SEMIANNUAL GROUNDWATER MONITORING REPORT FIRST QUARTER AND SECOND QUARTER 2014 POTRERO CANYON (LOCKHEED MARTIN BEAUMONT SITE 1) BEAUMONT, CALIFORNIA

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ACRONYMS AND ABBREVIATIONS

AFCEE	Air Force Center for Environmental Excellence
BPA	Burn Pit Area
BTOC	below top of casing
CA	contaminant attenuation
cfs	cubic feet per second
1,1-DCA	1,1-dichloroethane
1,2-DCA	1,2-dichloroethane
1,1 -DCE	1,1-dichloroethene
cis-1,2-DCE	cis-1,2-dichloroethene
DG	downgradient
DO	dissolved oxygen
DOC	dissolved organic carbon
DWNL	California Department of Public Health drinking water notification level
EC	electrical conductivity
ft/sec	feet per second
GPS	global positioning system
HCP	Habitat Conservation Plan
LCS	Laboratory Control Sample
LMC	Lockheed Martin Corporation
MAROS	Monitoring and Remediation Optimization System
MCL	California Department of Public Health maximum contaminant level
MCEA	Massacre Canyon Entrance Area

MDL	method detection limit
MEF	Mount Eden formation
mg/L	milligrams per liter
µg/L	micrograms per liter
µg/L/yr	micrograms per liter per year
MS/MSD	matrix spike/matrix spike duplicate
msl	mean sea level
mV	millivolts
NA	not analyzed / not applicable / not available
ND	non-detect
NPCA	Northern Potrero Creek Area
NTU	nephelometric turbidity unit
NWS	National Weather Service
ORP	oxidation-reduction potential
PCE	tetrachloroethene
PQL	Practical Quantitation Limit
psi	pounds per square inch
QAL	Quaternary alluvium
QAL/MEF	Quaternary alluvium/Mount Eden formation
QA/QC	quality assurance/quality control
Radian	Radian Corporation, Inc.
RMPA	Rocket Motor Production Area
RPD	relative percent difference
site	Potrero Canyon (Lockheed Martin Beaumont Site 1)
1,1,1-TCA	1,1,1-trichloroethane

1,1,2-TCA	1,1,2-trichloroethane
Tetra Tech	Tetra Tech, Inc.
TCE	trichloroethene
UG	upgradient
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VOC	volatile organic compound

SECTION 1 INTRODUCTION

On behalf of Lockheed Martin Corporation, Tetra Tech, Inc. has prepared this Semiannual Groundwater Monitoring Report, which presents the results of the First Quarter 2014 (1 January 2014 through 31 March 2014) and Second Quarter 2014 (1 April 2014 through 30 June 2014) groundwater monitoring activities for the Potrero Canyon (Lockheed Martin Beaumont Site 1) Groundwater Monitoring Program. The site is in an undeveloped area in the southern portion of the city of Beaumont in Riverside County, California (Figure 1). Currently, the site is inactive except for environmental investigations performed under Consent Order 88/89-034 and Operation and Maintenance Agreement 93/94-025 with the California Department of Toxic Substances Control. The State of California owns approximately 94% (8,552 acres) of the site. Lockheed Martin Corporation retained ownership of the remaining 565 acres, referred to as the conservation easement (Figure 2).

The objectives of this report are to accomplish the following:

- Briefly summarize the site history.
- Document water level and water quality monitoring activities and results.
- Analyze and evaluate the groundwater elevation and water quality monitoring data generated.

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. Tables and figures are provided at the end of the report body following Section 5. The conceptual site model for Potrero Canyon is described in Appendix A.

1.1 SITE BACKGROUND

The site consists of a 9,117-acre parcel in the southern portion of Beaumont, California. The site was primarily used for ranching before 1960. From 1960 to 1974, Lockheed Propulsion Company used the site for solid rocket motor and ballistics testing (Tetra Tech, 2003a). Activities at the site also included burning of process chemicals and waste rocket propellants in an area commonly referred to as the Burn Pit Area.

Tetra Tech identified nine primary historical operational areas at the site. A map of site historical operational areas and features is presented as Figure 2. Historical operational areas were used for various activities associated with rocket motor assembly, testing, and propellant burning. A brief description of each historical operational area follows.

Historical Operational Area A – Eastern Aerojet Range

Between 1970 and 1972, Aerojet leased an area (referred to as the Eastern Aerojet Range) along the eastern portion of the site. The Eastern Aerojet Range was used periodically for ballistics research and development experimentation on several types of 30-millimeter projectiles. Avanti, a highly classified project, used the land directly east of the Eastern Aerojet Range, including several U-shaped revetments for the storage of explosive materials and rocket motors.

Historical Operational Area B – Rocket Motor Production Area

The Rocket Motor Production Area, also known as the Propellant Mixing Area, was used for the processing and mixing of rocket motor solid propellants. The rocket motor production process consisted of: 1) a fuel slurry station, 2) a mixing station, and 3) a cast and curing station.

If a defect was found in the solid propellant mix, the rocket motor was scrapped. The solid propellant was removed from the casings by water jetting at the motor washout south of the mixing station (Radian, 1986).

In 1973, an area east of the mixing station, known as the Blue Motor Burn Pit, was used for the destruction of four motors, which included a motor with “Malloy blue” solid propellant, also referred to as milori blue or Prussian blue (Radian, 1986).

Historical Operational Area C – Burn Pit Area

The Burn Pit Area had three primary features: 1) the chemical storage area, 2) burn pits, and 3) the beryllium test stand. Hazardous wastes generated at the site were stored in 55-gallon drums on a concrete pad east of the burn pits at the chemical storage area until enough material was accumulated for a burning event. The hazardous materials burned in the pits included ammonium perchlorate, wet propellant from motor washout, dry propellant, batches of out-of-specification propellant, various kinds of adhesives, resin curatives such as polybutadiene acrylonitrile/acrylic acid copolymer, burn rate modifiers such as ferrocene, pyrotechnic and ignition components, packaging materials (e.g., metal drums, plastic bags, and paper drums), and solvents (Radian, 1986).

On the south side of the bedrock outcrop where the burn pit instrumentation bunker was located, a one-time firing of small beryllium research motors took place.

Historical Operational Area D – Lockheed Propulsion Company Ballistics Test Range

The Lockheed Propulsion Company Ballistics Test Range facilities included gun mounts, a ballistic tunnel, and storage buildings and trailers. Guns were tested by firing through the tunnel toward a terraced hill. Live rounds were not used, although projectiles were often specially shaped and weighted to simulate actual live rounds (Radian, 1986). Another major project conducted in this area was experimentation on a rocket-assisted projectile to test penetration capability. Additional experiments included impact testing of various motors and pieces of equipment (Radian, 1986).

Class A explosives were reportedly stored in two or three 10-foot by 10-foot buildings behind a berm. A small canyon behind the hill to the south of the former storage buildings was reportedly used as a small test area for incendiary bombs. An incendiary bomb was detonated in the center of drums containing various types of fuel (e.g., jet fuel, gasoline, and diesel) set in circles of different radii to observe shrapnel and penetration patterns. (Alternatively, this test may have been conducted in Historical Operational Area I.) At a small area near the bend in the road, acetone was used to dissolve 2,4,6-trinitrotoluene out of projectiles before they were fired (Radian, 1986).

Historical Operational Area E – Radioactive Waste Disposal Site

During 1971, low-level radioactive waste was buried in one of four canyons southeast of the Lockheed Propulsion Company test services area as reported by former site employees. In 1990, the radioactive waste was located and removed. Soil samples were collected after removal of the waste. The analytical results indicated that detected radiation levels were within the range of naturally occurring levels (Radian, 1990). Maps from the removal action report suggest the waste was removed from Canyon 2.

Historical Operational Area F – Lockheed Propulsion Company Test Services Area

The Lockheed Propulsion Company Test Services Area included the following features: 1) three bays for structural load tests, 2) a 13-foot-diameter spherical pressure vessel, 3) six temperature-conditioning chambers, 4) four environmental chambers, 5) a 25-million electron volt Betatron for X-raying large structures, 6) personnel and instrumentation protection bunkers, and 7) supporting workshops and storage areas (Radian, 1986).

If defects were identified during the integrity and environmental testing activities, the rocket motors were taken to the large motor washout area south of the conditioning chambers adjacent to Potrero Creek (Radian, 1986).

Rocket motor structural load testing under static and captive firing conditions occurred at the Lockheed Propulsion Company test bays. During several of the initial tests conducted at Bay 309, the readied motor exploded instead of firing in a small motor vertical test bay in the eastern portion of Feature F-39 (Radian, 1986).

Historical Operational Area G – Helicopter Weapons Test Area

The helicopter weapons test area was used to develop equipment for handling helicopter weapons systems. The facilities in this area included a hangar (Building 302), helicopter landing pad, stationary ground-mounted gun platforms, and a mobile target suspended between towers. The primary project at this area was testing of both stationary guns and guns mounted on helicopters. Experimentation was also performed on the solid propellant portion of an armor-piercing round. Most rounds were fired into the side of the creek wash, about 100 yards to the south of the hangar. A longer impact area labeled with distance markers was located in the canyon to the south of the wash. Projectiles were steel only; warheads were not used during tests at this facility (Tetra Tech, 2003a).

Historical Operational Area H – Sanitary Landfill

A permitted sanitary landfill was located along the western side of the site. The permit for the landfill authorized Lockheed Propulsion Company to dispose of trash such as paper, scrap metal, concrete, and wood generated during routine daily operations. Lockheed policy strictly dictated that no hazardous materials were to have been disposed at this landfill. The trenches were later covered and leveled, with only an occasional tire, metal scrap, or piece of wood remaining on the surface (Tetra Tech, 2003a).

Historical Operational Area I – Western Aerojet Range

Between 1970 and 1972, Aerojet leased an area (referred to as the Western Aerojet Range) along the western portion of the site. Lockheed Propulsion Company conducted an incendiary test with a 500-pound bomb at the southwest end of the Western Aerojet Range. This test was reportedly similar to testing performed at the Lockheed Propulsion Company Ballistics Test Area (Historical Operational Area D). According to Radian Corporation, Inc.'s historical report, the Western Aerojet Range was originally leveled to be used as an airstrip (Radian, 1986). The airstrip may have been used only on one occasion according to employee interviews (Tetra Tech, 2003a). During investigations performed in 2006 for munitions and explosives of concern (Tetra Tech, 2007), it was discovered that inert 27.5-millimeter projectiles were tested in this area.

Post Lockheed Propulsion Company and Aerojet Test Range Usage

Lockheed Martin Corporation leased portions of the site to several outside parties for use in various activities (Radian, 1986; Tetra Tech, 2003a). The International Union of Operating Engineers used the site from 1971 through 1991 for surveying and heavy equipment training. The Union's main office was in Bunker 304 of Historical Operational Area F (Lockheed Propulsion Company Test Services Area). The Union's earth-moving actions involved maintaining roads and reshaping various parts of the site, primarily in Historical Operational Areas F and G.

On several occasions, General Dynamics used Historical Operational Area B (Rocket Motor Production Area) for testing activities (Radian, 1986). In 1983 and 1984, General Dynamics conducted weapons testing of a Viper Bazooka and Phalanx Gatling gun.

Structural Composites used the steep terrain of the site for vehicle rollover tests on a number of occasions. Structural Composites also conducted heat and puncture tests on pressurized fiberglass and plastic reinforced cylinders. The tests involved shooting a single 30-caliber round at the cylinders and recording the results (Radian, 1986).

SECTION 2 SUMMARY OF MONITORING ACTIVITIES

Section 2 summarizes the First Quarter 2014 and Second Quarter 2014 groundwater monitoring events conducted at the site. The results from 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 182 wells for both the First Quarter 2014 and Second Quarter 2014 monitoring events. During First Quarter 2014, groundwater level measurements were collected from 175 monitoring wells between 20 February and 24 February 2014. During Second Quarter 2014, groundwater level measurements were collected from 175 monitoring wells between 7 May and 14 May 2014. Seven wells (MW-72C, OW-05, OW-06, OW-07, P-06S, VRW-01, and VRW-02) were found to be dry during both monitoring events. Additionally, water level measurements were unable to be collected from monitoring well F34-TW01 during First Quarter 2014 due to a blockage in the well caused by plant roots growing through the well screen. A tabulated summary of groundwater elevations for all the wells measured during the First Quarter 2014 and Second Quarter 2014 monitoring events is presented in Table 1. 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.

2.2 SURFACE WATER FLOW AND SAMPLING

The site is primarily drained by Potrero Creek, an ephemeral stream which follows the valley from north to south before turning southwest to pass through Massacre Canyon toward its convergence with the San Jacinto River. Potrero Creek is fed by local tributary drainages and storm water runoff from the city of Beaumont as well as from other ephemeral streams in the southern and eastern portions of the site. The largest of the tributary drainages is Bedsprings Creek, which is southwest of the Rocket Motor Production Area (RMPA) and Burn Pit Area (BPA). In general, creeks are dry except during and immediately after periods of rainfall. However, springs and seeps occur in and adjacent to Potrero Creek in the western portion of the site. Surface water flow is not continuous through most of Potrero Valley. Although perennial surface water flow is present in Massacre Canyon, surface water flow during dryer periods becomes limited to two reaches, 50 to

100 feet in length, along the western portion of the Northern Potrero Creek Area (NPCA) (Figure 3).

2.2.1 Surface Water Mapping Procedures

The areas in Potrero and Bedsprings creek where surface water was present were mapped during the First Quarter 2014 and Second Quarter 2014 groundwater monitoring events. Mapping activities included plotting locations where surface water was encountered on a site map, collecting GPS coordinates, and determining whether the water was flowing or stagnant.

2.2.2 Stream Flow Measurement Procedures

If flowing water is observed in the stream bed, stream flow is estimated at four locations: SF-1 near Gilman Hot Springs at the southeast border of the site, SF-2 near MW-67, SF-3 near MW-15 and MW-18, and SF-4 near MW-101. The stream flow measurement locations are shown on Figure 3.

Stream flow estimates are made 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 are 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 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.

2.2.3 Proposed and Actual Surface Water Sampling Locations

Surface water samples are collected semiannually during the second and fourth quarter sampling events from up to 21 fixed locations and one designated alternate surface water location (Figure 3). The designated alternate surface water location (SW-17) is sampled if flowing water is not encountered at the southern end of Massacre Canyon at Gilman Springs Road (SW-16). Additionally surface water samples are collected from up to 13 locations during a storm event.

During the First Quarter 2014 monitoring event, 13 surface water sampling locations were proposed for water quality monitoring during a storm event. Three locations (SW-11, SW-17, and SW-19) were not sampled because the locations were dry. Therefore, water quality data were collected from 10 surface water locations. Table 2 lists the locations monitored for the First Quarter 2014 monitoring event, analytical methods, sampling dates, and quality assurance/quality control (QA/QC) samples collected. Figure 4 illustrates the sampling locations for the First Quarter 2014 monitoring event. During the Second Quarter 2014 monitoring event, 21 surface water sampling locations and one alternate surface water location were proposed for water quality monitoring. Eighteen surface water locations were dry and could not be sampled. The alternate surface water location (SW-17) was also dry and was not sampled. Therefore, water quality data were collected from three surface water sampling locations during this event. Table 3 lists the locations monitored for the Second Quarter 2014 monitoring event, analytical methods, sampling dates, and quality assurance/quality control (QA/QC) samples collected. Figure 5 illustrates the sampling locations for the Second Quarter 2014 monitoring event.

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, electrical conductivity (EC), turbidity, oxidation-reduction potential (ORP), and dissolved oxygen (DO) were measured and recorded on field data sheets at surface water sampling locations.

2.3 GROUNDWATER SAMPLING

The Groundwater Monitoring Program includes quarterly, semiannual, annual, and biennial tasks for water quality monitoring as shown in Table 4. The table shows the well classification and the current approved sampling frequency for each well in the monitoring program. The annual and biennial events are larger major monitoring events, 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). Semiannual wells are sampled the second and fourth quarter of each year, annual wells are sampled the second quarter of each year, and biennial wells are sampled during the second quarter of even-numbered years. The frequency of groundwater monitoring depends on t he well's classification in the network. The well classifications from the approved *Groundwater Sampling and Analysis Plan* (Tetra Tech, 2003b) include the following:

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

- Vertical Extent Plume Monitoring Wells: Vertical extent wells are used to assess the vertical extent of affected groundwater. These wells can also be used to track vertical 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. These wells are used to assist in identifying new contaminant sources or areas where remedial actions are not effective.

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

- Guard Wells: Guard wells would be used 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 off-site contaminant migration.

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

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 procedures in the approved *Revised Groundwater Sampling and Analysis Plan* (Tetra Tech, 2003b). Sampling, analytical, and QA/QC procedures for the monitoring events are described in the *Programmatic Sampling and Analysis Plan, Lockheed Martin Corporation, Beaumont Sites 1 and 2, Beaumont, California* (Tetra Tech, 2010). The First Quarter 2014 and Second Quarter 2014 sampling events followed the monitoring schedule proposed in the *Semiannual Groundwater Monitoring Report, First Quarter and Second Quarter 2013, Potrero Canyon, Lockheed Martin, Beaumont Site 1, Beaumont, California* (Tetra Tech, 2013), which was submitted to the California Department of Toxic Substances Control in October 2013, and was approved with no comments to the proposed schedule.

2.3.1 Proposed and Actual Well Locations Sampled

The First Quarter 2014 monitoring event consisted of water level monitoring and surface water sampling only, no groundwater sampling was scheduled.

During the Second Quarter 2014 monitoring event, 133 monitoring wells and four off-site private production wells were proposed for water quality monitoring. Three monitoring wells (F34-TW1, MW-72C, and MW-112C) were unable to be sampled because they were dry or had insufficient water for sampling; one monitoring well (MW-27) was unable to be sampled due to an obstruction in the well; and one monitoring well (MW-111C, a port in the Water FLUTe™ multilevel monitoring system) was unable to be sampled because it was clogged with sediment and could not be cleared out. Additionally, one off-site private production well could not be sampled due to well equipment problems. Therefore, water quality data were collected from 128 monitoring wells and three private production wells. Table 3 lists the sampling locations for the Second Quarter 2014 monitoring event, analytical methods, sampling dates, and QA/QC samples collected. Figure 5 illustrates the sampling locations for the Second Quarter 2014 monitoring event.

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, EC, turbidity, ORP, and DO. Groundwater samples were collected from monitoring wells by low-flow purging and sampling through dedicated double-valve pumps, a portable bladder pump, or a peristaltic pump.

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 when 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 ± 3 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 sample container, and sample custody was maintained by chain-of-custody record. Samples collected were chilled and transported via courier to American Environmental Testing Laboratory, Inc., a California-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 approved United States Environmental Protection Agency (USEPA) methods. 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 a nd 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 include 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 (LMC, 2006a, 2006b, a nd 2006c) of the HCP. Groundwater sampling activities were conducted with light-duty vehicles, and were supervised by a USFWS-approved biologist as specified in the HCP.

SECTION 3 GROUNDWATER MONITORING RESULTS

Section 3 presents the results and interpretations of the First Quarter 2014 and Second Quarter 2014 groundwater monitoring events. Tabulated summaries of groundwater elevation and water quality data, contour maps, and primary chemicals of potential concern results can be found in the Tables section at the end of the report body following Section 5. Plots of groundwater elevation versus time (hydrographs) and concentration versus time (time-series graphs) for primary and secondary chemicals of potential concern are presented in Appendices D and E, respectively.

3.1 GROUNDWATER ELEVATION AND FLOW

Groundwater elevations during the First Quarter 2014 and Second Quarter 2014 monitoring events ranged from approximately 2,149 feet mean sea level (msl) upgradient of the Burn Pit Area (BPA) to approximately 1,794 feet msl in the Massacre Canyon Entrance Area (MCEA).

Monitoring wells that have previously been identified as artesian wells are fitted with pressure caps to prevent groundwater flow onto the ground surface, and with pressure gauges to measure shut-in head for calculation of static water level. Groundwater elevations for the First Quarter 2014 and Second Quarter 2014 monitoring events from wells screened in the alluvium and weathered Mount Eden formation (MEF) are shown on Figures 6 and 7, respectively. A tabulated summary of groundwater elevations for all the wells measured during the First Quarter 2014 and Second Quarter 2014 monitoring events is presented in Table 1. Hydrographs for individual wells and for well groups are presented in Appendix D.

To correlate observed changes in groundwater levels with local precipitation, precipitation data are collected from the local weather station in Beaumont. During First Quarter 2014, the Beaumont National Weather Service (NWS) reported approximately 3.62 inches of precipitation, and the average site-wide groundwater elevation decreased approximately 0.71 feet. During Second Quarter 2014, the Beaumont NWS reported approximately 3.13 inches of precipitation and the average site-wide groundwater elevation decreased approximately 0.23 feet. Generally the groundwater elevations on site wells show a one-to two-quarter lag before responding to seasonal precipitation except for wells within or immediately adjacent to a drainage. Table 5 presents the range and average change in groundwater elevation by area. Figures 8 and 9 present elevation differences between the Fourth Quarter 2013 and First Quarter 2014, and between the First Quarter 2014 and Second Quarter 2014 groundwater monitoring events, respectively.

