Semiannual Groundwater Monitoring Report
Second Quarter 2013 and Third Quarter 2013
Laborde Canyon (Lockheed Martin Beaumont Site 2)
Beaumont, California

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December 27, 2013

Mr. Daniel Zogaib
Southern California Cleanup Operations
Department of Toxic Substances Control
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Cypress, CA 90630

Subject: Submittal of the *Semiannual Groundwater Monitoring Report, Second Quarter 2013 and Third Quarter 2013, Laborde Canyon (Lockheed Martin Beaumont Site 2), Beaumont, California*

Dear Mr. Zogaib:

Please find enclosed one hard copy of the body of the report and two compact disks with the report body and appendices of the *Semiannual Groundwater Monitoring Report, Second Quarter 2013 and Third Quarter 2013, Laborde Canyon (Lockheed Martin Beaumont Site 2), Beaumont, California* for your review and approval or comment.

In the meantime, if you have any questions regarding this submittal, please contact me at 818-847-9901 or brian.thorne@lmco.com.

Sincerely,

Brian Thorne
Project Lead

Enclosure: *Semiannual Groundwater Monitoring Report, Second Quarter 2013 and Third Quarter 2013, Laborde Canyon (Lockheed Martin Beaumont Site 2), Beaumont, California*

Copy: Mr. Gene Matsushita, Lockheed Martin (electronic copy)
Ms. Barbara Melcher, CDM Smith (electronic copy)
Mr. Tom Villeneuve, Tetra Tech (electronic copy)
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Semiannual Groundwater Monitoring Report Second Quarter 2013 and Third Quarter 2013 Laborde Canyon (Lockheed Martin Beaumont Site 2) Beaumont, California

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December 2013

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Acronyms and Abbreviations

b	This data validation qualifier means the surrogate spike recovery was outside control limits.
bgs	below ground surface
cis-1,2-DCE	cis-1,2-dichloroethene
COV	coefficient of variation
1,2-DCA	1,2-dichloroethane
1,1 -DCE	1,1-dichloroethene
DO	dissolved oxygen
DWNL	California Department of Public Health Drinking Water Notification Level
EC	electrical conductivity
ft/ft	feet per foot
GMP	Groundwater Monitoring Program
GPS	global positioning system
HCP	Habitat Conservation Plan
J	This data validation qualifier means the analyte was positively identified, but the concentration is an estimated value.
LC	lower canyon
MAROS	Monitoring and Remediation Optimization System
MW	monitoring well
MCL	California Department of Public Health maximum contaminant level
MEF	Mt. Eden formation
mg/L	milligrams per liter
MS	matrix spike
MSD	matrix spike duplicate
msl	mean sea level

µg/L	micrograms per liter
µg/L/yr	micrograms per liter per year
NA	not applicable/not available
ND	non-detect
NTUs	nephelometric turbidity units
NWS	National Weather Service
ORP	oxidation-reduction potential
PQL	practical quantitation limit
q	This data validation qualifier means the analyte detected was below the PQL.
QAL	Quaternary alluvium
QA/QC	quality assurance/quality control
RDX	hexahydro-1,3,5-trinitro-1,3,5-triazine
RPD	relative percent difference
S	Mann-Kendall statistic
STF	San Timoteo formation
TCE	trichloroethene
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound
WDA	waste discharge area
wMEF	weathered Mt. Eden formation
RCA	Western Riverside County Regional Conservation Authority
wSTF	weathered San Timoteo formation

Section 1
Introduction

On behalf of Lockheed Martin Corporation, Tetra Tech has prepared this Semiannual Groundwater Monitoring Report, which presents the results of the Second Quarter 2013 and Third Quarter 2013 groundwater monitoring activities for the Laborde Canyon (Lockheed Martin Beaumont Site 2) Groundwater Monitoring Program. Laborde Canyon is southwest of the City of Beaumont, Riverside County, California (Figure 1). Currently, the site is inactive except for ongoing investigative activities performed under Consent Order HSA 88/89-034, amended January 1, 1991, with the California Department of Toxic Substances Control.

The objectives of this report are to accomplish the following:

- Briefly summarize the site history
- Document the water quality monitoring procedures and results
- Analyze and evaluate the groundwater elevation and water quality monitoring data generated
- Identify groundwater chemicals of potential concern based on the analytes detected at the site.
- Evaluate plume stability and contaminant attenuation processes.
- Propose changes to the monitoring network and sampling frequencies as necessary to meet the objectives of the overall program

This report is organized into the following sections: 1) Introduction, 2) Summary of Monitoring Activities, 3) Groundwater Monitoring Results, 4) Summary and Conclusions, and 5) References. The conceptual site model for Laborde Canyon is described in Appendix A (Conceptual Site Model).

1.1 Site Background

The site is a 2,668-acre parcel southwest of Beaumont, California. The parcels that comprise the site were owned by individuals and the United States government before 1958. Between 1958 and

1960, portions of the site were purchased by the Grand Central Rocket Company and used as a remote test facility for early space and defense program efforts. In 1960, the Lockheed Aircraft Corporation purchased one-half interest in the Grand Central Rocket Company. The Grand Central Rocket Company became a wholly-owned subsidiary of the Lockheed Aircraft Corporation in 1961. The remaining parcels of land that comprise the site were purchased from the United States government between 1961 and 1964. In 1963, the Lockheed Propulsion Company became an operating division of the Lockheed Aircraft Corporation and was responsible for the operation of the site until its closure in 1974. The site was used by the Grand Central Rocket Company and the Lockheed Propulsion Company from 1958 to 1974 for small rocket motor assembly, testing operations, propellant incineration, and minor disposal activities. Ogden Labs is known to have leased portions of the site during the 1970s (Radian Corporation, 1986). In 2007 the property was sold to the County of Riverside, California, which remains the current owner.

In 1989, the California Department of Health Services issued a Consent Order requiring Lockheed Martin Corporation to clean up contamination at the site related to past testing activities (California Department of Health Services, 1989). After reviewing reports on investigative and cleanup activities performed at the site, the California Department of Toxic Substances Control, as a successor agency, issued a no further remedial action letter to Lockheed Martin Corporation in 1993.

Because of regulatory interest in perchlorate and 1,4-dioxane, a groundwater sample was collected from an inactive groundwater production well (identified as W2-3) at the site in January 2003. The sample was analyzed for volatile organic compounds, perchlorate, and 1,4-dioxane to determine the potential presence and concentration of those chemicals in groundwater. The analytical results indicated that volatile organic compounds and 1,4-dioxane were not present at or above their respective method detection limits. However, perchlorate was reported at a concentration of 4,080 micrograms per liter, which exceeded the then-current California Department of Public Health drinking water notification level of 4 micrograms per liter. (In October 2007, the drinking water notification level was replaced by the California Department of Public Health maximum contaminant level of 6 micrograms per liter.) Based on the detection of perchlorate in the groundwater sample collected, the California Department of Toxic Substances Control reopened the site for further assessment in August 2004.

Four primary historical operational areas have been identified at the site (Figure 2). Each operational area was used for various activities associated with rocket motor assembly, testing, and propellant incineration. In addition, a waste discharge area has been defined. A brief description of each area follows.

Historical Operational Area J (Area J) –Final Assembly

Rocket motor casings with solid propellant were transported to Building 250, where final assembly of the rocket hardware was conducted. The building was used from 1970 to 1974 for final assembly and shipment of short-range attack missile rocket motors. Rocket motor assembly operations included installation of the nozzle and headcap, pressure check of the motor, installation of electrical systems, and preparations for shipment. During plant closure in 1974, all usable parts of this facility were dismantled, taken off the site, and sold (Radian Corporation, 1986).

Historical Operational Area K (Area K) – Test Bays and Miscellaneous Facilities

The primary features included a large earthen structure known as the "Prism," conditioning chambers, a centrifuge, and four test bays with two associated bunkers.

The Prism was reportedly built between 1984 and 1990, and was used by General Dynamics to test radar (Tetra Tech, 2007b). Details concerning construction of the Prism are not available, but it appears to have been constructed with soils from near the test bays.

The conditioning chambers were used to examine the effects of extreme temperatures on rocket motors and to meet specification requirements (Radian Corporation, 1986). A centrifuge was located in the northwestern portion of Area K, where rocket motors were tested to determine if the solid propellant would separate from its casing under increased gravitational forces.

Four test bays were present at the site. Initially, only three test bays were known; however, a former employee reported in an interview that a fourth test bay, north of the other three bays, was also used in Area K (Tetra Tech, 2009b). The initial testing activities had a history of explosions that destroyed complete test areas, especially during the period when the Grand Central Rocket Company operated at the site (Radian Corporation, 1986). Although vestiges from three test bays are currently visible at the site, the fourth was reportedly destroyed by such an explosion during testing. After a motor failure occurred, the area surrounding the test bay was reportedly inspected to recover any unburned propellant.

Historical Operational Area L (Area L) – Propellant Burn Area

Solid propellant was reportedly transported to the burn area and set directly on the ground surface for burning (Radian Corporation, 1986). No pits or trenches were dug as part of the burning process according to the Radian report. No evidence or physical features identify the precise location of burning activities, and previous site investigations (Tetra Tech, 2005 and 2010a) found no evidence of significant contamination in Area L, suggesting that propellant incineration may not have been conducted in this area of the site.

Historical Operational Area M (Area M) – Garbage Disposal Area

A garbage disposal area was located adjacent to a small creek at the site (Radian Corporation, 1986). Scrap metal, paper, wood, and concrete materials were discarded at the disposal site by the Lockheed Propulsion Company. Hazardous materials, including explosives and propellants, were not disposed of at the disposal site by the Lockheed Propulsion Company, according to employee interviews. However, Ogden Labs, a company that tested valves and explosive items, reportedly used this site for disposal of hazardous waste. In 1972, a Lockheed Safety Technician was exposed to toxic vapors of unsymmetrical dimethyl hydrazine from a pressurized gas container located in the disposal site. To avoid possible exposure risks to occupants, the Lockheed Propulsion Company safety group required Ogden Labs to take measures to remove any potentially hazardous materials at the disposal site. Shortly thereafter, a disposal company was contracted by Ogden Labs to clean up the disposal site (Radian Corporation, 1986).

In March 1993, an excavation was performed to remove the debris from the Area M garbage disposal area. A total of 816 tons of debris was removed and disposed of off-site, and the excavation was backfilled to surrounding grade. Excavation activities were performed under the supervision of DTSC (Radian Corporation, 1993).

Waste Discharge Area

In 2007, Lockheed Martin Corporation discovered the existence of Santa Ana River Basin Regional Water Pollution Control Board Resolution 62-24, dated September 14, 1962. Resolution 62-24 prescribed requirements for the "discharge of industrial wastes (rocket fuel residuum) to excavated pits." The discharge area was described as two shallow basins protected by two-foot berms, located in a small canyon on the western side of Laborde Canyon, in the SW quarter of the NW quarter of Section 19, Township 3 South, Range 1 West, San Bernardino Baseline and Meridian. Resolution 62-24 further described the wastes to be discharged as “residue remaining after the manufacturing refuse is burned,” and indicated that the amount of material to be discharged was “approximately 5,000 gallons per year.”

The exact nature of the waste proposed for discharge is not clear from Resolution 62-24. The description of the waste material suggests that the area may have been used for burning propellant; but the description of the quantity of material to be discharged suggests that the waste may have been liquid rather than solid. A 1961 aerial photograph shows the waste discharge area as a large cleared area with roads leading to two circular structures, suggesting that the waste discharge area was in use by 1961 (Tetra Tech, 2009b). Investigation of this area (Tetra Tech, 2007b and 2008) found evidence for perchlorate impacts in both soil and groundwater.

Features remaining at the waste discharge area include two roughly circular depressions surrounded by earthen berms, at the location of the circular structures identified in the 1961 aerial photograph.

Section 2

Summary of Monitoring Activities

Section 2 summarizes the Second Quarter 2013 and Third Quarter 2013 groundwater monitoring activities conducted at the site. The results of these monitoring events are discussed in Section 3.

2.1 Groundwater Level Measurements

Groundwater level measurements are collected at the site on a quarterly basis from all available wells. Water level measurements were proposed for 72 wells and four piezometers for Second Quarter 2013 and Third Quarter 2013. During Second Quarter 2013, groundwater level measurements were collected from 70 monitoring wells and four piezometers on 21 May 2013. During Third Quarter 2013, groundwater level measurements were collected from 70 monitoring wells and four piezometers on 13 August 2013. Two monitoring wells, TT-MW2-29A and TT-MW2-43, were found to be dry during both quarters. The groundwater level data is summarized in Table 3. Copies of the field data sheets from the water quality monitoring events are presented in Appendix B. A summary of well construction details is presented in Appendix C.

Precipitation data are collected from the local weather station in Beaumont to correlate observed changes in groundwater levels with local precipitation. During Second Quarter 2013, the Beaumont National Weather Service (NWS) station reported approximately 0.73 inches of precipitation. During Third Quarter 2013, the Beaumont NWS station reported approximately 0.71 inches of precipitation.

2.2 Surface Water Sampling

The site is bisected by Laborde Canyon, a major north-south oriented canyon that represents the principal drainage for the site. Ephemeral storm water drains to the south through Laborde Canyon toward the San Jacinto Valley. The 2,821-acre watershed for the site is dry when there is no rainfall. Consequently, no permanent streams, creeks, or other major surface water bodies are present at the site, other than a spring located 3,700 feet south of the southern property boundary on land owned by the Western Riverside County Regional Conservation Authority (RCA).

Storm water sampling locations SW-01 through SW-07 are located in ephemeral stream beds within Laborde Canyon and major side canyons. Storm water runoff drains to the stream beds during periods of heavy precipitation and flows south through the site and the RCA property to the south of the site, eventually crossing beneath Gilman Hot Springs Road. Water is present in the stream beds only during periods of heavy, prolonged precipitation.

Surface water sampling locations WS-1, WS-2, and WS-3 are located at a spring approximately 3,700 feet south of the southern site boundary on the RCA property. Surface water is generally present at one or more of these sampling locations throughout the year. Figure 3 shows the surface and storm-water sampling locations.

2.2.1 Proposed and Actual Surface Water Sample Locations

During the Second Quarter 2013 monitoring event, three surface water sampling locations were proposed for water quality monitoring. One surface water location, WS-2, was dry and could not be sampled. Therefore, water quality data were collected from two surface water sampling locations during this event. Table 2 lists the locations monitored for the Second Quarter 2013 monitoring event, analytical methods, sampling dates, and quality assurance/quality control (QA/QC) samples collected. Figure 3 illustrates the sampling locations for the Second Quarter 2013 monitoring event. During the Third Quarter 2013 monitoring event, no surface water samples were scheduled to be collected.

2.2.2 Surface Water Mapping Procedures

If present, the areas within Laborde Canyon where surface water was observed were mapped during the Second Quarter 2013 and Third Quarter 2013 groundwater monitoring events. Mapping activities include plotting locations where surface water was encountered on a site map, collecting GPS coordinates, and determining whether the water was flowing or stagnant.

2.2.3 Stream Flow Measurement Procedures

If flowing water was observed in the stream bed, stream flow is estimated at two locations (SF-1, located at Gilman Hot Springs Road; and SF-2, located at the southern boundary of the property) using a modified version of the method presented in *United States Environmental Protection Agency Volunteer Stream Monitoring: A Methods Manual* (USEPA, 1997). At each location, a section of the stream bed that is relatively straight for a distance of at least 20 feet is chosen for measurement. This 20-foot section is marked and width measurements taken at various points to determine the average width. Depth measurements are then collected at nine points along the width of the stream to determine the average depth of the stream. The average width and average depth measurements are then be multiplied together to estimate the channel cross-sectional area. Water velocity is then measured by releasing a float upstream and recording the time needed to traverse the 20-foot marked section. Three timed measurements are taken and averaged, and the length of the measured section is divided by the average time to obtain a velocity. This result is then multiplied by a correction factor of 0.9 to account for friction between the water and stream bed. The average cross-sectional area is then multiplied by the corrected average surface velocity to obtain the average flow in cubic feet of water per second through that section of the stream. The two stream flow measurement locations are shown on Figure 3.

2.2.4 Surface Water Sampling Procedures

Surface water sampling locations were previously located using a global positioning system (GPS) and are marked in the field. Surface water samples were collected at these GPS-mapped locations either by using a disposable bailer with the sample transferred to the laboratory-supplied water sample containers, or by collecting the water sample directly in the laboratory-supplied water sample containers. Temperature, pH, EC, turbidity, ORP, and DO were measured and recorded on field data sheets at surface water sampling locations.

2.3 Groundwater Sampling

The Groundwater Monitoring Program (GMP) has a quarterly, semiannual, annual, and biennial frequency. Both groundwater and surface water are sampled as part of the GMP. The annual event is the major monitoring event, and the quarterly and semiannual events are smaller, minor events. All new wells are sampled quarterly for one year, after which a frequency for future sampling is proposed based on the well classification (i.e. the purpose of the well). The well classifications from the approved *Groundwater Sampling and Analysis Plan* (Tetra Tech, 2007a) include the following:

- Horizontal Extent Wells: Horizontal extent wells are utilized to assess the lateral extent of affected groundwater and the shape of the plume. Horizontal extent wells can be utilized to track plume migration and plume reduction rates as a result of remedial actions.

- Vertical Distribution Wells: Vertical distribution wells are utilized to assess the vertical extent of affected groundwater. Vertical distribution wells can also be utilized to track plume migration and plume reduction rates as a result of remedial actions.

- Increasing Contaminant Trend Wells: Increasing contaminant trend wells are wells that demonstrate statistically increasing contaminant trends. Increasing contaminant trend wells are utilized to assist in identifying new contaminant sources or areas where the remedial actions are not effective.

- Background Wells: Background (or upgradient) wells are utilized to assess the quality of the groundwater that is entering the Site.

- Remedial Monitoring Wells: Remedial monitoring wells are utilized to evaluate the effectiveness of remedial activities at the Site. Remedial monitoring wells can be used to measure mass removal rates and assess remediation schedules for Site cleanup.

- Guard Wells: Guard wells would be utilized to provide an early warning to detect contaminants for the protection of private and municipal wells. Guard wells may also include wells used to monitor offsite contaminant migration.

- New Wells: New wells are wells that are new to the network or which have been out of the sampling program for an extended period of time.

- Redundant Wells: Redundant wells are wells that provide information that duplicates the data from other functional well classifications. Redundant wells are generally located in the same vicinity as one of the other well classifications. These wells provide no additional technical information and would not be monitored.

The semiannual event includes increasing contaminant and guard wells, and occurs during the second and fourth quarters of each year. The annual monitoring event includes horizontal extent and vertical distribution wells, and takes place during the second quarter of each year. The biennial event includes background wells and occurs during the second quarter of even-numbered years. A complete list of the surface water and monitoring well locations in the monitoring program can be found in Table 1. The table shows the well classification and the current approved sampling frequency for each well.

The groundwater monitoring schedule is reviewed and modified as necessary annually following the second quarter groundwater monitoring event. Modifications to the sampling schedule are made in accordance with the approved *Groundwater Sampling and Analysis Plan* (Tetra Tech, 2007a). The Second and Third Quarter 2013 sampling events followed the monitoring schedule proposed in the Second and Third Quarter 2011 monitoring report (Tetra Tech, 2011b), which was submitted to the California Department of Toxic Substances Control in December 2011, and was approved with no comments to the proposed schedule.

2.3.1 Proposed and Actual Well Locations Sampled

During the Second Quarter 2013 monitoring event, 55 sampling locations (48 groundwater monitoring wells and seven off-site private production wells or springs) were proposed for water quality monitoring. One off-site private spring, PPW-2-6, was dry and could not be sampled. Therefore, water quality data were collected from 48 monitoring wells and six private production wells or springs during this event. Table 2 lists the locations monitored for the Second Quarter 2013 monitoring event, analytical methods, sampling dates, and quality assurance/quality control (QA/QC) samples collected. Figure 4 illustrates the sampling locations for the Second Quarter 2013 monitoring event. During the Third Quarter 2013 monitoring event, no groundwater monitoring wells or off-site private production wells or springs were scheduled to be sampled.

2.3.2 Groundwater Sampling Procedures

The following water quality field parameters were measured and recorded on field data sheets (Appendix B) during well purging: water level, temperature, pH, electrical conductivity (EC), turbidity, oxidation-reduction potential (ORP), and dissolved oxygen (DO). Groundwater samples were collected from monitoring wells by low-flow purging and sampling through dedicated double-valve pumps, or through a portable bladder pump, as indicated in Table 2.

Collection of water quality parameters started when at least one discharge hose/pump volume had been removed, and purging was considered complete when the above parameters had stabilized, or the well was purged dry (evacuated). Stabilization of water quality parameters was used as an indication that representative formation water had entered the well and was being purged. The criteria for stabilization of these parameters are as follows: water level ± 0.1 foot, pH ± 0.1, EC ± three percent, turbidity < 10 nephelometric turbidity units (NTUs) (if > 10 NTUs ± 10%), DO ± 0.3 milligrams per liter (mg/L), and ORP ± 10 millivolts. Sampling instruments and equipment were maintained, calibrated, and operated in accordance with the manufacturers' specifications, guidelines, and recommendations. If a well was purged dry, the well was sampled with a disposable bailer after sufficient recharge had taken place to allow sample collection.

