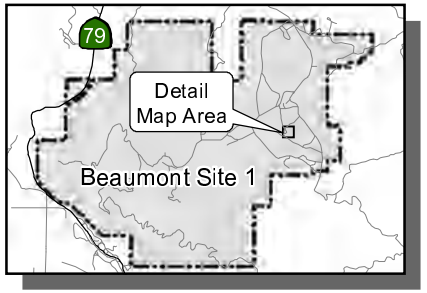
Adapted from: February 2002 aerial photograph.

LEGEND

- Monitoring Well Location
- A-6-HAS1 — Supplemental Investigation Soil Boring Location
- A-6-HA2 — Previous Soil Boring Location
- A-3-DP5 — Previous Soil Boring and Soil Gas Sample Location
- Beaumont Site 1 Property Boundary



Beaumont Site 1

Figure A-7
Historical Operational Area B
Rocket Motor Production Area
(South Central Portion)
Previous and Planned Soil Borings, and Existing Monitoring Wells

Tetra Tech, Inc. December 2006

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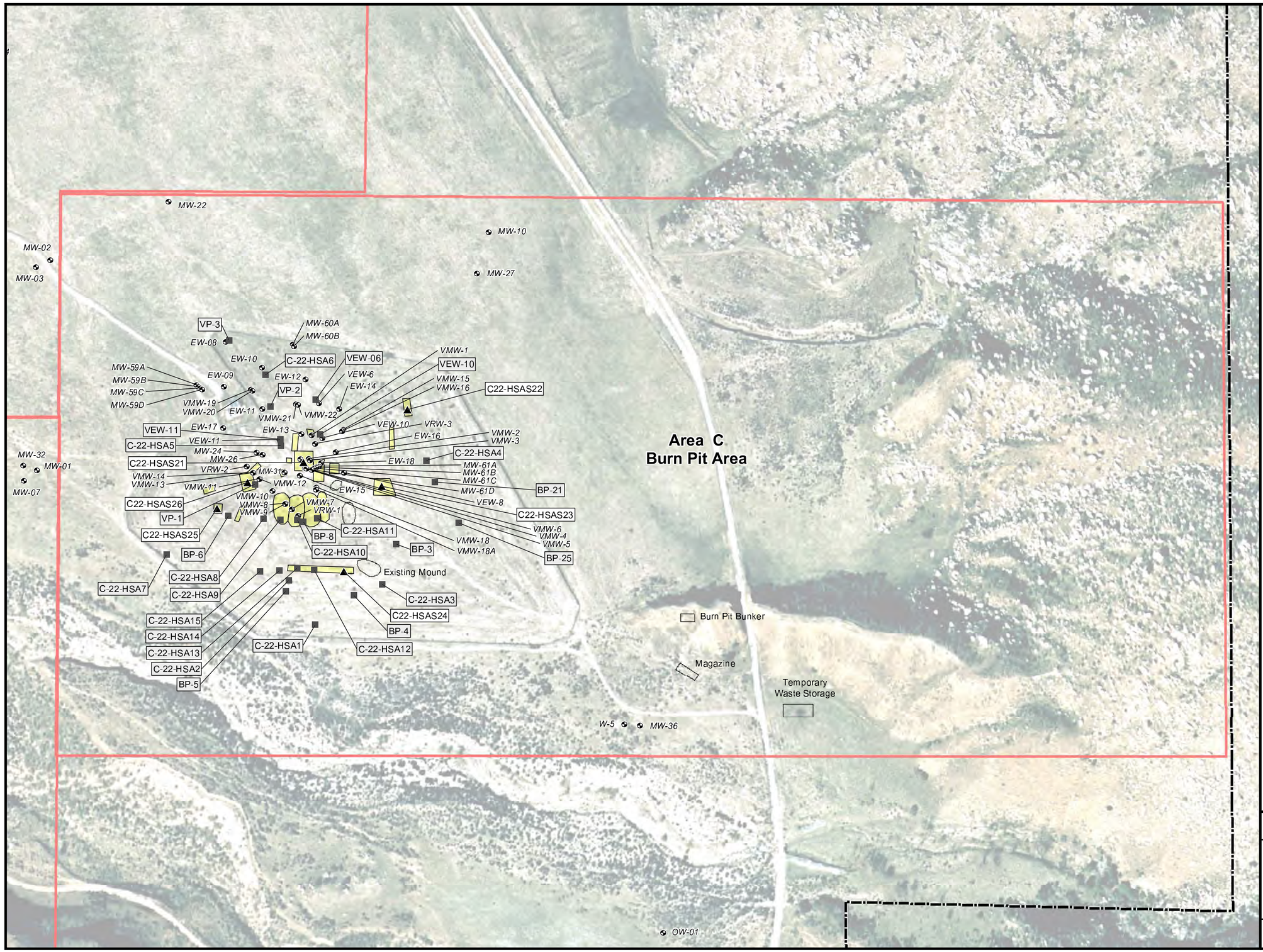

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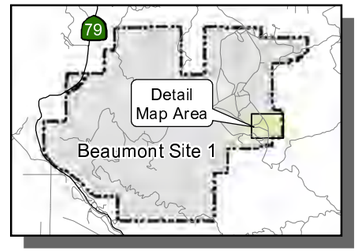
0 100 200 300 Feet

Adapted from: February 2002 aerial photograph.