Groundwater elevations and seasonal responses to changes in recharge for select shallow and deeper wells are shown on Figures 10 through 12. The selected wells represent a groundwater flow path from upgradient of the BPA, through the BPA, through the Rocket Motor Production Area (RMPA), and southwestward (downgradient) through the Northern Potrero Creek Area (NPCA) and MCEA. Groundwater elevations in shallow wells (alluvium and shallow MEF) upgradient of the BPA and at the BPA show a rapid and significant response to rainfall, with a more dampened response observed farther out in the valley through the RMPA, NPCA, and MCEA (Figures 10 and 12). The deeper MEF and granitic/metasedimentary bedrock wells show a r esponse very similar to the shallow wells during the periods of increased precipitation (Figure 11).

Groundwater flow directions from First Quarter 2014 and Second Quarter 2014 (Figures 6 and 7, respectively) were similar to previously observed patterns for a dry period (Appendix A, Figure 2-7). Generally, groundwater flowed northwest from the southeastern limits of the valley (near the BPA) beneath the RMPA toward Potrero Creek, where groundwater flow then changed direction and began heading southwest, parallel to the flow of Potrero Creek, into Massacre Canyon.

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 m easure of the change in the hydraulic head over a change in distance between wells (the slope of the water table). The overall horizontal groundwater gradient (approximating a flowline from MW-36, upgradient of the BPA, through the RMPA and NPCA to MW-18 in the MCEA) remained constant at 0.012 feet/foot between First Quarter 2014 and Second Quarter 2014. Horizontal gradients are relatively high upgradient of the BPA where recharge from Bedsprings Creek and the adjacent mountain areas enter the main valley. The gradients significantly decrease downgradient of the BPA in the main valley, and then begin to increase again as groundwater flows from the main valley into the canyon just below the confluence of Bedsprings and Potrero creeks.

Vertical groundwater gradients are calculated from individual clusters of wells. Well clusters are used to measure the difference 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 flow (downward - negative gradient; upward - positive gradient) of groundwater. The vertical groundwater gradients at the site are generally negative in the BPA, RMPA, and NPCA, indicating areas of recharge; the gradients are positive in the MCEA, indicating an area of discharge.

Table 6 presents a summary of horizontal and vertical groundwater gradients. Appendix F provides a complete listing of historical horizontal and vertical groundwater gradients and associated calculations.

3.3 SURFACE WATER FLOW

During First Quarter 2014 and Second Quarter 2014, Tetra Tech personnel walked the Potrero and Bedsprings creek riparian corridors to determine the presence, nature, and quantity of surface water in the creek beds. The locations where surface water was encountered were plotted in the field, global positioning system (GPS) coordinates were collected, and a determination was made whether the water was flowing or stagnant. If flowing water was encountered at the fixed stream flow measurement locations, SF-1 through SF-4, the flow rate was determined using a modified version of the *USEPA Volunteer Stream Monitoring: A Methods Manual* (USEPA, 1997).

A summary of the surface water flow rates is presented in Table 7. The measurement locations, the locations where surface water was encountered, and surface water flow rates (unless denoted as “Dry”) are shown on Figures 13 and 14.

3.4 ANALYTICAL DATA SUMMARY

Summaries of validated laboratory analytical results for organic (volatile organic compounds [VOCs] and 1,4-dioxane) and inorganic (perchlorate, contaminant attenuation, and general minerals parameters) analytes detected above their respective method detection limits (MDLs) are presented in Table 8, First Quarter 2014 monitoring event, and Tables 9 and 10, Second Quarter 2014 monitoring event. Appendix G provides a complete list of analytes tested, along with validated sample results by analytical method.

Sample results detected above the published California Department of Public Health maximum contaminant level (MCL) or the California Department of Public Health drinking water notification level (DWNL) are bolded in Tables 8, 9, and 10. Appendix H provides laboratory analytical data packages, which include environmental, field quality control (QC), and laboratory QC results, and Appendix I contains consolidated analytical data summary tables. Tables 11 and 12 present summary statistics of the organic and inorganic analytes detected during the First Quarter 2014 and Second Quarter 2014 monitoring events, respectively.

3.4.1 Data Quality Review

The quality control samples were reviewed as described in the *Programmatic Sampling and Analysis Plan, Lockheed Martin Corporation, Beaumont Sites 1 and 2, Beaumont, California* (Tetra Tech, 2010). The data for the groundwater sampling activities were contained in analytical data packages generated by American Environmental Testing Laboratory, Inc. These data packages were reviewed using the latest versions of the National Functional Guidelines for organic and inorganic 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 matrix spiked/matrix spiked duplicates (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 USEPA methods: Method E300.0 for nitrate, Method E331.0 for perchlorate, Method A5310B for total organic carbon, Method SW8270C SIM for 1,4-dioxane, Method SW6020 for metals, and Methods SW8260B or E524.2 for VOCs.

Unless otherwise noted below, all data results met required criteria, are of known precision and accuracy, did not require qualification, and may be used as reported.

A holding time error with USEPA Method SW8270C SIM for 1,4-dioxane caused 0.6 percent (1 sample out of 156 samples) of the total SW8270C SIM data to be qualified as estimated. The sample was extracted one day outside of allowed holding time. The data qualified as estimated are usable for the intended purpose. The sample was originally analyzed within holding time. However, the results were outside of the calibration range of the instrument so the sample had to be re-extracted, diluted, and re-analyzed, and the final analysis took place outside of the holding time.

Another holding time error occurred with USEPA Method E300.0 for nitrate; one sample out of 12 samples was analyzed past holding time, which represents 8.3 % of the total E300.0 data. The holding time violation qualified the data as estimated and usable for the intended purpose. The sample was collected prior to the Memorial Day holiday weekend, butwas not analyzed within the three-day holding time for nitrate samples due to questions regarding the chain-of-custody. A corrective action has been implemented to ensure that analytes with short holding times like nitrate will not be collected on Fridays in order to avoid holding time violations like this.

USEPA Method SW8260B for VOCs had Laboratory Control Sample recovery outside control limits and caused 0.018 percent (2 analytes of 10,764 analytes) of the total SW8260B data to be qualified as estimated. The estimated data 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. The purpose of identifying chemicals of potential concern is 1) to establish a list of analytes that best represents the extent and magnitude of affected groundwater, and 2) to focus more detailed analysis on only those analytes. The analytes were organized and evaluated in two groups, organic and inorganic, and divided into primary and secondary chemicals of potential concern. Tables 8, 9, and 10 present summaries of the organic and inorganic analytes detected during the First Quarter 2014 and Second Quarter 2014 monitoring events.

The chemicals of potential concern process does not eliminate analytes from testing but does reduce the number of analytes that are evaluated and discussed during reporting. Testing for all of the secondary chemicals of potential concern will continue in future monitoring events because of their association with other analytes that are listed as primary chemicals of potential concern. However, these secondary chemicals of potential concern are detected on a more limited or inconsistent basis, and/or their detection falls below a regulatory threshold. Therefore, the secondary chemicals of potential concern will not be discussed in the later sections of this report. Testing and annual screening of the standard list of analytes for each method will continue to ensure that the appropriate chemicals of potential concern are being identified and evaluated as specified in the *Programmatic Sampling and Analysis Plan, Lockheed Martin Corporation, Beaumont Sites 1 and 2, Beaumont, California* (Tetra Tech, 2010).

3.5.1 Identification of Chemicals of Potential Concern

Chemicals of potential concern have been selected to include compounds that are consistently detected in groundwater at concentrations above regulatory limits and that can be used to assess the extent of affected groundwater. Primary chemicals of potential concern are parent products such as trichloroethene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA), and are always present with secondary chemicals of potential concern. Secondary chemicals of potential concern are breakdown products such as 1,1-dichloroethane (1,1-DCA) and 1,1-dichloroethene (1,1-DCE), and are detected at lower concentrations than their parent products. At this site 1,1-DCE, a breakdown product of 1,1,1-TCA, is detected at higher concentrations than 1,1,1-TCA, so 1,1-DCE is considered the primary chemical of potential concern, and 1,1,1-TCA is considered a secondary chemical of potential concern.

As discussed above, identification and analysis of the chemicals of potential concern are intended to streamline and focus the evaluation of the contaminant data collected during monitoring events. The process is not intended to trivialize or dismiss the analytes screened out. Therefore, to ensure that all analytes detected receive the proper attention, this chemical of potential concern analysis is performed annually.

Laboratory analytical results from the First Quarter 2014 and Second Quarter 2014 monitoring events were reviewed to develop a consolidated list of analytes detected. Based on the results of water quality monitoring and the screening of those results against the existing chemicals of potential concern, the MCLs, and DWNLs, no additional chemicals of potential concern were identified, nor was there evidence for removing an analyte from the existing list of chemicals of potential concern. Table 13 presents those groundwater analytes that have been identified as chemicals of potential concern. Time-series graphs of primary and secondary chemicals of potential concern are provided in Appendix E.

3.5.2 Organic Analytes

During First Quarter 2014 and Second Quarter 2014, 17 organic analytes were detected in the groundwater and/or surface water samples. Twelve organic analytes were detected at concentrations above their respective MCL/DWNL: 1,4-dioxane, benzene, carbon tetrachloride, 1,1-DCA, 1,2-dichloroethane (1,2-DCA), 1,1-DCE, cis-1,2-dichloroethene (cis-1,2-DCE), 1,2-dichloropropane, 1,1,2-trichloroethane (1,1,2-TCA), TCE, tetrachloroethene (PCE), and vinyl chloride.

TCE was historically disposed of at the site and has been routinely detected in groundwater samples collected from the site. Observed concentrations of TCE breakdown products have been generally lower than TCE concentrations observed; therefore TCE is classified as a primary chemical of potential concern. Although 1,1,1-TCA was reportedly disposed at the site, it has not been detected at elevated concentrations in groundwater samples collected recently. However, in general 1,1,1-TCA is not stable in the subsurface (Bielefeldt et al., 1995; Vogel et al., 1987). Therefore, it is assumed that concentrations of 1,1-DCE detected in groundwater samples collected resulted from the breakdown of 1,1,1-TCA. Since observed concentrations of 1,1-DCE are higher than the parent product, 1,1-DCE is classified as a p rimary chemical of potential concern. Similarly, because detected concentrations of 1,1,1-TCA are relatively low and the distribution of 1,1,1-TCA is within the 1,1-DCE plume, 1,1,1-TCA is regarded as a secondary chemical of potential concern.

It is assumed that 1,4-dioxane was introduced into the subsurface along with the solvent 1,1,1-TCA, since 1,4-dioxane is commonly used as a stabilizer in 1,1,1-TCA (Archer, 1996; Mohr, 2001). 1,4-Dioxane is also classified as a primary chemical of potential concern because of the concentration and distribution of 1,4-dioxane and because its chemical properties (hydrophilic, high solubility, minimal retardation, and resistance to biodegradation) are different from the other identified organic chemicals of potential concern.The compounds 1,1-DCA, 1,2-DCA, 1,1-DCE, and cis-1,2-DCE could have been introduced into the environment as primary products (solvents), but they are more commonly introduced as an impurity in a more common solvent such as TCE or 1,1,1-TCA, or as a breakdown product of TCE or 1,1,1-TCA. In groundwater samples collected, concentrations of 1,1-DCA, 1,2-DCA, and cis-1,2-DCE are detected at one to two orders of magnitude less than concentrations of TCE and 1,1-DCE. Until 1,1-DCA, 1,2-DCA, or cis-1,2-DCE are detected in groundwater samples where a p rimary chlorinated chemical of potential concern is absent, or until the concentration of 1,1-DCA, 1,2-DCA, or cis-1,2-DCE is higher than the primary chemicals of potential concern, these analytes will continue to be classified as secondary chemicals of potential concern.

Vinyl chloride was likely introduced into the environment as a breakdown product of TCE or 1,1,1-TCA. In groundwater samples, the compound is always found with one or more of the primary chemicals of potential concern and is generally detected at one to two orders of magnitude less than concentrations of TCE and 1,1-DCE.

1,1,2-TCA was likely introduced into the environment as an isomeric impurity of 1,1,1-TCA. The distribution of 1,1,2-TCA is limited to the BPA and just downgradient of the BPA. The compound is always found with one or more of the primary chemicals of potential concern, and is generally detected at one to two orders of magnitude less than concentrations of TCE and 1,1-DCE. Until 1,1,2-TCA is detected in groundwater samples where a primary chlorinated chemical of potential concern is absent, or until the concentration of 1,1,2-TCA is higher than the primary chemicals of potential concern, it will continue to be classified as a secondary chemical of potential concern.

As stated above, benzene, carbon tetrachloride, 1,2-dichloropropane, and PCE were detected at concentrations which exceed their respective MCLs; however, these analytes are infrequently detected from one sampling event to the next. In addition the concentrations are relatively low with respect to the MCLs, and each analyte was always detected with one of the primary chemicals of potential concern. Therefore, these analytes are not proposed as primary or secondary chemicals of potential concern.

1,1,1-TCA, a secondary chemical of potential concern, was not detected above its MCL of 200 µg/L. The remaining four organic analytes detected in the groundwater samples collected included bromodichloromethane, chloroform, trans-1,2-dichloroethene, and trichlorotrifluoroethane. None of these organic analytes were detected at concentrations above their respective MCL/DWNL.

3.5.3 Inorganic Analytes

Based on the number of detections, the concentrations, and the distribution of perchlorate reported in groundwater samples collected from the site, perchlorate has been identified as a primary chemical of potential concern. Perchlorate is the only inorganic analyte identified as a chemical of potential concern at the site.

3.5.4 Chemicals of Potential Concern Conclusions

Table 13 presents those groundwater analytes that have been identified as chemicals of potential concern. Time-series graphs of primary and secondary chemicals of potential concern are provided in Appendix E. There have been no additions or deletions to the list of chemicals of potential concern since the last analysis was completed in 2013 (Tetra Tech, 2013).

3.6 DISTRIBUTION OF THE PRIMARY CHEMICALS OF POTENTIAL CONCERN

The distribution of the chemicals of potential concern in the alluvium and shallow MEF groundwater zones is described in the following subsections, and is illustrated in Figures 15 through 19. These figures were generated from the Second Quarter 2014 groundwater monitoring analytical results and from the most recent analytical results for the wells not sampled during the Second Quarter 2014.

3.6.1 Perchlorate

Concentrations of perchlorate reported in groundwater samples collected from the Second Quarter 2014 event ranged from non-detectable concentrations to 86,000 micrograms per liter (µg/L) (MW-61B in the BPA). The MCL for perchlorate is 6 µg/L. Concentrations of perchlorate above the MDL occurred in 89 of the 131 groundwater samples collected, of which 59 groundwater samples exceeded the perchlorate MCL.

Based on the data collected during this reporting period, the highest concentrations of perchlorate continue to be reported in groundwater samples collected from monitoring wells screened in the alluvium and shallow MEF located in the BPA. Groundwater concentrations decrease by several orders of magnitude outside and downgradient of the BPA footprint (Figure 15). Downgradient of the BPA, perchlorate concentrations decrease to below1,000 µg/L as the plume migrates into the RMPA. Within the RMPA, where secondary soil perchlorate sources are present, concentrations of perchlorate in groundwater increase to a high of 27,000 µg/L (MW-68) at the Pad with Dry Well (Feature B-14). As the plume migrates downgradient of the RMPA, the concentrations again decrease to below 1,700 µg/L. The plume continues its migration downgradient of the RMPA toward Massacre Canyon with concentrations decreasing rapidly to below the MCL just downgradient of the riparian corridor near the confluence of Potrero and Bedsprings creeks, referred to as the Primary Contaminant Attenuation Area. The primary source area is the BPA, but secondary perchlorate sources are present in the RMPA, and in Operational Area F features F-33

(Large Motor Washout Area), F-34 (Maintenance Shops and Warehouse Storage Area), and F-39 (Test Bays).Secondary perchlorate sources in the RMPA have much greater impacts to groundwater (up to 27,000 µg/L) than the other three perchlorate-impacted areas in the western (downgradient) portion of the site, where the highest concentration detected in groundwater is 69 µg/L (MW-87B) at the Maintenance Shops and Warehouse Storage Area (F-34).

Figure 15 presents the lateral distribution of perchlorate based on recent Second Quarter 2014 groundwater sampling results collected from wells screened in the alluvium and shallow MEF. The perchlorate results continue to show that the plume is stable, and significant attenuation of perchlorate is occurring in the Primary Contaminant Attenuation Area near the intersection of Bedsprings and Potrero creeks.

3.6.2 1,1-Dichloroethene

Concentrations of 1,1-DCE reported in groundwater samples collected from the Second Quarter 2014 monitoring event ranged from non-detectable concentrations to 24,300 µg/L (MW-111E). The MCL for 1,1-DCE is 6 µg/L. Concentrations of 1,1-DCE above the MDL were reported in 60 of the 131 groundwater samples collected from wells, of which 46 groundwater samples exceeded the 1,1-DCE MCL.

Based on the data collected during this reporting period, the highest concentrations of 1,1-DCE continue to be reported in groundwater samples collected from monitoring wells screened in the alluvium and shallow MEF located in the BPA. Concentrations decrease two orders of magnitude immediately downgradient of the BPA and drop below 150 µg/L downgradient (west) of the RMPA (Figure 16). Levels of 1,1-DCE represent the highest VOC concentration detected at the site. Approximately 4,000 feet downgradient of the RMPA, groundwater concentrations have generally decreased to around 20 µg/L. The primary source area is the BPA, but a secondary and fairly minor source of 1,1-DCE is present at the Maintenance Shops and Warehouse Storage Area (F-34), based on the concentrations detected in groundwater.

Figure 16 presents the lateral distribution of 1,1-DCE based on recent Second Quarter 2014 groundwater sampling results collected from wells screened in the alluvium and shallow MEF.

3.6.3 Trichloroethene

Concentrations of TCE reported in groundwater samples collected from the Second Quarter 2014 monitoring event ranged from non-detectable concentrations to 11,500 μg/L (MW-111E). The MCL for TCE is 5 μg/L. Concentrations of TCE above the MDL were reported in 68 of the 131 groundwater samples collected from wells, of which 51 groundwater samples exceeded the TCE MCL.

Based on the data collected during this reporting period, the highest concentrations of TCE continue to be reported in groundwater samples collected from monitoring wells screened in the alluvial/shallow MEF located in the BPA. Concentrations decrease an order of magnitude immediately downgradient of the BPA and drop below 200 μg/L downgradient (west) of the RMPA (Figure 17). Approximately 4,000 feet downgradient of the RMPA, TCE concentrations decrease to below 10 μg/L. The primary source area is the BPA, but secondary sources are present at the Maintenance Shops and Warehouse Storage Area (F-34) and at the Test Bays (F-39), based on the concentrations detected in groundwater.

Figure 17 presents the lateral distribution of TCE based on recent Second Quarter 2014 groundwater sampling results collected from wells screened in the alluvium and shallow MEF.

3.6.4 1,4-Dioxane

Concentrations of 1,4-dioxane reported in groundwater samples collected from the Second Quarter 2014 monitoring event ranged from non-detectable concentrations to 6,800 μg/L (EW-13). The DWNL for 1,4-dioxane is 1 μg/L. Concentrations of 1,4-dioxane above the MDL were reported in 81 of the 131 groundwater samples collected from wells, of which 78 groundwater samples exceeded the 1,4-dioxane DWNL.

Based on the data collected during this reporting period, the highest concentrations of 1,4-dioxane continue to be reported in groundwater samples collected from monitoring wells screened in the alluvial/shallow MEF located in the BPA. Concentrations decrease two orders of magnitude immediately downgradient of the BPA and are generally below 65 μg/L downgradient (west) of the RMPA (Figure 18). Approximately 4,000 feet downgradient of the RMPA, 1,4-dioxane concentrations decrease to below 20 μg/L. The primary source area for 1,4-dioxane is the BPA, but a secondary and fairly minor source is present at the Maintenance Shops and Warehouse Storage Area (F-34), based on the concentrations detected in groundwater.

Figure 18 presents the lateral distribution of 1,4-dioxane based on recent Second Quarter 2014 groundwater sampling results collected from wells screened in the alluvium and shallow MEF.

3.6.5 Guard Wells

Guard wells MW-15, MW-18, MW-67, and MW-100 were sampled during the Second Quarter 2014 sampling event. Sample results for the guard wells are generally consistent with results from previous sampling events and appear to indicate that the plumes are not expanding. A summary of the sample results from Second Quarter 2014 and the two previous years sampling events can be found in Table 14.

3.6.6 Private Production Wells

Four off-site private production wells (one upgradient and three downgradient) were scheduled to be sampled during the Second Quarter 2014 sampling event (PPMW-1-1 through PPMW-1-4 on Figure 5). One downgradient well (PPMW-1-3) was unable to be sampled due to down-hole equipment problems with the well. The remaining two downgradient wells and the one upgradient well were sampled on 5 May 2014. Samples were analyzed for VOCs by USEPA Method 524.2, for 1,4-dioxane by USEPA Method SW8270C SIM, and for perchlorate by USEPA Method E332.0. Perchlorate was detected in the upgradient well (PPMW-1-4) at a concentration of 0.19 μg/L. The MCL for perchlorate is 6 μ g/L. No other site chemicals of potential concern were detected in the samples collected from the off-site private production wells.

3.6.7 New Wells

No new wells were scheduled to be sampled during the First Quarter 2014 and Second Quarter 2014 sampling events.