Groundwater samples were collected in order of decreasing volatilization potential and placed in appropriate containers. A sample identification label was affixed to each container, and sample custody was maintained by chain-of-custody record. Samples collected were chilled and transported via courier to E.S. Babcock & Sons, Inc. a state-accredited analytical laboratory, thus maintaining proper temperatures and sample integrity. Trip blanks were collected for the monitoring events to assess cross-contamination potential of water samples while in transit in accordance with the *Programmatic Sampling and Analysis Plan* (Tetra Tech, 2010). Equipment blanks were collected when sampling with non-dedicated equipment to assess cross-contamination potential of water samples via sampling equipment.

2.4 Analytical Data QA/QC

The samples were tested using methods approved by the United States Environmental Protection Agency (USEPA). Since the analytical data were obtained by following USEPA-approved method criteria, the data were evaluated by using the USEPA-approved validation methods described in the National Functional Guidelines (USEPA, 2008 and 2010). The National Functional Guidelines contain instructions on method-required quality control parameters and on how to interpret these parameters to confer validation to environmental data results.

Quality control parameters used in validating data results included holding times, field blanks, laboratory control samples, method blanks, duplicate environmental samples, spiked samples, and surrogate and spike recovery data.

2.5 Habitat Conservation

All monitoring activities were performed in accordance with the United States Fish and Wildlife Service (USFWS) approved Habitat Conservation Plan (HCP) (USFWS, 2005) and subsequent clarifications (Lockheed Martin Corporation, 2006a and 2006b) to the HCP. Groundwater sampling activities were conducted with light duty vehicles and were supervised by a USFWS-approved biologist as specified in the Low Effect HCP.

Section 3
Groundwater Monitoring Results

The results of Second Quarter 2013 and Third Quarter 2013 groundwater monitoring events are presented in the following subsections. These subsections include tabulated summaries of the groundwater elevation and water quality data, groundwater elevation maps, and figures showing analytical results.

3.1 Groundwater Elevation and Flow

Seventy-two monitoring wells and four piezometers were identified for groundwater level measurements during the Second Quarter 2013 and Third Quarter 2013 monitoring events. During these events, two wells were dry (MW-29A and MW-43). A tabulated summary of groundwater depths and elevations is presented in Table 3.

On-site groundwater elevations during the Second Quarter 2013 and Third Quarter 2013 monitoring events ranged from approximately 2,074 feet above mean sea level (msl) at TT-MW2-16, located in the northern portion of the site, to about 1,817 feet above msl at TT-MW2-8, located in the southern portion of the site. Depth to first groundwater ranged from about 121 feet below ground surface (bgs) at TT-MW2-29B to about 19 feet bgs at TT-MW2-8. Groundwater elevation contour maps for wells screened in first groundwater for the Second Quarter 2013 and Third Quarter 2013 are presented in Figures 5 and 6 respectively. Hydrographs for individual wells are provided in Appendix D.

During Second Quarter 2013, the Beaumont National Weather Service (NWS) reported approximately 0.73 inches of precipitation, and the average site-wide groundwater elevation increased approximately 0.25 foot. During Third Quarter 2013, the Beaumont NWS reported approximately 0.71 inches of precipitation and the average site-wide groundwater elevation increased approximately 0.19 feet. Table 4 presents the range and average change in groundwater elevation by area. Figures 7 and 8, respectively, present elevation differences between the First

Quarter 2013 and Second Quarter 2013, and between the Second Quarter 2013 and Third Quarter 2013 groundwater monitoring events.

3.2 Groundwater Gradients

Horizontal groundwater gradients are calculated using a segmented path from well to well that approximates the overall site flowline. The horizontal gradient is a measure of the change in the hydraulic head divided by the distance between wells (i.e., the slope of the water table). The average horizontal groundwater gradient calculated between TT-MW2-16 and TT-MW2-6S from the Second Quarter 2013 and Third Quarter 2013 groundwater monitoring events for the shallow wells screened in the weathered San Timoteo formation (wSTF) was 0.030 feet per foot (ft/ft). The horizontal groundwater gradient calculated between TT-MW2-2 and TT-MW2-6D for deeper wells screened in the San Timoteo formation (STF) was 0.029 ft/ft during the Second Quarter 2013 and Third Quarter 2013 groundwater monitoring events.

Vertical groundwater gradients are calculated from individual clusters of wells. Well clusters measure the differences in static water level at different depths in the aquifer. The vertical gradient is a comparison of static water level between wells at different depths in the aquifer, and is an indication of the vertical head difference (downward - negative gradient, upward - positive gradient) of groundwater. Vertical groundwater gradients at the site are generally downward. The vertical gradients range from -0.30 ft/ft at well cluster TT-MW2-4S and 4D located in Area L, to +0.17 ft/ft at well cluster TT-MW2-19S and 19D located on the RCA property to the south of the site. A summary of calculated horizontal and vertical groundwater gradients is presented in Table 5. A complete listing of historical horizontal and vertical groundwater gradients and associated calculations is presented in Appendix E.

3.3 Surface Water Flow

During the Second Quarter 2013 and Third Quarter 2013, Tetra Tech field personnel walked the Laborde Canyon drainage channel to determine the presence, nature, and quantity of surface water within the creek bed. Surface water was not present within the creek bed during the Second Quarter 2013 and Third Quarter 2013 monitoring events, so stream flow measurements were not taken.

3.4 Analytical Data Summary

All groundwater and surface water samples collected during the Second Quarter 2013 monitoring event were analyzed for perchlorate. Select wells were also sampled for volatile organic compounds (VOCs), 1,4-dioxane, and hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX), as indicated in Table 6. Groundwater and surface water samples were not scheduled to be collected during the Third Quarter 2013 monitoring event.

A summary of validated laboratory analytical results for analytes detected above their respective method detection limits during the Second Quarter 2013 monitoring event is presented in Table 6. Analytes with sample results above the published maximum contaminant level (MCL) or drinking water notification level (DWNL) are indicated by bold type in Table 6. Table 7 presents summary statistics for validated organic and inorganic analytes detected during the monitoring event. A complete list of the analytes tested, along with validated sample results by analytical method, is provided in Appendix F. Laboratory analytical data packages, which include all environmental, field quality control (QC), and laboratory QC results, are provided in Appendix G. A consolidated laboratory data summary table is presented in Appendix H.

3.4.1 Data Quality Review

The quality control samples were reviewed as described in the *Programmatic Sampling and Analysis Plan, Beaumont Sites 1 and 2* (Tetra Tech, 2010b). The data for the groundwater sampling activities were contained in analytical data packages generated by E.S. Babcock & Sons, Inc. and EMAX Laboratories, Inc. These data packages were reviewed using the latest versions of the United States Environmental Protection Agency Contract Laboratory Program National Functional Guidelines for Organic and Inorganic Superfund Data Review (USEPA, 2008 and 2010).

Preservation criteria, holding times, field blanks, laboratory control samples, method blanks, duplicate environmental samples, spiked samples, and surrogate and spike recovery data were reviewed. Within each environmental sample, the sample-specific quality control spike recoveries were examined. These data examinations included comparing statistically calculated control limits to percent recoveries of all spiked analytes and duplicate spiked analytes. Relative percent difference (RPD) control limits were compared to actual spiked (matrix spike/matrix spike duplicate [MS/MSD]) RPD results. Surrogate recoveries were examined for all organic compound analyses and compared to their control limits.

Environmental samples were analyzed by the following methods: USEPA Method E332.0 for perchlorate, USEPA Method SW8270C SIM for 1,4-dioxane, USEPA Method SW8260B for volatile organic compounds, and USEPA Method SW8330A for RDX. Unless otherwise noted below, all data results met required criteria, were of known precision and accuracy, did not require qualification, and may be used as reported.

Method SW8260B had surrogates recovery above the control limit that qualified 0.6 % (6 out of 966) of the total data as estimated, and results were denoted with a “J” qualifier. Data qualified as estimated are usable for the intended purpose.

3.5 Chemicals of Potential Concern

The identification of chemicals of potential concern is an ongoing process that takes place annually as part of the second quarter sampling event, and is reported in the Second and Third Quarter Semiannual Groundwater Monitoring Report. The purpose of identifying chemicals of potential concern is twofold: to establish a list of analytes that best represents the extent and magnitude of affected groundwater, and to focus more detailed analysis on those analytes. The analytes were organized and evaluated in two groups, organic and inorganic, and divided into primary and secondary chemicals of potential concern. Table 6 presents a summary of the validated organic and inorganic analytes detected during the Second Quarter 2013 monitoring event.

The identification process for chemicals of potential concern does not eliminate analytes from testing, but does reduce the number of analytes that are evaluated and discussed during reporting. All of the secondary chemicals of potential concern will continue to be tested during future monitoring events because of their association with other analytes that are listed as primary chemicals of potential concern. However, they are not discussed further because they are detected on a more limited or inconsistent basis, and/or are detected at concentrations below a regulatory threshold. The standard list of analytes for each method will continue to be tested and screened annually to ensure that the appropriate chemicals of potential concern are being identified and evaluated. Table 8 presents a summary of the Laborde Canyon chemicals of potential concern.

Time-series graphs of perchlorate and trichloroethene (TCE) concentrations are provided in Appendix I.

3.5.1 Organic Analytes

Seven organic analytes (RDX, benzene, 1,4-dioxane, 1,2-dichloroethane [1,2-DCA], 1,1-dichloroethene [1,1-DCE], cis-1,2-dichloroethene [cis-1,2-DCE], and TCE) were detected above their respective MCL or DWNL during the Second Quarter 2013 monitoring event.

RDX was reported below the DWNL of 0.3 µg/L in the groundwater sample collected from monitoring well TT-MW2-24 during the Second Quarter 2013 monitoring event, at a concentration of 0.23 µg/L; and above the DWNL in the groundwater sample collected from monitoring well TT-MW2-13 during the Second Quarter 2013 monitoring event, at a concentration of 0.52 µg/L. Monitoring well TT-MW2-13 is located in Area K, and monitoring wells TT-MW2-24 is located in the former waste discharge area (WDA).

Benzene was reported below the MCL of 1 µg/L in groundwater samples collected from three monitoring wells (TT-MW2-22, TT-MW2-24, and TT-MW2-37A) located in the former WDA at concentrations of 0.91 µg/L, 0.15 µg/L, and 0.41 µg/L, respectively. In monitoring well TT-MW2-40B, located in Area K, benzene was reported above the MCL at a concentration of 2.8 µg/L during the Second Quarter 2013 monitoring event.

1,4-Dioxane was reported below the DWNL of 1 µg/L in groundwater samples collected from six monitoring wells (TT-MW2-5, TT-MW2-6S, TT-MW2-7, TT-MW2-8, TT-MW2-27, and TT-MW2-37B) during the Second Quarter 2013 monitoring event, at concentrations ranging from 0.12 µg/L to 0.68 µg/L; and was reported above the DWNL in groundwater samples collected from four monitoring wells (TT-MW2-9S, TT-MW2-22, TT-MW2-24, and TT-MW2-37A) during the Second Quarter 2013 monitoring event, at concentrations ranging from 16 to 160 µg/L. All wells with 1,4-dioxane detections are located within or downgradient from the former WDA.

1,2-DCA was reported below the MCL of 0.5 µg/L in the groundwater sample collected from monitoring well TT-MW2-24 during the Second Quarter 2013 monitoring event, at a concentration of 0.41 µg/L; and was reported above the MCL in the groundwater sample collected from monitoring well TT-MW2-22 during the Second Quarter 2013 monitoring event, at a concentration of 0.87 µg/L. Both of these wells are located in the former WDA.

1,1-DCE was reported below the MCL of 6 µg/L in the groundwater samples collected from wells TT-MW2-24 and TT-MW2-37A during the Second Quarter 2013 monitoring event, at concentrations of 2.0 and 0.26 µg/L, respectively; and was reported above the MCL in the in groundwater sample collected from monitoring well TT-MW2-22 during the Second Quarter 2013 monitoring event, at a concentration of 16 µg/L. All of these wells are located in the former WDA.

cis-1,2-DCE was reported below the MCL of 6 µg/L in the groundwater sample collected from monitoring well TT-MW2-11 during Second Quarter 2013 monitoring event, at a concentration of 0.19 µg/L; and was reported above the MCL in well TT-MW2-22 during the Second Quarter 2013 monitoring event, at a concentration of 9.1 µg/L. Monitoring well TT-MW2-11 is located in Area M, and monitoring well TT-MW2-22 is located in the former WDA.

TCE was reported below the MCL of 5 µg/L in groundwater samples collected from two monitoring wells (TT-MW2-9S and TT-MW2-21) located in, or just downgradient from the former WDA during the Second Quarter 2013 monitoring event at concentrations ranging from 1.9 to 4.5 µg/L. TCE was reported at or above the MCL in groundwater samples collected from three groundwater monitoring wells (TT-MW2-22, TT-MW2-24, and TT-MW2-37A) located in, or just downgradient from, the former WDA during the Second Quarter 2013 monitoring event at concentrations ranging from 5.0 µg/L to 440 µg/L. TCE was also detected above the MCL in monitoring well TT-MW2-11, located in Area M, at a concentration of 7.5 µg/L; and below the MCL in monitoring wells TT-MW2-17S and TT-MW2-17D, located in Area K, at concentrations of 0.49 µg/L and 4.5 µg/L, respectively. Time-series graphs of TCE are provided in Appendix I.

Other organic analytes detected at low levels during the Second Quarter 2013 groundwater monitoring event were acetone, 2-butanone, carbon disulfide, chloroform, 1,1-dichloroethane, trans-1,2-dichloroethene, methylene chloride, toluene, 1,1,2-trichloroethane, and m- & p-xylenes. None of these compounds exceeded their MCL or DWNL, and generally they are not detected consistently from event to event.

3.5.2 Organic Chemicals of Potential Concern

Given the analysis above and the concentrations detected during previous groundwater monitoring events, TCE and 1,4-dioxane are identified as primary organic chemicals of potential concern, and benzene, 1,2-DCA, 1,1-DCE, and RDX are identified as secondary chemicals of potential concern at the site. The remaining 12 organic analytes were detected below their respective MCL or DWNL. Their distribution and concentrations in groundwater will continue to be monitored and the results evaluated. Figures 9 and 10 present sampling results for 1,4-dioxane and TCE for groundwater samples collected during the Second Quarter 2013 monitoring event.

3.5.3 Inorganic Analytes

One inorganic analyte (perchlorate) was detected in groundwater above a published MCL or DWNL. Table 6 presents a summary of validated inorganic analyte concentrations reported in groundwater samples collected during the Second Quarter 2013 groundwater monitoring event.

Perchlorate was reported below the MCL of 6 in groundwater samples collected from 8 of the 48 monitoring wells sampled during the Second Quarter 2013; and was reported above the MCL in groundwater samples collected from 26 of the 48 monitoring wells sampled during the Second Quarter 2013. The highest perchlorate concentrations during the Second Quarter 2013 were found at monitoring well TT-MW2-38A (91,000 µg/L), located in Test Bay 3 in Area K; and in monitoring well TT-MW2-24 (86,000 µg/L), located in the former WDA. Time-series graphs of perchlorate are provided in Appendix I.

3.5.4 Inorganic Chemicals of Potential Concern

Given the analysis above and the concentrations detected during previous groundwater monitoring events, perchlorate is the only inorganic chemical of potential concern identified at the site. No inorganic secondary chemicals of potential concern were identified. Figure 11 presents a perchlorate isoconcentration map for groundwater samples collected during the Second Quarter 2013.

3.6 Private Production Wells and Springs

Four off-site private production wells and three off-site springs were scheduled to be sampled for perchlorate by USEPA Method E332.0 during the Second Quarter 2013 sampling event (Table 2). One spring was not sampled because it was dry. The four production wells and two remaining springs were sampled on 9 May 2013. Perchlorate was not detected in any of the off-site private production well or spring samples during the Second Quarter 2013 sampling event.

3.7 Surface Water and Storm-Water Sampling Results

Surface water samples were collected for perchlorate at two locations, WS-1 and WS-3, which are located at a spring on the RCA property to the south of the site, during the Second Quarter 2013 (Figure 3). WS-2 was not sampled because it was dry. Perchlorate was not detected in samples from either location above the method detection limit of 0.71 µg/L. The California MCL for perchlorate is 6 µg/L. No other surface water or storm-water samples were collected during this reporting period.

3.8 Temporal Trends in Groundwater Chemical Concentrations

All groundwater and surface water monitoring locations sampled and tested between Fourth Quarter 2012 and Third Quarter 2013 were included in the trend analyses. Samples were collected from 48 monitoring wells and two fixed surface water locations. Temporal trend analyses were performed for perchlorate, TCE, 1,4-dioxane, and RDX. The temporal trend analyses were performed using data from the period of record (September 2004 through September 2013). Statistical trend analyses were conducted for the entire period of record to evaluate long-term trends at the site, and to assess the variability observed in the data, since many locations fluctuate considerably from quarter to quarter.

Time trend analysis was conducted using the Monitoring and Remediation Optimization System (MAROS) developed by the Air Force Center for Environmental Excellence (AFCEE, 2006). MAROS is a statistical database application developed to assist with groundwater quality data trend analysis and long-term monitoring optimization at contaminated groundwater sites. The software performs parametric and nonparametric trend analyses to evaluate temporal and spatial contaminant trends using Mann-Kendall and linear regression methods. Brief descriptions of the methods follow.

- Mann-Kendall Analysis – This statistical procedure was used to evaluate the data for trends. It is a nonparametric statistical procedure that is well suited for analyzing trends in data over time that do not require assumptions as to the statistical distribution of the data and can be used with irregular sampling intervals and missing data. The Mann-Kendall test for trends is suitable for analyzing data that follow a normal or non-normal distribution pattern. The Mann-Kendall test has no distributional assumptions and allows for irregularly spaced measurement periods. The advantage with this approach involves cases where outliers in the data would produce biased estimates of the least squares estimated slope.

- Linear Regression Analysis – This statistical procedure was used to estimate the magnitude of the trends. A parametric statistical procedure is typically used for analyzing trends in data over time and requires a normal statistical distribution of the data.

The following seven statistical concentration trend types are derived from Mann-Kendall analysis: 1) decreasing, 2) increasing, 3) no trend (displaying two sets of conditions), 4) probably decreasing, 5) probably increasing, 6) stable, and 7) non-detect (with all sample results below the detection limit). If a location has fewer than four quarters of data, then the Mann-Kendall analysis cannot be run, and not applicable (NA) is applied to the results. The criteria used to evaluate the statistical concentration trend types are summarized in Table 9.

The Mann-Kendall statistic (S) measures the trend in the data. Positive values indicate an increase in constituent concentrations over time, whereas negative values indicate a decrease in constituent concentrations over time. The strength of the trend is proportional to the magnitude of the Mann-Kendall statistic (i.e., large magnitudes indicate a strong trend).

The coefficient of variation (COV) is a statistical measure of how the individual data points vary about the mean value. Values less than or near 1.00 indicate that the data form a relatively close group about the mean value. Values larger than 1.00 indicate that the data show a greater degree of scatter about the mean.

The confidence in trend is the statistical confidence that the constituent concentration is increasing ($S>0$) or decreasing ($S<0$).

Temporal trends were analyzed for up to 48 monitoring wells and two surface water or spring sampling locations. Any single location may have different trends for each of the four analytes evaluated. The results of the Mann-Kendall trend analysis are provided in Appendix J; summaries of the Mann-Kendall results are presented in Table 10 (groundwater) and Table 11 (surface water).

Twenty-one probably increasing or increasing trends were found at 15 groundwater monitoring locations. Listed below are the areas of the site where they are located, the location identifications, and the chemical of potential concern that has the increasing or probably increasing trend.

Seven wells located in Area K:

- TT-MW2-1: perchlorate

- TT-MW2-17S: TCE
- TT-MW2-17D: TCE
- TT-MW2-30B: perchlorate
- TT-MW2-34A: perchlorate
- TT-MW2-38C: perchlorate
- TT-MW2-40A: perchlorate

One well located in Area L:

- TT-MW2-4S: perchlorate

Four wells located in the former WDA:

- TT-MW2-21: perchlorate and TCE
- TT-MW2-22: TCE and 1,4-dioxane
- TT-MW2-37A: 1,4-dioxane, perchlorate, and TCE
- TT-MW2-37B: perchlorate

Three wells located just downgradient and cross gradient, respectively, of the former WDA:

- TT-MW2-9S: 1,4-dioxane, perchlorate, and TCE
- TT-MW2-26: perchlorate
- TT-MW2-27: perchlorate

For the two surface water locations, two trends were evaluated. Of these two trends: WS-1 had a decreasing trend for perchlorate, and WS-3 was non-detect for perchlorate. No other surface water trends were evaluated.

Table 12 summarizes the magnitude of the trend changes in micrograms per liter per year (µg/L/yr) and the percent change with respect to the mean experienced at the site through Third Quarter 2013. The trends and trend magnitudes were generated using the MAROS software. Figures 12 through 15 present a spatial representation of the results of the trend analysis for monitoring well locations. Tables 13 to 16 summarize historical trend analysis results by chemical, and Table 17 provides a summary of increasing trends identified during the Second Quarter 2013 trend analysis by well.

3.9 Groundwater Monitoring Program and the Groundwater Quality Monitoring Network

Quarterly groundwater monitoring has been conducted continuously at the site since the September 2004 well installation activities. Groundwater samples have been routinely analyzed for volatile organic compounds and perchlorate. Selected testing for California Assessment Manual 17 Metals, general minerals, 1,4-dioxane, RDX, N-nitrosodimethylamine, 1,2,3-trichloropropane, and hexavalent chromium has also been performed. In accordance with the site *Groundwater Sampling and Analysis Plan* (Tetra Tech, 2007a), the analytical scheme and the classifications of the wells in the network and the corresponding sampling frequency are evaluated annually during the second quarter of each year. Changes may then be proposed to accommodate expanded site knowledge or changing site conditions.