LEGEND

- Monitoring Well Location
- A-6-HAS1 — Supplemental Investigation Soil Boring Location
- A-6-HA2 — Previous Soil Boring Location
- A-3-DP5 — Previous Soil Boring and Soil Gas Sample Location
- Beaumont Site 1 Property Boundary
- Historical Operational Area Boundary
- Burn Pit Trench Area

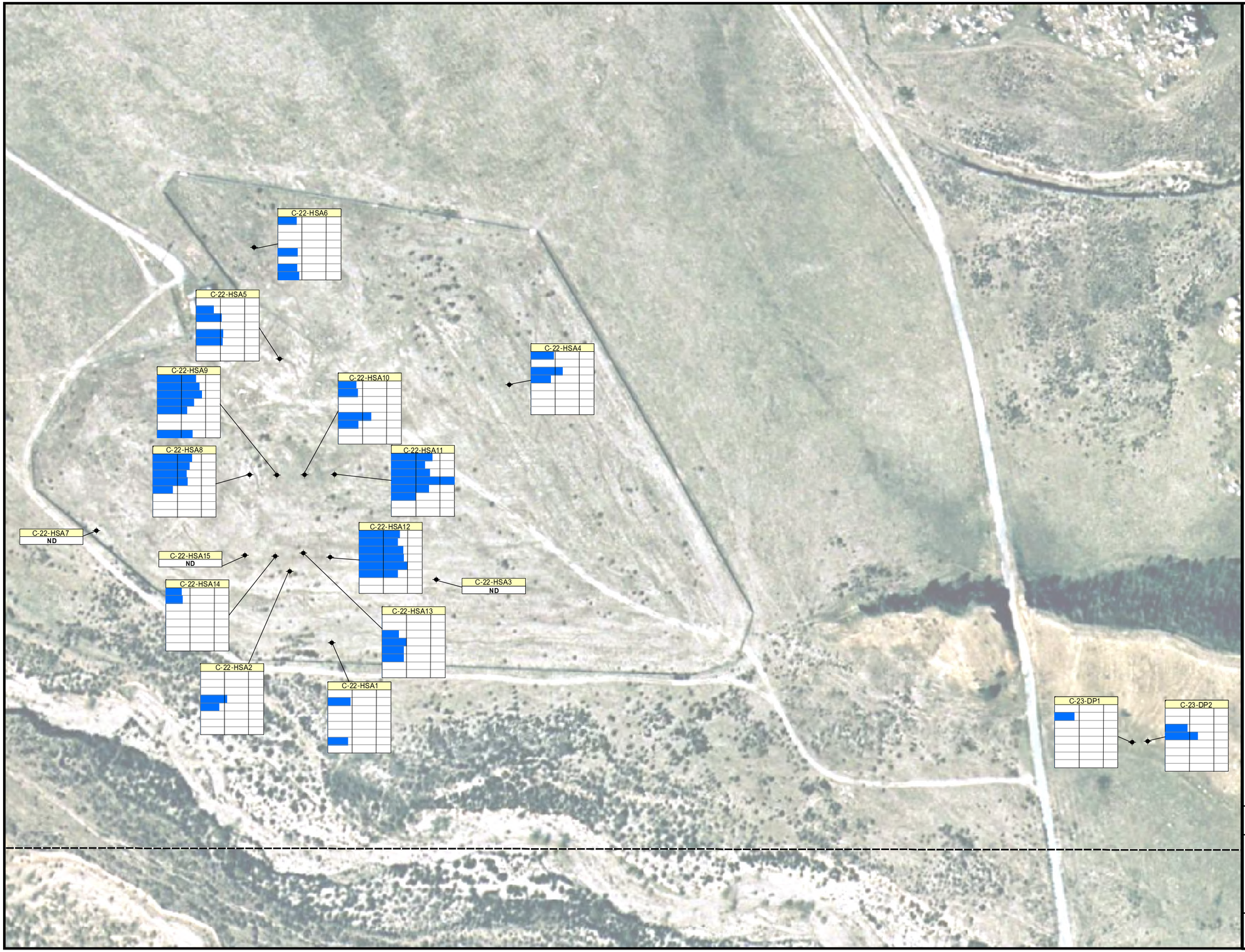


Beaumont Site 1

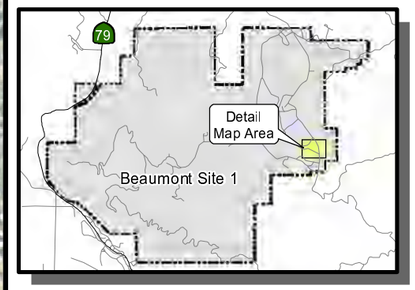
Figure A-8
Historical Operational Area C
Burn Pit Area
Previous and Planned Soil Borings, and Existing Monitoring Wells

Tetra Tech, Inc. December 2006

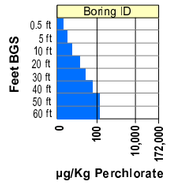
X:\GIS\LOCKHEED 18658-04\SITE 1 AREA C.MXD



0 100 200 Feet



LEGEND



Soil Boring Location

Historical Operational Unit Boundary

Note: Beaumont Site 2 property boundary from Hillwig-Goodrow survey, May 2004.

Adapted from: February 2002 aerial photograph.

Beaumont Site 1

Figure A-9

Historical Operational Area C
Burn Pit Area
Previous Soil Boring Perchlorate Results

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