3.6.8 Surface Water

Surface water samples were collected from 10 locations during a storm event in First Quarter 2014 and from three locations during Second Quarter 2014 during the routine groundwater sampling event. The remaining locations scheduled for collection were dry at the time of sampling. Table 15 presents concentrations of chemicals of potential concern reported in surface water samples collected from these sampling events. The following subsections provide results of the First and Second Quarterly sampling.

First Quarter 2014

During First Quarter 2014, surface water samples were collected during a storm event from 10 locations along the Potrero and Bedsprings creek drainages (SW-06, SW-07, SW-09, SW-10, SW-12, SW-13, SW-14, SW-15, SW-16, and SW-18). The remaining three locations were dry. 1,4-dioxane was detected at concentrations of 1.00 µg/L and 1.89 µg/L in sampling locations SW-06 and SW-18, respectively. No other site chemicals of potential concern were detected above the corresponding MCL/DWNL. The DWNL for perchlorate is 1 µg/L. Figure 20 illustrates surface water flow and concentrations of chemicals of potential concern reported in surface water samples collected from the First Quarter 2014 monitoring event.

Second Quarter 2014

During Second Quarter 2014 surface water samples were collected from three locations (SW-03, SW-09, and SW-18) along the Potrero and Bedsprings creek drainages. The remaining 18 locations were dry at the time of sampling. Because surface water location SW-16 was dry, an attempt was made to collect a sample from the alternate location SW-17, but it was also dry. The four primary chemicals of potential concern (1,4-dioxane, 1,1-DCE, TCE, and perchlorate) were detected in the sample collected from surface water location SW-03. 1,4-Dioxane and perchlorate were detected above the corresponding MCL/DWNL. This sample was collected from a manmade surface depression fed by nearby springs outside of the stream beds but near the intersection of Bedsprings and Potrero creeks.

1,4-Dioxane was detected above the DWNL of 1 µg/L in the surface water samples collected from locations SW-09, and SW-18. Perchlorate was detected below the MCL in the sample collected from SW-09. These samples were collected from water flowing in Potrero Creek and are topographically downgradient of the springs discussed in the previous paragraph. Figure 21 presents concentrations of chemicals of potential concern reported in surface water samples collected from the Second Quarter 2014 monitoring event.

In general, the concentrations of chemicals of potential concern in surface water are highest in the area of the surface depressions, which is an area of discharging groundwater; the concentrations decrease rapidly to at or near the MDL, as one moves downgradient through the riparian zone toward the property boundary. The concentration gradient of 1,4-dioxane in surface water samples, however, is much smaller and appears to be less affected by movement through the Primary Contaminant Attenuation Area near the intersection of Bedsprings and Potrero creeks.

3.7 CONTAMINANT ATTENUATION MONITORING

A site-wide contaminant attenuation evaluation was completed in Spring 2012 (Tetra Tech, 2012b). The evaluation concluded that approximately 95% of the contaminant flux was being attenuated and that contaminant attenuation was going to be an important component of any remedial strategy implemented at this site. The attenuation was primarily occurring in the riparian corridor located at the confluence of Bedsprings and Potrero creeks, with approximately 22% of the contaminant flux being attenuated due to evapotranspiration and 72% due to biodegradation. Although the bulk of the contaminant attenuation was taking place in this area, the study also found that contaminant attenuation is occurring at Features F-33, F-34, and F-39. The following subsections discuss the results of contaminant attenuation monitoring in the Second Quarter 2014.

Monitoring wells sampled for contaminant attenuation parameters during the Second Quarter 2014 monitoring event included seven monitoring wells (MW-05, MW-08, MW-43, MW-48, MW-76B, MW-104, MW-107) in the Primary Contaminant Attenuation Area, one monitoring well (MW-102) in the MCEA, and three monitoring wells (F33-TW2, F33-TW6, and MW-70) in the F-33 area.

Samples for laboratory analysis were collected for dissolved organic carbon (DOC) and nitrate. Dissolved oxygen (DO) and oxidation-reduction potential (ORP) were monitored with field instruments during purging and sampling. Figure 22 shows the locations of the monitoring wells sampled for contaminant attenuation parameters during the Second Quarter 2014 monitoring event. Table 16 presents a summary of the field measurements and validated analytical results.

<u>**Dissolved Oxygen**</u>

Dissolved oxygen concentrations ranged from 0.21 to 5.37 milligrams per liter (mg/L) with 10 of the 11 locations having a DO concentration below 1 mg/L (Table 16). Generally DO concentrations less than 1 mg/L are expected to be more favorable for natural attenuation of perchlorate (Lieberman and Borden, 2008).

Oxidation-Reduction Potential

Oxidation-reduction potential values are a general indicator of aquifer oxidation state. Table 16 shows that ORP values are generally less than 50 millivolts. ORP values between zero and negative 100 are generally favorable for perchlorate biodegradation (Lieberman and Borden, 2008). Exceptions include wells MW-48, MW-102 and MW-107.

Dissolved Organic Carbon

Dissolved organic carbon was detected in seven of the monitoring wells, at concentrations ranging from 2.00 to 9.20 mg/L (Table 16). In the absence of other electron acceptors, these DOC concentrations appear to be conducive to perchlorate degradation.

Nitrate

During the Second Quarter 2014 monitoring event, nitrate was detected in 2 of the 11 monitoring wells sampled: MW-05 (35.5 mg/L) and MW-43 (4.61 mg/L). Nitrate was not detected above the MDL in the other nine locations sampled. Nitrate is often considered the most critical electron acceptor competitor to perchlorate. The general absence of nitrate in the aquifer permits native groundwater microorganisms to use perchlorate as an electron acceptor in the respiratory process. The absence of nitrate is also significant because it means that natural organic carbon that exists in the aquifer does not get consumed for denitrification.

3.8 GROUNDWATER QUALITY TREND ANALYSIS

All groundwater and surface water monitoring locations sampled and tested between the Third Quarter 2013 and the Second Quarter 2014 sampling events were included in the temporal trend analyses. Samples were collected from 128 monitoring wells and 12 fixed surface water locations. Temporal trend analyses were performed on the primary chemicals of potential concern (perchlorate, 1,1-DCE, TCE, and 1,4-dioxane). The temporal trend analyses were performed using data from Second Quarter 2002 to Second Quarter 2014. The start of this period spans the shutdown of the groundwater extraction system in the RMPA. The system was shut down in late 2002. The span includes data from Second Quarter (May) 2002 because they represent a time of active remediation, and they should represent initial concentrations at the termination of active remediation later that year.

Temporal 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 does 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 trend is suitable for analyzing data that follow a normal or non-normal distribution pattern. The Mann-Kendall test has no di stributional assumptions and allows for irregularly spaced measurement periods. The advantage with this approach involves the cases where outliers in the data would produce biased estimates of the least squares estimated slope.
- Linear Regression Analysis – This parametric statistical procedure was used to calculate 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.

There are seven statistical concentration trend types 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 (all sample results are 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) would be applied to the results. These statistical concentration trend types are determined by the following conditions, as summarized in Table 17.

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.

“Confidence in Trend” is the statistical confidence that the constituent concentration is increasing (S>0) or decreasing (S<0).

The four primary chemicals of potential concern were analyzed for temporal trends at 128 monitoring wells and 12 surface water sampling locations as described in the following subsections. If there were insufficient data or fewer than four sampling events, then “not available (NA)” was applied to the results.

3.8.1 Temporal Trends in Monitoring Well Locations

Any one well location may have a different trend for each of the four analytes evaluated. For the 128 monitoring well locations, 512 trends were evaluated. A summary of the Mann-Kendall trend analysis is presented in Table 18.

The 69 probably increasing or increasing trends were detected in 40 groundwater monitoring locations. These wells are listed below, along with their locations and the chemicals of potential concern with the increasing trend.

Fourteen wells are in the BPA.

- EW-13: 1,4-dioxane
- MW-31: perchlorate
- MW-59A: perchlorate, TCE, 1,1-DCE, and 1,4-dioxane
- MW-59B: 1,1-DCE
- MW-59D: 1,1-DCE
- MW-60A: TCE, 1,1-DCE, and 1,4-dioxane
- MW-60B: TCE and 1,4-dioxane
- MW-61C: TCE, 1,1-DCE, and 1,4-dioxane
- MW-73C: perchlorate
- MW-110: perchlorate
- MW-111B: perchlorate, TCE, and 1,1-DCE
- MW-111E: perchlorate, TCE and 1,1-DCE
- MW-112A: 1,4-dioxane

- MW-112B: TCE, 1,1-DCE, and 1,4-dioxane

Nine wells are in the RMPA.

- IW-04: TCE and 1,1-DCE
- MW-05: TCE and 1,4-dioxane
- MW-35: perchlorate
- MW-68: perchlorate, 1,1-DCE,and 1,4-dioxane
- MW-75C: perchlorate
- MW-88: perchlorate
- MW-89: perchlorate and 1,4-dioxane
- MW-91: perchlorate and 1,4-dioxane
- MW-98B: TCE, 1,1-DCE, and 1,4-dioxane

Twelve wells are in the NPCA.

- F33-TW06: TCE
- F33-TW07: 1,1-DCE
- MW-09: 1,4-dioxane
- MW-19: 1,1-DCE
- MW-48: 1,4-dioxane
- MW-76A: 1,4-dioxane
- MW-80: 1,4-dioxane
- MW-82: 1,4-dioxane
- MW-104: TCE
- MW-106: perchlorate, TCE, 1,1-DCE,and 1,4-dioxane
- MW-107: TCE, 1,1-DCE,and 1,4-dioxane
- P-03: 1,1-DCE

Five wells are in the MCEA.

- MW-70: 1,4-dioxane
- MW-87B: perchlorate
- MW-93: TCE, 1,1-DCE,and 1,4-dioxane
- MW-100: 1,4-dioxane
- OW-08: perchlorate

Table 19 presents a summary of the magnitude of the trends (in micrograms per liter per year (µg/L/yr)) determined by linear regression analyses and the percent change with respect to the mean of the data used in the linear regression. Figures 23 through 26 provide a spatial representation of the results of the trend analysis for monitoring well locations. A detailed discussion of these trends follows.

<u>Burn Pit Area</u> - The BPA is the primary source area for all of the site's chemicals of potential concern. Fourteen of the 40 locations with increasing trends consisted of monitoring wells at the BPA. There were seven wells with decreasing trends also. Relative to the mass of the contaminants present in the source area and the concentrations detected, the changes do not appear unusual. The results are consistent with a continuing source in an area of large groundwater level fluctuations that appears to be at or near equilibrium conditions.

<u>Rocket Motor Production Area</u> – This area is a secondary source area for perchlorate. Nine of the 40 locations with increasing trends consisted of monitoring wells in this area. There were also 14 wells with a decreasing trend. The results appear to be consistent with contaminants migrating from the BPA into the RMPA, and with continuing sources of perchlorate in the RMPA that are at or near equilibrium conditions.

<u>Northern Potrero Creek Area</u> - There are no known contaminant sources in this area. Twelve of the 40 locations with increasing trends identified consisted of monitoring wells in this area. There were also 14 wells with decreasing trends in the NPCA. The magnitudes of the trends are relatively small, but the decreasing trends are generally larger than the increasing trends. The contaminant plumes diminish significantly through this area with respect to both size and magnitude of the concentrations. The data show that a significant amount of contaminant attenuation is occurring in the area due to evapotranspiration and biodegradation. The results appear to be consistent with plumes that are at or near equilibrium conditions, or possibly even decreasing in extent and magnitude.

<u>Massacre Canyon Entrance Area</u> – There are secondary source areas here for all the chemicals of potential concern. Five of the 40 locations with increasing trends identified consisted of monitoring wells in this area. There were 13 wells with decreasing trends also. The magnitude of the increasing trends is very small, all less than 2.0 µg/L/yr. All of the site's guard wells are in this

area. Guard wells MW-15, MW-18, MW-67, and MW-100 primarily displayed stable or decreasing trends, except for MW-100, which showed an increasing 1,4-dioxane trend with a magnitude of 0.01 µg/L/yr. The results appear to be consistent with plumes that are at or near equilibrium conditions.

3.8.2 Temporal Trends in Surface Water Locations

For the 12 surface water locations, 48 trends were evaluated. A summary of the Mann-Kendall trend analysis is presented in Table 20.

Increasing or probably increasing trends were detected at two surface water locations, SW-02 (TCE) in the NPCA, and SW-07 (1,4-dioxane) in the MCEA. The trends had a magnitude of 0.57 and 0.01 µg/L/yr and a 9.13 and 0.97 percent change respectively, with respect to the mean of the data used in the linear regression.

The remaining surface water locations were either non-detect for all samples or displayed no trend, a stable trend, a probably decreasing trend, or a decreasing trend for chemicals of potential concern. Figure 27 presents a spatial representation of the results of the trend analysis for surface water locations. Decreasing concentrations or stable conditions (stable or no trend) were observed in the NPCA for all primary chemicals of potential concern except for the small increasing TCE trend observed in SW-02 mentioned in the paragraph above. Downgradient of the NPCA in the MCEA, contaminant concentrations for all primary chemicals of potential concern were either stable (non-detect, stable, or no trend) or decreasing with relatively small rates of change (0.001 – 0.10 µg/L/yr). The only increasing trend in the MCEA was observed in SW-07 for 1,4-dioxane with a very small change of 0.01 µg/L/yr. Appendix J presents a summary of the results of the Mann-Kendall and linear regression analyses.

3.9 HABITAT CONSERVATION

Consistent with the United States Fish and Wildlife Service (USFWS) approved Habitat Conservation Plan (HCP) (USFWS, 2005) and subsequent clarifications (LMC, 2006a, 2006b, and 2006c) of 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 First Quarter 2014 and Second Quarter 2014 monitoring events.

SECTION 4 SUMMARY AND CONCLUSIONS

This section summarizes the results of the First Quarter 2014 and Second Quarter 2014 groundwater monitoring events.

4.1 GROUNDWATER ELEVATIONS

Groundwater elevation differences in all wells from quarter to quarter appear to depend on the short- and long-term weather patterns. In general, the greatest differences in quarterly groundwater elevations occur during periods of seasonal precipitation. Wells in the Northern Potrero Creek Area and the Massacre Canyon Entrance Area appear to respond most quickly to precipitation compared to the Burn Pit Area and Rocket Motor Production Area, which generally show a one- to two-quarter lag before responding to seasonal precipitation. However, wells near Bedsprings Creek just south of the Burn Pit Area also show rapid responses to precipitation due to surface water infiltration and mountain front recharge. The response also diminishes in each area with depth and distance from the Potrero and Bedsprings creeks. The site has experienced overall groundwater level declines since 2005.

4.2 GROUNDWATER FLOW AND GRADIENTS

Groundwater flow directions from First Quarter 2014 and Second Quarter 2014 were similar to previously observed patterns for a dry period. Generally, groundwater flows northwest from the southeastern limits of the valley (near the Burn Pit Area) beneath the Rocket Motor Production Area, toward Potrero Creek, where groundwater flow then changes direction and begins heading southwest, parallel to the flow of Potrero Creek, into Massacre Canyon.

In general the horizontal gradient was lowest between the Burn Pit Area and the Rocket Motor Production Area, with an increased flow through the Northern Potrero Creek Area and the Massacre Canyon Entrance Area. The flattening of the gradient in the Burn Pit Area and Rocket Motor Production Area appears to be attributable to the lithology, aquifer transmissivity, and aquifer thickness in these areas.

Vertical groundwater gradients between shallow and deeper monitoring well pairs are generally downward (negative) in the Burn Pit Area, Rocket Motor Production Area, and the Northern Potrero Creek Area, and upward (positive) in the Massacre Canyon Entrance Area. The response to seasonal changes in groundwater recharge, although dampened by depth, is consistent within the different vertical well pairs installed at the site. This suggests that there is vertical hydraulic communication within the aquifer.

4.3 SURFACE WATER FLOW RESULTS

During the First Quarter 2014 and Second Quarter 2014, Tetra Tech personnel walked the Potrero and Bedsprings creek riparian corridors to determine the presence, nature, and quantity of surface water in the creek beds. The four fixed stream locations previously chosen for stream flow measurements were either dry or had insufficient flow to allow measurement during both quarters, so an average site flow rate could not be calculated (Table 7).

4.4 WATER QUALITY

An evaluation of chemicals of potential concern is performed annually, and reported in the First and Second Quarter Semiannual Groundwater Monitoring Report. The primary chemicals of potential concern identified for the site during the 2013 evaluation were perchlorate, 1,1-dichloroethene, trichloroethene, and 1,4-dioxane (Tetra Tech, 2013). The secondary chemicals of potential concern identified for the site during the 2013 evaluation were 1,1-dichloroethane, 1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane, cis-1,2-dichloroethene, and vinyl chloride. The 2014 evaluation yielded no additions or deletions to the list of chemicals of potential concern. The results of surface and groundwater samples collected and tested during the First Quarter 2014 and Second Quarter 2014 monitoring events are discussed below.

4.4.1 Surface Water Sampling Results

During the First Quarter 2014 sampling event, surface water samples were collected from 10 locations during a storm event. The remaining three locations were dry.

During the Second Quarter 2014 sampling event, surface water samples were collected from three locations. The remaining 18 locations were dry at the time of sampling. Because surface water location SW-16 was dry, an attempt was made to collect a sample from the alternate location SW-

17, but it was also dry and therefore not sampled. The sample results from the sampling locations are consistent with previous results obtained at the site.

4.4.2 Off-Site Private Production Well Sampling Results

Samples from three off-site private production wells (one upgradient and two downgradient) were collected as part of the Second Quarter 2014 monitoring event. Perchlorate was detected in the upgradient well at a concentration of 0.19 micrograms per liter (µg/L). Previously, no site chemicals of potential concern have been detected in the off-site private production wells. The private production wells will continue to be monitored annually during the second quarter sampling event.

4.4.3 Groundwater

Groundwater monitoring wells were sampled during the second quarter. The second quarter event included the semiannual sampling of increasing contaminant trend wells, guard wells, and contaminant attenuation wells; the annual and biennial sampling of the horizontal extent plume monitoring wells; and the biennial sampling of vertical extent plume monitoring wells (Tetra Tech, 2003b).

Plume Monitoring Wells

Analyses were performed for the primary chemicals of potential concern (perchlorate, 1,1-dichloroethene, trichloroethene, and 1,4-dioxane) in groundwater samples collected from 124 wells designated as horizontal or vertical plume monitoring wells during the Second Quarter 2014 monitoring event. Perchlorate was detected in 86 groundwater samples collected at concentrations up to 86,000 µg/L. The highest concentration was detected in MW-61B in the Burn Pit Area. The perchlorate maximum contaminant level of 6 µg/L was exceeded in 58 of the groundwater samples collected.

1,1-Dichloroethene was detected in 57 groundwater samples collected at concentrations up to 24,300 µg/L. The highest concentration was detected in MW-111E in the Burn Pit Area. The 1,1-dichloroethene maximum contaminant level of 6 µg/L was exceeded in 46 of the groundwater samples collected.

Trichloroethene was detected in 65 groundwater samples collected at concentrations up to 11,500 µg/L. The highest concentration was detected in MW-111E in the Burn Pit Area. The trichloroethene maximum contaminant level of 5 μg/L was exceeded in 51 of the groundwater samples collected.

1,4-Dioxane was detected in 75 groundwater samples collected at concentrations up to 6,800 μg/L. The highest concentration was detected in EW-13 in the Burn Pit Area. The 1,4-dioxane drinking water notification level of 1 μg/L was exceeded in 73 of the groundwater samples collected.

In general, plume morphology does not appear to have changed significantly from Second Quarter 2013. The primary contaminant source area for perchlorate, 1,1-dichloroethene, trichloroethene and 1,4-dioxane is the Burn Pit Area, but secondary sources are present in the Rocket Motor Production Area and at Features F-33, F-34, and F-39.

Guard Wells

Guard wells MW-15, MW-18, MW-67, and MW-100 were sampled during the Second Quarter 2014 sampling event. Sample results for the guard wells are generally consistent with results from previous sampling events and appear to indicate that the plumes are not expanding. Historically, 1,4-dioxane and perchlorate are the only chemicals of potential concern to be detected above the maximum contaminant level or drinking water notification level in guard wells. During the Second Quarter 2014 sampling event 1,4-dioxane was detected above the drinking water notification level of 1 μg/L in guard wells MW-15 and MW18. These wells are located along Potrero Creek upgradient of the Large Rocket Motor Washout Area (F-33). 1,4 Dioxane was detected below the drinking water notification level in guard well MW-67, which is downgradient of known site activity areas (Figure 4). Perchlorate has not been detected above the maximum contaminant level of 6 μg/L in guard wells since May 2008. A summary of recent sample results from the guard wells can be found in Table 14.

Temporal Trend Analyses

The number of increasing or probably increasing trend wells has increased from 29 wells and 2 surface water locations in 2013 to 40 wells and 2 surface water locations in 2014. During this period, the percentage of locations identified as having either a decreasing or probably decreasing trend has remained the same. Tables 21 through 24 display a summary of the historical trend analyses for perchlorate, 1,1-dichloroethene, trichloroethene, and 1,4-dioxane in groundwater monitoring wells.