3.9.1 Groundwater Sampling Frequency

The primary criterion used in determining the sampling frequency of a monitoring well is the well classification (i.e., function of each well) (Tetra Tech, 2007a). Classification of groundwater monitoring wells is based on the evaluation of the temporal trends, spatial distribution analyses, and other qualitative criteria. During the current reporting period, horizontal extent wells, vertical distribution wells, increasing contaminant trend wells, and guard wells were sampled. Table 18 presents a summary of the current frequency of groundwater sampling by well classification.

3.9.2 Increasing Trend Wells

The sampling frequency for wells with an increasing trend may be increased if the magnitude of the trend and the location of the well warrant an increased frequency. Regardless of the outcome of the trend analysis, guard wells will continue to be sampled semiannually. The monitoring frequency for wells exhibiting an increasing trend are evaluated on a case-by-case basis, with particular attention given to the magnitude of the trend and the location of the well.

For the Second Quarter 2013 trend analysis, six of the 15 locations with increasing or probably increasing trends for perchlorate, 1,4-dioxane, or TCE had trend magnitudes of less than 20% per year. The six locations with these low magnitude trends are considered to be less critical than the nine locations with magnitudes greater than 20% per year. Only those wells with trend magnitudes greater than 20% per year are considered to be increasing trend wells for well classification purposes.

Taking into account the results of the temporal trend analysis and the magnitude of their trends, Tetra Tech proposes to continue semiannual sampling for the following increasing trend wells:

- Area K wells TT-MW2-34A, TT-MW2-38C, and TT-MW2-40A
- Waste Discharge Area wells TT-MW2-21, TT-MW2-37A, and TT-MW2-37B
- Lower Canyon Area wells TT-MW2-9S and TT-MW2-27

Additionally it is proposed to reclassify the following monitoring well as an increasing trend well, and change its sampling frequency annual to semiannual:

- Area K well TT-MW2-30B

We propose that the sampling frequency of the following monitoring wells be changed from semiannual to annual, based on the limited magnitude of their trends:

- Waste Discharge Area well TT-MW2-22 (horizontal)

For horizontal extent monitoring well TT-MW2-19S, located on the RCA property to the south of the site, we note the change from an increasing trend in 2012 to no trend in 2013, and propose that the sampling frequency be changed from semiannual to annual.

Table 19 summarizes the proposed monitoring well sampling schedule and frequency for the 2014 calendar year.

3.10 Habitat Conservation

Consistent with the United States Fish and Wildlife Service (USFWS) approved Habitat Conservation Plan (HCP) (USFWS, 2005) and subsequent clarifications (Lockheed Martin Corporation, 2006a and 2006b) to the HCP describing activities for environmental remediation at the site, field activities were performed under the supervision of a USFWS-approved biologist. No impact to the Stephens' Kangaroo rat occurred during the performance of field activities related to the Second Quarter 2013 and Third Quarter 2013 monitoring events.

Section 4
Summary and Conclusions

This section summarizes the results of the Second Quarter 2013 and Third Quarter 2013 groundwater monitoring events.

4.1 Groundwater Elevation and Gradient

Taking into account the measured groundwater elevations, the current conceptual site model, and the southward sloping topography at the site, groundwater flow is to the south, generally following the topography of Laborde Canyon. During Second Quarter 2013, groundwater elevation decreases were seen in Area M (garbage disposal area) and the former waste discharge area, and groundwater elevation increases were seen in all other areas. During Third Quarter 2013, groundwater elevation increases were seen in all areas of the site. The overall groundwater elevation at the site has decreased since Fourth Quarter 2005, with the greatest decrease over time seen in monitoring well TT-MW2-1 (7.5 feet). Limited seasonal fluctuations can be seen to varying degrees following periods of precipitation. Although the data are limited in many of the newer wells, the overall long-term decreasing trend in groundwater elevation appears to generally correspond to long-term precipitation patterns.

The horizontal hydraulic gradients calculated between TT-MW2-16 and TT-MW2-6S from the Second Quarter 2013 and Third Quarter 2013 groundwater monitoring events for the weathered San Timoteo formation-screened wells averaged 0.030 feet/foot (ft/ft). The horizontal groundwater gradients calculated between TT-MW2-2 and TT-MW2-6D for the Second Quarter 2013 and Third Quarter 2013 groundwater monitoring events for the deeper San Timoteo formation-screened wells averaged 0.029 ft/ft. Vertical gradients are downward on-site and upward from the site boundary south. The vertical gradients range from -0.30 ft/ft to +0.17 ft/ft. A summary of calculated horizontal and vertical groundwater gradients is presented in Table 5 and in Appendix E.

4.2 Surface Water Flow Results

Surface water was not present in the stream beds during the Second Quarter 2013 and Third Quarter 2013 monitoring events.

4.3 Surface Water and Storm Water Sampling Results

During the Second Quarter 2013 sampling event, surface water samples were collected from two locations at a spring located on the RCA property to the south of the site. The samples were analyzed for perchlorate. Perchlorate was not detected in surface water samples during the Second Quarter 2013 monitoring event. No other surface water or storm –water samples were collected during this reporting period.

4.3.1 Private Production Wells and Springs Sampling Results

Samples from select off-site private production wells and springs were collected as part of the Second Quarter 2013 monitoring event. No chemicals of potential concern were detected in the private production wells or springs. The private production wells will continue to be monitored annually during the second quarter sampling event.

4.3.2 Groundwater Sampling Results

Area J – Final Assembly

Area J wells were not scheduled to be sampled during Second Quarter 2013. Historically, site chemicals of potential concern have not been detected above their respective MCLs or DWNLs in Area J.

Area K – Test Bays and Miscellaneous Facilities

Results for Area K during the Second Quarter 2013 include the following:

- Perchlorate was detected at concentrations ranging from below the method detection limit to 91,000 µg/L. Previously, perchlorate has been detected as high as 190,000 micrograms per liter (µg/L) in Area K. Area K has been identified as a source of perchlorate in groundwater.

- TCE was detected below the MCL of 5 µg/L in two wells: TT-MW2-17D (4.5 µg/L) and TT-MW2-17S (0.49 µg/L). TCE has been detected consistently in well TT-MW2-17D at concentrations up to 6.0 µg/L. TCE has not been detected in other wells located in Area K. The source of the TCE is unknown.

- RDX was detected at a concentration of 0.52 µg/L in TT-MW2-13. Previously, RDX was also detected in monitoring well TT-MW2-1, but has not been detected in this well since October 2007. The source of the RDX has been investigated (Tetra Tech, 2010a) but remains unknown.

Area L – Propellant Burn Area

Results for Area L for the Second Quarter 2013 include the following:

- Perchlorate was detected in monitoring wells TT-MW2-4S, TT-MW2-10, and TT-MW2-12 at concentrations of 0.67 µg/L, 0.081 µg/L, and 0.38 µg/L respectively. Previously, perchlorate was detected at concentrations up to 9.98 µg/L in Area L. There is no indication that a perchlorate source is present in Area L; the perchlorate detected in the northernmost portion of Area L appears to have originated upgradient in Area K.

Area M - Garbage Disposal Area

Results for Area M for the Second Quarter 2013 include the following:

- Perchlorate was detected in monitoring well TT-MW2-11 at a concentration of 190 µg/L. Previously, perchlorate was detected at concentrations up to 469 µg/L in monitoring well TT-MW2-11. Area M has been identified as a source of perchlorate in groundwater.

- TCE was detected in one well (TT-MW2-11) at a concentration of 7.5 µg/L. The MCL for TCE is 5 µg/L. Previously, TCE has been detected in groundwater at concentrations up to 9.2 µg/L. TCE has not been detected in other wells in Area M.

Waste Discharge Area

Results for the former Waste Discharge Area during the Second Quarter 2013 include the following:

- Perchlorate was detected in groundwater at concentrations ranging from below the MDL to 86,000 µg/L in well TT-MW2-24. The MCL for perchlorate is 6 µg/L. Previously, perchlorate was detected at concentrations as high as 190,000 µg/L in well TT-MW2-24. The former WDA has been identified as a source of perchlorate in groundwater.

- TCE was detected in groundwater at concentrations ranging from below the method detection limit to 440 µg/L. The MCL for TCE is 5 µg/L. Previously, TCE was detected at concentrations as high as 460 µg/L in the former WDA. The WDA has been identified as a source of TCE in groundwater; however, TCE has not been detected above the maximum contaminant level of 5 µg/L in downgradient monitoring wells.

- 1,4-Dioxane was detected in groundwater at concentrations ranging from below the method detection limit to 160 µg/L. The DWNL for 1,4-dioxane is 1 µg/L. Previously, 1,4-dioxane was detected as high as 420 µg/L in the former WDA. The former WDA has been identified as a source of 1,4-dioxane in groundwater, and this constituent has been detected in monitoring wells downgradient of the WDA.

- RDX was detected in TT-MW2-24 at a concentration of 0.23 µg/L, which is below the DWNL of 0.3 µg/L. Previously, RDX was reported in groundwater samples from monitoring well TT-MW2-24 at concentrations as high as 5.9 µg/L. RDX has not been detected in other wells located in, or downgradient of, the former WDA.

Lower Canyon and Riparian Corridor

Results for the lower portion of Laborde Canyon, from the area immediately downgradient of the WDA to the riparian area immediately south of the property boundary, include the following:

- Perchlorate was detected in groundwater during the Second Quarter 2013at concentrations ranging from 13,000 µg/L in the northern portion of the lower Laborde Canyon to below the MDL in the riparian corridor. Historically, perchlorate has been detected at concentrations up to 11,000 µg/L immediately downgradient from the WDA, up to 519 µg/L at the southern site boundary, and up to 0.18 µg/L in the riparian corridor south of the southern site boundary. No source of perchlorate has been identified in the lower canyon or at the southern site boundary. The perchlorate appears to have originated in the former WDA.

- TCE was detected in groundwater during the Second Quarter 2013 in monitoring well TT-MW2-9S, located in the northern portion of the lower Laborde Canyon, at a concentration of 1.9 µg/L, which is below the MCL of 5 µg/L. TCE has not been detected in other wells located in the lower canyon or riparian corridor area. The source of the TCE appears to be the former WDA.

- 1,4-Dioxane was detected in groundwater during the Second Quarter 2013 monitoring event at concentrations ranging from 20 µg/L in the northern portion of the lower Laborde Canyon to below the MDL in the riparian corridor. No source of 1,4-dioxane has been identified in the lower canyon or at the southern site boundary. The 1,4-dioxane appears to have originated in the former waste discharge area.

RCA Property

- Perchlorate was detected in monitoring well TT-MW2-19S at a concentration of 3.8 µg/L. This result is consistent with historic results. Perchlorate has not been detected in monitoring wells TT-MW2-20S or TT-MW2-20D, located approximately one-half mile south of TT-MW2-19S.

Summary

Given the data available at this time, the TCE and RDX plumes in groundwater appear to be small and isolated. These plumes do not extend off-site. The 1,4-dioxane plume is limited to the waste discharge area and lower Laborde Canyon, and does not appear to extend off-site. The perchlorate plume does appear to extend off-site, but terminates in the riparian corridor south of the southern site boundary. The perchlorate detected in monitoring well TT-MW2-19S located on the RCA property to the south of the site appears to be an isolated impacted area.

4.4 Temporal Trend Analysis

The number of increasing or probably increasing trend wells has remained unchanged from 15 wells in 2012 to 15 wells in 2013. A summary of the trend analysis results for the 15 well locations with increasing or probably increasing trends is presented in Table 17. This table also presents the Second Quarter 2013 concentrations and percent change that these increases represent with respect to the mean of the data used to calculate each trend.

Taking into account the results of the temporal trend analysis and the magnitude of their trends, Tetra Tech proposes to continue semiannual sampling for the following increasing trend wells:

- Area K wells TT-MW2-34A, TT-MW2-38C, and TT-MW2-40A
- Waste Discharge Area wells TT-MW2-21, TT-MW2-37A, and TT-MW2-37B
- Lower Canyon Area wells TT-MW2-9S and TT-MW2-27

Additionally it is proposed to reclassify the following monitoring well as an increasing trend well, and change its sampling frequency annual to semiannual:

- Area K well TT-MW2-30B

We propose that the sampling frequency of the following monitoring wells be changed from semiannual to annual, based on the limited magnitude of their trends:

- Waste Discharge Area well TT-MW2-22 (horizontal)

For horizontal extent monitoring well TT-MW2-19S, located on the RCA property to the south of the site, we note the change from an increasing trend in 2012 to no trend in 2013, and propose that the sampling frequency be changed from semiannual to annual.

Table 19 summarizes the proposed monitoring well sampling schedule and frequency for the 2014 calendar year.

Section 5
References

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TABLES

Table 1 2013 Water Quality Monitoring Locations and Sampling Frequency

Monitoring Well	Classification	4th Quarter 2012 to 3rd Quarter 2013 Monitoring Program																
		VOCs (EPA 8260B)				Perchlorate (EPA 332.0)					1,4-Dioxane (EPA 8270 SIM)				RDX (EPA 8330)			
		2012	2013			2012	2013				2012	2013			2012	2013		
		4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	Bi	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
Surface Water Locations																		
WS-1	-					●		●										
WS-2	-					●		●										
WS-3	-					●		●										
Storm Water Locations																		
SW-01	-						●											
SW-02	-						●											
SW-03	-						●											
SW-04	-						●											
SW-05	-						●											
SW-06	-						●											
SW-07	-						●											
Private Production Wells and Springs																		
PPW1	-							●										
PPW2	-							●										
PPW3	-							●										
PPW4	-							●										
PPW5	-							●										
PPW6	-							●										
PPW7	-							●										
Monitoring Wells																		
TT-MW2-1	H							●										
TT-MW2-4S	H							●										
TT-MW2-5	H			●				●					●					
TT-MW2-6S	H			●				●					●					
TT-MW2-6D	V							●										
TT-MW2-7	H							●					●					
TT-MW2-7D	V							●										
TT-MW2-8	H							●					●					
TT-MW2-9S	H / I	●		●		●		●			●		●					
TT-MW2-9D	V							●					●					
TT-MW2-10	H							●										
TT-MW2-11	H			●				●										
TT-MW2-12	H							●										
TT-MW2-13	H							●									●	
TT-MW2-14	H			●				●										
TT-MW2-16	B									●								
TT-MW2-17S	H			●				●										
TT-MW2-17D	V			●				●										
TT-MW2-18	V							●										
TT-MW-19S	H / I					●		●										
TT-MW-19D	V							●										
TT-MW-20S	G					●		●										
TT-MW2-21	H / I	●		●		●		●					●					
TT-MW2-22	H / I	●		●		●		●			●		●					
TT-MW2-23	R																	
TT-MW2-24	H			●				●					●				●	
TT-MW2-25	H			●				●					●					
TT-MW2-26	H			●				●					●					
TT-MW2-27	H / I			●		●		●					●					
TT-MW2-28	H							●										
TT-MW2-29A	B									●								
TT-MW2-29B	B									●								
TT-MW2-29C	B									●								
TT-MW2-30A	V			●				●										
TT-MW2-30B	V							●										
TT-MW2-30C	V							●										
TT-MW2-31A	V							●										
TT-MW2-32	V			●				●										
TT-MW2-33A	H							●										
TT-MW2-34A	H / I					●		●										
TT-MW2-35A	V							●										
TT-MW2-36A	H							●										
TT-MW2-37A	H / I	●		●		●		●			●		●					
TT-MW2-37B	V / I			●		●		●					●					
TT-MW2-38A	H							●										
TT-MW2-38B	V							●										
TT-MW2-38C	V / I					●		●										
TT-MW2-39	H							●										
TT-MW2-40A	H / I			●		●		●										
TT-MW2-40B	V			●				●										
TT-MW2-41A	H							●					●					
TT-MW2-42A	G					●		●					●					
Monitoring Wells (Not Sampled)																		
TT-MW2-2	R																	
TT-MW2-3	R																	
TT-MW2-4D	R																	
TT-MW-20D	R																	
TT-MW2-31B	R																	
TT-MW2-33B	R																	
TT-MW2-33C	R																	
TT-MW2-34B	R																	
TT-MW2-34C	R																	
TT-MW2-35B	R																	

Monitoring Well	Classification	4th Quarter 2012 to 3rd Quarter 2013 Monitoring Program																
		VOCs (EPA 8260B)				**Perchlorate (EPA 332.0)**					**1,4-Dioxane (EPA 8270 SIM)**				**RDX (EPA 8330)**			
		2012	**2013**			**2012**	**2013**				**2012**	**2013**			**2012**	**2013**		
		4Q	**1Q**	**2Q**	**3Q**	**4Q**	**1Q**	**2Q**	**3Q**	**Bi**	**4Q**	**1Q**	**2Q**	**3Q**	**4Q**	**1Q**	**2Q**	**3Q**
TT-MW2-36B	R																	
TT-MW2-36C	R																	
TT-MW2-40C	R																	
TT-MW2-43	R																	
Piezometers (Not Sampled)																		
TT-MW2-41B	-																	
TT-MW2-42B	-																	
TT-PZ2-1	-																	
TT-PZ2-2	-																	
TT-PZ2-3	-																	
TT-PZ2-4	-																	
Extraction Wells (Not Sampled)																		
TT-EW2-1	-																	
TT-EW2-2	-																	
TT-EW2-3	-																	
TT-EW2-4	-																	
Totals	-	4	0	19	0	15	7	57	0	4	3	0	16	0	0	0	2	0
		23				**83**					**19**				**2**			

Notes:

EPA - United States Environmental Protection Agency
RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine
VOCs Volatile organic compounds
Bi - Biennial (sampled in even numbered years)

G - Guard well
H - Horizontal extent well
I - Increasing contaminant trend well
R - Redundant well
V - Vertical distribution well

Table 2 Sampling Schedule and Analysis Method - Second Quarter 2013

Monitoring Well or Surface Water Location	Sample Date	VOCs (1)	1,4-dioxane (2)	Perchlorate (3)	RDX (4)	Comments and QA /QC Samples
WS-1	6/20/2013	-	-	X	-	Spring Sample, MS/MSD
WS-2	NA	-	-	-	-	Spring Sample, Dry
WS-3	6/20/2013	-	-	X	-	Spring Sample
PPW2-1	5/9/2013	-	-	X	-	Private Production Well
PPW2-2	5/9/2013	-	-	X	-	Private Production Well
PPW2-3	5/9/2013	-	-	X	-	Private Production Well
PPW2-4	5/9/2013	-	-	X	-	Private Production Well
PPW2-5	5/9/2013	-	-	X	-	Private Spring
PPW2-6	NA	-	-	-	-	Private Spring - Dry
PPW2-7	5/9/2013	-	-	X	-	Private Spring
TT-MW2-1	6/24/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-4S	6/18/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-5	6/19/2013	X	X	X	-	Sample with Dedicated Pump
TT-MW2-6S	6/19/2013	X	X	X	-	Sample with Dedicated Pump
TT-MW2-6D	6/19/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-7	6/19/2013	-	X	X	-	Sample with Dedicated Pump, Duplicate - TT-MW2-7-Dup
TT-MW2-7D	6/19/2013	-	-	X	-	Sample with Dedicated Pump, MS/MSD
TT-MW2-8	6/19/2013	-	X	X	-	Sample with Dedicated Pump, Duplicate - TT-MW2-8-Dup
TT-MW2-9S	6/26/2013	X	X	X	-	Sample with Dedicated Pump Duplicate - Tt-MW2-9S-Dup
TT-MW2-9D	6/18/2013	-	X	X	-	Sample with Dedicated Pump
TT-MW2-10	6/18/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-11	6/18/2013	X	-	X	-	Sample with Dedicated Pump Duplicate-Tt-MW2-11-Dup
TT-MW2-12	6/21/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-13	6/25/2013	-	-	X	X	Sample with Dedicated Pump
TT-MW2-14	6/24/2013	X	-	X	-	Sample with Dedicated Pump
TT-MW2-17S	6/24/2013	X	-	X	-	Sample with Dedicated Pump
TT-MW2-17D	6/24/2013	X	-	X	-	Sample with Dedicated Pump
TT-MW2-18	6/24/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW-19S	6/20/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW-19D	6/20/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW-20S	6/20/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-21	6/25/2013	X	X	X	-	Sample with Dedicated Pump Duplicate- TT-MW2-21-Dup
TT-MW2-22	6/25/2013	X	X	X	-	Sample with Dedicated Pump Duplicate- Tt-MW2-22-Dup
TT-MW2-24	6/25/2013	X	X	X	X	Sample with Dedicated Pump Duplicate- Tt-MW2-24-Dup
TT-MW2-25	6/19/2013	X	X	X	-	Sample with Dedicated Pump MS/MSD
TT-MW2-26	6/25/2013	X	X	X	-	Sample with Dedicated Pump
TT-MW2-27	6/19/2013	X	X	X	-	Sample with Dedicated Pump
TT-MW2-28	6/18/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-30A	6/20/2013	X	-	X	-	Sample with Dedicated Pump
TT-MW2-30B	6/20/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-30C	6/20/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-31A	6/26/2013	-	-	X	-	Sample with Dedicated Pump MS/MSD
TT-MW2-32	6/18/2013	X	-	X	-	Sample with Dedicated Pump
TT-MW2-33A	6/21/2013	-	-	X	-	Sample with Dedicated Pump Duplicate-Tt-MW2-33A-Dup
TT-MW2-34A	6/21/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-35A	6/18/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-36A	6/21/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-37A	6/25/2013	X	X	X	-	Sample with Dedicated Pump
TT-MW2-37B	6/18/2013	X	X	X	-	Sample with Dedicated Pump
TT-MW2-38A	6/24/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-38B	6/24/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-38C	6/24/2013	-	-	X	-	Sample with Dedicated Pump
TT-MW2-39	6/24/2013	-	-	X	-	Sample with Dedicated Pump Duplicate Tt-MW2-39-Dup
TT-MW2-40A	6/21/2013	X	-	X	-	Sample with Dedicated Pump
TT-MW2-40B	6/21/2013	X	-	X	-	Sample with Dedicated Pump
TT-MW2-41A	6/25/2013	-	X	X	-	Sample with Dedicated Pump
TT-MW2-42A	6/25/2013	-	X	X	-	Sample with Portable Pump
TT-MW2-44	6/21/2013	-	-	X	-	Sample with Dedicated Pump, Duplicate - TT-MW2-44-Dup

Total Sample Locations: 58
Total Samples Collected: 56

Notes:

(shaded) Well not sampled or surface water sample not collected.
"-" Not analyzed
EPA - United States Environmental Protection Agency
QA/QC - Quality assurance/quality control
MS / MSD - Matrix Spike/Matrix Spike Duplicate
NA - Not available
VOCs - Volatile organic compounds
RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine
(1) - Volatile organic compounds (VOCs) analyzed by EPA Method SW8260B.
(2) - 1,4-Dioxane analyzed by EPA Method SW8270C SIM.
(3) - Perchlorate analyzed by EPA Method E332.0.
(4) - RDX analyzed by EPA Method SW8330A.