A summary of the trend analysis results for the 40 increasing or probably increasing trend locations is presented in Table 25. The percent change that these increases represent with respect to the mean of the data used to calculate each trend is also presented in Table 25. Thirty-three of the 40 increasing or probably increasing trend locations have trend magnitudes that represent less than a 20% change with respect to the mean.

Possible reasons for the change in the number of increasing trend wells are the following:

1. As part of the 2014 biennial sampling event, 51 additional wells were sampled during Second Quarter 2014. Eight of these wells were identified as increasing trend wells for one or more of the primary chemicals of potential concern. In all cases the trend magnitudes in these wells changed less than 20% with respect to the mean.
2. With an increase in the amount of data for the individual locations, the trends become more noticeable due to the ability to better define outliers.
3. The site groundwater extraction, treatment, and reinjection system was shut down in late 2002. As time passes, potential influence from the former extraction and reinjection wells becomes less noticeable as the groundwater flow patterns return to a normal state.
4. Nine new wells were installed in the Burn Pit Area in late 2011 to help characterize the Mount Eden sandstone and contaminant concentrations with depth, and to provide additional hydraulic data to support the evaluation of remedial alternatives at the site. Five of these wells had increasing trends, which appears to be a result of the wells not reaching equilibrium yet. The very low permeability sandstone matrix in which these wells were installed delays the time required to reach equilibration, since the natural groundwater flow near the wells is extremely slow.

In general, the plume morphology has not changed, and most of the wells and the surface water locations are either non-detect for chemicals of potential concern, display a stable trend, or show no trend.

4.5 PROPOSED CHANGES TO THE GROUNDWATER MONITORING PROGRAM

4.5.1 Groundwater Sampling Frequency

The sampling frequency of a monitoring well is based on the well's classification (i.e., its function) (Tetra Tech, 2003b). The six groundwater monitoring well classifications are based on the evaluation of temporal trends, spatial distribution, and other qualitative criteria. Currently no wells are designated as remedial monitoring wells, because a final remedy has not yet been selected for the site. A summary of the sampling frequency by well classification is presented in Table 26.

4.5.2 Proposed Changes

Tetra Tech reviews the groundwater monitoring program and modifies it as necessary during the second quarter of each year, in conjunction with the annual temporal trend analyses.

The sampling frequency for wells with an increasing trend may be increased to semiannual if the magnitude of the trend and the well's location warrant an increased sampling frequency. Typical laboratory standards for precision and accuracy allow for approximately 20% variability in laboratory data. As a result, any increasing trends with a magnitude less than 20% of the mean concentration of the data used in the trend determination will be considered minor, and will not trigger an increase in sampling frequency. The monitoring frequency of all other wells exhibiting an increasing trend will be evaluated on a case-by-case basis with particular attention to the magnitude of the trend and the location of the well.

Based on the results of this year's temporal trend analysis and the magnitude of their trends, Tetra Tech proposes to continue semiannual sampling for the following increasing trend wells:

- Burn Pit Area well MW-59A (perchlorate, 1,1-DCE, TCE, and 1,4-dioxane increasing trends)
- Burn Pit Area well MW-60B (TCE and 1,4-dioxane increasing trends)
- Rocket Motor Production Area well MW-68 (perchlorate, 1,1-DCE, and 1,4-dioxane increasing trends)

- Northern Potrero Creek Area well MW-106 (perchlorate, 1,1-DCE, TCE, and 1,4-dioxane increasing trends)

We propose that the following monitoring wells remain at their presently approved sampling frequency, due to the limited magnitude of their trends:

- Burn Pit Area wells EW-13 (annual), MW-31 (biennial), MW-59B (annual), MW-59D (biennial), MW60A (biennial), MW-61C (biennial), and MW-73C (biennial)

- Rocket Motor Production Area wells IW-04 (annual), MW-05 (annual), MW-35 (annual), MW-88 (annual), MW-89 (annual), MW-91 (annual), and MW-98B (annual)

- Northern Potrero Creek Area wells F33-TW06 (annual), F33-TW07 (annual), MW-09 (annual), MW-19 (annual), MW-48 (annual), MW-76A (biennial), MW-80 (biennial), MW-82 (annual), MW-107 (annual), and P-03 (annual)

- Massacre Canyon Entrance Area wells MW-70 (annual), MW-87B (annual), MW-93 (annual), MW-100 (semiannual), and OW-08 (biennial)

We are also proposing that the following wells return to their previously approved sampling frequency because of a drop in the magnitude of the trend:

- Rocket Motor Production Area well MW-75C (return to biennial from semiannual)

- Northern Potrero Creek Area well MW-104 (return to annual from semiannual)

Wells MW-110, MW-111A through E, and MW-112A through C were installed in three angle boreholes in the Burn Pit Area as part of the 2011 hydraulic testing study (Tetra Tech, 2012a) and were not intended to be used as plume monitoring wells. The concentration of chemicals of potential concern has not stabilized in these wells; therefore, an evaluation of contaminant concentrations with depth has not been possible to determine if any of the monitoring points would be more appropriate than nearby monitoring wells being sampled to monitor the vertical distribution of chemicals of potential concern in the Burn Pit Area. It is proposed to continue sampling these wells annually for volatile organic compounds, 1,4-dioxane, and perchlorate until these analytes have stabilized. Once the concentrations have stabilized, the sampling frequency for these wells will then be reevaluated.

No additional changes to the monitoring well sampling frequency are proposed at this time.

Surface water sampling is conducted semiannually and soon after a storm event, if possible. No changes to the sampling frequency are proposed.

Table 27 provides a general summary of the current groundwater monitoring program well sampling status and the proposed program for 2015. A detailed summary of the proposed monitoring program is presented in Table 28, with highlights for proposed changes in sampling frequency or well classification.

No changes to the analytical program are proposed. All wells and surface water locations will continue to be tested for perchlorate, 1,4-dioxane, and volatile organic compounds.

SECTION 5 REFERENCES

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TABLES

Table 1 Groundwater Elevation - First Quarter 2014 and Second Quarter 2014

				First Quarter 2014				Second Quarter 2014			
Well ID	Site Area	Formation Screened	Measuring Point Elevation (feet msl)	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet msl)	Groundwater Elevation Change from Fourth Quarter 2014	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet msl)	Groundwater Elevation Change from First Quarter 2014
EW-01	RMPA	QAL	2142.62	02/21/14	44.58	2098.04	-1.23	5/9/2014	45.38	2097.24	-0.80
EW-02	RMPA	QAL	2126.15	02/21/14	29.64	2096.51	-1.00	5/9/2014	30.33	2095.82	-0.69
EW-08	BPA	MEF	2178.40	02/24/14	76.40	2102.02	-1.12	5/7/2014	77.17	2101.25	-0.77
EW-09	BPA	MEF	2179.67	02/24/14	78.46	2101.21	-1.42	5/7/2014	79.29	2100.38	-0.83
EW-10	BPA	MEF	2180.19	02/24/14	78.61	2101.62	-1.28	5/7/2014	79.36	2100.87	-0.75
EW-11	BPA	MEF	2182.09	02/24/14	79.75	2102.25	-1.39	5/7/2014	80.81	2101.19	-1.06
EW-12	BPA	MEF	2183.28	02/24/14	81.75	2101.41	-1.35	5/7/2014	82.60	2100.56	-0.85
EW-13	BPA	MEF	2185.57	02/24/14	83.84	2101.73	-1.31	5/7/2014	84.87	2100.70	-1.03
EW-14	BPA	QAL/MEF	2184.59	02/24/14	83.17	2101.43	-1.32	5/7/2014	83.97	2100.63	-0.80
EW-15	BPA	MEF	2184.10	02/24/14	81.07	2102.76	-1.18	5/7/2014	81.81	2102.02	-0.74
EW-16	BPA	MEF	2185.52	02/24/14	82.99	2102.54	-1.38	5/7/2014	83.79	2101.74	-0.80
EW-17	BPA	MEF	2179.04	02/24/14	79.51	2099.53	-1.36	5/7/2014	80.41	2098.63	-0.90
EW-18	BPA	MEF	2184.98	02/24/14	81.11	2103.94	-1.38	5/7/2014	82.00	2103.05	-0.89
EW-19	MCEA	QAL	2033.89	02/21/14	43.00	1990.89	-0.59	5/14/2014	39.87	1994.02	3.13
EW-20	BPA	MEF	2187.45	02/24/14	84.06	2103.39	-1.51	5/7/2014	84.90	2102.55	-0.84
F33-TW2	NPCA	QAL	1959.75	02/20/14	7.74	1952.01	2.11	5/9/2014	7.36	1952.39	0.38
F33-TW6	NPCA	QAL	1950.62	02/20/14	7.91	1942.71	1.80	5/9/2014	6.43	1944.19	1.48
F33-TW7	NPCA	QAL	NA	02/20/14	9.65	NA	NA	5/9/2014	9.23	NA	NA
F34-TW1	MCEA	QAL	1894.08	NA	NA	NA	NA	5/9/2014	6.02	1888.06	NA
IW-01	RMPA	QAL	2160.73	02/21/14	62.49	2098.24	-1.28	5/9/2014	63.30	2097.43	-0.81
IW-02	RMPA	QAL	2155.01	02/21/14	56.90	2098.11	-1.27	5/9/2014	57.72	2097.29	-0.82
IW-03	RMPA	QAL	2132.86	02/21/14	39.35	2093.51	-0.80	5/9/2014	39.88	2092.98	-0.53
IW-04	RMPA	QAL	2135.09	02/21/14	41.59	2093.50	-0.35	5/9/2014	41.95	2093.14	-0.36
IW-05	RMPA	QAL	2136.94	02/21/14	44.00	2092.94	-0.80	5/9/2014	44.51	2092.43	-0.51
MW-01	RMPA	MEF	2176.98	02/24/14	78.77	2098.21	-1.34	5/14/2014	79.61	2097.37	-0.84
MW-02	RMPA	MEF	2170.10	02/24/14	71.05	2099.05	-1.28	5/7/2014	71.82	2098.28	-0.77
MW-03	RMPA	MEF	2169.36	02/24/14	129.80	2039.56	-1.10	5/7/2014	130.44	2038.92	-0.64
MW-04	RMPA	QAL	2160.02	02/24/14	61.01	2099.01	-1.30	5/7/2014	61.78	2098.24	-0.77
MW-05	RMPA	QAL	2121.40	02/21/14	25.10	2096.30	-0.79	5/9/2014	25.74	2095.66	-0.64
MW-06	RMPA	QAL	2121.76	02/21/14	28.42	2093.34	-0.91	5/9/2014	29.08	2092.68	-0.66
MW-07	BPA	QAL	2176.52	02/24/14	78.13	2098.39	-1.30	5/14/2014	79.00	2097.52	-0.87
MW-08	NPCA	QAL	2090.53	02/21/14	16.54	2073.99	-0.15	5/9/2014	16.81	2073.72	-0.27
MW-09	NPCA	QAL	2089.16	02/21/14	5.53	2083.63	-0.74	5/9/2014	5.94	2083.22	-0.41
MW-10	RMPA	QAL	2179.40	02/24/14	78.52	2100.88	-1.42	5/9/2014	79.36	2100.04	-0.84
MW-11	NPCA	QAL	2122.61	02/21/14	46.10	2076.51	-0.58	5/9/2014	46.39	2076.22	-0.29
MW-12	NPCA	QAL	2098.49	02/21/14	21.03	2077.46	-2.05	5/9/2014	17.70	2080.79	3.33
MW-13	NPCA	QAL	2057.89	02/21/14	16.82	2041.07	0.82	5/9/2014	14.91	2042.98	1.91
MW-14	MCEA	QAL	2029.67	02/21/14	38.88	1990.79	-1.66	5/14/2014	34.62	1995.05	4.26
MW-15	MCEA	QAL	2009.76	02/20/14	30.53	1979.23	0.12	5/8/2014	29.17	1980.59	1.36
MW-17	RMPA	QAL	2140.40	02/21/14	42.84	2097.56	-1.20	5/9/2014	43.54	2096.86	-0.70
MW-18	MCEA	QAL	2008.69	02/20/14	30.14	1978.55	0.16	5/8/2014	28.85	1979.84	1.29
MW-19	NPCA	QAL	2118.49	02/21/14	23.62	2094.87	-0.69	5/9/2014	24.60	2093.89	-0.98
MW-20	RMPA	QAL	2162.03	02/24/14	63.68	2098.35	-1.27	5/7/2014	64.44	2097.59	-0.76
MW-22	RMPA	QAL	2173.48	02/24/14	73.90	2099.58	-1.32	5/7/2014	74.71	2098.77	-0.81
MW-23	RMPA	QAL	2165.02	02/24/14	66.40	2098.62	-1.29	5/7/2014	67.19	2097.83	-0.79
MW-26	BPA	MEF	2183.81	02/24/14	83.00	2100.81	-1.32	5/7/2014	83.79	2100.02	-0.79
MW-27	BPA	QAL	2182.73	02/24/14	81.96	2100.77	-1.43	5/7/2014	82.70	2100.03	-0.74
MW-28	RMPA	QAL	2160.84	02/24/14	62.61	2098.23	-1.27	5/7/2014	63.37	2097.47	-0.76
MW-29	NPCA	MEF	2115.09	02/21/14	29.51	2085.58	-0.50	5/9/2014	29.87	2085.22	-0.36
MW-30	RMPA	QAL	2165.01	02/24/14	65.57	2099.44	-1.31	5/7/2014	66.36	2098.65	-0.79
MW-31	BPA	Granite	2186.52	02/24/14	98.00	2088.52	-1.26	5/7/2014	98.77	2087.75	-0.77
MW-32	RMPA	Granite	2176.61	02/24/14	91.35	2085.26	-1.22	5/14/2014	92.18	2084.43	-0.83
MW-34	RMPA	QAL	2153.80	02/24/14	53.51	2100.29	-1.20	5/7/2014	54.26	2099.54	-0.75
MW-35	RMPA	QAL	2170.98	02/24/14	72.72	2098.26	-1.31	5/14/2014	73.58	2097.40	-0.86
MW-36	UG	QAL	2205.18	02/24/14	88.60	2116.58	-0.31	5/7/2014	88.99	2116.19	-0.39
MW-38	MCEA	MEF	2030.29	02/20/14	48.27	1982.02	-0.30	5/8/2014	47.27	1983.02	1.00
MW-39	RMPA	QAL	2144.18	02/24/14	45.87	2098.31	-1.29	5/9/2014	46.61	2097.57	-0.74
MW-40	NPCA	MEF	2126.39	02/21/14	43.99	2082.40	-0.70	5/9/2014	44.35	2082.04	-0.36
MW-41	RMPA	MEF	2133.95	02/24/14	37.29	2096.66	-1.10	5/9/2014	37.97	2095.98	-0.68
MW-43	NPCA	QAL	2068.58	02/21/14	7.79	2060.79	1.61	5/9/2014	8.15	2060.43	-0.36
MW-44	NPCA	QAL	2128.69	02/21/14	33.65	2095.04	-0.77	5/9/2014	34.22	2094.47	-0.57
MW-45	MCEA	QAL	2068.18	02/21/14	2.7 PSI	2074.41	-0.23	5/9/2014	2.8 PSI	2074.64	0.23
MW-46	MCEA	QAL	2072.17	02/21/14	52.93	2019.24	-0.22	5/9/2014	52.34	2019.83	0.59
MW-47	NPCA	QAL	2076.67	02/21/14	1.7 PSI	2080.60	-0.46	5/9/2014	1.7 PSI	2080.60	0.00
MW-48	NPCA	QAL	2076.44	02/21/14	10.33	2066.11	0.97	5/9/2014	10.72	2065.72	-0.39
MW-49	RMPA	QAL	2130.92	02/21/14	33.51	2097.41	-1.13	5/9/2014	34.34	2096.58	-0.83
MW-50	RMPA	QAL	2151.43	02/21/14	53.33	2098.10	-1.25	5/9/2014	54.17	2097.26	-0.84
MW-51	RMPA	QAL	2138.36	02/21/14	39.91	2098.45	-1.15	5/9/2014	40.64	2097.72	-0.73
MW-52	RMPA	QAL	2136.18	02/21/14	38.48	2097.70	-1.23	5/9/2014	39.28	2096.90	-0.80
MW-53	RMPA	QAL	2153.29	02/21/14	55.20	2098.09	-1.25	5/9/2014	56.00	2097.29	-0.80
MW-54	RMPA	QAL	2153.44	02/24/14	55.15	2098.29	-1.35	5/7/2014	55.91	2097.53	-0.76
MW-55	RMPA	QAL	2166.66	02/24/14	68.11	2098.55	-1.27	5/7/2014	68.90	2097.76	-0.79
MW-56A	RMPA	MEF	2143.09	02/21/14	56.36	2086.73	-1.07	5/9/2014	57.11	2085.98	-0.75
MW-56B	RMPA	QAL	2142.58	02/21/14	44.50	2098.08	-1.21	5/9/2014	45.32	2097.26	-0.82
MW-56C	RMPA	QAL	2142.77	02/21/14	44.75	2098.02	-1.20	5/9/2014	45.58	2097.19	-0.83
MW-56D	RMPA	QAL	2142.48	02/21/14	44.38	2098.10	-1.17	5/9/2014	45.19	2097.29	-0.81
MW-57A	RMPA	QAL	2145.98	02/21/14	47.76	2098.22	-1.23	5/9/2014	48.59	2097.39	-0.83
MW-57B	RMPA	QAL	2146.19	02/21/14	47.97	2098.22	-1.23	5/9/2014	48.79	2097.40	-0.82
MW-57C	RMPA	QAL	2146.02	02/21/14	47.79	2098.23	-1.24	5/9/2014	48.60	2097.42	-0.81
MW-57D	RMPA	QAL	2146.10	02/21/14	47.90	2098.20	-1.24	5/9/2014	48.74	2097.36	-0.84
MW-58A	RMPA	QAL	2140.73	02/21/14	42.95	2097.78	-1.22	5/9/2014	43.74	2096.99	-0.79
MW-58B	RMPA	QAL	2140.78	02/21/14	42.77	2098.01	-1.20	5/9/2014	43.56	2097.22	-0.79
MW-58C	RMPA	QAL	2141.02	02/21/14	43.11	2097.91	-1.20	5/9/2014	43.91	2097.11	-0.80
MW-58D	RMPA	QAL	2140.94	02/21/14	43.15	2097.79	-1.19	5/9/2014	43.95	2096.99	-0.80
MW-59A	BPA	MEF	2180.14	02/24/14	84.11	2096.03	-1.27	5/7/2014	84.90	2095.24	-0.79
MW-59B	BPA	MEF	2180.39	02/24/14	79.45	2100.94	-1.30	5/7/2014	80.24	2100.15	-0.79
MW-59C	BPA	MEF	2179.93	02/24/14	81.30	2098.63	-1.30	5/7/2014	82.07	2097.86	-0.77
MW-59D	BPA	MEF	2180.53	02/24/14	81.19	2099.34	-1.29	5/7/2014	81.98	2098.55	-0.79
MW-60A	BPA	MEF	2182.59	02/24/14	83.63	2098.96	-1.28	5/7/2014	84.41	2098.18	-0.78
MW-60B	BPA	MEF	2182.77	02/24/14	82.31	2100.46	-1.34	5/7/2014	83.11	2099.66	-0.80
MW-61A	BPA	MEF	2186.95	02/24/14	91.37	2095.58	-1.22	5/7/2014	92.19	2094.76	-0.82
MW-61B	BPA	MEF	2186.77	02/24/14	83.38	2103.39	-1.35	5/7/2014	84.18	2102.59	-0.80
MW-61C	BPA	MEF	2186.84	02/24/14	89.15	2097.69	-1.27	5/7/2014	89.90	2096.94	-0.75
MW-61D	BPA	MEF	2186.83	02/24/14	86.51	2100.32	-1.29	5/7/2014	87.26	2099.57	-0.75

Table 1 Groundwater Elevation - First Quarter 2014 and Second Quarter 2014 (continued)

Well ID	Site Area	Formation Screened	Measuring Point Elevation (feet msl)	First Quarter 2014				Second Quarter 2014			
				Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet msl)	Groundwater Elevation Change from Fourth Quarter 2014	Date Measured	Depth to Water (feet BTOC)	Groundwater Elevation (feet msl)	Groundwater Elevation Change from First Quarter 2014
MW-62A	RMPA	QAL	2131.32	02/21/14	33.73	2097.59	-1.00	5/9/2014	34.39	2096.93	-0.66
MW-62B	RMPA	QAL	2131.49	02/21/14	34.30	2097.19	-1.16	5/9/2014	35.06	2096.43	-0.76
MW-63	RMPA	QAL	2156.20	02/24/14	57.86	2098.34	-1.26	5/7/2014	58.65	2097.55	-0.79
MW-64	RMPA	QAL	2128.41	02/21/14	31.50	2096.91	-0.89	5/9/2014	32.16	2096.25	-0.66
MW-65	RMPA	QAL	2128.92	02/21/14	32.27	2096.65	-0.92	5/9/2014	32.94	2095.98	-0.67
MW-66	RMPA	QAL	2130.43	02/21/14	36.46	2093.97	-0.73	5/9/2014	37.06	2093.37	-0.60
MW-67	MCEA	QAL	1799.54	02/20/14	4.96	1794.58	5.66	5/8/2014	5.55	1793.99	-0.59
MW-68	RMPA	QAL	2144.69	02/24/14	41.16	2103.53	-1.51	5/7/2014	41.67	2103.02	-0.51
MW-69	RMPA	QAL	2143.26	02/24/14	42.46	2100.80	-0.86	5/7/2014	43.00	2100.26	-0.54
MW-70	MCEA	QAL	1976.15	02/24/14	30.27	1945.88	2.00	5/8/2014	29.80	1946.35	0.47
MW-71A	BPA	Granite	2193.77	02/24/14	161.26	2032.51	-0.78	5/7/2014	161.75	2032.02	-0.49
MW-71B	BPA	QAL/MEF	2194.01	02/24/14	87.85	2106.16	-0.91	5/7/2014	88.34	2105.67	-0.49
MW-71C	BPA	MEF	2193.87	02/24/14	90.84	2103.03	-1.05	5/7/2014	91.50	2102.37	-0.66
MW-72A	BPA	Granite	2199.06	02/24/14	106.65	2092.41	-1.68	5/7/2014	107.49	2091.57	-0.84
MW-72B	BPA	MEF	2199.22	02/24/14	100.26	2098.96	-1.42	5/7/2014	101.14	2098.08	-0.88
MW-72C	BPA	QAL	2199.35	02/24/14	Dry	Dry Well	NA	5/7/2014	Dry	Dry Well	NA
MW-73A	BPA	MEF	2189.39	02/24/14	116.85	2072.54	-1.08	5/7/2014	117.25	2072.14	-0.40
MW-73B	BPA	MEF	2189.48	02/24/14	102.16	2087.32	-1.13	5/7/2014	102.45	2087.03	-0.29
MW-73C	BPA	QAL	2189.65	02/24/14	91.15	2098.50	-1.38	5/7/2014	91.80	2097.85	-0.65
MW-74A	UG	Granite	2199.66	02/24/14	160.98	2038.68	-0.53	5/7/2014	161.27	2038.39	-0.29
MW-74B	UG	Granite	2199.81	02/24/14	118.15	2081.66	-0.61	5/7/2014	118.51	2081.30	-0.36
MW-74C	UG	MEF	2199.96	02/24/14	88.36	2111.60	-0.51	5/7/2014	88.68	2111.28	-0.32
MW-75A	RMPA	MEF	2149.44	02/21/14	60.77	2088.67	-1.07	5/9/2014	61.51	2087.93	-0.74
MW-75B	RMPA	QAL	2149.51	02/21/14	52.34	2097.17	-1.17	5/9/2014	53.13	2096.38	-0.79
MW-75C	RMPA	QAL	2150.02	02/21/14	52.88	2097.14	-1.19	5/9/2014	53.66	2096.36	-0.78
MW-76A	NPCA	MEF	2105.91	02/21/14	29.00	2076.91	-0.89	5/9/2014	29.47	2076.44	-0.47
MW-76B	NPCA	QAL	2105.40	02/21/14	20.92	2084.48	-0.27	5/9/2014	21.47	2083.93	-0.55
MW-76C	NPCA	QAL	2106.29	02/21/14	14.16	2092.13	-0.98	5/9/2014	14.82	2091.47	-0.66
MW-77A	MCEA	MEF	1930.62	02/20/14	15.13	1915.49	0.72	5/8/2014	14.80	1915.82	0.33
MW-77B	MCEA	MEF	1930.88	02/20/14	17.91	1912.97	0.68	5/8/2014	17.88	1913.00	0.03
MW-78	BPA	MEF	2182.63	02/24/14	93.86	2088.77	-1.34	5/7/2014	94.65	2087.98	-0.79
MW-79A	RMPA	MEF	2142.00	02/21/14	47.87	2094.13	-1.15	5/9/2014	48.62	2093.38	-0.75
MW-79C	RMPA	QAL	2142.07	02/21/14	44.95	2097.12	-1.20	5/9/2014	45.74	2096.33	-0.79
MW-80	NPCA	MEF	2070.47	02/21/14	0.2 PSI	2070.93	0.23	5/9/2014	1.50	2068.97	-1.96
MW-81	MCEA	MEF	2010.72	02/20/14	31.96	1978.76	0.11	5/8/2014	30.61	1980.11	1.35
MW-82	NPCA	QAL	1974.17	02/20/14	27.60	1946.57	1.60	5/8/2014	27.24	1946.93	0.36
MW-83	NPCA	QAL	1976.93	02/20/14	27.41	1949.52	2.17	5/8/2014	27.03	1949.90	0.38
MW-84A	MCEA	MEF	2,010.02	02/20/14	65.25	1944.77	-0.48	5/8/2014	65.44	1944.58	-0.19
MW-84B	MCEA	MEF	2,011.19	02/20/14	67.38	1943.81	-0.42	5/8/2014	67.62	1943.57	-0.24
MW-85A	MCEA	MEF	1,929.31	02/20/14	9.36	1919.95	-0.13	5/8/2014	9.18	1920.13	0.18
MW-85B	MCEA	MEF	1,928.74	02/20/14	6.60	1922.14	0.47	5/8/2014	6.18	1922.56	0.42
MW-86A	MCEA	MEF	1,923.21	02/20/14	17.86	1905.35	0.08	5/8/2014	17.81	1905.40	0.05
MW-86B	MCEA	QAL/MEF	1,923.21	02/20/14	20.44	1902.77	-0.12	5/8/2014	20.21	1903.00	0.23
MW-87A	MCEA	MEF	1,938.92	02/20/14	24.19	1914.73	-0.21	5/8/2014	24.24	1914.68	-0.05
MW-87B	MCEA	MEF	1,938.82	02/20/14	23.68	1915.14	-0.47	5/8/2014	23.67	1915.15	0.01
MW-88	RMPA	QAL	2,141.97	02/24/14	40.31	2101.66	-0.82	5/7/2014	40.75	2101.22	-0.44
MW-89	RMPA	QAL	2,130.82	02/24/14	35.20	2095.62	-1.00	5/7/2014	35.81	2095.01	-0.61
MW-90	RMPA	QAL	2,147.71	02/24/14	46.48	2101.23	-0.75	5/7/2014	46.89	2100.82	-0.41
MW-91	RMPA	MEF	2,144.85	02/24/14	41.69	2103.16	-0.77	5/7/2014	42.10	2102.75	-0.41
MW-92	MCEA	MEF	1,919.83	02/20/14	34.40	1885.43	0.18	5/8/2014	34.52	1885.31	-0.12
MW-93	MCEA	MEF	1,931.47	02/20/14	36.25	1895.22	0.52	5/8/2014	36.47	1895.00	-0.22
MW-94	MCEA	MEF	1,936.55	02/20/14	24.24	1909.38	-0.14	5/8/2014	24.32	1909.30	-0.08
MW-95	MCEA	MEF	1,920.80	02/20/14	22.86	1897.94	0.12	5/8/2014	22.81	1897.99	0.05
MW-96	MCEA	MEF	1998.63	02/20/14	56.33	1942.30	-0.44	5/8/2014	56.50	1942.13	-0.17
MW-97	MCEA	MEF	1996.47	02/20/14	52.79	1943.68	-0.46	5/8/2014	52.80	1943.67	-0.01
MW-98A	RMPA	MEF	2141.68	02/24/14	50.10	2091.58	-1.06	5/7/2014	50.75	2090.93	-0.65
MW-98B	RMPA	MEF	2141.73	02/24/14	40.50	2101.23	-0.60	5/7/2014	40.89	2100.84	-0.39
MW-99	RMPA	MEF	2144.63	02/24/14	59.27	2085.36	-0.77	5/7/2014	59.70	2084.93	-0.43
MW-100	DG	Granite	1525.79	02/20/14	109.27	1416.38	-1.12	5/8/2014	106.94	1418.71	2.33
MW-101	NPCA	QAL	2095.90	02/20/14	16.05	2079.85	1.06	5/9/2014	16.55	2079.35	-0.50
MW-102	MCEA	QAL	2067.21	02/21/14	39.79	2027.42	0.24	5/9/2014	36.86	2030.35	2.93
MW-103	NPCA	QAL	2075.88	02/21/14	19.43	2056.45	-2.55	5/9/2014	17.90	2057.98	1.53
MW-104	NPCA	QAL	2087.47	02/21/14	14.98	2072.49	1.79	5/9/2014	15.50	2071.97	-0.52
MW-105	NPCA	QAL	2092.23	02/21/14	14.93	2077.30	1.51	5/9/2014	16.18	2076.05	-1.25
MW-106	NPCA	QAL	2085.25	02/21/14	23.38	2061.87	-0.70	5/9/2014	20.46	2064.79	2.92
MW-107	NPCA	QAL	2084.84	02/21/14	24.49	2060.35	0.91	5/9/2014	23.60	2061.24	0.89
MW-108	NPCA	QA/MEF	2087.22	02/21/14	20.89	2066.33	NA	5/9/2014	21.04	2066.18	NA
MW-109	NPCA	QA/MEF	2092.86	02/21/14	15.42	2077.44	0.52	5/9/2014	15.60	2077.26	-0.18
MW-110	BPA	QAL	2188.54	02/24/14	104.54	2084.00	-1.58	5/7/2014	105.46	2083.08	-0.92
OW-01	BPA	QAL	2204.62	02/24/14	55.26	2149.36	-0.89	5/7/2014	55.01	2149.61	0.25
OW-02	NPCA	QAL	2078.97	02/21/14	2.95	2076.02	0.19	5/9/2014	3.11	2075.86	-0.16
OW-03	RMPA	QAL	2143.65	02/21/14	45.52	2098.13	-1.22	5/9/2014	46.31	2097.34	-0.79
OW-05	NPCA	QAL	2160.85	02/21/14	Dry	Dry Well	NA	5/9/2014	Dry	Dry Well	NA
OW-06	MCEA	QAL	2084.67	02/20/14	Dry	Dry Well	NA	5/8/2014	Dry	Dry Well	NA
OW-07	MCEA	QAL	2108.06	02/20/14	Dry	Dry Well	NA	5/8/2014	Dry	Dry Well	NA
OW-08	MCEA	QAL	2036.33	02/20/14	53.38	1982.95	-0.29	5/8/2014	51.85	1984.48	1.53
P-02	NPCA	QAL	2081.15	02/21/14	19.74	2061.41	-0.81	5/14/2014	17.02	2064.13	2.72
P-03	NPCA	QAL	2140.25	02/21/14	49.15	2091.10	-0.54	5/9/2014	49.57	2090.68	-0.42
P-04	NPCA	QAL	2112.63	02/21/14	26.19	2086.44	-2.62	5/9/2014	23.09	2089.54	3.10
P-05	RMPA	QAL	2162.20	02/21/14	64.28	2097.92	-1.21	5/9/2014	65.11	2097.09	-0.83
P-06S	MCEA	QAL	2034.44	02/21/14	Dry	Dry Well	NA	5/14/2014	Dry	Dry Well	NA
P-06D	MCEA	QAL	2034.41	02/21/14	43.40	1991.01	-0.59	5/14/2014	40.27	1994.14	3.13
P-07	MCEA	QAL	2034.60	02/21/14	43.82	1990.78	-0.56	5/14/2014	40.74	1993.86	3.08
P-08	MCEA	QAL	2030.87	02/21/14	39.74	1991.13	-0.64	5/14/2014	36.58	1994.29	3.16
P-09	BPA	MEF	2187.38	02/24/14	83.91	2103.47	-1.40	5/7/2014	84.75	2102.63	-0.84
VRW-01	BPA	QAL	2187.35	02/24/14	Dry	Dry Well	NA	5/7/2014	Dry	Dry Well	NA
VRW-02	BPA	QAL	2181.66	02/24/14	Dry	Dry Well	NA	5/7/2014	Dry	Dry Well	NA
VRW-03	BPA	MEF	2184.32	02/24/14	75.89	2108.43	-1.07	5/7/2014	77.00	2107.32	-1.11

Notes:

BPA - Burn Pit Area
MCEA - Massacre Canyon Entrance Area
NPCA - Northern Potrero Creek Area
RMPA - Rocket Motor Production Area
UG - Upgradient
DG - Downgradient
BTOC - Below top of casing
msl - Mean sea level
NA - Not available
PSI - Pounds per square inch
"-" Formation screened not defined
QAL - Quaternary alluvium.
QAL/MEF - Quaternary alluvium / Mt Eden
MEF - Mount Eden formation

Table 2 Surface Water Sampling Schedule - First Quarter 2014

Sampling Location	Sample Date	VOCs (1)	1,4-Dioxane (2)	Per chlorate (3)	Comments and QA / QC Samples
SW-06	03/02/14	X	X	X	Storm Water
SW-07	03/02/14	X	X	X	Storm Water
SW-09	03/02/14	X	X	X	Storm Water
SW-10	03/02/14	X	X	X	Storm Water
SW-11	NA	-	-	-	Storm Water - Dry no sample collected
SW-12	03/01/14	X	X	X	Storm Water, MS/MSD Sample
SW-13	03/01/14	X	X	X	Storm Water
SW-14	03/01/14	X	X	X	Storm Water
SW-15	03/01/14	X	X	X	Storm Water
SW-16B	02/28/14	X	X	X	Storm Water
SW-17	NA	-	-	-	Storm Water - Dry no sample collected
SW-18	03/02/14	X	X	X	Storm Water, Duplicate Sample SW-18-Dup
SW-19	NA	-	-	-	Storm Water - Dry no sample collected
Total Sampling Locations:		13			
Total Samples Collected:		10			

Notes:

(shaded)	Surface water sample not collected
(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 E331.0
EPA -	United States Environmental Protection Agency
MS/MSD -	Matrix Spike / Matrix Spike Duplicate
NA -	Not analyzed
QA/QC -	Quality Assurance/Quality Control

Table 3 Sampling Schedule - Second Quarter 2014

Sampling Location	Sample Date	VOCs (1)	1,4-Dioxane (2)	Per chlorate (3)	Lead (4)	Contaminant Attenuation Parameters (5)	Comments and QA / QC Samples
SW-01	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-02	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-03	05/15/14	X	X	X	-	-	Surface Water, Duplicate Sample SW-03-Dup
SW-04	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-06	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-07	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-08	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-09	05/15/14	X	X	X	-	-	Surface Water
SW-10	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-11	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-12	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-13	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-14	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-15	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-16	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-16B	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-17	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-18	05/13/14	X	X	X	-	-	Surface Water, MS/MSD Sample
SW-19	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-20	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-21	NA	-	-	-	-	-	Surface Water - Dry no sample collected
SW-22	NA	-	-	-	-	-	Surface Water - Dry no sample collected
PPW-1-1	05/05/14	X	X	X	-		Private Production Well
PPW-1-2	05/05/14	X	X	X	-		Private Production Well
PPW-1-3	NA	-	-	-	-		Private Production Well - Well unable to be Sampled
PPW-1-4	05/05/14	X	X	X	-		Private Production Well
EW-13	06/05/14	X	X	X	-	-	Sample with Dedicated Pump
F33-TW2	05/28/14	X	X	X	-	X	Sampled with Peristaltic Pump
F33-TW6	05/28/14	X	X	X	-	X	Sampled with Peristaltic Pump
F33-TW7	05/28/14	X	X	X	-	-	Sampled with Peristaltic Pump
F34-TW1	NA	-	-	-	-	-	Dry well, insufficient water to sample
IW-04	05/22/14	X	X	X	-	-	Sample with Dedicated Pump
MW-01	05/20/14	X	X	X	-	-	Sample with Dedicated Pump
MW-02	05/28/14	X	X	X	-	-	Sample with Dedicated Pump
MW-03	05/28/14	X	X	X	-	-	Sample with Dedicated Pump
MW-05	05/22/14	X	X	X	-	X	Sample with Dedicated Pump
MW-06	05/22/14	X	X	X	-	-	Sample with Dedicated Pump
MW-07	05/20/14	X	X	X	-	-	Sample with Dedicated Pump
MW-08	05/21/14	X	X	X	-	X	Sample with Dedicated Pump
MW-09	05/20/14	X	X	X	-	-	Sampled with Peristaltic Pump
MW-11	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
MW-12	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
MW-13	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
MW-14	05/20/14	X	X	X	-	-	Sample with Dedicated Pump
MW-15	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
MW-17	05/21/14	X	X	X	-	-	Sample with Dedicated Pump
MW-18	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
MW-19	05/21/14	X	X	X	-	-	Sample with Dedicated Pump
MW-22	05/28/14	X	X	X	-	-	Sample with Dedicated Pump
MW-23	05/28/14	X	X	X	-	-	Sample with Dedicated Pump
MW-26	05/29/14	X	X	X	-	-	Sample with Dedicated Pump
MW-27	NA	-	-	-	-	-	Insufficient water to sample, unable to lower pump due to obstruction
MW-28	05/28/14	X	X	X	-	-	Sample with Dedicated Pump
MW-29	06/05/14	X	X	X	-	-	Sample with Portable Bladder Pump
MW-31	05/29/14	X	X	X	-	-	Sample with Dedicated Pump
MW-32	05/20/14	X	X	X	-	-	Sample with Dedicated Pump
MW-34	05/28/14	X	X	X	-	-	Sample with Dedicated Pump
MW-35	05/20/14	X	X	X	-	-	Sample with Dedicated Pump
MW-36	05/19/14	X	X	X	-	-	Sample with Dedicated Pump
MW-40	05/22/14	X	X	X	-	-	Sample with Dedicated Pump
MW-43	05/21/14	X	X	X	-	X	Sample with Dedicated Pump
MW-45	05/20/14	X	X	X	-	-	Sampled with Peristaltic Pump
MW-46	05/20/14	X	X	X	-	-	Sample with Dedicated Pump
MW-47	05/20/14	X	X	X	-	-	Sampled with Peristaltic Pump
MW-48	05/21/14	X	X	X	-	X	Sample with Dedicated Pump
MW-49	05/21/14	X	X	X	-	-	Sample with Dedicated Pump
MW-53	05/21/14	X	X	X	-	-	Sample with Dedicated Pump
MW-54	05/28/14	X	X	X	-	-	Sample with Dedicated Pump
MW-55	06/04/14	X	X	X	-	-	Sample with Dedicated Pump
MW-56A	05/27/14	X	X	X	-	-	Sample with Dedicated Pump
MW-56B	05/27/14	X	X	X	-	-	Sample with Dedicated Pump
MW-56C	05/27/14	X	X	X	-	-	Sample with Dedicated Pump
MW-59A	05/27/14	X	X	X	-	-	Sample with Dedicated Pump
MW-59B	05/27/14	X	X	X	-	-	Sample with Dedicated Pump
MW-59D	05/27/14	X	X	X	-	-	Sample with Dedicated Pump
MW-60A	05/27/14	X	X	X	X	-	Sample with Dedicated Pump
MW-60B	05/27/14	X	X	X	-	-	Sample with Dedicated Pump
MW-61A	05/29/14	X	X	X	-	-	Sample with Dedicated Pump
MW-61B	05/29/14	X	X	X	-	-	Sample with Dedicated Pump
MW-61C	05/29/14	X	X	X	-	-	Sample with Dedicated Pump
MW-62A	05/22/14	X	X	X	-	-	Sample with Dedicated Pump
MW-66	05/22/14	X	X	X	-	-	Sample with Dedicated Pump
MW-67	05/29/14	X	X	X	-	-	Sample with Dedicated Pump
MW-68	06/04/14	X	X	X	-	-	Sample with Dedicated Pump
MW-69	05/30/14	X	X	X	-	-	Sample with Dedicated Pump
MW-70	05/23/14	X	X	X	-	X	Sample with Dedicated Pump

Table 3 Sampling Schedule - Second Quarter 2014 (continued)