Table 3 Groundwater Elevation Data - Second Quarter 2013 and Third Quarter 2013

Well ID	Measuring Point Elevation (feet msl)	Second Quarter 2013				Third Quarter 2013			
		Date Measured	Depth to Water (from Measuring Point, feet)	Groundwater Elevation (feet msl)	Groundwater Elevation Change from First Quarter 2013 (feet)	Date Measured	Depth to Water (from Measuring Point, feet)	Groundwater Elevation (feet msl)	Groundwater Elevation Change from Second Quarter 2012 (feet)
TT-EW2-1	1840.24	05/21/12	22.85	1817.39	0.24	8/13/2013	23.80	1816.44	0.95
TT-EW2-2	2079.12	05/21/12	60.38	2018.74	0.18	8/13/2013	60.67	2018.45	0.29
TT-EW2-3	1962.82	05/21/12	53.27	1909.55	-0.02	8/13/2013	53.37	1909.45	0.10
TT-MW2-1	2035.21	05/21/12	59.82	1975.39	0.26	8/13/2013	60.20	1975.01	0.38
TT-MW2-2	2137.75	05/21/12	71.26	2066.49	0.07	8/12/2013	71.36	2066.39	0.10
TT-MW2-3	2094.66	05/21/12	70.51	2024.15	0.11	8/13/2013	70.77	2023.89	0.26
TT-MW2-4S	1986.94	05/21/12	51.03	1935.91	0.00	8/13/2013	51.34	1935.60	0.31
TT-MW2-4D	1987.17	05/21/12	58.87	1928.30	-0.02	8/13/2013	59.22	1927.95	0.35
TT-MW2-5	1911.31	05/21/12	51.03	1860.28	10.12	8/13/2013	41.16	1870.15	-9.87
TT-MW2-6S	1908.00	05/21/12	37.73	1870.27	0.12	8/13/2013	37.92	1870.08	0.19
TT-MW2-6D	1908.07	05/21/12	38.66	1869.41	0.09	8/13/2013	38.85	1869.22	0.19
TT-MW2-7	1839.25	05/21/12	22.54	1816.71	0.14	8/13/2013	23.51	1815.74	0.97
TT-MW2-7D	1838.96	05/21/12	19.76	1819.20	0.30	8/13/2013	20.54	1818.42	0.78
TT-MW2-8	1836.32	05/21/12	18.64	1817.68	0.19	8/13/2013	19.53	1816.79	0.89
TT-MW2-9S	1938.38	05/21/12	41.73	1896.65	0.14	8/13/2013	41.89	1896.49	0.16
TT-MW2-9D	1938.78	05/21/12	45.00	1893.78	0.14	8/13/2013	45.22	1893.56	0.22
TT-MW2-10	2001.57	05/21/12	57.94	1943.63	-0.03	8/13/2013	58.15	1943.42	0.21
TT-MW2-11	2004.51	05/21/12	49.38	1955.13	0.10	8/13/2013	49.90	1954.61	0.52
TT-MW2-12	2016.26	05/21/12	51.71	1964.55	0.06	8/13/2013	51.91	1964.35	0.20
TT-MW2-13	2049.39	05/21/12	66.75	1982.64	0.10	8/13/2013	66.77	1982.62	0.02
TT-MW2-14	2074.78	05/21/12	66.60	2008.18	0.20	8/13/2013	66.90	2007.88	0.30
TT-MW2-16	2137.20	05/21/12	63.48	2073.72	0.17	8/12/2013	63.72	2073.48	0.24
TT-MW2-17S	2095.55	05/21/12	71.30	2024.25	0.09	8/13/2013	71.51	2024.04	0.21
TT-MW2-17D	2095.33	05/21/12	71.52	2023.81	0.12	8/13/2013	71.75	2023.58	0.23
TT-MW2-18	2035.32	05/21/12	59.66	1975.66	0.25	8/13/2013	60.01	1975.31	0.35
TT-MW2-19S	1698.18	05/21/12	45.32	1652.86	-0.12	8/14/2013	45.53	1652.65	0.21
TT-MW2-19D	1698.15	05/21/12	26.07	1672.08	0.25	8/14/2013	26.42	1671.73	0.35
TT-MW2-20S	1587.10	05/21/12	36.57	1550.53	0.23	8/14/2013	36.80	1550.30	0.23
TT-MW2-20D	1587.62	05/21/12	35.79	1551.83	0.22	8/13/2013	36.05	1551.57	0.26
TT-MW2-21	1978.45	05/21/12	66.93	1911.52	-0.10	8/13/2013	67.06	1911.39	0.13
TT-MW2-22	1975.86	05/21/12	65.65	1910.21	-0.15	8/13/2013	65.76	1910.10	0.11
TT-MW2-23	1995.17	05/21/12	83.56	1911.61	-0.13	8/13/2013	83.69	1911.48	0.13
TT-MW2-24	1964.26	05/21/12	54.43	1909.83	-0.05	8/13/2013	54.52	1909.74	0.09
TT-MW2-25	1966.96	05/21/12	64.43	1902.53	-0.15	8/13/2013	64.55	1902.41	0.12
TT-MW2-26	1944.43	05/21/12	41.57	1902.86	0.18	8/13/2013	42.49	1901.94	0.92
TT-MW2-27	1948.27	05/21/12	52.49	1895.78	0.12	8/13/2013	52.75	1895.52	0.26
TT-MW2-28	1995.65	05/21/12	63.00	1932.65	-0.07	8/13/2013	63.77	1931.88	0.77
TT-MW2-29A	2147.77	05/21/12	Dry	Dry	NA	8/13/2013	Dry	Dry	NA

Notes:
NA - Not available
msl - Mean sea level
#.## - Denotes an increase in groundwater elevation
- #.## - Denotes a decrease in groundwater elevation

Table 3 Groundwater Elevation Data - Second Quarter 2013 and Third Quarter 2013 (Continued)

Well ID	Measuring Point Elevation (feet msl)	Second Quarter 2013				Third Quarter 2013			
		Date Measured	Depth to Water (from Measuring Point, feet)	Groundwater Elevation (feet msl)	Groundwater Elevation Change from First Quarter 2013 (feet)	Date Measured	Depth to Water (from Measuring Point, feet)	Groundwater Elevation (feet msl)	Groundwater Elevation Change from Second Quarter 2012 (feet)
TT-MW2-29B	2147.90	05/21/12	121.13	2026.77	-0.14	8/13/2013	121.20	2026.70	0.07
TT-MW2-29C	2147.83	05/21/12	127.68	2020.15	-0.07	8/13/2013	127.81	2020.02	0.13
TT-MW2-30A	2074.37	05/21/12	73.04	2001.33	0.05	8/13/2013	73.16	2001.21	0.12
TT-MW2-30B	2074.41	05/21/12	75.46	1998.95	0.03	8/13/2013	75.58	1998.83	0.12
TT-MW2-30C	2074.35	05/21/12	77.80	1996.55	0.03	8/13/2013	77.90	1996.45	0.10
TT-MW2-31A	2036.11	05/21/12	60.58	1975.53	0.20	8/13/2013	60.90	1975.21	0.32
TT-MW2-31B	2036.15	05/21/12	67.65	1968.50	0.14	8/13/2013	67.94	1968.21	0.29
TT-MW2-32	2004.87	05/21/12	53.06	1951.81	-0.12	8/13/2013	53.50	1951.37	0.44
TT-MW2-33A	2070.54	05/21/12	61.31	2009.23	-0.04	8/12/2013	61.37	2009.17	0.06
TT-MW2-33B	2070.54	05/21/12	66.04	2004.50	0.01	8/12/2013	66.08	2004.46	0.04
TT-MW2-33C	2070.54	05/21/12	64.28	2006.26	0.05	8/12/2013	64.36	2006.18	0.08
TT-MW2-34A	2066.84	05/21/12	67.30	1999.54	0.02	8/13/2013	67.48	1999.36	0.18
TT-MW2-34B	2066.85	05/21/12	73.55	1993.30	0.04	8/13/2013	73.71	1993.14	0.16
TT-MW2-34C	2066.84	05/21/12	75.34	1991.50	0.05	8/13/2013	75.50	1991.34	0.16
TT-MW2-35A	2003.20	05/21/12	50.75	1952.45	0.17	8/13/2013	51.10	1952.10	0.35
TT-MW2-35B	2003.20	05/21/12	55.61	1947.59	0.17	8/13/2013	55.91	1947.29	0.30
TT-MW2-36A	2100.99	05/21/12	79.16	2021.83	-0.04	8/13/2013	79.35	2021.64	0.19
TT-MW2-36B	2101.04	05/21/12	79.94	2021.10	-0.01	8/13/2013	80.07	2020.97	0.13
TT-MW2-36C	2100.88	05/21/12	79.90	2020.98	0.00	8/13/2013	80.05	2020.83	0.15
TT-MW2-37A	1963.62	05/21/12	64.44	1899.18	0.11	8/13/2013	64.64	1898.98	0.20
TT-MW2-37B	1963.67	05/21/12	72.55	1891.12	0.11	8/13/2013	72.81	1890.86	0.26
TT-MW2-38A	2084.56	05/21/12	60.06	2024.50	0.20	8/13/2013	60.35	2024.21	0.29
TT-MW2-38B	2084.42	05/21/12	81.55	2002.87	0.05	8/13/2013	81.70	2002.72	0.15
TT-MW2-38C	2084.63	05/21/12	89.42	1995.21	0.07	8/13/2013	89.54	1995.09	0.12
TT-MW2-39	2079.53	05/21/12	61.20	2018.33	0.17	8/12/2013	61.36	2018.17	0.16
TT-MW2-40A	2096.28	05/21/12	72.80	2023.48	0.51	8/12/2013	73.03	2023.25	0.23
TT-MW2-40B	2096.24	05/21/12	84.30	2011.94	0.51	8/12/2013	84.45	2011.79	0.15
TT-MW2-40C	2096.28	05/21/12	89.25	2007.03	0.44	8/12/2013	89.36	2006.92	0.11
Tt-MW2-41A	1812.47	05/21/12	24.85	1787.62	0.24	8/13/2013	26.03	1786.44	1.18
Tt-MW2-41B	1812.22	05/21/12	21.94	1790.28	0.87	8/13/2013	23.00	1789.22	1.06
Tt-MW2-42A	1799.06	05/21/12	28.50	1770.56	0.76	8/13/2013	29.37	1769.69	0.87
Tt-MW2-42B	1799.07	05/21/12	25.96	1773.11	0.31	8/13/2013	27.16	1771.91	1.20
Tt-MW2-43	1771.44	05/21/12	Dry	Dry	NA	8/13/2013	Dry	Dry	NA
Tt-MW2-44	2085.22	05/21/12	60.88	2024.34	0.00	8/13/2013	61.19	2024.03	0.31
TT-PZ2-1	1847.06	05/21/12	20.63	1826.43	0.02	8/13/2013	21.40	1825.66	0.77
TT-PZ2-2	1840.76	05/21/12	23.06	1817.70	0.28	8/13/2013	24.08	1816.68	1.02
TT-PZ2-3	2079.89	05/21/12	59.07	2020.82	0.16	8/12/2013	59.37	2020.52	0.30
TT-PZ2-4	1961.49	05/21/12	52.33	1909.16	-0.03	8/13/2013	52.35	1909.14	0.02

Notes:
NA - Not applicable
msl - Mean sea level
#.## - Denotes an increase in groundwater elevation
- #.## - Denotes a decrease in groundwater elevation

Table 4 Groundwater Elevation Change - Second Quarter 2013 and Third Quarter 2013

Site Area	Range of Groundwater Elevation Change - Fourth Quarter 2011 (feet)		Average Change By Area (feet)	Range of Groundwater Elevation Change - First Quarter 2012 (feet)		Average Change By Area (feet)
J	0.07	0.17	0.12	0.10	0.24	0.17
K	-0.14	0.51	0.11	-0.01	0.45	0.19
L	-0.03	0.17	0.06	-7.53	8.19	0.29
M	-0.12	0.10	-0.03	0.44	0.77	0.58
WDA	-0.15	0.11	-0.03	0.02	0.26	0.13
LC	-0.15	10.12	0.78	-9.87	3.49	0.10
WS	-0.12	0.25	0.14	-18.90	19.46	0.26

Notes:

J - Final Assembly Area
K - Former Test Bay Area
L - Former Burn Area
M - Garbage Disposal Area
WDA - Waste discharge area
LC - Lower canyon
RCA - Western Riverside County Regional Conservation Authority

Table 5 Summary of Horizontal and Vertical Groundwater Gradients

Horizontal Groundwater Gradients (feet/foot), approximating a flow line perpendicular to groundwater contours

-	**Overall** STF	**Overall** QAL/WSTF
-	**TT-MW2-2** to **TT-MW2-6D**	**TT-MW2-16** to **TT-MW2-6S**
First Quarter (February 2013)	0.029	0.030
Second Quarter (May 2013)	0.029	0.030
Third Quarter (August 2013)		

Vertical Groundwater Gradients (feet/foot)

-	**Area J**	**Area K**	**Area K**	**Area L**	**Southern portion of Site 2**	**Southern portion of Site 2**	**Southern portion of Site 2**	**RCA Property**	**RCA Property**
deep screen	**TT-MW2-2** (STF)	**TT-MW2-17D** (wWSTF)	**TT-MW2-18** (STF)	**TT-MW2-4D** (STF)	**TT-MW2-9D** (STF)	**TT-MW2-6D** (STF)	**TT-MW2-7D** (STF)	**TT-MW2-19D** (MEF)	**TT-MW2-20D** (MEF)
shallow screen	**TT-MW2-16** (wSTF)	**TT-MW2-17S** (wSTF)	**TT-MW2-1** (wSTF)	**TT-MW2-4S** (STF)	**TT-MW2-9S** (wWSTF)	**TT-MW2-6S** (wWSTF)	**TT-MW2-7** (wWSTF)	**TT-MW2-19S** (wMEF)	**TT-MW2-20S** (wMEF)
First Quarter (February 2013)	-0.16	-0.02	0.01	-0.31	-0.11	-0.05	0.07	0.18	0.03
Second Quarter (May 2013)	-0.16	-0.02	0.01	-0.30	-0.11	-0.05	0.06	0.17	0.03
Third Quarter (August 2013)	-0.15	-0.02	0.01	-0.31	-0.12	-0.05	0.07	0.17	0.03

Notes:

QAL - Quaternary alluvium
STF - San Timoteo formation
MEF - Mt. Eden formation
wSTF - Weathered San Timoteo formation
wMEF - Weathered Mt. Eden formation

Table 6 Summary of Validated Detected Organic and Inorganic Analytes - Second Quarter 2013

Sample Location	Sample Date	Perchlorate	1,4-Dioxane	Acetone	2-Butanone	Benzene	Carbon Disulfide	Chloroform	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	c-1,2-Dichloroethene	t-1,2-Dichloroethene	Methylene Chloride	Toluene	1,1,2-Trichloroethane	Trichloroethene	m- & p-Xylenes	RDX
All results reported in µg/L unless otherwise stated																			
TT-MW2-1	06/24/13	**9,700**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-4S	06/18/13	0.67	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-5	06/19/13	**670**	0.43	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	<0.25	<0.36	-
TT-MW2-6D	06/19/13	<0.071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-6S	06/19/13	**230**	0.16 Jq	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	<0.25	<0.36	-
TT-MW2-7	06/19/13	**570**	0.19 Jq	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-7D	06/19/13	<0.071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-8	06/19/13	**220**	0.12 Jq	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-9D	06/18/13	0.18	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-9S	06/26/13	**13,000**	**20**	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	1.9	<0.36	-
TT-MW2-10	06/18/13	0.081 Jq	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-11	06/18/13	**190**	-	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	0.19 Jbq	<0.10	<0.15	<0.22	<0.31	**7.5 Jb**	<0.36	-
TT-MW2-12	06/21/13	0.38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-13	06/25/13	**3,400**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**0.52 Jq**
TT-MW2-14	06/24/13	**14,000**	-	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	<0.25	<0.36	-
TT-MW2-17S	06/24/13	**1,200**	-	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	0.49 Jq	<0.36	-
TT-MW2-17D	06/24/13	**39,000**	-	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	4.5	<0.36	-
TT-MW2-18	06/24/13	**11,000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-19D	06/20/13	<0.071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-19S	06/20/13	3.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-20S	06/20/13	<0.071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-21	06/25/13	**20**	<0.10	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	1.4 Jq	<0.22	<0.31	3.2	<0.36	-
TT-MW2-22	06/25/13	<0.071	**66**	<5.0	<1.2	0.91	<0.36	<0.46	3.0	**0.87**	**16**	**9.1**	0.77	0.71 Jq	<0.22	<0.31	**440**	<0.36	-
TT-MW2-24	06/25/13	**86,000**	**160**	<5.0	<1.2	0.15 Jq	<0.36	2.1	0.52	0.41 Jq	2.0	<0.18	<0.10	0.32 Jq	<0.22	0.31 Jq	**76**	<0.36	0.23 Jq
TT-MW2-25	06/19/13	<0.071	<0.10	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	<0.25	<0.36	-
TT-MW2-26	06/25/13	**58**	<0.10	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	<0.25	<0.36	-
TT-MW2-27	06/19/13	**340**	0.68	<5.0	<1.2	<0.14	0.40 Jq	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	<0.25	<0.36	-
TT-MW2-28	06/18/13	0.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-30A	06/20/13	**170**	-	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	<0.25	<0.36	-
TT-MW2-30B	06/20/13	**6,200**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-30C	06/20/13	<0.071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-31A	06/26/13	<0.071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-32	06/18/13	<0.071	-	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	<0.25	<0.36	-
TT-MW2-33A	06/21/13	0.44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-34A	06/21/13	**7.0**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-35A	06/18/13	<0.071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-36A	06/21/13	<0.071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-37A	06/25/13	**12,000**	**16**	35	7.7	0.41 Jq	<0.36	<0.46	<0.098	<0.21	0.26 Jq	<0.18	<0.10	<0.15	0.28 Jq	<0.31	**5.0**	<0.36	-
TT-MW2-37B	06/18/13	**95**	0.65	<5.0	<1.2	<0.14	14 Jb	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	0.55 Jb	<0.31	<0.25	<0.36	-
TT-MW2-38A	06/24/13	**91,000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-38B	06/24/13	**6,300**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-38C	06/24/13	**30,000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-39	06/24/13	**71,000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-40A	06/21/13	0.46	-	<5.0	<1.2	<0.14	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	<0.22	<0.31	<0.25	<0.36	-
TT-MW2-40B	06/21/13	<0.071	-	<5.0	<1.2	**2.8**	<0.36	<0.46	<0.098	<0.21	<0.12	<0.18	<0.10	<0.15	0.43 Jq	<0.31	<0.25	0.37 Jq	-
TT-MW2-41A	06/25/13	<0.071	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-42A	06/25/13	<0.071	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TT-MW2-44	06/21/13	**17,000**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WS-1	06/20/13	<0.071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WS-3	06/20/13	<0.071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Method Detection Limit		0.071	0.10	5.0	1.2	0.14	0.36	0.46	0.098	0.21	0.12	0.18	0.10	0.15	0.22	0.31	0.25	0.36	0.20
MCL (unless noted) / DWNL		6	1 (1)	NA	NA	1	160 (1)	NA	5	0.5	6	6	10	5	150	5	5	1750	0.3 (1)

Notes: Only analytes positively detected in samples are presented in this table. For a complete list of constituents analyzed, refer to the laboratory data packages in Appendix G.

µg/L - Micrograms per liter
MCL - California Department of Public Health Services maximum contaminant level
DWNL - California Department of Public Health Services drinking water notification level
NA - Not available (MCL/DWNL not established.)
(1) - DWNL
Bold - MCL or DWNL exceeded.