Sampling Location	Sample Date	VOCs (1)	1,4-Dioxane (2)	Perchlorate (3)	Lead (4)	Contaminant Attenuation Parameters (5)	Comments and QA / QC Samples
MW-71A	05/19/14	X	X	X	-	-	Sample with Dedicated Pump
MW-71B	06/04/14	X	X	X	-	-	Sample with Dedicated Pump
MW-71C	05/19/14	X	X	X	-	-	Sample with Dedicated Pump
MW-72A	05/19/14	X	X	X	-	-	Sample with Dedicated Pump
MW-72B	05/19/14	X	X	X	-	-	Sample with Dedicated Pump
MW-72C	NA	-	-	-	-	-	Dry well, insufficient water to sample
MW-73A	05/19/14	X	X	X	-	-	Sample with Dedicated Pump
MW-73B	05/19/14	X	X	X	-	-	Sample with Dedicated Pump
MW-73C	05/19/14	X	X	X	-	-	Sample with Dedicated Pump
MW-74A	06/05/14	X	X	X	-	-	Sample with Dedicated Pump
MW-74B	06/05/14				-	-	Sample with Dedicated Pump
MW-74C	05/19/14	X	X	X	-	-	Sample with Dedicated Pump
MW-75A	05/15/14	X	X	X	-	-	Sample with Dedicated Pump
MW-75B	05/15/14	X	X	X	-	-	Sample with Dedicated Pump
MW-75C	05/15/14	X	X	X	-	-	Sample with Dedicated Pump
MW-76A	05/15/14	X	X	X	-	-	Sample with Dedicated Pump
MW-76B	05/21/14	X	X	X	-	X	Sample with Dedicated Pump
MW-76C	05/15/14	X	X	X	-	-	Sample with Dedicated Pump
MW-77A	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
MW-77B	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
MW-78	05/27/14	X	X	X	-	-	Sample with Dedicated Pump
MW-79A	05/21/14	X	X	X	-	-	Sample with Dedicated Pump
MW-79C	05/21/14	X	X	X	-	-	Sample with Dedicated Pump
MW-80	05/20/14	X	X	X	-	-	Sampled with Peristaltic Pump
MW-81	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
MW-82	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
MW-83	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
MW-84A	05/30/14	X	X	X	-	-	Sample with Dedicated Pump
MW-84B	05/30/14	X	X	X	-	-	Sample with Dedicated Pump
MW-85A	05/16/14	X	X	X	-	-	Sample with Dedicated Pump
MW-85B	05/16/14	X	X	X	-	-	Sample with Dedicated Pump
MW-86A	05/16/14	X	X	X	-	-	Sample with Dedicated Pump
MW-86B	05/16/14	X	X	X	-	-	Sample with Dedicated Pump
MW-87A	05/16/14	X	X	X	-	-	Sample with Dedicated Pump
MW-87B	05/16/14	X	X	X	-	-	Sample with Dedicated Pump
MW-88	06/04/14	X	X	X	-	-	Sample with Dedicated Pump
MW-89	06/04/14	X	X	X	-	-	Sample with Dedicated Pump
MW-90	06/04/14	X	X	X	-	-	Sample with Dedicated Pump
MW-91	06/05/14	X	X	X	-	-	Sample with Dedicated Pump
MW-92	05/16/14	X	X	X	-	-	Sample with Dedicated Pump
MW-93	05/16/14	X	X	X	-	-	Sample with Dedicated Pump
MW-94	05/28/14	X	X	X	-	-	Sample with Dedicated Pump
MW-95	05/16/14	X	X	X	-	-	Sample with Dedicated Pump
MW-96	05/30/14	X	X	X	-	-	Sample with Dedicated Pump
MW-97	05/30/14	X	X	X	-	-	Sample with Dedicated Pump
MW-98A	05/30/14	X	X	X	-	-	Sample with Dedicated Pump
MW-98B	05/30/14	X	X	X	-	-	Sample with Dedicated Pump
MW-99	06/04/14	X	X	X	-	-	Sample with Dedicated Pump
MW-100	05/14/14	X	X	X	-	-	Sample with Dedicated Pump
MW-101	05/22/14	X	X	X	-	-	Sample with Dedicated Pump
MW-102	05/21/14	X	X	X	-	X	Sample with Dedicated Pump
MW-103	05/20/14	X	X	X	-	-	Sampled with Peristaltic Pump
MW-104	05/21/14	X	X	X	-	X	Sampled with Peristaltic Pump
MW-105	05/22/14	X	X	X	-	-	Sampled with Peristaltic Pump
MW-106	05/22/14	X	X	X	-	-	Sampled with Peristaltic Pump
MW-107	05/22/14	X	X	X	-	X	Sampled with Peristaltic Pump
MW-108	05/22/14	X	X	X	-	-	Sampled with Peristaltic Pump
MW-109	05/22/14	X	X	X	-	-	Sampled with Peristaltic Pump
MW-110	05/29/14	X	X	X	-	-	Sample with Dedicated Pump
MW-111A	06/06/14	X	X	X	-	-	Sampled with FLUTe™ System
MW-111B	06/06/14	X	X	X	-	-	Sampled with FLUTe™ System
MW-111C	NA	-	-	-	-	-	FLUTe™ System clogged, unable to sample
MW-111D	06/06/14	X	X	X	-	-	Sampled with FLUTe™ System
MW-111E	06/06/14	X	X	X	-	-	Sampled with FLUTe™ System
MW-112A	06/06/14	X	X	X	-	-	Sampled with FLUTe™ System
MW-112B	06/06/14	X	X	X	-	-	Sampled with FLUTe™ System
MW-112C	NA	-	-	-	-	-	Dry well, insufficient water to sample
OW-01	05/19/14	X	X	X	-	-	Sample with Dedicated Pump
OW-02	05/20/14	X	X	X	-	-	Sampled with Peristaltic Pump
OW-08	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
P-02	05/23/14	X	X	X	-	-	Sample with Dedicated Pump
P-03	05/22/14	X	X	X	-	-	Sample with Dedicated Pump
P-05	05/15/14	X	X	X	-	-	Sample with Dedicated Pump

Total Sampling Locations: 159
Total Samples Collected: 134

Notes:

(shaded) Well not sampled or surface water sample not collected.
(1) - Volatile organic compounds (VOCs) analyzed by EPA Method SW8260 B or by EPA Method 524.2.
(2) - 1,4 - Dioxane analyzed by EPA Method SW8270C SIM
(3) - Perchlorate analyzed by EPA Method E332.0
(4) - Lead analyzed by EPA Method 6010
(5) - Contaminant attenuation parameters by various methods
EPA - United States Environmental Protection Agency
NA - Not analyzed.
MS/MSD - Matrix Spike / Matrix Spike Duplicate.
QA/QC - Quality Assurance/Quality Control

Table 4 2014 Water Quality Monitoring Locations and Sampling Frequency

Monitoring Well	Classification	1st Quarter 2014 to 4th Quarter 2014 Monitoring Program																								
		VOCs (EPA SW8260B or E524.2)					Perchlorate (EPA E331.0 or E332.0)					1,4-Dioxane (EPA SW8270C SIM)					CA Parameters (various methods)					Lead (EPA SW6020)				
		2014					2014					2014					2014					2014				
		1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI
Surface Water Locations																										
SW-01	-		●		●			●		●			●		●											
SW-02	-		●		●			●		●			●		●											
SW-03	-		●		●			●		●			●		●											
SW-04	-		●		●			●		●			●		●											
SW-06	-	●	●		●		●	●		●		●	●		●											
SW-07	-	●	●		●		●	●		●		●	●		●											
SW-08	-		●		●			●		●			●		●											
SW-09	-	●	●		●		●	●		●		●	●		●											
SW-10	-	●	●		●		●	●		●		●	●		●											
SW-11	-	●	●		●		●	●		●		●	●		●											
SW-12	-	●	●		●		●	●		●		●	●		●											
SW-13	-	●	●		●		●	●		●		●	●		●											
SW-14	-	●	●		●		●	●		●		●	●		●											
SW-15	-	●	●		●		●	●		●		●	●		●											
SW-16	-	●	●		●		●	●		●		●	●		●											
SW-16B	-	●	●		●		●	●		●		●	●		●											
SW-17 (alternate)	-																									
SW-18	-	●	●		●		●	●		●		●	●		●											
SW-19	-	●	●		●		●	●		●		●	●		●											
SW-20	-		●		●			●		●			●		●											
SW-21	-		●		●			●		●			●		●											
SW-22	-		●		●			●		●			●		●											
Private Production Wells																										
PPW1	-		●					●					●													
PPW2	-		●					●					●													
PPW3	-		●					●					●													
PPW4	-		●					●					●													
Monitoring Wells																										
EW-13	PH		●					●					●													
F33-TW2	PH/CA		●					●					●					●								
F33-TW3	PH/CA		●					●					●					●								
F33-TW6	PH/CA		●					●					●					●								
F33-TW7	PH		●					●					●													
F34-TW1	PH/CA		●					●					●					●								
IW-04	PH		●					●					●													
MW-01	PV					●					●					●										
MW-02	PH					●					●					●										
MW-03	PV					●					●					●										
MW-05	PH/CA		●					●					●					●								
MW-06	PV					●					●					●										
MW-07	PH		●					●					●													
MW-08	PV/CA		●					●					●					●								
MW-09	PH		●					●					●													
MW-11	PH					●					●					●										
MW-12	PH					●					●					●										
MW-13	PH/CA		●					●					●					●								
MW-14	PH		●					●					●													
MW-15	G		●		●			●		●			●		●											
MW-17	PH		●					●					●													
MW-18	G		●		●			●		●			●		●											
MW-19	PH		●					●					●													
MW-22	PH		●					●					●													
MW-23	PV					●					●					●										
MW-26	PH		●					●					●													
MW-27	PH					●					●					●										
MW-28	PH		●					●					●													
MW-29	PH		●					●					●													
MW-31	PV					●					●					●										
MW-32	PV					●					●					●										
MW-34	PH		●					●					●													
MW-35	PH		●					●					●													
MW-36	PH		●					●					●													
MW-40	PH		●					●					●													
MW-43	PV/CA		●					●					●					●								
MW-45	PH		●					●					●													
MW-46	PH		●					●					●													
MW-47	PH					●					●					●										
MW-48	PV/CA		●					●					●					●								
MW-49	PH					●					●					●										
MW-53	PH		●					●					●													
MW-54	PH		●					●					●													
MW-55	PV					●					●					●										
MW-56A	PV					●					●					●										
MW-56B	PV					●					●					●										

Table 4 2014 Water Quality Monitoring Locations and Sampling Frequency (continued)

Monitoring Well	Classification	1st Quarter 2014 to 4th Quarter 2014 Monitoring Program																								
		VOCs (EPA SW8260B or E524.2)					Perchlorate (EPA E331.0 or E332.0)					1,4-Dioxane (EPA SW8270C SIM)					CA Parameters (various methods)					Lead (EPA SW6020)				
		2014					2014					2014					2014					2014				
		1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI
MW-56C	PH		●					●					●													
MW-59A	PV / I		●		●			●		●			●		●											
MW-59B	PH		●					●					●													
MW-59D	PV					●					●					●										
MW-60A	PV					●					●					●										●
MW-60B	PH/I		●		●			●		●			●		●											
MW-61A	PV					●					●					●										
MW-61B	PH		●					●					●													
MW-61C	PV					●					●					●										
MW-62A	PH					●					●					●										
MW-66	PH		●					●					●													
MW-67	G		●		●			●		●			●		●											
MW-68	PH/I		●		●			●		●			●		●											
MW-69	PH					●					●					●										
MW-70	PH/CA		●					●					●					●								
MW-71A	PV					●					●					●										
MW-71B	PH		●					●					●													
MW-71C	PH					●					●					●										
MW-72A	PV					●					●					●										
MW-72B	PH					●					●					●										
MW-72C	PV					●					●					●										
MW-73A	PV					●					●					●										
MW-73B	PH					●					●					●										
MW-73C	PV					●					●					●										
MW-74A	PV					●					●					●										
MW-74B	PV					●					●					●										
MW-74C	PH					●					●					●										
MW-75A	PV					●					●					●										
MW-75B	PH					●					●					●										
MW-75C	PV/I		●		●			●		●			●		●											
MW-76A	PV					●					●					●										
MW-76B	PH/CA		●					●					●					●								
MW-76C	PV					●					●					●										
MW-77A	PV					●					●					●										
MW-77B	PH		●					●					●													
MW-78	PV					●					●					●										
MW-79A	PV					●					●					●										
MW-79C	PV					●					●					●										
MW-80	PV					●					●					●										
MW-81	PV					●					●					●										
MW-82	PH		●					●					●													
MW-83	PH		●					●					●													
MW-84A	PV					●					●					●										
MW-84B	PV					●					●					●										
MW-85A	PV					●					●					●										
MW-85B	PH		●					●					●													
MW-86A	PV					●					●					●										
MW-86B	PH/CA		●					●					●					●								
MW-87A	PV					●					●					●										
MW-87B	PH		●					●					●													
MW-88	PH		●					●					●													
MW-89	PH		●					●					●													
MW-90	PH		●					●					●													
MW-91	PH		●					●					●													
MW-92	PH		●					●					●													
MW-93	PH/I		●		●			●		●			●		●											
MW-94	PH		●					●					●													
MW-95	PH		●					●					●													
MW-96	PH					●					●					●										
MW-97	PH					●					●					●										
MW-98A	PV					●					●					●										
MW-98B	PH/I		●		●			●		●			●		●											
MW-99	PV					●					●					●										
MW-100	G		●		●			●		●			●		●											
MW-101	PH/CA		●					●					●					●								
MW-102	PH/CA		●					●					●					●								
MW-103	PH/CA/I		●		●			●		●			●		●			●								
MW-104	PH/CA/I		●		●			●		●			●		●			●								
MW-105	PH/CA		●					●					●					●								
MW-106	PH/CA		●					●					●					●								
MW-107	PH/CA		●					●					●					●								
MW-108	PH		●					●					●													
MW-109	PMH/CA		●					●					●					●								
MW-110	PH	●	●	●	●		●	●	●	●		●	●	●	●											
MW-111A	PV	●	●	●	●		●	●	●	●		●	●	●	●											

Table 4 2014 Water Quality Monitoring Locations and Sampling Frequency (continued)

Monitoring Well	Classification	1st Quarter 2014 to 4th Quarter 2014 Monitoring Program																								
		VOCs (EPA SW8260B or E524.2)					Perchlorate (EPA E331.0 or E332.0)					1,4-Dioxane (EPA SW8270C SIM)					CA Parameters (various methods)					Lead (EPA SW6020)				
		2014					2014					2014					2014					2014				
		1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI
MW-111B	PV	●	●	●	●		●	●	●	●		●	●	●	●											
MW-111C	PV	●	●	●	●		●	●	●	●		●	●	●	●											
MW-111D	PV	●	●	●	●		●	●	●	●		●	●	●	●											
MW-111E	PH	●	●	●	●		●	●	●	●		●	●	●	●											
MW-112A	PV	●	●	●	●		●	●	●	●		●	●	●	●											
MW-112B	PV	●	●	●	●		●	●	●	●		●	●	●	●											
MW-112C	PH	●	●	●	●		●	●	●	●		●	●	●	●											
OW-01	PH					●					●					●										
OW-02	PH/CA		●					●					●					●								
OW-08	PH					●					●					●										
P-02	PH/CA		●					●					●					●								
P-03	PH		●					●					●													
P-05	PH		●					●					●													
Monitoring Wells (Not Sampled)																										
MW-04	R																									
MW-10	R																									
MW-20	R																									
MW-21	R																									
MW-24	R																									
MW-30	R																									
MW-37	R																									
MW-38	R																									
MW-39	R																									
MW-41	R																									
MW-42	R																									
MW-44	R																									
MW-50	R																									
MW-51	R																									
MW-52	R																									
MW-56D	R																									
MW-57A	R																									
MW-57B	R																									
MW-57C	R																									
MW-57D	R																									
MW-58A	R																									
MW-58B	R																									
MW-58C	R																									
MW-58D	R																									
MW-59C	R																									
MW-61D	R																									
MW-62B	R																									
MW-63	R																									
MW-64	R																									
MW-65	R																									
OW-03	R																									
OW-05	R																									
OW-06	R																									
OW-07	R																									
P-04	R																									
P-06D	R																									
P-06S	R																									
IW-01	R																									
IW-02	R																									
IW-03	R																									
IW-05	R																									
EW-01	R																									
EW-02	R																									
EW-08	R																									
EW-09	R																									
EW-10	R																									
EW-11	R																									
EW-12	R																									
EW-14	R																									
EW-15	R																									
EW-16	R																									
EW-18	R																									
EW-19	R																									
EW-20	R																									
Totals		22	106	9	42	53	22	106	9	42	53	22	106	9	42	53	0	22	0	0	0	0	0	0	0	1
		232					**232**					**232**					**22**					**1**				

Notes:

EPA -	United States Environmental Protection Agency	G -	Guard well	PV	Plume Monitoring – Vertical
VOCs -	Volatile organic compounds	I -	Increasing contaminant trend well	RW	Remedial well
CA -	Contaminant attenuation	N -	New well	R -	Redundant well
BI -	Biennial, wells sampled in even numbered years	PH -	Plume monitoring – Horizontal		

Table 5 Groundwater Elevation Change - First Quarter 2014 and Second Quarter 2014

Site Area	Range of Groundwater Elevation Change - First Quarter 2014 (feet)		Average Change By Area (feet)	Range of Groundwater Elevation Change - Second Quarter 2014 (feet)		Average Change By Area (feet)
BPA	-1.68	-0.78	-1.28	-1.11	0.25	-0.75
MCEA	-1.66	5.66	0.10	-0.59	4.26	0.88
NPCA	-2.62	2.17	0.04	-1.96	3.33	0.27
RMPA	-1.51	-0.35	-1.12	-0.86	-0.36	-0.72

Notes:

BPA - Burn Pit Area
MCEA - Massacre Canyon Entrance Area
NPCA - Northern Potrero Creek Area
RMPA - Rocket Motor Production Area.

Table 6 Summary of Horizontal and Vertical Groundwater Gradients

Horizontal Groundwater Gradients (feet / foot), approximating a flowline from MW-36 to MW-18 and subsections

Location: / **Date**	**Overall** MW-36 to MW-18	**BPA** MW-36 to MW-2	**RMPA** MW-2 to MW-5	**NPCA** MW-5 to MW-46	**MCEA** MW-46 to MW-18
Previous - Fourth Quarter (Nov.) 2013	0.012	0.008	0.002	0.021	0.013
First Quarter (Feb.) 2014	0.012	0.009	0.001	0.021	0.013
Second Quarter (May) 2014	0.012	0.009	0.001	0.021	0.013

Vertical Groundwater Gradients (feet / foot)

Location:	**BPA**	**RMPA**	**NPCA**	**MCEA**	**MCEA**
shallow screen	**MW-59B** (MEF)	**MW-56B** (QAL	**MW-75B** (QAL)	**MW-18** (QAL)	**MW-77B** (MEF)
Date deep screen	**MW-59A** (MEF)	**MW-56A** (MEF)	**MW-75A** (MEF)	**MW-15** (QAL)	**MW-77A** (MEF)
Previous - Fourth Quarter (Nov.) 2013	-0.13	-0.13	-0.07	0.02	0.03
First Quarter (Feb.) 2014	-0.13	-0.13	-0.07	0.02	0.03
Second Quarter (May) 2014	-0.13	-0.13	-0.07	0.02	0.03

Notes:

BPA - Burn Pit Area
RMPA - Rocket Motor Production Area
NPCA - Northern Potrero Creek Area
MCEA - Massacre Canyon Entrance Area
QAL - Quaternary alluvium
MEF - Mount Eden formation

Table 7 Surface Water Flow Rates

Location ID	Description of Location	Date Measured	Length of Measured Section (ft)	Width of Measured Section (ft)	Depth of Measured Section (ft)	Float Travel Time (seconds)	Cross Sectional Area (ft^2)	Surface Velocity (ft /sec)	Stream Flow Rate (cfs)	Site Stream Flow Rate (cfs)
First Quarter (February) 2014										
SF-1	Near Gilman Hot Springs Road	02/25/14	Dry	Dry	Dry	Dry	Dry	Dry	Dry	
SF-2	Near MW-67	02/25/14	20	3.9	0.17	Insufficient flow to measure, surface water stagnant				
SF-3	Near MW-15 and 18	02/25/14	Dry	Dry	Dry	Dry	Dry	Dry	Dry	
SF-4	Near MW-42	02/25/14	Dry	Dry	Dry	Dry	Dry	Dry	Dry	
Second Quarter (May) 2014										
SF-1	Near Gilman Hot Springs Road	05/12/14	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
SF-2	Near MW-67	05/12/14	Dry	Dry	Dry	Dry	Dry	Dry	Dry	
SF-3	Near MW-15 and 18	05/12/14	Dry	Dry	Dry	Dry	Dry	Dry	Dry	
SF-4	Near MW-42	05/12/14	Dry	Dry	Dry	Dry	Dry	Dry	Dry	

Notes: Measurements are averaged.
cfs - cubic feet per second
ft/sec - feet per second

Table 8 Summary of Validated Detected Organic and Inorganic Analytes - First Quarter 2014

Sampling Location	Sample Date	Perchlorate	1,4-Dioxane
All results reported in µg/L unless otherwise stated			
SW-06	03/02/2014	0.180	**1.00**
SW-07	03/02/2014	0.170	0.780 Jq
SW-09	03/02/2014	0.240	<0.5
SW-10	03/02/2014	0.250	<0.5
SW-12	03/01/2014	<0.10	<0.5
SW-13	03/01/2014	<0.10	<0.5
SW-14	03/01/2014	0.280	<0.5
SW-15	03/01/2014	0.220	<0.5
SW-16	02/28/2014	0.300	<0.5
SW-18	03/02/2014	0.140	**1.89**
MDL (µg/L)		0.10	0.5
MCL/DWNL (µg/L)		6	1 (1)

Notes: Only analytes positively detected are presented in this table.
For a complete list, refer to the laboratory data package.

µg/L - Micrograms per liter
MDL - Method detection limit
DWNL - California Department of Public Health drinking water notification level
MCL - California Department of Public Health maximum contaminant level
Bold - MCL or DWNL exceeded
(1) - DWNL
<# - Analyte not detected; method detection limit concentration is shown.
J - The analyte was positively identified, but the analyte concentration is an estimated value.
q - The analyte detection was below the Practical Quantitation Limit (PQL).

Table 9 Summary of Validated Detected Organic Analytes - Second Quarter 2014

Sampling Location	Sample Date	1,4-Dioxane	Bromodichloro-methane	Benzene	Carbon Tetra-chloride	Chloro-form	1,1-Dichloro-ethane	1,2-Dichloro-ethane	1,1-Dichloro-ethene	cis-1,2-Dichloro-ethene	trans-1,2-Dichloroethene	1,2-Dichloro-propane	1,1,1-Trichloroethane	1,1,2-Trichloro-ethane	Trichloro-ethene	Trichloro-trifluoroethane	Tetrachloro-ethylene	Vinyl Chloride
All results are reported in µg/L unless otherwise stated.																		
EW-13	06/05/14	**6,800 Je**	<50.0	<50.0	<50.0	<50.0	**168**	**402**	**8,080**	**686**	<50.0	<50.0	<50.0	<50.0	**1,690**	<50.0	<50.0	**269 Jq**
F33-TW02	05/28/14	**4.27**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
F33-TW06	05/28/14	**4.04**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
F33-TW07	05/28/14	**4.03**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
IW-04	05/22/14	**18.7**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**14.8**	0.830 Jq	<0.5	<0.5	<0.5	<0.5	**12.7**	<0.5	<0.5	**0.530 Jq**
MW-01	05/20/14	**3.81**	<0.5	<0.5	<0.5	0.670 Jq	**6.42**	**6.96**	**145**	1.03	<0.5	<0.5	0.920 Jq	<0.5	**233**	<0.5	<0.5	<0.5
MW-02	05/28/14	**152**	<0.5	<0.5	<0.5	1.50	4.69	**1.1**	**151**	1.48	<0.5	<0.5	<0.5	1.86	**133**	<0.5	<0.5	<0.5
MW-03	05/28/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.520 Jq	<0.5	<0.5	<0.5
MW-05	05/22/14	**34.2**	<0.5	<0.5	<0.5	3.45	3.52	**0.620 Jq**	**122**	0.620 Jq	<0.5	<0.5	<0.5	<0.5	**117**	<0.5	<0.5	<0.5
MW-06	05/22/14	**2.39**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.60	<0.5	<0.5	<0.5	<0.5	<0.5	3.31	<0.5	<0.5	<0.5
MW-07	05/20/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.46	<0.5	<0.5	<0.5
MW-08	05/21/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-09	05/20/14	**8.72**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-11	05/23/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-12	05/23/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-13	05/23/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-14	05/20/14	**3.03**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-15	05/23/14	**7.33**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.30	0.570 Jq	<0.5	<0.5	<0.5	<0.5	0.990 Jq	<0.5	<0.5	<0.5
MW-17	05/21/14	**6.15**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.900 Jq	<0.5	<0.5	<0.5
MW-18	05/23/14	**5.23**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.99	<0.5	<0.5	<0.5	<0.5	<0.5	1.18	<0.5	<0.5	<0.5
MW-19	05/21/14	**46.9**	<0.5	<0.5	<0.5	<0.5	2.61	<0.5	**29.7**	0.820 Jq	<0.5	<0.5	<0.5	<0.5	**14.1**	<0.5	<0.5	**1.89 Jq**
MW-22	05/28/14	**12.9**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**15.5**	<0.5	<0.5	<0.5	<0.5	<0.5	**20.7**	<0.5	<0.5	<0.5
MW-23	05/28/14	**3.84**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**6.03**	<0.5	<0.5	<0.5	<0.5	<0.5	**5.38**	<0.5	<0.5	<0.5
MW-26	05/29/14	**238**	<0.5	<0.5	**3.64**	11.8	**67.6**	**64.8**	**2,720**	**32.7**	1.99	<0.5	1.18	**15.4**	**1,480**	<0.5	**5.28**	<0.5
MW-28	05/28/14	**1.53**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**6.98**	<0.5	<0.5	<0.5	<0.5	<0.5	**10.3**	<0.5	<0.5	<0.5
MW-29	06/05/14	**29.2**	<0.5	<0.5	<0.5	<0.5	1.97	<0.5	**29.3**	0.940 Jq	<0.5	<0.5	<0.5	<0.5	**45.5**	<0.5	<0.5	<0.5
MW-31	05/29/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-32	05/20/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-34	05/28/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.570 Jq	<0.5	<0.5	<0.5	<0.5	<0.5	1.04	<0.5	<0.5	<0.5
MW-35	05/20/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-36	05/19/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-40	05/22/14	**9.34**	<0.5	<0.5	<0.5	<0.5	0.790 Jq	<0.5	**9.79**	2.17	<0.5	<0.5	<0.5	<0.5	**15.1**	<0.5	<0.5	<0.5
MW-43	05/21/14	**7.45**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.30	0.500 Jq	<0.5	<0.5	<0.5	<0.5	**5.00**	<0.5	<0.5	<0.5
MW-45	05/20/14	**8.36**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**6.93**	<0.5	<0.5	<0.5	<0.5	<0.5	**7.87**	<0.5	<0.5	<0.5
MW-46	05/20/14	**9.65**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.800 Jq	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-47	05/20/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2.89	<0.5	<0.5	<0.5	<0.5	3.62	<0.5	<0.5	<0.5
MW-48	05/21/14	**1.59**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-49	05/21/14	**22.7**	<0.5	<0.5	<0.5	0.630 Jq	<0.5	<0.5	**11.3**	<0.5	<0.5	<0.5	<0.5	<0.5	**19.3**	<0.5	<0.5	<0.5
MW-53	05/21/14	**1.67**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.540 Jq	<0.5	<0.5	<0.5
MW-54	05/28/14	**24.9**	<0.5	<0.5	<0.5	<0.5	0.960 Jq	**0.520 Jq**	**47.8**	<0.5	<0.5	<0.5	<0.5	<0.5	**43.3**	<0.5	<0.5	<0.5
MW-55	06/04/14	**54.4**	0.810 Jq	<0.5	<0.5	0.770 Jq	2.06	**1.30**	**105**	0.850 Jq	<0.5	<0.5	<0.5	0.770 Jq	**79.9**	<0.5	<0.5	<0.5
MW-56A	05/27/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-56B	05/27/14	**7.07**	<0.5	<0.5	<0.5	<0.5	0.710 Jq	<0.5	**30.1**	<0.5	<0.5	<0.5	<0.5	<0.5	**29.5**	<0.5	<0.5	<0.5
MW-56C	05/27/14	**23.4**	<0.5	<0.5	<0.5	0.500 Jq	0.960 Jq	<0.5	**57.1**	<0.5	<0.5	<0.5	<0.5	<0.5	**52.5**	<0.5	<0.5	<0.5
MW-59A	05/27/14	**2.87**	<0.5	<0.5	<0.5	<0.5	1.69	**1.99**	**39.5**	<0.5	<0.5	<0.5	<0.5	<0.5	**26.1**	<0.5	<0.5	<0.5
MW-59B	05/27/14	**55.5**	<0.5	<0.5	<0.5	2.35	**10.6**	**15.5**	**299**	1.58	<0.5	<0.5	<0.5	<0.5	**194**	<0.5	<0.5	<0.5
MW-59D	05/27/14	**58.2**	<0.5	<0.5	<0.5	2.76	**14.9**	**22.2**	**442**	2.48	<0.5	<0.5	<0.5	<0.5	**277**	<0.5	<0.5	<0.5

Table 9 Summary of Validated Detected Organic Analytes - Second Quarter 2014 (continued)

Sampling Location	Sample Date	1,4-Dioxane	Bromodichloro-methane	Benzene	Carbon Tetra-chloride	Chloro-form	1,1-Dichloro-ethane	1,2-Dichloro-ethane	1,1-Dichloro-ethene	cis-1,2-Dichloro-ethene	trans-1,2-Dichloroethene	1,2-Dichloro-propane	1,1,1-Trichloroethane	1,1,2-Trichloro-ethane	Trichloro-ethene	Trichloro-trifluoroethane	Tetrachloro-ethylene	Vinyl Chloride
All results are reported in µg/L unless otherwise stated.																		
MW-60A	05/27/14	**137**	<0.5	<0.5	<0.5	2.21	**5.13**	**7.73**	**437**	2.66	<0.5	<0.5	<0.5	<0.5	**290**	1.79	<0.5	<0.5
MW-60B	05/27/14	**42.3**	<0.5	<0.5	<0.5	0.510 Jq	1.50	**2.50**	**87.1**	<0.5	<0.5	<0.5	<0.5	<0.5	**49.2**	<0.5	<0.5	<0.5
MW-61A	05/29/14	**44.3**	<0.5	<0.5	<0.5	<0.5	4.45	**4.51**	**80.7**	1.61	<0.5	<0.5	<0.5	<0.5	**13.8**	<0.5	<0.5	<0.5
MW-61B	05/29/14	**472**	<0.5	<0.5	**6.12**	23.5	**146**	**104**	**5,350**	**39**	<0.5	<0.5	2.42	**14.7**	**1,270**	<0.5	**6.19**	<0.5
MW-61C	05/29/14	**10.0**	<0.5	<0.5	<0.5	1.23	4.54	**4.16**	**171**	1.37	<0.5	<0.5	<0.5	<0.5	**42.4**	<0.5	<0.5	<0.5
MW-62A	05/22/14	**27.0**	<0.5	<0.5	<0.5	1.05	0.860 Jq	<0.5	**38.3**	<0.5	<0.5	<0.5	<0.5	<0.5	**56.7**	<0.5	<0.5	<0.5
MW-66	05/22/14	**28.7**	<0.5	<0.5	<0.5	2.35	2.69	**0.740 Jq**	**89.7**	0.690 Jq	<0.5	<0.5	<0.5	<0.5	**109**	<0.5	<0.5	<0.5
MW-67	05/29/14	0.720 Jq	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-68	06/04/14	**42.0**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.01	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-69	05/30/14	**8.37**	<0.5	<0.5	<0.5	1.18	<0.5	<0.5	5.9	<0.5	<0.5	<0.5	<0.5	<0.5	**13.6 Jd**	<0.5	<0.5	<0.5
MW-70	05/23/14	**4.36**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-71A	05/19/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-71B	06/04/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-71C	05/19/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-72A	05/19/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-72B	05/19/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-73A	05/19/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-73B	05/19/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-73C	05/19/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-74A	06/05/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-74B	06/05/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-74C	05/19/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-75A	05/15/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-75B	05/15/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-75C	05/15/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-76A	05/15/14	**3.11**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-76B	05/21/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-76C	05/15/14	**7.62**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-77A	05/23/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-77B	05/23/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-78	05/27/14	0.780 Jq	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-79A	05/21/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-79C	05/21/14	**4.51**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**7.46**	<0.5	<0.5	<0.5	<0.5	<0.5	**6.4**	<0.5	<0.5	<0.5
MW-80	05/20/14	**7.03**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-81	05/23/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-82	05/23/14	**4.02**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-83	05/23/14	**4.27**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-84A	05/30/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-84B	05/30/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-85A	05/16/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-85B	05/16/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**16.4**	<0.5	<0.5	<0.5
MW-86A	05/16/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-86B	05/16/14	0.700 Jq	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**94.8**	<0.5	<0.5	<0.5
MW-87A	05/16/14	**3.46**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-87B	05/16/14	**45.1**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**9.11**	<0.5	<0.5	<0.5	<0.5	<0.5	**41.0**	<0.5	<0.5	<0.5
MW-88	06/04/14	**1.45**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.810 Jq	<0.5	<0.5	<0.5	<0.5	<0.5	1.08	<0.5	<0.5	<0.5
MW-89	06/04/14	**9.08**	<0.5	<0.5	<0.5	0.580 Jq	<0.5	<0.5	2.01	<0.5	<0.5	<0.5	<0.5	<0.5	4.76	<0.5	<0.5	<0.5

Table 9 Summary of Validated Detected Organic Analytes - Second Quarter 2014 (continued)

Sampling Location	Sample Date	1,4-Dioxane	Bromodichloro-methane	Benzene	Carbon Tetra-chloride	Chloro-form	1,1-Dichloro-ethane	1,2-Dichloro-ethane	1,1-Dichloro-ethene	cis-1,2-Dichloro-ethene	trans-1,2-Dichloro-ethene	1,2-Dichloro-propane	1,1,1-Trichloroethane	1,1,2-Trichloro-ethane	Trichloro-ethene	Trichloro-trifluoroethane	Tetrachloro-ethylene	Vinyl Chloride
All results are reported in µg/L unless otherwise stated.																		
MW-90	06/04/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.13	<0.5	<0.5	<0.5	<0.5	<0.5	1.28	<0.5	<0.5	<0.5
MW-91	06/05/14	**2.34**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-92	05/16/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.62	<0.5	<0.5	<0.5	<0.5	**38.9**	<0.5	<0.5	<0.5
MW-93	05/16/14	**21.7**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.41	<0.5	<0.5	<0.5	<0.5	<0.5	3.62	<0.5	<0.5	<0.5
MW-94	05/28/14	**3.89**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.29	<0.5	<0.5	<0.5
MW-95	05/16/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**11.2**	<0.5	<0.5	<0.5
MW-96	05/30/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-97	05/30/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-98A	05/30/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-98B	05/30/14	**15.6**	<0.5	<0.5	<0.5	1.96	0.660 Jq	<0.5	**24.3**	<0.5	<0.5	<0.5	<0.5	<0.5	**33.5 Jd**	<0.5	<0.5	<0.5
MW-99	06/04/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.700 Jq	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-100	05/14/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-101	05/22/14	**18.6**	<0.5	<0.5	<0.5	<0.5	1.38	<0.5	**46.6**	**47.9**	1.84	<0.5	<0.5	<0.5	**21.4**	<0.5	<0.5	**2.25 Jq**
MW-102	05/21/14	**19.1**	<0.5	<0.5	<0.5	<0.5	1.27	<0.5	**17.3**	**26.4**	1.85	<0.5	<0.5	<0.5	**7.20**	<0.5	<0.5	**3.33**
MW-103	05/20/14	**15.7**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.39	<0.5	<0.5	<0.5	<0.5	3.69	<0.5	<0.5	<0.5
MW-104	05/21/14	**28.3**	<0.5	<0.5	<0.5	<0.5	**6.10**	<0.5	**50.5**	3.66	<0.5	<0.5	<0.5	<0.5	4.15	<0.5	<0.5	**8.46**
MW-105	05/22/14	**32.4**	<0.5	<0.5	<0.5	<0.5	**6.04**	**0.690 Jq**	**82.1**	**16.8**	3.32	<0.5	<0.5	<0.5	**55.0**	<0.5	<0.5	**2.61 Jq**
MW-106	05/22/14	**30.1**	<0.5	<0.5	<0.5	<0.5	3.11	**0.750 Jq**	**51.9**	0.870 Jq	<0.5	<0.5	<0.5	<0.5	**48.2**	<0.5	<0.5	**1.00 Jq**
MW-107	05/22/14	**13.7**	<0.5	<0.5	<0.5	<0.5	1.62	<0.5	**17.3**	1.33	<0.5	<0.5	<0.5	<0.5	**13.5**	<0.5	<0.5	<0.5
MW-108	05/22/14	**30.4**	<0.5	<0.5	<0.5	<0.5	**5.02**	**0.880 Jq**	**74.1**	1.14	<0.5	<0.5	<0.5	<0.5	**55.8**	<0.5	<0.5	**0.850 Jq**
MW-109	05/22/14	**29.7**	<0.5	<0.5	<0.5	<0.5	3.24	**0.620 Jq**	**58.2**	**7.73**	0.590 Jq	<0.5	<0.5	<0.5	**50.7**	<0.5	<0.5	**0.810 Jq**
MW-110	05/29/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MW-111A	06/06/14	**1,320**	<0.5	<0.5	<0.5	<0.5	3.53	**100**	**341**	3.04	<0.5	<0.5	<0.5	**28.4**	**102**	<0.5	<0.5	<0.5
MW-111B	06/06/14	**3,920**	63.7	**7.70 Jq**	<5.0	56.5	**367**	**793**	**16,400**	**157**	8.90 Jq	**21.3**	<5.0	**158**	**6,320**	<5.0	**17.1**	<5.0
MW-111D	06/06/14	**812**	<5.0	<5.0	<5.0	19.8	**98.9**	**241**	**3,000**	**49.1**	<5.0	<5.0	<5.0	**50.2**	**1,840**	<5.0	**7.80 Jq**	<5.0
MW-111E	06/06/14	**4,450**	<50.0	<50.0	<50.0	89.0 Jq	**552**	**1,110**	**24,300**	**253**	<50.0	<50.0	<50.0	**209**	**11,500**	<50.0	**57.0 Jq**	<50.0
MW-112A	06/06/14	**66.3**	<0.5	<0.5	<0.5	<0.5	0.540 Jq	**1.19**	**18.6**	<0.5	<0.5	<0.5	<0.5	<0.5	**16.7**	<0.5	<0.5	<0.5
MW-112B	06/06/14	**89.1**	<0.5	<0.5	**1.26**	3.28	**20.7**	**23.5**	**389**	3.47	<0.5	<0.5	<0.5	3.41	**398**	<0.5	1.48	<0.5
OW-01	05/19/14	<0.50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
OW-02	05/20/14	**12.4**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**17.1**	<0.5	<0.5	<0.5	<0.5	<0.5	**17.7**	<0.5	<0.5	<0.5
OW-08	05/23/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
P-02	05/23/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
P-03	05/22/14	**2.88**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	3.15	1.22	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	**0.650 Jq**
P-05	05/15/14	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SW-03	05/15/14	**11.8**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.950 Jq	<0.5	<0.5	<0.5	<0.5	<0.5	1.36	<0.5	<0.5	<0.5
SW-09	05/15/14	**4.05**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SW-18	05/13/14	**3.31**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MDL (µg/L)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
MCL/DWNL (µg/L)		1 (1)	-	1	0.5	-	5	0.5	6	6	10	5	200	5	5	1200	5	0.5

Notes: Only analytes positively detected are presented in this table. For a complete list, refer to the laboratory data package.

µg/L - Micrograms per liter.
<# - Analyte not detected; method detection limit concentration is shown.
DWNL -California Department of Public Health drinking water notification level.
MCL -California Department of Public Health maximum contaminant level
MDL - Method detection limit
Bold -MCL or DWNL exceeded.

(1) - DWNL
"-" - MCL or DWNL not available.
J - The analyte was positively identified, but the analyte concentration is an estimated value.
d - The Laboratory Control Sample (LCS) recovery was outside control limits.
e - A holding time violation occurred.
q - The analyte detection was below the Practical Quantitation Limit (PQL).

Table 10 Summary of Validated Detected Inorganic Analytes - Second Quarter 2014

Sampling Location	Sample Date	Perchlorate -µg/L	Dissolved Organic Carbon -mg/L	Nitrate as N -mg/L	Lead -µg/L
EW-13	6/5/2014	**18.0**	-	-	-
F33-TW02	5/28/2014	<0.10	<1.0	<0.002	-
F33-TW06	5/28/2014	<0.10	<1.0	<0.002	-
F33-TW07	5/28/2014	<0.10	-	-	-
IW-04	5/22/2014	1.30	-	-	-
MW-01	5/20/2014	**990**	-	-	-
MW-02	5/28/2014	**3,200**	-	-	-
MW-03	5/28/2014	0.280	-	-	-
MW-05	5/22/2014	**1,700**	<1.0	**35.5**	-
MW-06	5/22/2014	5.20	-	-	-
MW-07	5/20/2014	**13.0**	-	-	-
MW-08	5/21/2014	<0.10	7.00	<0.002	-
MW-09	5/20/2014	0.160	-	-	-
MW-11	5/23/2014	2.00	-	-	-
MW-12	5/23/2014	<0.10	-	-	-
MW-13	5/23/2014	<0.10	-	-	-
MW-14	5/20/2014	4.90	-	-	-
MW-15	5/23/2014	<0.10	-	-	-
MW-17	5/21/2014	**420**	-	-	-
MW-18	5/23/2014	2.70	-	-	-
MW-19	5/21/2014	**60.0**	-	-	-
MW-22	5/28/2014	**510**	-	-	-
MW-23	5/28/2014	**97.0**	-	-	-
MW-26	5/29/2014	**5,500**	-	-	-
MW-28	5/28/2014	**58.0**	-	-	-
MW-29	6/5/2014	**76.0**	-	-	-
MW-31	5/29/2014	**6.00**	-	-	-
MW-32	5/20/2014	0.180	-	-	-
MW-34	5/28/2014	**58.0**	-	-	-
MW-35	5/20/2014	1.10	-	-	-
MW-36	5/19/2014	0.830	-	-	-
MW-40	5/22/2014	**310**	-	-	-
MW-43	5/21/2014	**45.0**	2.00 Jq	4.61	-
MW-45	5/20/2014	**120**	-	-	-
MW-46	5/20/2014	<0.10	-	-	-
MW-47	5/20/2014	3.60	-	-	-
MW-48	5/21/2014	<0.10	2.00 Jq	<0.002	-
MW-49	5/21/2014	**640**	-	-	-
MW-53	5/21/2014	**47.0**	-	-	-
MW-54	5/28/2014	**1,000**	-	-	-
MW-55	6/4/2014	**1,300**	-	-	-
MW-56A	5/27/2014	<0.10	-	-	-
MW-56B	5/27/2014	**390**	-	-	-
MW-56C	5/27/2014	**870**	-	-	-
MW-59A	5/27/2014	**1,800**	-	-	-
MW-59B	5/27/2014	**3,600**	-	-	-
MW-59D	5/27/2014	**4,800**	-	-	-
MW-60A	5/27/2014	**4,600**	-	-	7.03
MW-60B	5/27/2014	**2,000**	-	-	-
MW-61A	5/29/2014	**17,000**	-	-	-

Table 10 Summary of Validated Detected Inorganic Analytes - Second Quarter 2014 (continued)