" - " Not analyzed
< # - Method detection limit concentration is shown.
J - The analyte was positively identified, but the concentration is an estimated value.
b - The surrogate spike recovery was outside control limits.
q - The analyte detection was below the practical quantitation limit (PQL).

Table 7 Summary Statistics for Validated Detected Organic and Inorganic Analytes - Second Quarter 2013

Organic Analytes Detected	Total Number of Samples Analyzed	Total Number of Detections (1)	Number of Detections Exceeding MCL or DWNL (1)	MCL/DWNL		Minimum Concentration Detected		Maximum Concentration Detected	
1,4-Dioxane	16	10	4	1 (2)	µg/L	0.12	µg/L	160	µg/L
Acetone	19	1	0	-	µg/L	35	µg/L	35	µg/L
2-Butanone	19	1	0	-	µg/L	7.7	µg/L	7.7	µg/L
Benzene	19	4	1	1	µg/L	0.15	µg/L	2.8	µg/L
Carbon Disulfide	19	2	0	160 (2)	µg/L	0.40	µg/L	14	µg/L
Chloroform	19	1	0	-	µg/L	2.1	µg/L	2.1	µg/L
1,1-Dichloroethane	19	2	0	5	µg/L	0.52	µg/L	3.0	µg/L
1,2-Dichloroethane	19	2	1	0.5	µg/L	0.41	µg/L	0.87	µg/L
1,1-Dichloroethene	19	3	1	6	µg/L	0.26	µg/L	16	µg/L
cis-1,2-Dichloroethene	19	2	1	6	µg/L	0.19	µg/L	9.1	µg/L
trans-1,2-Dichloroethene	19	1	0	10	µg/L	0.77	µg/L	0.77	µg/L
Methylene Chloride	19	3	0	5	µg/L	0.32	µg/L	1.4	µg/L
Toluene	19	3	0	150	µg/L	0.28	µg/L	0.55	µg/L
1, 1,2-Trichloroethane	19	1	0	5	µg/L	0.31	µg/L	0.31	µg/L
Trichloroethene	19	8	7	5	µg/L	0.49	µg/L	440	µg/L
m- & p-Xylenes	19	1	0	1750	µg/L	0.37	µg/L	0.37	µg/L
RDX	2	2	1	0.3 (2)	µg/L	0.23	µg/L	0.52	µg/L
Inorganic Analytes Detected	**Total Number of Samples Analyzed**	**Total Number of Detections (1)**	**Number of Detections Exceeding MCL or DWNL (1)**	**MCL/DWNL**		**Minimum Concentration Detected**		**Maximum Concentration Detected**	
Perchlorate	50	34	26	6	µg/L	0.081	µg/L	91,000	µg/L

Notes: Only analytes positively detected in groundwater or surface water samples are presented in this table.
For a complete list of constituents analyzed, refer to the laboratory data packages in Appendix G.

MCL - California Department of Public Health Services maximum contaminant level
DWNL - California Department of Public Health Services state drinking water notification level
" - " MCL/DWNL not established.
(1) - Number of detections exclude sample duplicates, trip blanks, and equipment blanks.
(2) - DWNL
µg/L - Micrograms per liter
RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine

Table 8 Groundwater Chemicals of Potential Concern

Analyte	Classification
Perchlorate	Primary
Trichloroethene	Primary
1,4-Dioxane	Primary
Benzene	Secondary
1, 2-Dichloroethane	Secondary
1, 1-Dichloroethene	Secondary
RDX	Secondary
Note:	
RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine	

Table 9 Mann-Kendall Concentration Trend Matrix

Mann-Kendall Statistic (S)	Confidence in Trend	Concentration Trend
$S > 0$	> 95%	Increasing
$S > 0$	90 - 95%	Probably Increasing
$S > 0$	< 90%	No Trend
$S \leq 0$	< 90% and COV ≥ 1	No Trend
$S \leq 0$	< 90% and COV < 1	Stable
$S < 0$	90 - 95%	Probably Decreasing
$S < 0$	> 95%	Decreasing
ND	-	Non-detect
NA	-	Not applicable

Notes:

> - Greater than
< - Less than
≤ - Less than or equal to
COV - Coefficient of Variation
S - Mann-Kendall statistic
ND - All results non-detect
NA - Not applicable, less than four quarters of data

Table 10 Summary of Mann-Kendall Trend Analysis of Chemicals of Potential Concern for 2013 Sampled Monitoring Wells

Analyte	Locations Tested	Insufficient Data	No Trend	Non Detect	Decreasing Trend	Probably Decreasing Trend	Stable Trend	Probably Increasing Trend	Increasing Trend
Trichloroethene	19	0	2	10	1	0	0	0	6
Perchlorate	48	0	13	3	11	7	2	2	10
1,4-Dioxane	16	0	6	5	1	0	1	0	3
RDX	2	0	0	0	1	0	1	0	0
Total Analysis	85	0	21	18	14	7	4	2	19

Note: RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine

Table 11 Summary of Mann-Kendall Trend Analysis of Chemicals of Potential Concern for 2013 Sampled Surface Water Locations

Analyte	Locations Tested	Insufficient Data	No Trend	Non Detect	Decreasing Trend	Probably Decreasing Trend	Stable Trend	Probably Increasing Trend	Increasing Trend
Trichloroethene	0	0	0	0	0	0	0	0	0
Perchlorate	2	0	0	1	1	0	0	0	0
1,4-Dioxane	0	0	0	0	0	0	0	0	0
RDX	0	0	0	0	0	0	0	0	0
Total Analysis	2	0	0	1	1	0	0	0	0

Note: RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine

Table 12 Magnitude of Trends Detected for Chemicals of Potential Concern for 2013 Sampled Surface Water and Spring Locations

Analyte	Decreasing Trend Number	Decreasing Trend Magnitude (ug/L/yr)	Probably Decreasing Trend Number	Probably Decreasing Trend Magnitude (ug/L/yr)	Probably Increasing Trend Number	Probably Increasing Trend Location	Probably Increasing Trend Magnitude (ug/L/yr)	Probably Increasing Trend Magnitude (%/yr)	Increasing Trend Number	Increasing Trend Location	Increasing Trend Magnitude (ug/L/yr)	Increasing Trend Magnitude (%/yr)
Trichloroethene	1	-1.79	0		0				6	TT-MW2-9S	0.24	27.4
										TT-MW2-17S	0.03	13.3
										TT-MW2-17D	0.38	17.3
										TT-MW2-21	0.68	27.4
										TT-MW2-22	44.1	13.0
										TT-MW2-37A	0.84	36.5
Perchlorate	12	0.03 to 3,696	7	0.24 to 21,381	2	TT-MW2-26	9	12.2	10	TT-MW2-1	306	4.6
						TT-MW2-38C	50096.25	111.3		TT-MW2-4S	0.05	6.9
										TT-MW2-9S	2,088	40.2
										TT-MW2-21	5.1	51.1
										TT-MW2-27	50.4	21.9
										TT-MW2-30B	818	25.6
										TT-MW2-34A	1.5	42.0
										TT-MW2-37A	2,300	32.9
										TT-MW2-37B	26.7	62.1
										TT-MW2-40A	2.38	56.6
1,4-Dioxane	1	-14.0	0		0				3	TT-MW2-9S	2.11	16.2
										TT-MW2-22	3.74	7.5
										TT-MW2-37A	1.88	15.7
RDX	1	-0.84	0		0		0		0			

Notes:

ug/L/yr - Micrograms per liter per year. RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine %/yr - Percent change per year with respect to the sample mean.

Table 13 Historical Trichloroethene Trend Summary in Monitoring Wells

	Locations Tested							
Trend Category	2006	2007	2008	2009	2010	2011	2012	2013
"N/A"-Insufficient Data	3	0	6	31	0	0	0	0
"ND" - Non Detect (new designation)	--	--	--	--	50	11	11	10
"NT" - No Trend	1	1	2	1	5	2	2	2
"S" - Stable	4	20	16	24	0	1	0	0
"I" - Increasing	0	0	1	1	4	6	6	6
"PI" -Probably Increasing	0	0	0	1	0	0	0	0
"D" - Decreasing	0	0	0	0	0	0	0	1
"PD" -Probably Decreasing	0	0	0	0	0	0	1	0
Total Locations Tested	8	21	25	58	59	20	20	19

Note:
-- ND (non-detect) was not a category designation prior to the 2010 statistics.

Table 14 Historical Perchlorate Trend Summary in Monitoring Wells

	Locations Tested							
Trend Category	2006	2007	2008	2009	2010	2011	2012	2013
"N/A"-Insufficient Data	3	0	6	30	2	0	0	0
"ND" - Non Detect (new designation)	--	--	--	--	7	3	3	3
"NT" - No Trend	5	5	2	12	31	18	15	13
"S" - Stable	0	8	7	11	10	6	4	2
"I" - Increasing	0	4	5	3	7	8	12	10
"PI" -Probably Increasing	0	0	1	1	1	4	0	2
"D" - Decreasing	0	4	3	3	5	8	16	11
"PD" -Probably Decreasing	0	0	1	1	1	3	1	7
Total Locations Tested	8	21	25	61	64	50	51	48

Note:
-- ND (non-detect) was not a category designation prior to the 2010 statistics.

Table 15 Historical 1,4-Dioxane Trend Summary in Monitoring Wells

	Locations Tested							
Trend Category	2006	2007	2008	2009	2010	2011	2012	2013
"N/A"-Insufficient Data	--	--	--	22	0	0	0	0
"ND" - Non Detect (new designation)	--	--	--	--	6	4	5	5
"NT" - No Trend	--	--	--	0	6	6	6	6
"S" - Stable	--	--	--	0	1	2	2	1
"I" - Increasing	--	--	--	0	0	2	3	3
"PI" -Probably Increasing	--	--	--	0	0	0	0	0
"D" - Decreasing	--	--	--	0	0	0	0	1
"PD" -Probably Decreasing	--	--	--	0	0	0	0	0
Total Locations Tested	0	0	0	22	13	14	16	16

Note:
-- ND (non-detect) was not a category designation prior to the 2010 statistics.

Table 16 Historical Perchlorate Trend Summary in Surface Water

Trend Category	Locations Tested							
	2006	2007	2008	2009	2010	2011	2012	2013
"N/A"-Insufficient Data	0	0	0	1	5	0	0	0
"ND" - Non Detect (new designation)	--	--	--	--	1	1	1	1
"NT" - No Trend	0	0	0	1	0	2	0	0
"S" - Stable	0	0	0	0	1	4	1	0
"I" - Increasing	0	0	0	0	0	0	0	0
"PI" -Probably Increasing	0	0	0	0	0	0	0	0
"D" - Decreasing	0	0	0	0	1	1	0	1
"PD" -Probably Decreasing	0	0	0	0	0	0	1	0
Total Locations	0	0	0	2	8	8	3	2

Note:
-- ND (non-detect) was not a category designation prior to the 2010 statistics.

Table 17 Summary of Increasing Chemicals of Potential Concern Trends – Second Quarter 2013

Analyte:	Perchlorate				Trichloroethene				1,4-Dioxane				RDX	
Well Location	Q2 - 2013 Results (µg/L)	Trend	Magnitude (µg/L/yr)	Magnitude (%/yr)	Q2 - 2013 Results (µg/L)	Trend	Magnitude (µg/L/yr)	Magnitude (%/yr)	Q2 - 2013 Results (µg/L)	Trend	Magnitude (µg/L/yr)	Magnitude (%/yr)	Q2 - 2013 Results (µg/L)	Trend
Area K														
TT-MW2-1	**9,700**	Increasing	306	4.6	-	Not analyzed			-	Not analyzed			-	Not analyzed
TT-MW2-17S	**1,200**	Decreasing	-261	-4.7	0.49 Jq	Increasing	0.03	13	-	Not analyzed			-	Not analyzed
TT-MW2-17D	**39,000**	No Trend			4.5	Increasing	0.38	17	-	Not analyzed			-	Not analyzed
TT-MW2-30B	**6,200**	Increasing	818	26	-	Not analyzed			-	Not analyzed			-	Not analyzed
TT-MW2-34A	**7.0**	Increasing	1.5	42	-	Not analyzed			-	Not analyzed			-	Not analyzed
TT-MW2-38C	**30,000**	Probably Increasing	50,096	111	-	Not analyzed			-	Not analyzed			-	Not analyzed
TT-MW2-40A	0.46	Increasing	2.4	57	<0.25	Non-Detect			-	Not analyzed			-	Not analyzed
Area L														
TT-MW2-4S	0.67	Increasing	0.05	6.9	-	Not analyzed			-	Not analyzed			-	Not analyzed
Former Waste Discharge Area														
TT-MW2-21	**20**	Increasing	5.1	51	3.2	Increasing	0.68	27	<0.10	Non-Detect			-	Not analyzed
TT-MW2-22	<0.071	Non-Detect			**440**	Increasing	44	13	**66**	Increasing	3.7	7.5	-	Not analyzed
TT-MW2-37A	**12,000**	Increasing	2,300	33	**5.0**	Increasing	37	0.84	**16**	Increasing	1.9	15.7	-	Not analyzed
TT-MW2-37B	**95**	Increasing	27	62	<0.25	Non Detect			0.65	No Trend			-	Not analyzed
Lower Canyon (Downgradient and Cross Gradient of the Former Waste Discharge Area)														
TT-MW2-9S	**13,000**	Increasing	2,088	40	1.9	Increasing	0.24	27	**20**	Increasing	2.1	16.2	-	Not analyzed
TT-MW2-26	**58**	Probably Increasing	8.9	12	<0.25	Non-Detect			<0.10	No Trend			-	Not analyzed
TT-MW2-27	**340**	Increasing	50	22	<0.25	Non-Detect			0.68	No Trend			-	Not analyzed
MCL / DWNL	6.0				5.0				3 (1)				0.3 (1)	

Notes:

Shading indicates locations where the magnitude of the increasing or probably increasing trend represents greater than a 20 percent change.

%/yr - Percent change per year with respect to the sample mean
µg/L/yr - Micrograms per liter per year
µg/L - Micrograms per liter
MCL - California Department of Public Health Maximum Contaminant Level
DWNL - California Department of Public Health drinking water notification level
(1) - DWNL

Bold - MDL or DWNL exceeded.
NA - Not analyzed
< # - Method detection limit concentration is shown.
J - The analyte was positively identified, but the concentration is an estimated value.
q - The analyte detected was below the Practical Quantitation Limit (PQL).

Table 18 Current Sampling Frequencies by Well Classification

Well Classification	Proposed Sampling Frequency
Horizontal Extent Wells	Annual
Vertical Distribution Wells	Annual
Increasing Contaminant Trend Wells	Semiannual
Background Wells	Biennial
Remedial Monitoring Wells	Vary, based on remedial action proposed
Guard Wells	Semiannual
New Wells	4 quarters then reclassify
Redundant Wells	Suspend (no sampling)

Table 19 Monitoring Well Sampling Schedule and Frequency

Monitoring Well	2013 Well Classification	2014 Well Classification	Proposed 4th Quarter 2013 to 3rd Quarter 2014 Monitoring Program																
			VOCs (EPA 8260B)				Perchlorate (EPA 332.0)					1,4-Dioxane (EPA 8270 SIM)				RDX (EPA 8330)			
			2013	2014			2013	2014				2013	2014			2013	2014		
			4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	Bi	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
Surface Water Locations																			
WS-1	-	-					●		●										
WS-2	-	-					●		●										
WS-3	-	-					●		●										
Storm Water Locations																			
SW-01	-	-						●											
SW-02	-	-						●											
SW-03	-	-						●											
SW-04	-	-						●											
SW-05	-	-						●											
SW-06	-	-						●											
SW-07	-	-						●											
Private Production Wells and Springs																			
PPW1	-	-							●										
PPW2	-	-							●										
PPW3	-	-							●										
PPW4	-	-							●										
PPW5	-	-							●										
PPW6	-	-							●										
PPW7	-	-							●										
Monitoring Wells																			
TT-MW2-1	H	H							●										
TT-MW2-4S	H	H							●										
TT-MW2-5	H	H			●				●					●					
TT-MW2-6S	H	H			●				●					●					
TT-MW2-6D	V	V							●										
TT-MW2-7	H	H							●					●					
TT-MW2-7D	V	V							●										
TT-MW2-8	H	H							●					●					
TT-MW2-9S	H/I	H/I	●		●		●		●			●		●					
TT-MW2-9D	V	V							●					●					
TT-MW2-10	H	H							●										
TT-MW2-11	H	H			●				●										
TT-MW2-12	H	H							●										
TT-MW2-13	H	H							●									●	
TT-MW2-14	H	H			●				●										
TT-MW2-16	B	B									●								
TT-MW2-17S	H	H			●				●										
TT-MW2-17D	V	V			●				●										
TT-MW2-18	V	V							●										
TT-MW-19S	H/I	H							●										
TT-MW-19D	V	V							●										
TT-MW-20S	G	G					●		●										
TT-MW2-21	H/I	H/I	●		●		●		●					●					
TT-MW2-22	H/I	H			●				●					●					
TT-MW2-23	R	R																	
TT-MW2-24	H	H			●				●					●				●	
TT-MW2-25	H	H			●				●					●					
TT-MW2-26	H	H			●				●					●					
TT-MW2-27	H/I	H/I			●		●		●					●					
TT-MW2-28	H	H							●										

Notes:

EPA - United States Environmental Protection Agency
VOCs - Volatile organic compounds
RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine
Highlighting indicates change in sampling frequency
Bi - Biennial (sampled in even numbered years)

B - Background well
G - Guard well
H - Horizontal extent well
I - Increasing contaminant trend well
R - Redundant well
V - Vertical distribution well

Table 19 Monitoring Well Sampling Schedule and Frequency (continued)

Monitoring Well	2013 Well Classification	2014 Well Classification	Proposed 4th Quarter 2013 to 3rd Quarter 2014 Monitoring Program																
			VOCs (EPA 8260B)				Perchlorate (EPA 332.0)					1,4-Dioxane (EPA 8270 SIM)				RDX (EPA 8330)			
			2013	2014			2013	2014				2013	2014			2013	2014		
			4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	Bi	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q
TT-MW2-29A	B	B									●								
TT-MW2-29B	B	B									●								
TT-MW2-29C	B	B									●								
TT-MW2-30A	V	V			●				●										
TT-MW2-30B	V	V/I					●		●										
TT-MW2-30C	V	V							●										
TT-MW2-31A	V	V							●										
TT-MW2-32	V	V			●				●										
TT-MW2-33A	H	H							●										
TT-MW2-34A	H/I	H/I					●		●										
TT-MW2-35A	V	V							●										
TT-MW2-36A	H	H							●										
TT-MW2-37A	H/I	H/I	●		●		●		●			●		●					
TT-MW2-37B	V/I	V/I			●		●		●					●					
TT-MW2-38A	H	H							●										
TT-MW2-38B	V	V							●										
TT-MW2-38C	V/I	V/I					●		●										
TT-MW2-39	H	H							●										
TT-MW2-40A	H/I	H/I			●		●		●										
TT-MW2-40B	V	V			●				●										
TT-MW2-41A	H	H							●					●					
TT-MW2-42A	G	G					●		●					●					
Monitoring Wells (Not Sampled)																			
TT-MW2-2	R	R																	
TT-MW2-3	R	R																	
TT-MW2-4D	R	R																	
TT-MW-20D	R	R																	
TT-MW2-31B	R	R																	
TT-MW2-33B	R	R																	
TT-MW2-33C	R	R																	
TT-MW2-34B	R	R																	
TT-MW2-34C	R	R																	
TT-MW2-35B	R	R																	
TT-MW2-36B	R	R																	
TT-MW2-36C	R	R																	
TT-MW2-40C	R	R																	
TT-MW2-43	R	R																	
Piezometers (Not Sampled)																			
TT-MW2-41B	-	-																	
TT-MW2-42B	-	-																	
TT-PZ2-1	-	-																	
TT-PZ2-2	-	-																	
TT-PZ2-3	-	-																	
TT-PZ2-4	-	-																	
Extraction Wells (Not Sampled)																			
TT-EW2-1	-	-																	
TT-EW2-2	-	-																	
TT-EW2-3	-	-																	
TT-EW2-4	-	-																	
Totals	-	-	3	0	19	0	14	7	57	0	4	2	0	16	0	0	0	2	0
			22				**82**					**18**				**2**			

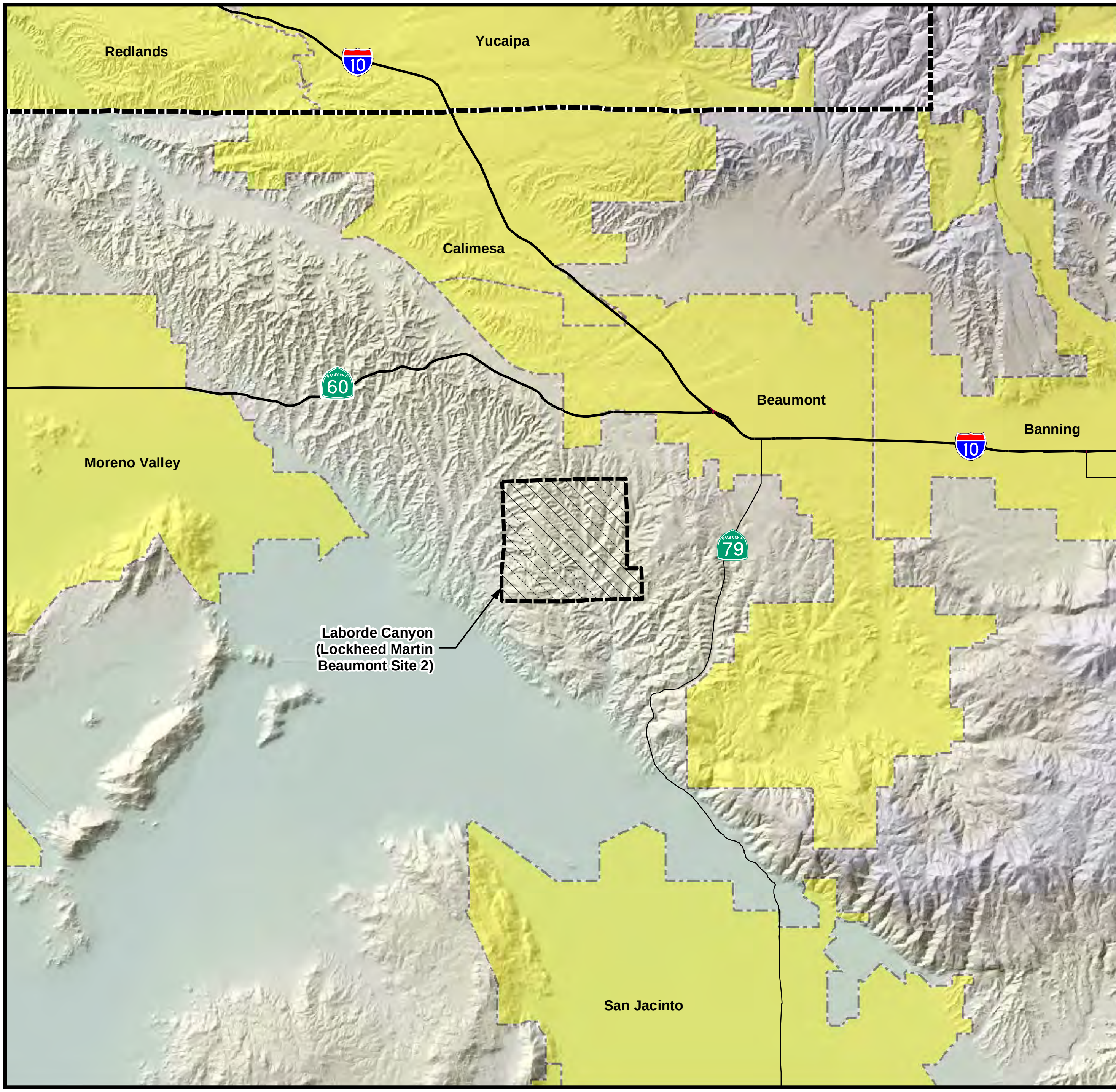
Notes:

EPA - United States Environmental Protection Agency
VOCs - Volatile organic compounds
RDX - Hexahydro-1,3,5-trinitro-1,3,5-triazine
Highlighting indicates change in sampling frequency
Bi - Biennial (sampled in even numbered years)

B - Background well
G - Guard well
H - Horizontal extent well
I - Increasing contaminant trend well
R - Redundant well
V - Vertical distribution well

FIGURES

P:\GIS\Lockheed S2_Q2Q3_2013\Region.mxd



N

0 2 Miles

Adapted from:

U.S. Census Bureau TIGER line data, 2000.

LEGEND

- Interstate/Freeway
- State Highway
- County Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)
- City/Municipality

Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 1

Regional Location of Laborde Canyon

TETRA TECH

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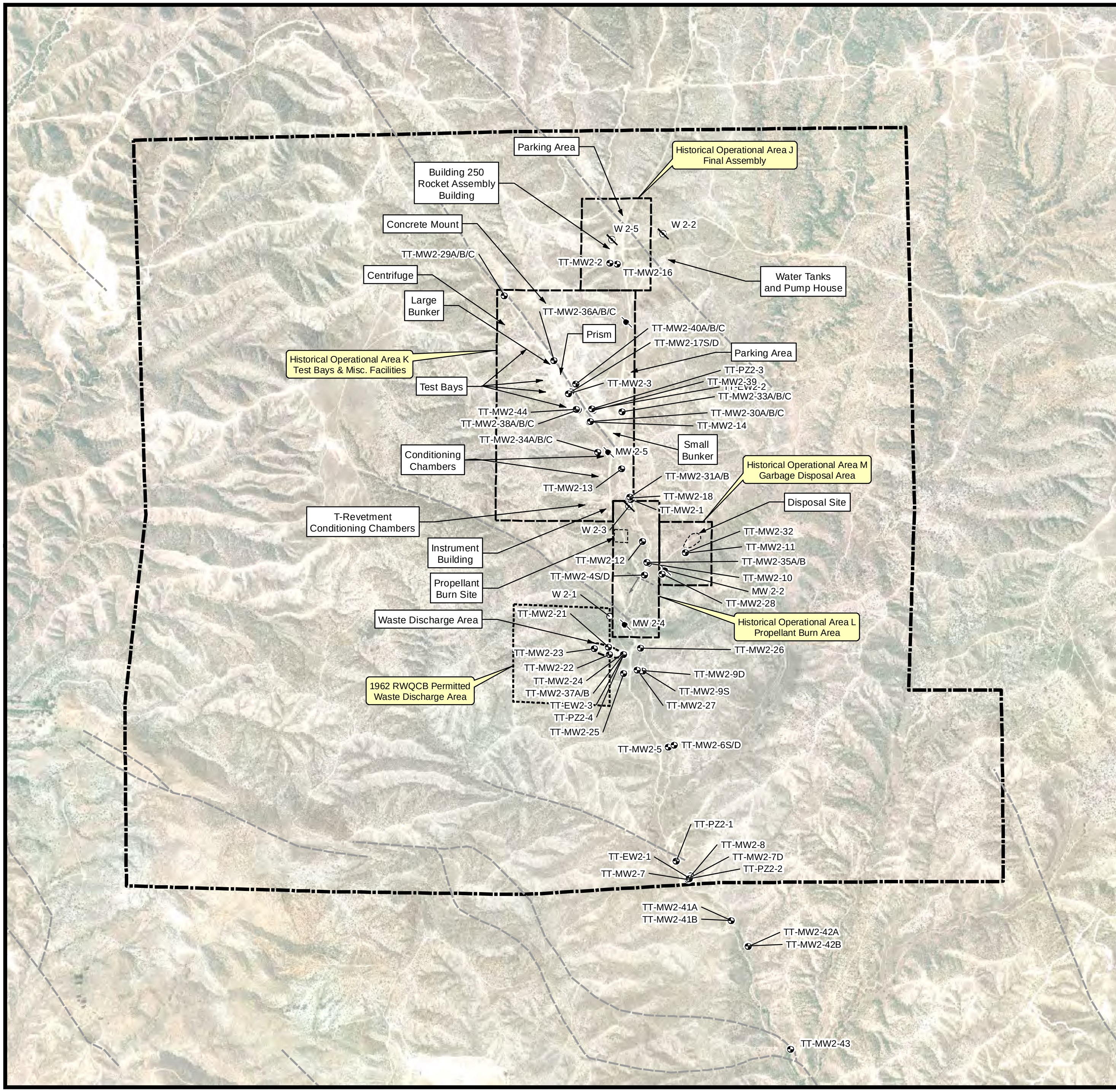

0 1,000 2,000
Feet

Adapted from:

March 2007 aerial photograph.

Faults from the, *Site 2 Lineament Study, Tetra Tech, 2009.*

LEGEND

- Groundwater Monitoring Well Location
- Destroyed Production Well Location
- Destroyed Monitoring Well Location
- Reported Production Well Location
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Waste Discharge Area
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)

Note: Laborde Canyon property boundary (Lockheed Martin Beaumont Site 2) from Hillwig-Goodrow survey, May 2004.

Disposal and Propellent Burn Site perimeters are estimated (Radian, 1986).

Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 2
Historical Operational Areas and Site Features

TETRA TECH

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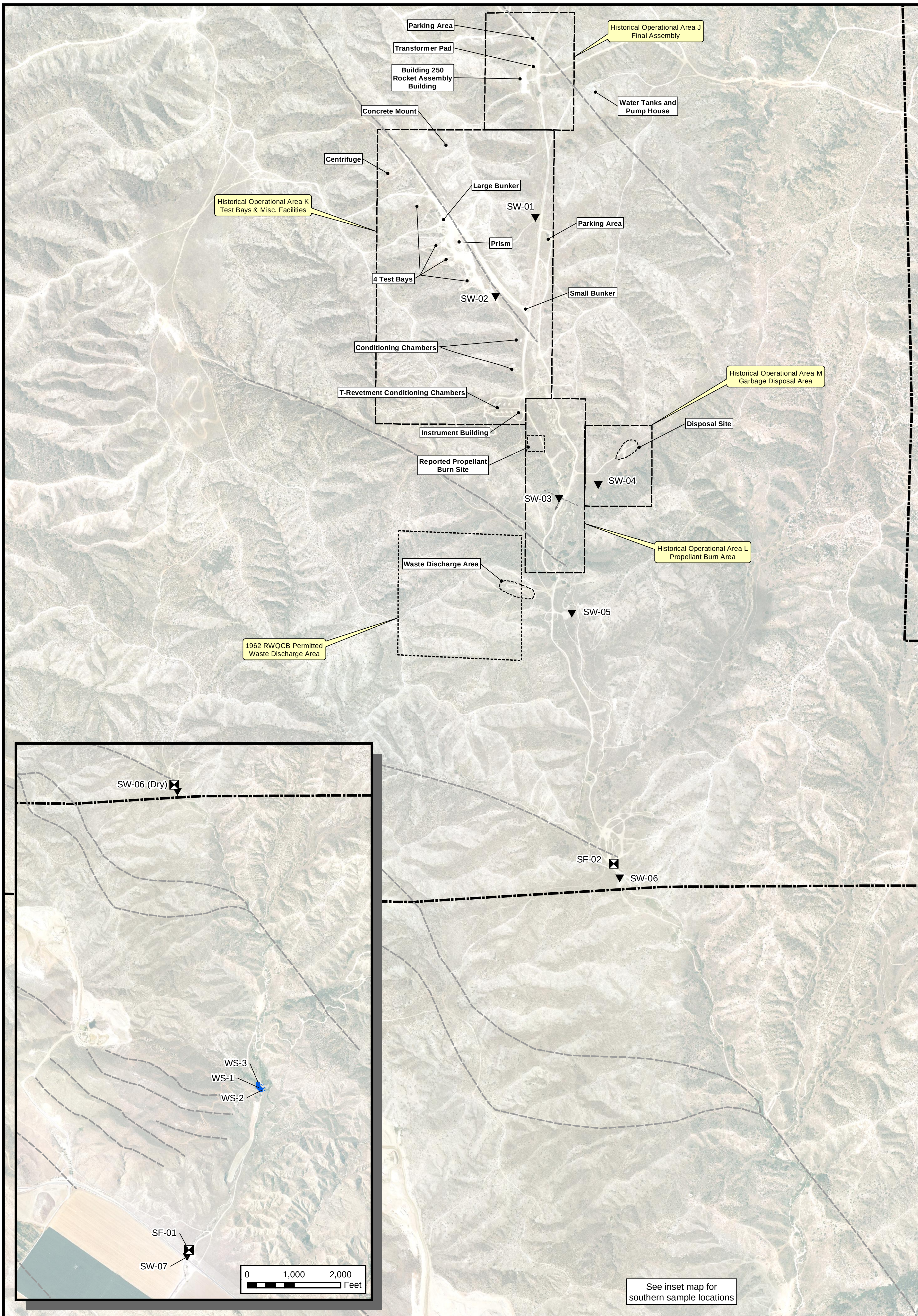

LEGEND

- ▼ Storm-Water Sampling Location
- Spring Sampling Location
- Stream Flow Sampling Point
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)

N

0 500 1,000 Feet

Adapted from: April 2007 aerial photograph

Note: Laborde Canyon property boundary (Lockheed Martin Beaumont Site 2) from Hillwig-Goodrow survey, May 2004

Faults from the, *Site 2 Lineament Study, Tetra Tech, 2009*

Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 3

Surface and Storm-Water Sampling Locations

TETRA TECH

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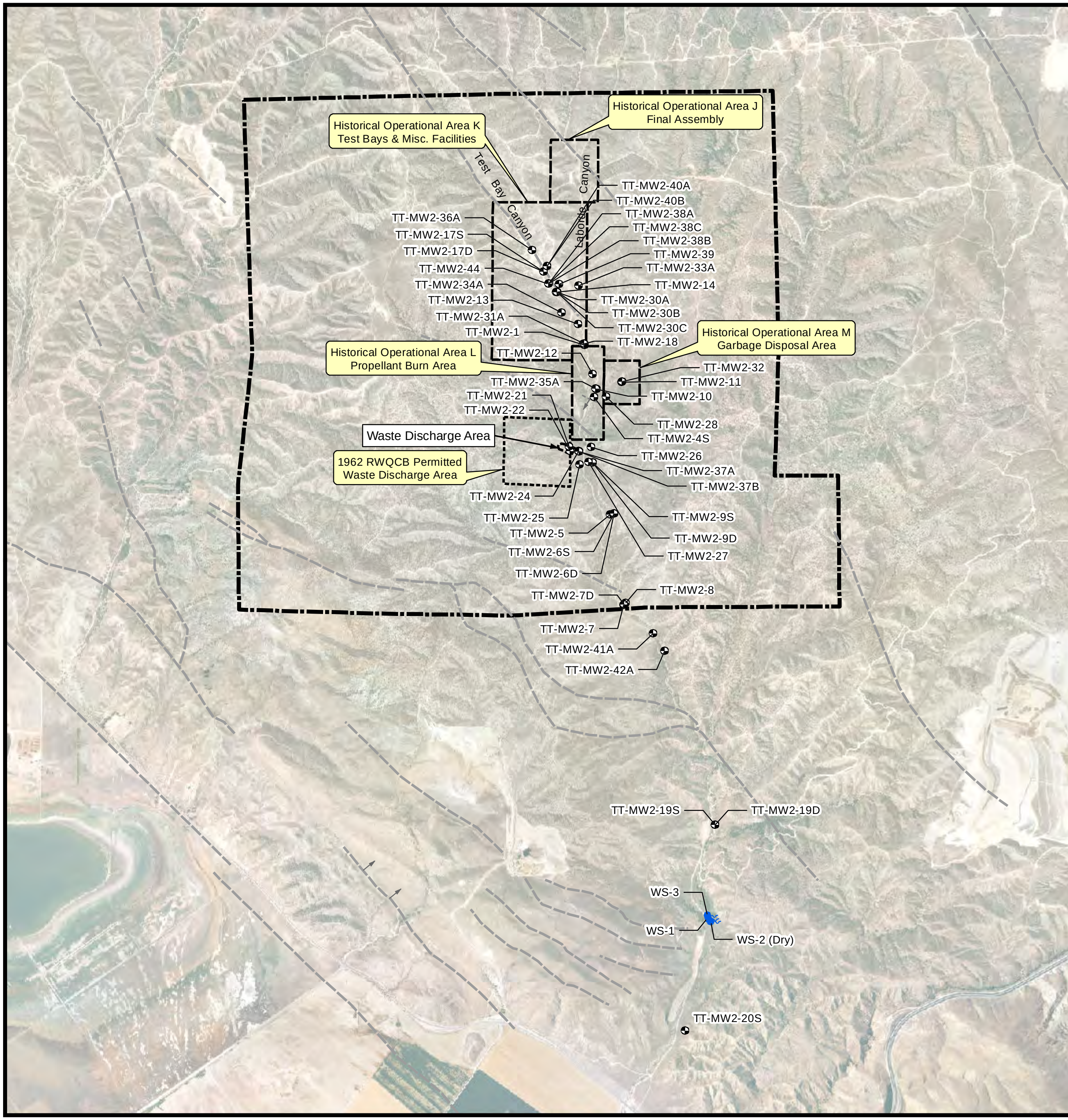

N

0 1,500 3,000 Feet

Adapted from:

April 2007 aerial photograph.

Faults from the *Site 2 Lineament Study, Tetra Tech, 2009.*

LEGEND

- Groundwater Monitoring Well
- Spring
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- 1962 RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)

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

Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 4

Second Quarter 2013 Sampling Locations

TETRA TECH

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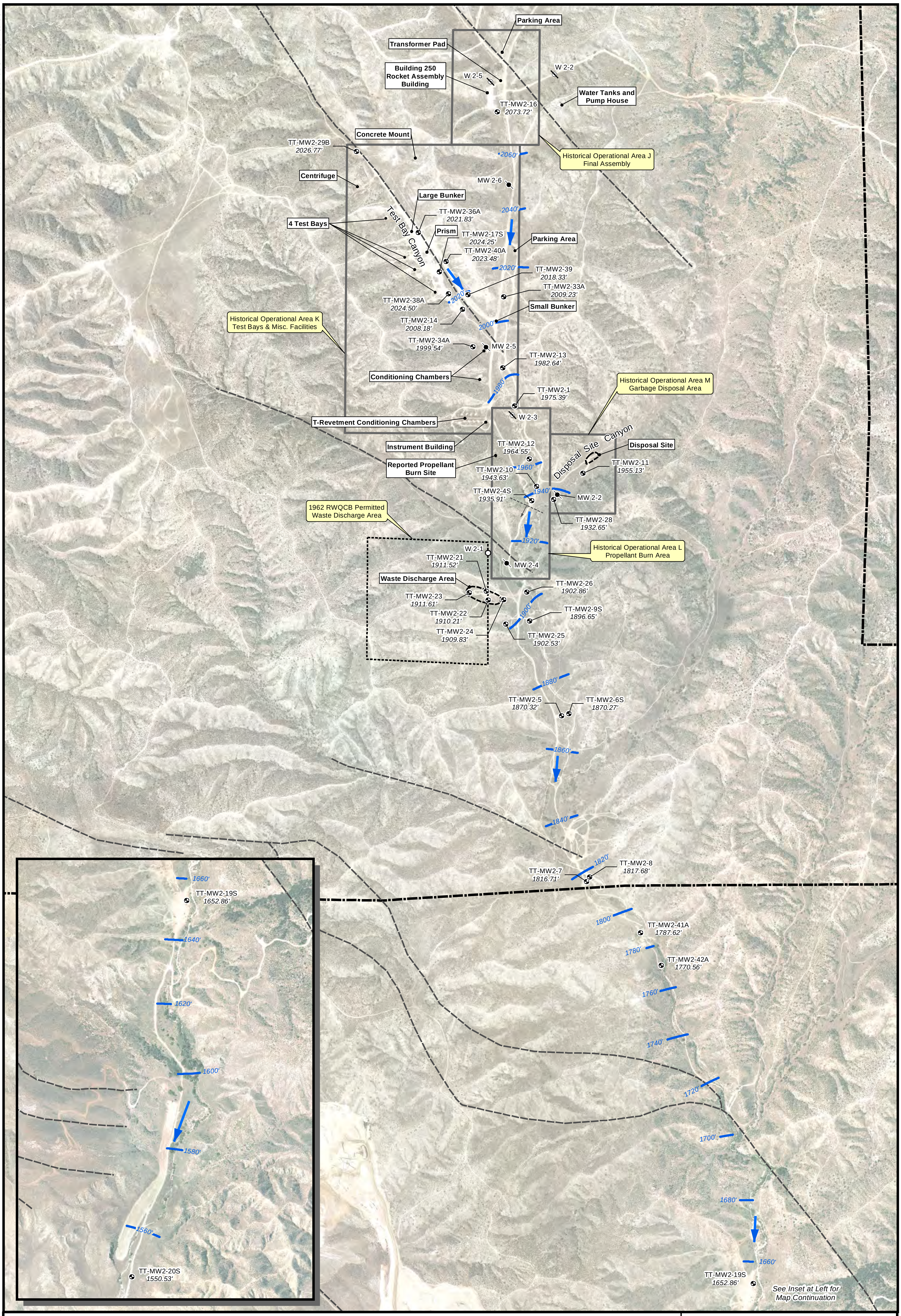

LEGEND

- Monitoring Well Location with Groundwater Elevation (feet msl)
- Destroyed Production Well Location
- Destroyed Monitoring Well Location
- Reported Production Well Location
- Groundwater Elevation Contour
- Groundwater Flow Direction
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)

0 500 1,000 Feet

Adapted from: April 2007 aerial photograph

Faults from the *Site 2 Lineament Study, Tetra Tech, 2009*

Notes: Laborde Canyon property boundary (Lockheed Martin Beaumont Site 2) from Hillwig-Goodrow survey, May 2004

Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 5

Groundwater Contours for First Groundwater - Second Quarter 2013

TETRA TECH

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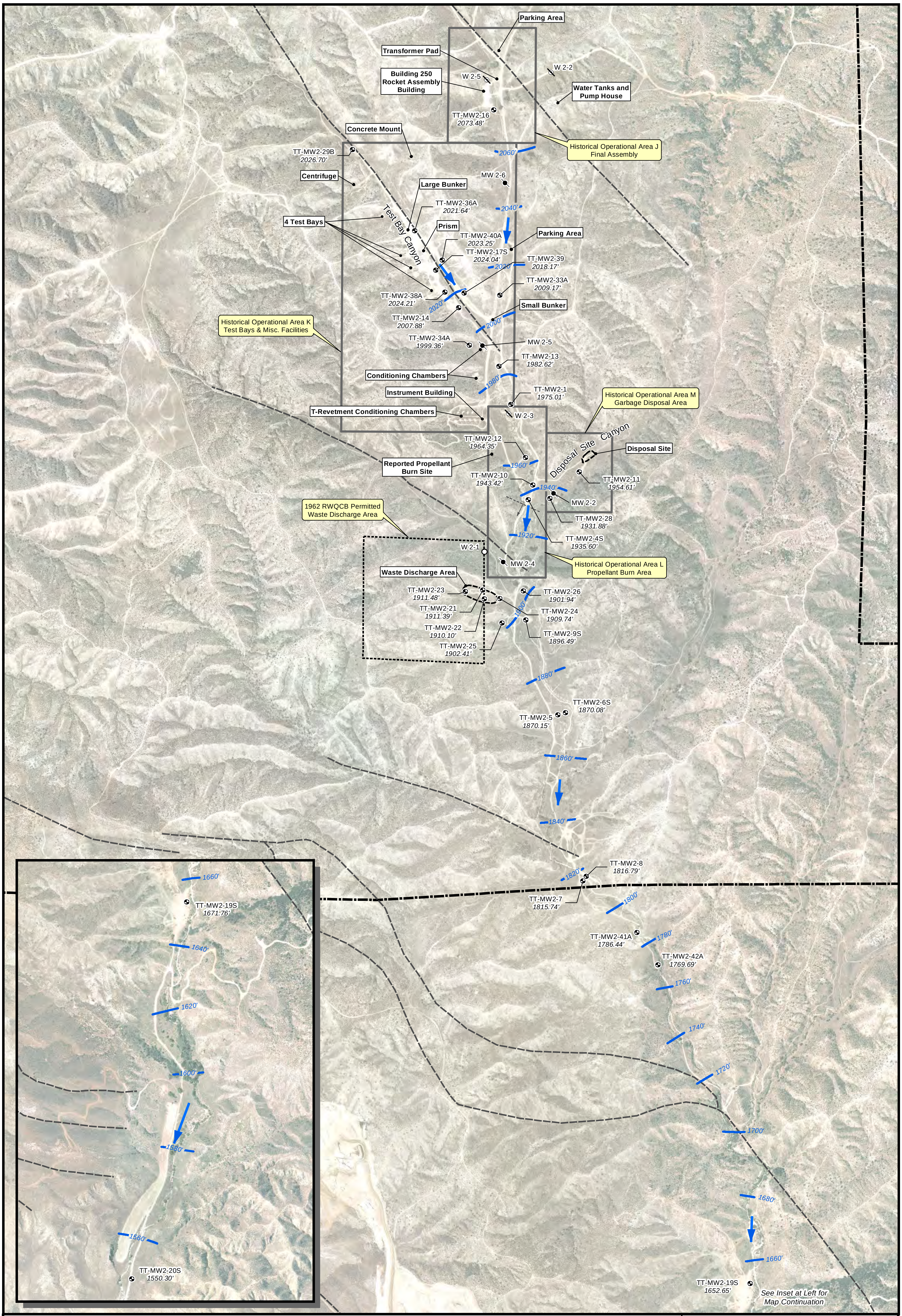

LEGEND

- Monitoring Well Location with Groundwater Elevation (feet msl)
- Destroyed Production Well Location
- Destroyed Monitoring Well Location
- Reported Production Well Location
- Groundwater Elevation Contour
- Groundwater Flow Direction
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)

0 500 1,000 Feet

Adapted from: April 2007 aerial photograph

Faults from the, *Site 2 Lineament Study, Tetra Tech, 2009*

Notes: Laborde Canyon property boundary (Lockheed Martin Beaumont Site 2) from Hillwig-Goodrow survey, May 2004

Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 6

Groundwater Contours for First Groundwater - Third Quarter 2013

TETRA TECH

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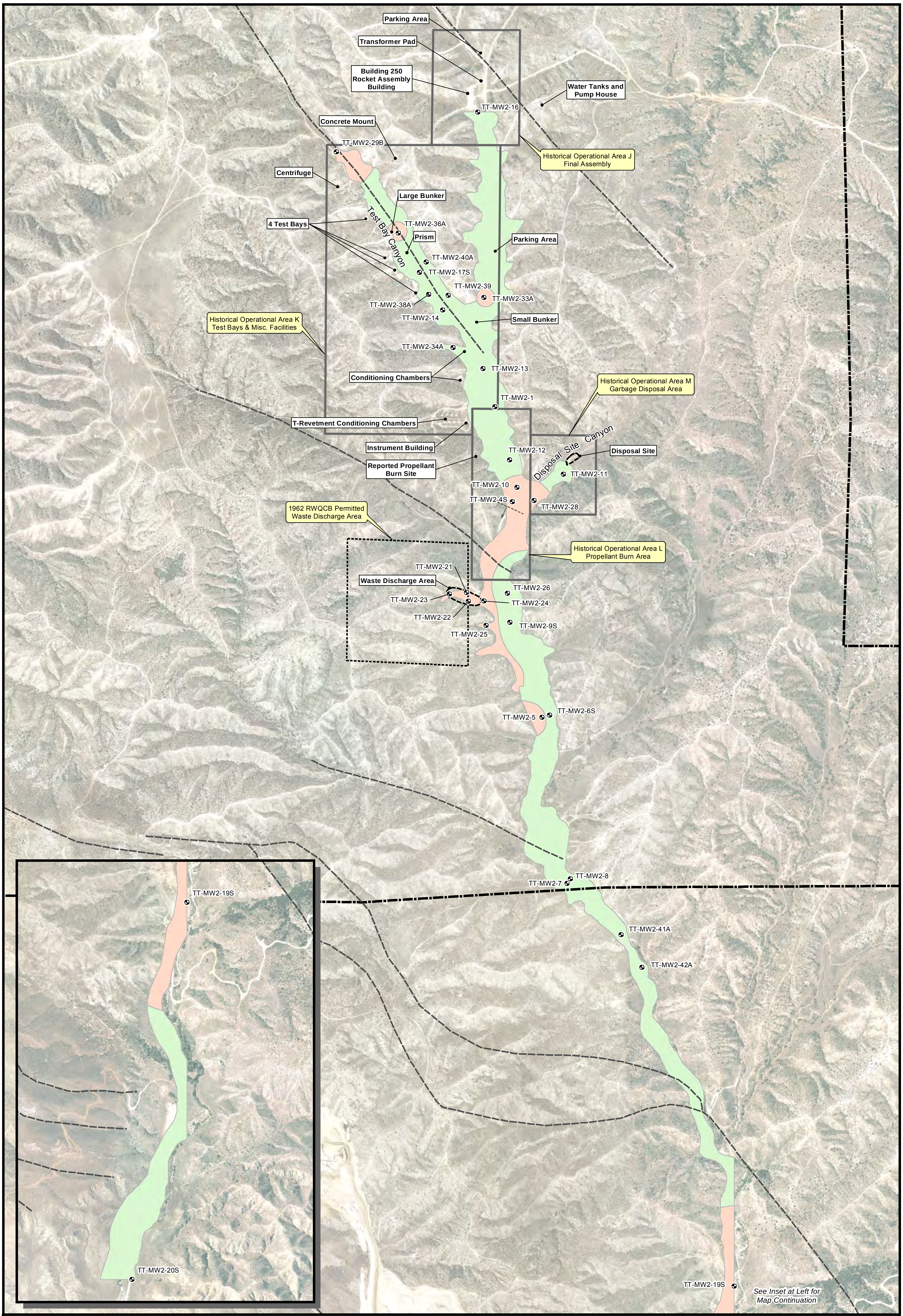

LEGEND

- Monitoring Well Location
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)

Groundwater Elevation Change in Feet
(from previous quarter)

- 0 — 1
- -0.99 — 0

0 500 1,000
Feet

Adapted from: April 2007 aerial photograph

Faults from the *Site 2 Lineament Study, Tetra Tech, 2009*

Notes: Laborde Canyon property boundary (Lockheed Martin Beaumont Site 2) from Hillwig-Goodrow survey, May 2004

Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 7

Changes in Groundwater Elevation - Second Quarter 2013

TETRA TECH

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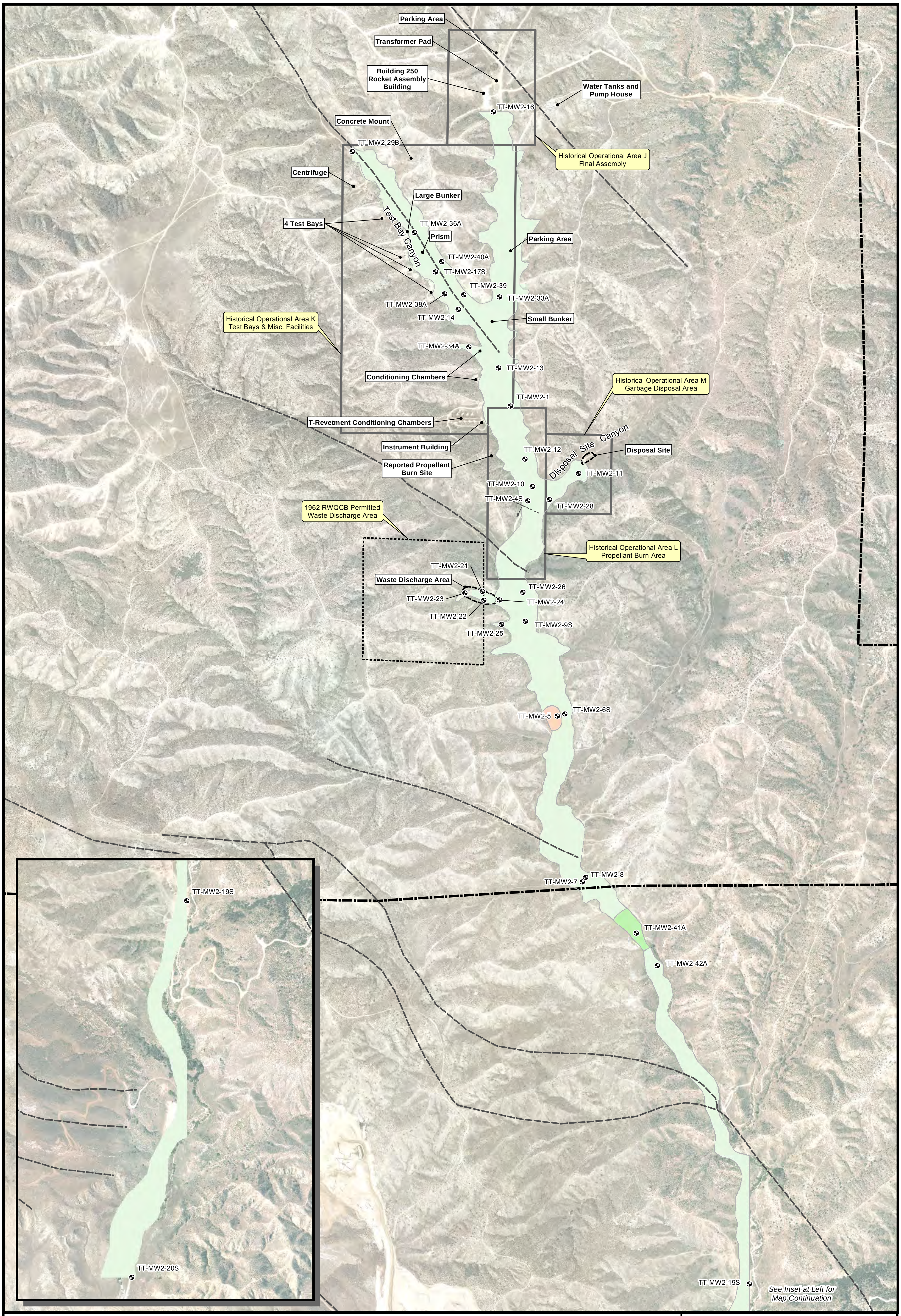


LEGEND

- Monitoring Well Location
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)

Groundwater Elevation Change in Feet (from previous quarter)

- 1.01 — 2
- 0 — 1
- -0.99 — 0

0 500 1,000 Feet

Adapted from: April 2007 aerial photograph

Faults from the, *Site 2 Lineament Study, Tetra Tech, 2009*

Notes: Laborde Canyon property boundary (Lockheed Martin Beaumont Site 2) from Hillwig-Goodrow survey, May 2004

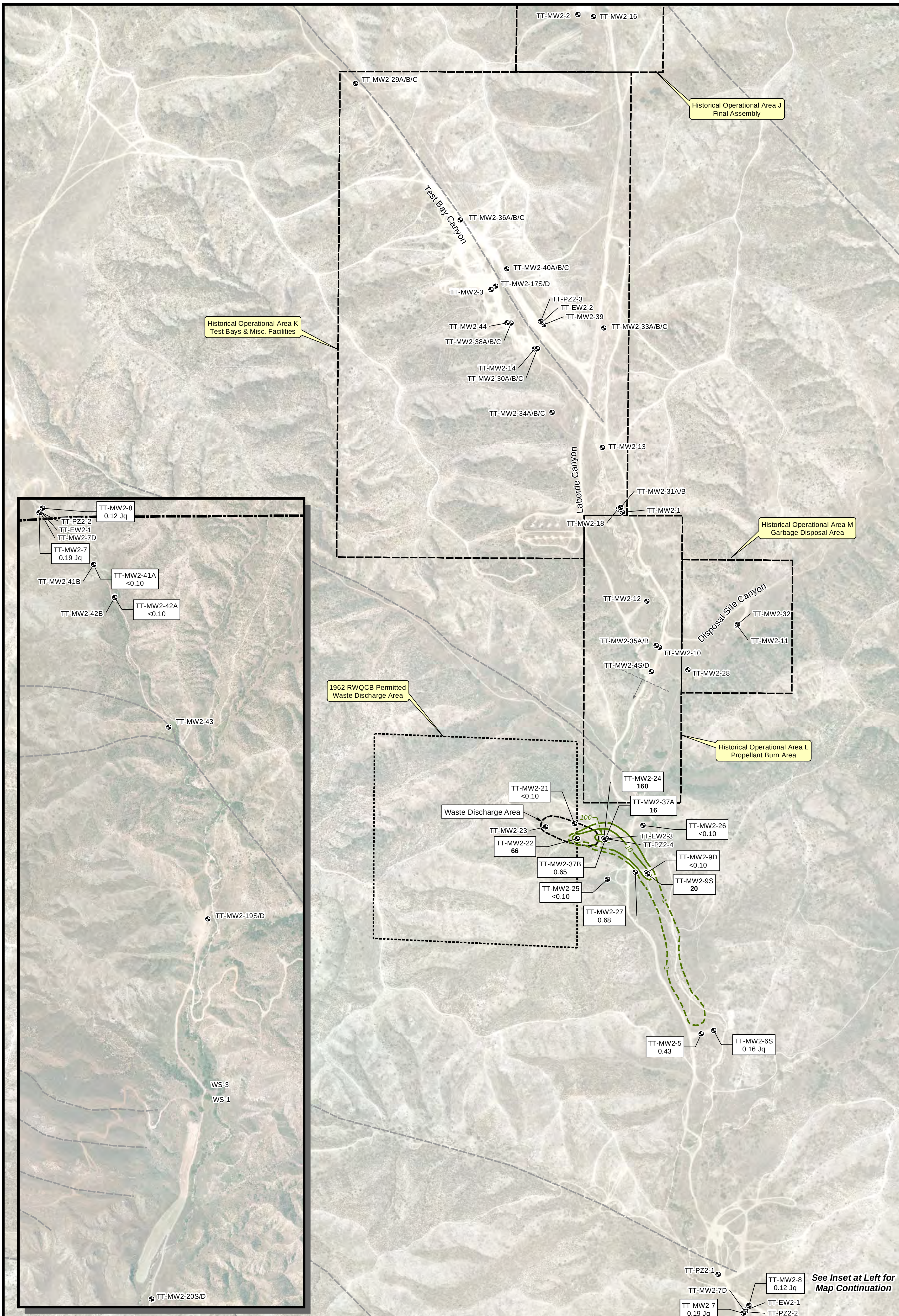
Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 8

Changes in Groundwater Elevation - Third Quarter 2013

TETRA TECH

Path: P:\GIS\Lockheed S2_Q2Q3_2013\DIOX_Isocon R1.mxd



LEGEND

- Well Sample Location with 1,4-Dioxane Concentration [µg/L]
- 1,4-Dioxane Isoconcentration Contour (Dashed where inferred)
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Waste Discharge Area
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)

Adapted from: April 2007 aerial photograph.

Faults from the, *Site 2 Lineament Study, Tetra Tech, 2009.*

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

Results shown for sampled locations only.

[#] Bold indicates DWNL value exceeded.

Highest concentration shown is contoured for clustered or nested well locations.

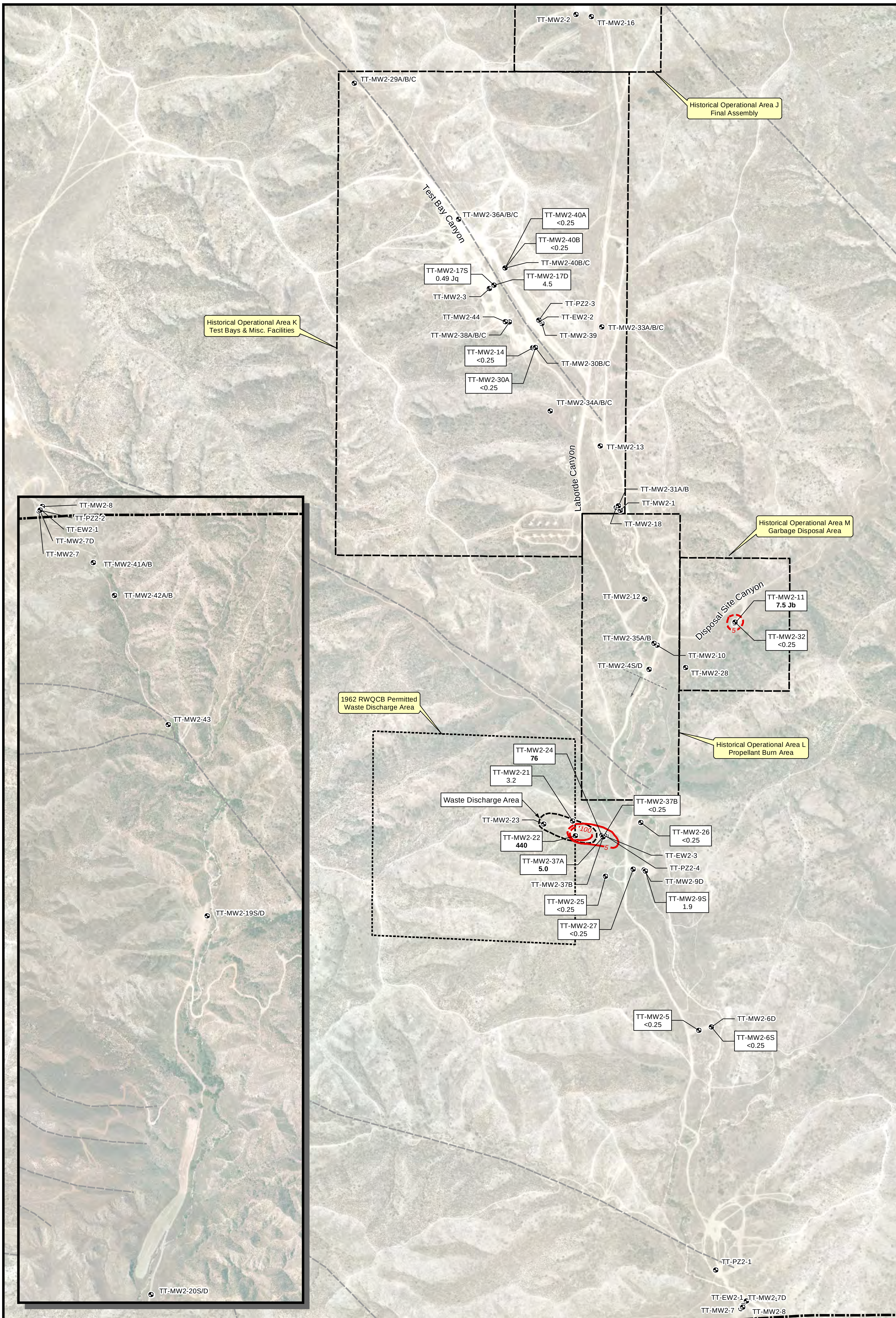
0 300 600 Feet

Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 9
1,4-Dioxane
Isoconcentration Map (µg/L)
Second Quarter 20123

TETRA TECH

Path: P:\GIS\Lockheed S2_Q2Q3_2013\TCE_Isocon.mxd



LEGEND

- Well Sample Location with Trichloroethene Concentration [µg/L]
- Trichloroethene Isoconcentration Contour (Dashed where inferred)
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)

Adapted from: April 2007 aerial photograph.

Faults from the, *Site 2 Lineament Study, Tetra Tech, 2009.*

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

Results shown for sampled locations only.

[#] Bold indicates MCL value exceeded.

Highest concentration shown is contoured for clustered or nested well locations.

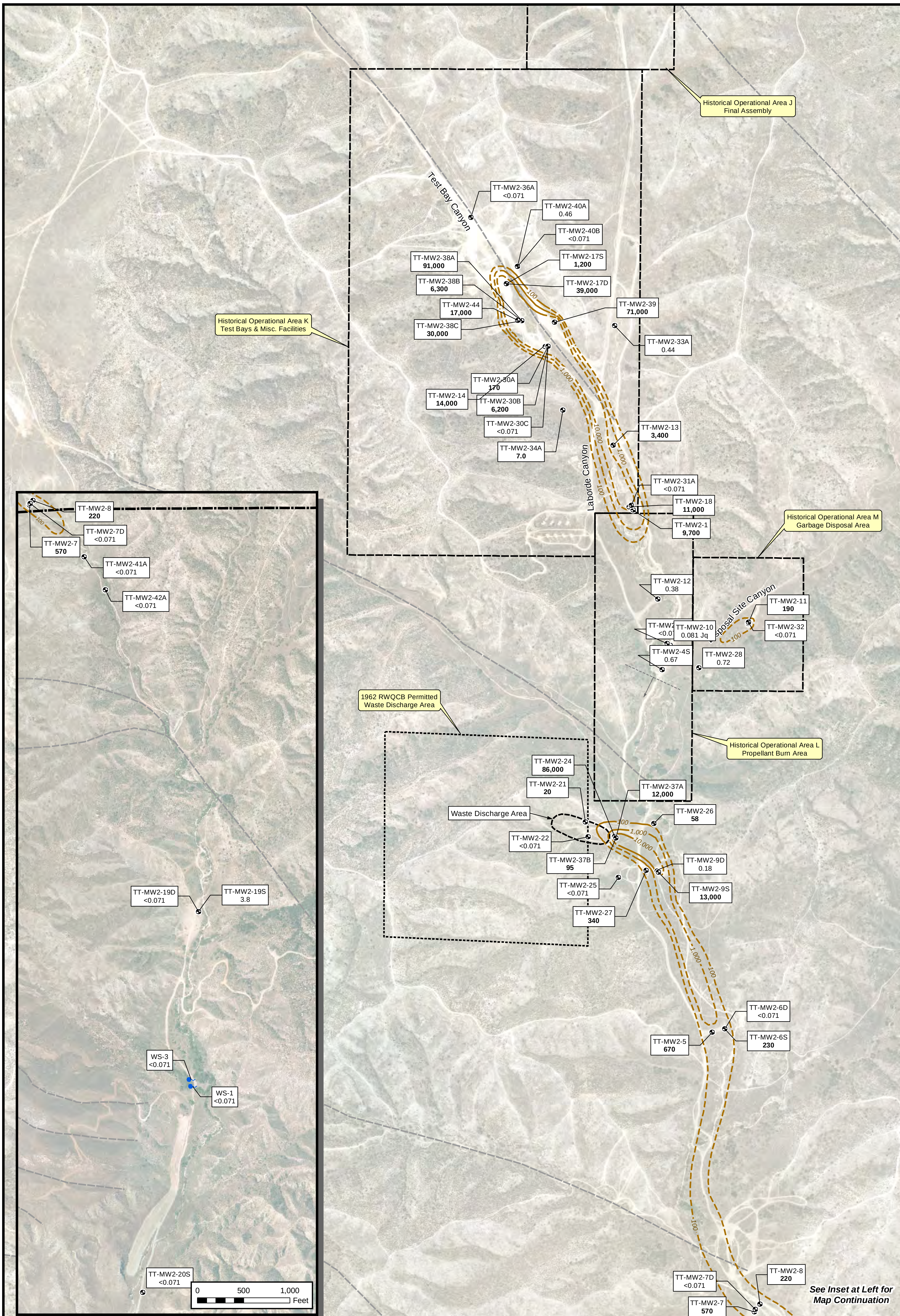
0 300 600 Feet

Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 10
Trichloroethene (TCE) Isoconcentration Map (µg/L)
Second Quarter 2013

TETRA TECH

P:\GIS\Lockheed S2_Q2Q3_2013\Perc_Isocon.mxd



LEGEND

- Well Sample Location with Perchlorate Concentration [µg/L]
- Spring Sample Location with Perchlorate Concentration [µg/L]
- Perchlorate Isoconcentration Contour (Dashed where inferred)
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Waste Discharge Area
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary (Lockheed Martin Beaumont Site 2)

Adapted from: April 2007 aerial photograph.

Faults from the *Site 2 Lineament Study, Tetra Tech, 2009.*

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

Results shown for sampled locations only.

[#] Bold indicates MCL value exceeded.

Highest concentration shown is contoured for clustered or nested well locations.

0 300 600 Feet

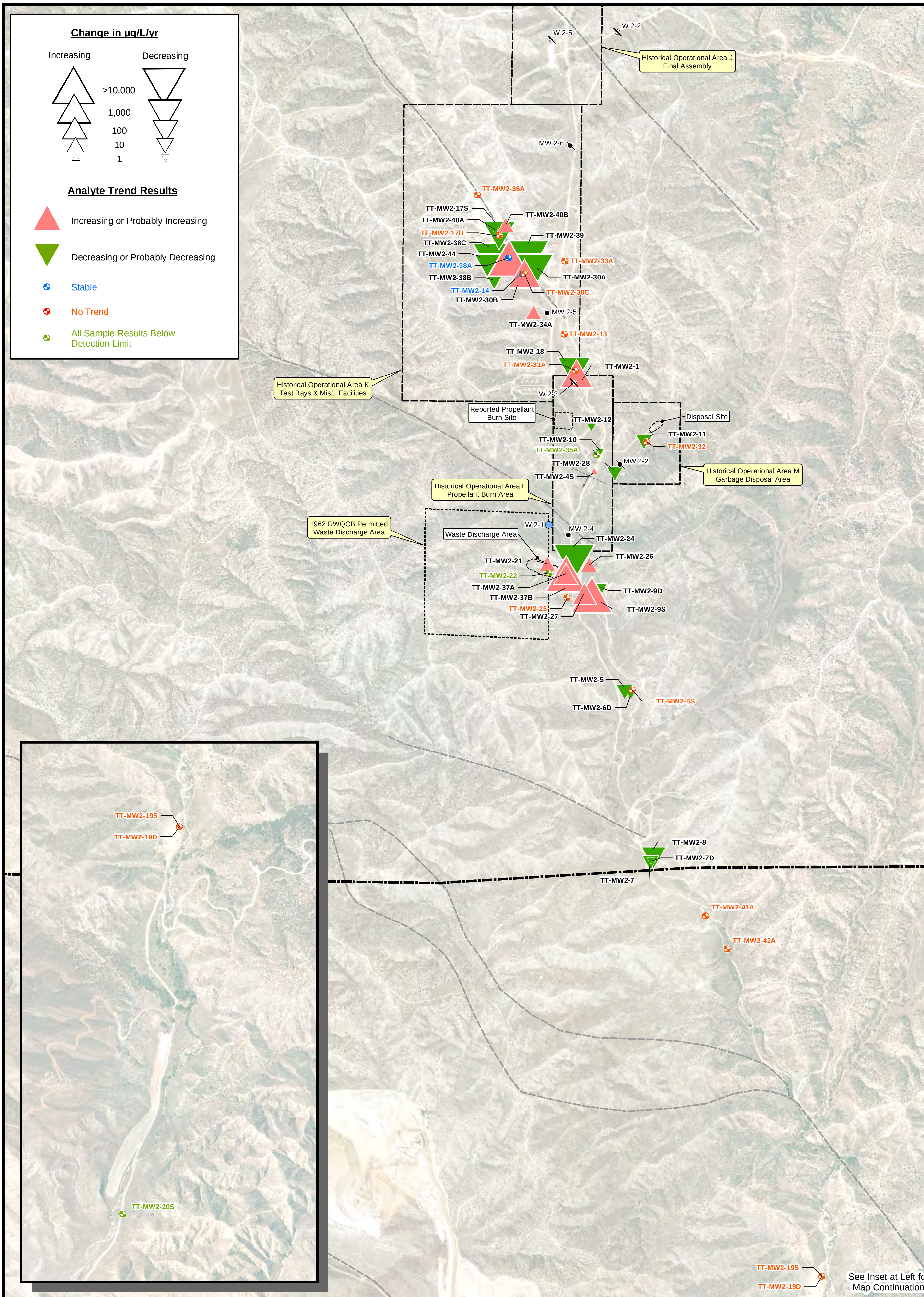
Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 11

Perchlorate Isoconcentration Map (µg/L) Second Quarter 2013

TETRA TECH

Path: P:\GIS\Lockheed S2_Q2Q3_2013\Trend_Perc.mxd



LEGEND

- Destroyed Production Well Location
- Destroyed Monitoring Well Location
- Reported Production Well Location
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary

Adapted from:

April 2007 aerial photograph.

Faults from the *Site 2 Lineament Study*, *Tetra Tech, 2009.*

Note:

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

0 500 1,000 Feet

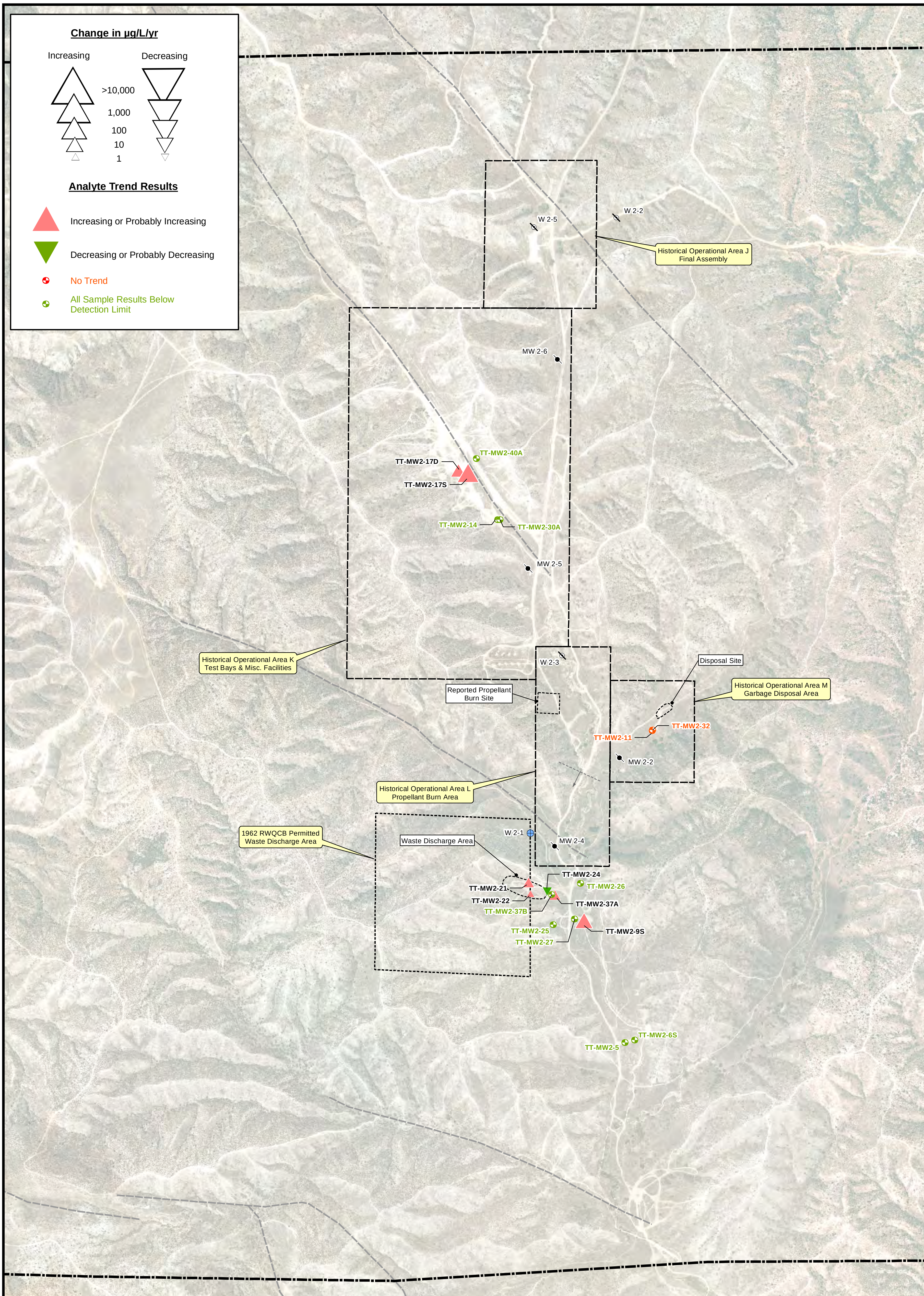
Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 12

Perchlorate Statistical Analysis Summary Results

TETRA TECH

Path: P:\GIS\Lockheed S2_Q2Q3_2013\Trend_TCE.mxd



LEGEND

- Destroyed Production Well Location
- Destroyed Monitoring Well Location
- Reported Production Well Location
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary

Adapted from:

April 2007 aerial photograph.

Faults from the *Site 2 Lineament Study, Tetra Tech, 2009.*

Note:

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

0 400 800 Feet

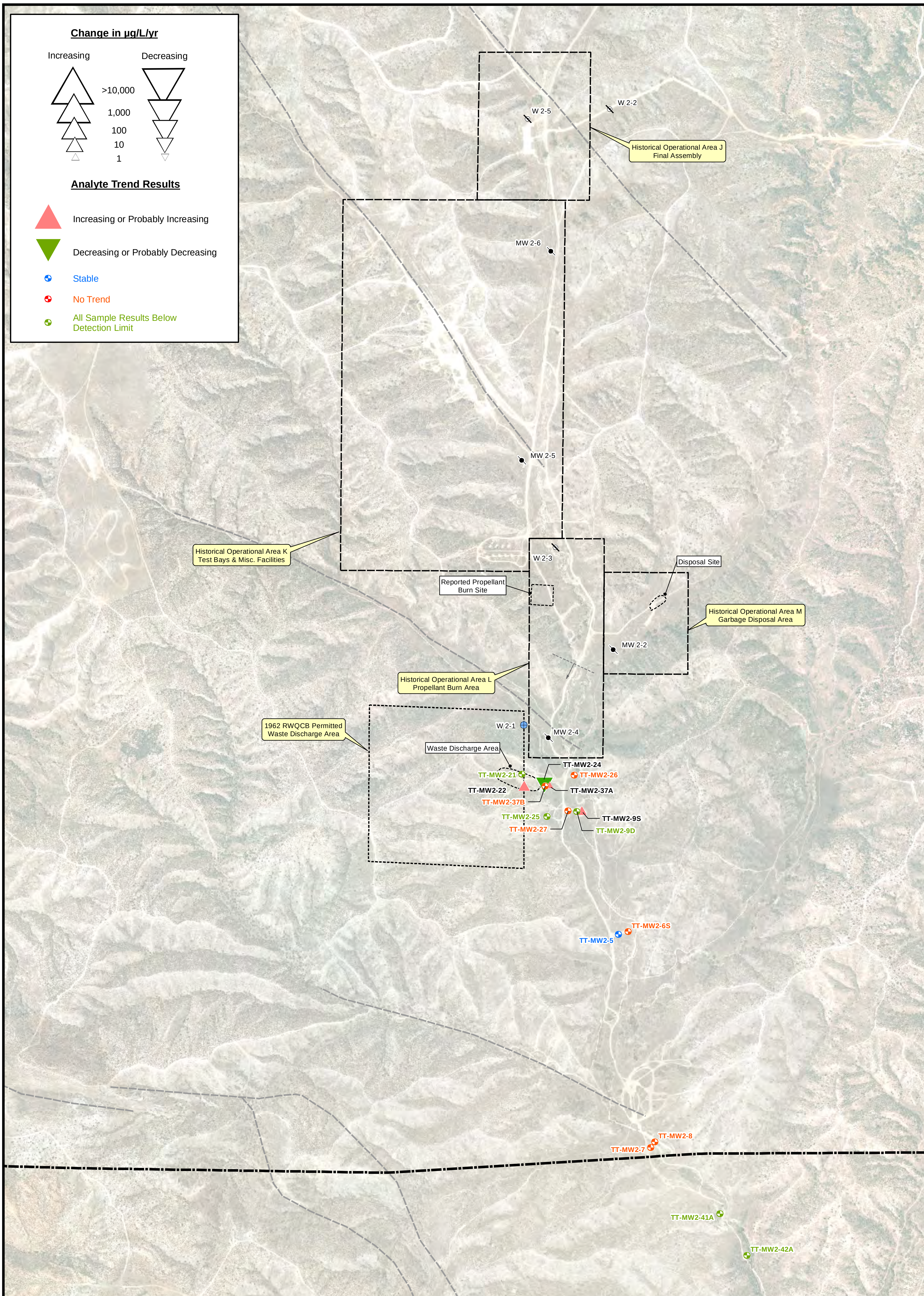
Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 13

TCE Statistical Analysis Summary Results

TETRA TECH

Path: P:\GIS\Lockheed S2_Q2Q3_2013\Trend_Diox.mxd



LEGEND

- Destroyed Production Well Location
- Destroyed Monitoring Well Location
- Reported Production Well Location
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Laborde Canyon Property Boundary

Adapted from:

April 2007 aerial photograph.

Faults from the, *Site 2 Lineament Study, Tetra Tech, 2009.*

Note:

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

0 400 800 Feet

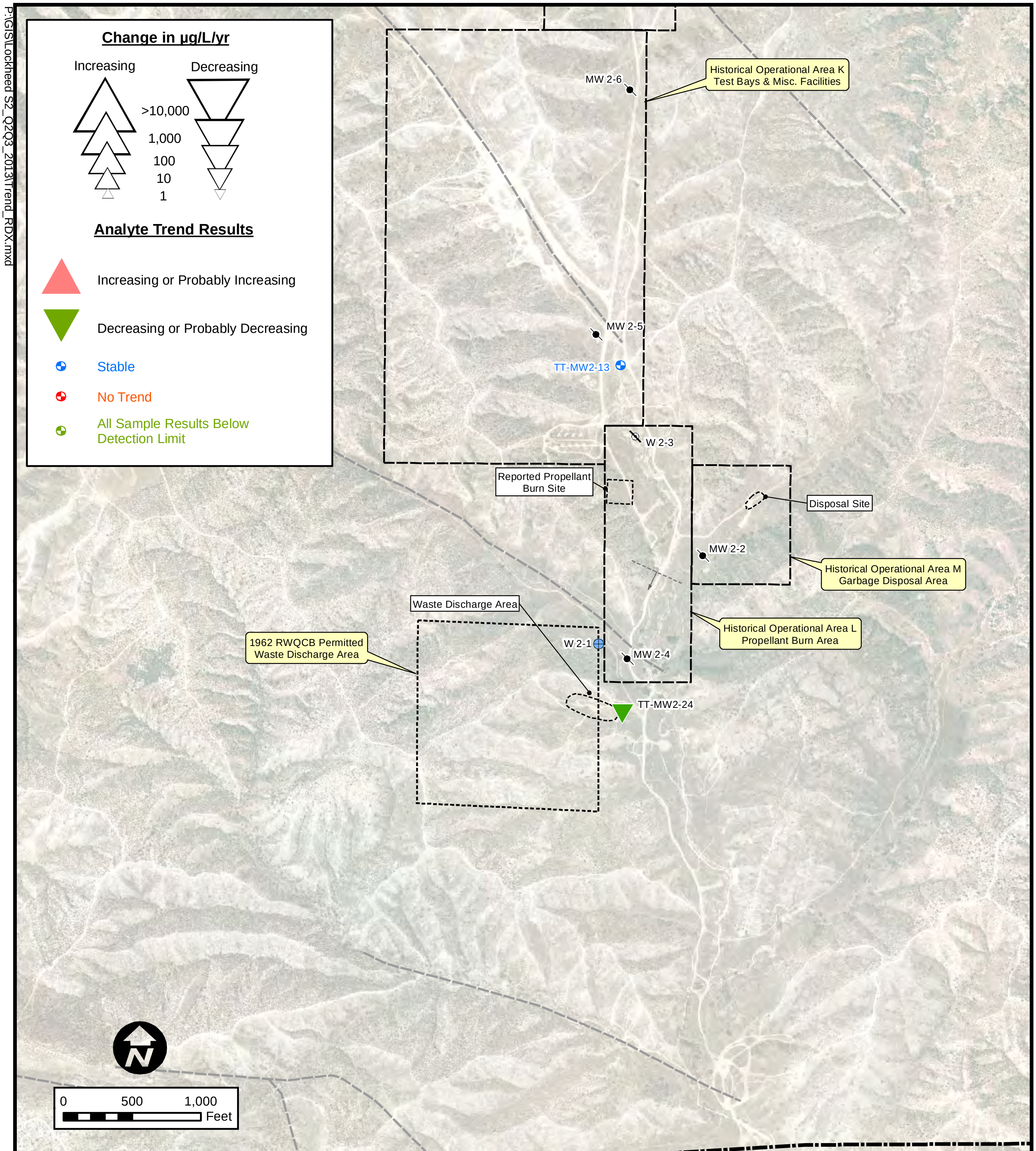
Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 14

1,4-Dioxane Statistical Analysis Summary Results

TETRA TECH

P:\GIS\Lockheed S2_Q2Q3_2013\Trend_RDX.mxd



LEGEND

- Destroyed Production Well Location
- Destroyed Monitoring Well Location
- Reported Production Well Location
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- RWQCB Permitted Waste Discharge Area
- Historical Operational Area Boundary
- Beaumont Site 2 Property Boundary

Adapted from: April 2007 aerial photograph.

Faults from the, *Site 2 Lineament Study, Tetra Tech, 2009.*

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

Laborde Canyon
(Lockheed Martin Beaumont Site 2)

Figure 15

RDX Statistical Analysis Summary Results

TETRA TECH