Sampling Location	Sample Date	Perchlorate -µg/L	Dissolved Organic Carbon -mg/L	Nitrate as N -mg/L	Lead -µg/L
MW-61B	5/29/2014	**86,000**	-	-	-
MW-61C	5/29/2014	**5,500**	-	-	-
MW-62A	5/22/2014	**1,200**	-	-	-
MW-66	5/22/2014	**1,200**	-	-	-
MW-67	5/29/2014	<0.10	-	-	-
MW-68	6/4/2014	**27,000**	-	-	-
MW-69	5/30/2014	**1,200**	-	-	-
MW-70	5/23/2014	0.130	<1.0	<0.002 UJe	-
MW-71A	5/19/2014	<0.10	-	-	-
MW-71B	6/4/2014	**290**	-	-	-
MW-71C	5/19/2014	0.880	-	-	-
MW-72A	5/19/2014	<0.10	-	-	-
MW-72B	5/19/2014	1.40	-	-	-
MW-73A	5/19/2014	1.50	-	-	-
MW-73B	5/19/2014	2.50	-	-	-
MW-73C	5/19/2014	0.820	-	-	-
MW-74A	6/5/2014	0.220	-	-	-
MW-74B	6/5/2014	**16.0**	-	-	-
MW-74C	5/19/2014	**6.80**	-	-	-
MW-75A	5/15/2014	<0.10	-	-	-
MW-75B	5/15/2014	1.00	-	-	-
MW-75C	5/15/2014	0.890	-	-	-
MW-76A	5/15/2014	<0.10	-	-	-
MW-76B	5/21/2014	<0.10	4.70	<0.002	-
MW-76C	5/15/2014	<0.10	-	-	-
MW-77A	5/23/2014	<0.10	-	-	-
MW-77B	5/23/2014	<0.10	-	-	-
MW-78	5/27/2014	5.80	-	-	-
MW-79A	5/21/2014	<0.10	-	-	-
MW-79C	5/21/2014	**76.0**	-	-	-
MW-80	5/20/2014	<0.10	-	-	-
MW-81	5/23/2014	<0.10	-	-	-
MW-82	5/23/2014	<0.10	-	-	-
MW-83	5/23/2014	<0.10	-	-	-
MW-84A	5/30/2014	<0.10	-	-	-
MW-84B	5/30/2014	<0.10	-	-	-
MW-85A	5/16/2014	<0.10	-	-	-
MW-85B	5/16/2014	<0.10	-	-	-
MW-86A	5/16/2014	<0.10	-	-	-
MW-86B	5/16/2014	0.980	-	-	-
MW-87A	5/16/2014	<0.10	-	-	-
MW-87B	5/16/2014	**69.0**	-	-	-
MW-88	6/4/2014	**1,500**	-	-	-
MW-89	6/4/2014	**2,300**	-	-	-
MW-90	6/4/2014	**230**	-	-	-
MW-91	6/5/2014	**3,300**	-	-	-
MW-92	5/16/2014	3.20	-	-	-
MW-93	5/16/2014	4.30	-	-	-
MW-94	5/28/2014	<0.10	-	-	-

Table 10 Summary of Validated Detected Inorganic Analytes - Second Quarter 2014 (continued)

Sampling Location	Sample Date	Perchlorate -µg/L	Dissolved Organic Carbon -mg/L	Nitrate as N -mg/L	Lead -µg/L
MW-95	5/16/2014	<0.10	-	-	-
MW-96	5/30/2014	<0.10	-	-	-
MW-97	5/30/2014	<0.10	-	-	-
MW-98A	5/30/2014	<0.10	-	-	-
MW-98B	5/30/2014	**1,000**	-	-	-
MW-99	6/4/2014	**230**	-	-	-
MW-100	5/14/2014	<0.10	-	-	-
MW-101	5/22/2014	0.110	-	-	-
MW-102	5/21/2014	<0.10	9.20	<0.002	-
MW-103	5/20/2014	3.20	-	-	-
MW-104	5/21/2014	<0.10	3.70	<0.002	-
MW-105	5/22/2014	<0.10	-	-	-
MW-106	5/22/2014	**160**	-	-	-
MW-107	5/22/2014	**18.0**	4.40	<0.002	-
MW-108	5/22/2014	**58.0**	-	-	-
MW-109	5/22/2014	**220**	-	-	-
MW-110	5/29/2014	**34.0**	-	-	-
MW-111A	6/6/2014	**1,300**	-	-	-
MW-111B	6/6/2014	**72,000**	-	-	-
MW-111D	6/6/2014	**32,000**	-	-	-
MW-111E	6/6/2014	**84,000**	-	-	-
MW-112A	6/6/2014	**6,000**	-	-	-
MW-112B	6/6/2014	**7,900**	-	-	-
OW-01	5/19/2014	<0.10	-	-	-
OW-02	5/20/2014	**300**	-	-	-
OW-08	5/23/2014	1.40	-	-	-
P-02	5/23/2014	<0.10	-	-	-
P-03	5/22/2014	0.200	-	-	-
P-05	5/15/2014	5.00	-	-	-
SW-03	5/15/2014	**55.0**	-	-	-
SW-09	5/15/2014	0.290	-	-	-
SW-18	5/13/2014	<0.10	-	-	-
Method Detection Limit		0.10	1.0	0.002	0.50
MCL/DWNL		6	NA	10	15

Notes:
Only analytes positively detected are presented in this table.
For a complete list, refer to the laboratory data package (Appendix H).
µg/L - Micrograms per liter
mg/L - Milligrams 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 (MDL) concentration is shown.
J - The analyte was positively identified, but the concentration is an estimated value.
U - The analyte was analyzed for , but was not detected above the MDL.
e - A holding time violation occurred.
q - The analyte detection was below the Practical Quantitation Limit (PQL).

Table 11 Summary Statistics of Validated Organic and Inorganic Analytes - First Quarter 2014

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	10	3	2	1 (2)	µg/L	0.780	µg/L	1.89	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	10	8	0	6	µg/L	0.140	µg/L	0.300	µg/L

Notes:

DWNL - California Department of Public Health drinking water notification level

MCL - California Department of Public Health maximum contaminant level

" - " - MCL or DWNL not established

(1) - Number of detections excludes sample duplicates, trip blanks and equipment blanks.

(2) - DWNL

µg/L - Micrograms per liter

Table 12 Summary Statistics of Validated Organic and Inorganic Analytes - Second Quarter 2014

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	131	81	78	1 (2)	µg/L	0.700	µg/L	6,800	µg/L
Bromodichloromethane	131	2	0	-	µg/L	8.10	µg/L	63.7	µg/L
Benzene	131	1	1	1	µg/L	7.70	µg/L	7.70	µg/L
Carbon Tetrachloride	131	3	3	0.5	µg/L	1.26	µg/L	6.12	µg/L
Chloroform	131	22	0	-	µg/L	0.500	µg/L	89.0	µg/L
1,1-Dichloroethane	131	37	14	5	µg/L	0.540	µg/L	552	µg/L
1,2-Dichloroethane	131	26	26	0.5	µg/L	0.520	µg/L	1,110	µg/L
1,1-Dichloroethene	131	60	46	6	µg/L	0.570	µg/L	24,300	µg/L
cis-1,2-Dichloroethene	131	37	10	6	µg/L	0.500	µg/L	686	µg/L
trans-1,2-Dichloroethene	131	6	0	10	µg/L	0.590	µg/L	8.90	µg/L
1,2-Dichloropropane	131	1	1	5	µg/L	21.3	µg/L	21.3	µg/L
1,1,1-Trichloroethane	131	3	0	200	µg/L	0.920	µg/L	2.42	µg/L
1,1,2-Trichloroethane	131	9	6	5	µg/L	0.770	µg/L	209	µg/L
Trichloroethene	131	68	51	5	µg/L	0.520	µg/L	11,500	µg/L
Trichlorotrifluoroethane	131	1	0	1200	µg/L	1.79	µg/L	1.79	µg/L
Tetrachloroethene	131	6	5	5	µg/L	1.48	µg/L	57.0	µg/L
Vinyl Chloride	131	11	11	0.5	µg/L	0.530	µg/L	269	µg/L
Dissolved Organic Carbon	11	7	0	-	mg/L	2.00	mg/L	9.20	mg/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	131	89	59	6	µg/L	0.110	µg/L	86,000	µg/L
Lead	1	1	0	15	µg/L	7.03	µg/L	7.03	µg/L
Nitrate as Nitrogen	11	2	1	10	mg/L	4.61	mg/L	35.5	mg/L

Notes:
DWNL - California Department of Public Health drinking water notification level
MCL - California Department of Public Health maximum contaminant level
" - " - MCL or DWNL not established
(1) - Number of detections excludes sample duplicates, trip blanks and equipment blanks.
(2) - DWNL
mg/L - Milligrams per liter
µg/L - Micrograms per liter

Table 13 Groundwater Chemicals of Potential Concern

Analyte	Classification	Comments
Perchlorate	Primary	Parent product (propellant) , widely detected at site
1,1-Dichloroethene	Primary	Breakdown product of 1,1,1-TCA, detected at higher concentrations than 1,1,1-TCA at site
Trichloroethene	Primary	Parent product (solvent), widely detected at site
1,4-Dioxane	Primary	Stabilizer in 1,1,1-TCA, widely detected at site
1,1-Dichloroethane	Secondary	Breakdown product of 1,1,1-TCA
1,2-Dichloroethane	Secondary	Breakdown product of 1,1,1-TCA
1,1,1-Trichloroethane	Secondary	Parent product (solvent), detected at lower concentrations than breakdown product (1,1-DCE) at site
1,1,2-Trichloroethane	Secondary	Isomeric impurity of 1,1,1-TCA
cis-1,2-Dichloroethene	Secondary	Breakdown product of TCE
Vinyl chloride	Secondary	Breakdown product of TCE and/or 1,1,1-TCA

Table 14 Summary of Detected Chemicals of Potential Concern in Guard Wells

Sampling Location	Site Area	Sample Date	Per chlorate	1,4-Dioxane	1,1-Dichloro ethane	1,1-Dichloro ethene	cis-1,2-Dichloro ethene	Trichloro ethene
All results reported in µg/L unless otherwise stated								
MW-15	MCEA	12/09/12	<0.071	**5.8**	0.25 Jq	1.6	0.28 Jq	1.0
		05/31/12	<0.071	**6.7**	0.34 Jq	1.8	0.26 Jq	1.1
		11/16/12	<0.071	**6.2**	0.32 Jq	1.7	0.29 Jq	0.9
		05/30/13	<0.071	**6.4**	0.37 Jq	2.0	0.34 Jq	0.9
		11/11/13	<0.071	**7.0**	0.33 Jq	2.0	0.35 Jq	0.93
		05/23/14	<0.10	**7.3**	<0.5	2.3	0.570 Jq	0.990 Jq
MW-18	MCEA	12/09/12	0.72	**3.7**	0.14 Jq	0.88	<0.18	0.83
		05/31/12	2.1	**3.8**	0.14 Jq	1.1	<0.18	1.1
		11/16/12	3.0	**4.5**	0.18 Jq	1.3	<0.18	1.0
		05/30/13	2.1	**4.4**	0.19 Jq	1.4	<0.18	1.0
		11/11/13	2.4	**5.2**	0.19 Jq	1.4	<0.18	1.2
		05/23/14	2.7	**5.23**	<0.5	1.99	<0.5	1.18
MW-67	MCEA	12/08/12	<0.071	**1.1**	<0.098	<0.12	<0.18	<0.25
		05/29/12	<0.071	**1.2**	<0.098	<0.12	<0.18	<0.25
		11/16/12	<0.071	0.92	<0.098	<0.12	<0.18	<0.25
		06/12/13	<0.071	**1.0**	<0.098	<0.12	<0.18	<0.25
		11/11/13	<0.071	0.65	<0.098	<0.12	<0.18	<0.25
		05/29/14	<0.10	0.720 Jq	<0.5	<0.5	<0.5	<0.5
MW-100	DG	12/12/12	<0.071	0.18 Jq	<0.098	<0.12	<0.18	<0.25
		05/29/12	<0.35	0.21	<0.098	<0.12	<0.18	<0.25
		11/16/12	<0.071	0.23	<0.098	<0.12	<0.18	<0.25
		05/29/13	<0.071	0.23	<0.098	<0.12	<0.18	<0.25
		11/11/13	<0.071	0.23	<0.098	<0.12	<0.18	<0.25
		05/14/14	<0.10	<0.5	<0.5	<0.5	<0.5	<0.5
MCL/DWNL (µg/L)			6	1 (1)	5	6	6	5

Notes:
DG - Downgradient
MCEA - Massacre Canyon Entrance Area.
MCL - California Department of Public Health maximum contaminant level
DWNL - California Department of Public Health drinking water notification level
(1) DWNL
µg/L - Micrograms per liter
Bold - MCL or DWNL exceeded
<# - Analyte not detected; method detection limit concentration is shown.
J - The analyte was positively identified, but the analyte concentration is an estimated value.
q - The analyte detection was below the Practical Quantitation Limit (PQL).

Table 15 Summary of Detected Chemicals of Potential Concern in Surface Water - First Quarter 2014 and Second Quarter 2014

Sampling Location	Sample Date	Perchlorate	1,4-Dioxane	1,1-Dichloro ethane	1,1-Dichloro ethene	cis-1,2-Dichloro ethene	Trichloroethene
All results reported in µg/L unless otherwise stated							
SW-03	5/15/2014	**55.0**	**11.8**	<0.5	0.950 Jq	<0.5	1.36
SW-06	3/2/2014	0.180	**1.00**	<0.5	<0.5	<0.5	<0.5
SW-07	3/2/2014	0.170	**0.780 Jq**	<0.5	<0.5	<0.5	<0.5
SW-09	3/2/2014	0.240	<0.5	<0.5	<0.5	<0.5	<0.5
SW-09	5/15/2014	0.290	**4.05**	<0.5	<0.5	<0.5	<0.5
SW-10	3/2/2014	0.250	<0.5	<0.5	<0.5	<0.5	<0.5
SW-12	3/1/2014	<0.10	<0.5	<0.5	<0.5	<0.5	<0.5
SW-13	3/1/2014	<0.10	<0.5	<0.5	<0.5	<0.5	<0.5
SW-14	3/1/2014	0.280	<0.5	<0.5	<0.5	<0.5	<0.5
SW-15	3/1/2014	0.220	<0.5	<0.5	<0.5	<0.5	<0.5
SW-16	2/28/2014	0.300	<0.5	<0.5	<0.5	<0.5	<0.5
SW-18	3/2/2014	0.140	**1.89**	<0.5	<0.5	<0.5	<0.5
SW-18	5/13/2014	<0.10	**3.31**	<0.5	<0.5	<0.5	<0.5
Method Detection Limit (µg/L)		0.071	0.10	0.098	0.12	0.18	0.25
MCL/DWNL (µg/L)		6	1 (1)	5	6	6	5.0

Notes:
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 - MCL or DWNL exceeded
<# - Analyte not detected; method detection limit concentration is shown.
J - The analyte was positively identified, but the analyte concentration is an estimated value.
q - The analyte detection was below the Practical Quantitation Limit (PQL).

Table 16 Summary of Validated Detected Contaminant Attenuation Analytes and Field Measurements - Second Quarter 2014

		Field Parameters		Analytes		
Sampling Location	Sample Date	DO - mg/L	ORP - mVs	Perchlorate -µg/L	Dissolved Organic Carbon -mg/L	Nitrate (as N) -mg/L
F33-TW02	05/28/2014	5.37	-109.5	<0.10	<1.0	<0.002
F33-TW06	05/28/2014	0.58	-90.0	<0.10	<1.0	<0.002
MW-05	05/22/2014	0.56	-144.5	**1700**	<1.0	**35.5**
MW-08	05/21/2014	0.21	8.4	<0.10	7.00	<0.002
MW-43	05/21/2014	0.50	-121.9	**45.0**	2.00 Jq	4.61
MW-48	05/21/2014	0.39	130.2	<0.10	2.00 Jq	<0.002
MW-70	05/23/2014	0.28	-191.9	0.130	<1.0	<0.002 UJe
MW-76B	05/21/2014	0.31	-68.6	<0.10	4.70	<0.002
MW-102	05/21/2014	0.51	178.1	<0.10	9.20	<0.002
MW-104	05/21/2014	0.70	-26.7	<0.10	3.70	<0.002
MW-107	05/22/2014	0.56	184.8	**18.0**	4.40	<0.002
	MDL	-	-	0.10	1.0	0.002
	MCL	-	-	6	-	10

Notes: Only analytes positively detected are presented in this table.
For a complete list, refer to the laboratory data package.

mg/L - milligrams per liter
mV - millivolts
DO dissolved oxygen
<# - Analyte not detected, method detection limit concentration is shown.
MCL - California Department of Public Health maximum contaminant level
MDL - Method detection limit
J - The analyte was positively identified, but the analyte concentration is an estimated value.
q - The analyte detection was below the Practical Quantitation Limit (PQL).

µg/L - micrograms per liter
Bold - MCL exceeded
ORP - oxidation reduction potential
"-" - Not available.

Table 17 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 ≤ 0	< 90% and COV ≥ 1	No Trend
S ≤ 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 18 Summary of Mann-Kendall Trend Analysis of Chemicals of Potential Concern for 2014 Sampled Monitoring Wells

Analyte	Wells Tested	Insufficient Data	Non-detect	No Trend	Decreasing Trend	Probably Decreasing Trend	Stable Trend	Probably Increasing Trend	Increasing Trend
Perchlorate	128	0	26	34	23	6	24	4	11
1,1-Dichloroethene	128	0	40	18	16	8	29	4	13
Trichloroethene	128	0	40	30	10	4	29	2	13
1,4-Dioxane	128	0	33	28	12	4	29	5	17
Total Analysis	512	0	139	110	61	22	111	15	54

Table 19 Magnitude of Trends Detected for Chemicals of Potential Concern for 2014 Sampled Monitoring Wells

	Decreasing Trend		Probably Decreasing Trend		Probably Increasing Trend				Increasing Trend			
Analyte	**Number**	**Magnitude (ug/L/yr)**	**Number**	**Magnitude (ug/L/yr)**	**Number**	**Location**	**Magnitude (ug/L/yr)**	**Magnitude (%/yr)**	**Number**	**Location**	**Magnitude (ug/L/yr)**	**Magnitude (%/yr)**
Perchlorate	25	-0.02 to -4,075	8	-0.01 to -0.91	4	MW-35	0.01	2.56	11	MW-31	0.18	6.02
						MW-59A	281	20		MW-68	1,381	14.2
						MW-73C	0.05	11.1		MW-75C	0.10	13.5
						MW-111E	14,600	37		MW-87B	3.37	7.67
										MW-88	116	9.67
										MW-89	22	1.04
										MW-91	178	7.12
										MW-106	31	49
										MW-110	6.64	51
										MW-111B	13,523	35
										OW-08	0.03	6.21
1,1-Dichloroethene	17	-0.01 to -1.65	8	049 to -9.73	4	MW-19	0.25	0.91	13	F33-TW07	0.02	16.2
						MW-59B	0.88	0.38		IW-04	1.70	11.3
						MW-112B	16.1	4.02		MW-59A	5.42	20
						P-03	0.09	9.86		MW-59D	12.4	3.10
										MW-60A	12.2	3.29
										MW-61C	9.03	8.21
										MW-68	0.70	8.58
										MW-93	0.08	10.4
										MW-98B	0.77	5.5
										MW-106	3.61	10.0
										MW-107	1.29	13.9
										MW-111B	2,190	21.9
										MW-111E	7,756	45.6

Notes:

ug/L/yr - Micrograms per liter per year

%/yr - Percent change per year

NA - Not applicable

Table 19 Magnitude of Trends Detected for Chemicals of Potential Concern for 2014 Sampled Monitoring Wells (continued)

	Decreasing Trend		Probably Decreasing Trend		Probably Increasing Trend				Increasing Trend			
Analyte	Number	Magnitude (ug/L/yr)	Number	Magnitude (ug/L/yr)	Number	Location	Magnitude (ug/L/yr)	Magnitude (%/yr)	Number	Location	Magnitude (ug/L/yr)	Magnitude (%/yr)
Trichloroethene	11	-0.03 to -3.17	4	-0.07 to -2.417	3	F33-TW06	0.01	5.66	13	IW-04	1.05	7.48
						MW-98B	1.05	4.20		MW-05	5.42	5.48
						SW-02	0.57	9.13		MW-59A	2.91	15.3
										MW-60A	11.4	4.75
										MW-60B	1.22	6.75
										MW-61C	1.88	7.85
										MW-93	0.18	7.67
										MW-104	0.51	17.5
										MW-106	8.21	27
										MW-107	0.89	9.13
										MW-111B	703	15.0
										MW-111E	3,285	44
										MW-112B	17.3	4.56
1,4-Dioxane	13	-0.01 to -502	5	-0.01 to --0.62	5	MW-05	0.29	0.91	18	EW-13	328	10.6
						MW-48	0.04	3.47		MW-09	0.20	3.47
						MW-82	0.08	2.74		MW-59A	0.21	11.7
						MW-98B	0.57	6.02		MW-60A	3.81	3.47
						MW-112A	3.06	4.93		MW-60B	2.85	24
										MW-61C	0.26	4.20
										MW-68	3.50	22
										MW-70	0.11	3.83
										MW-76A	0.23	10.0
										MW-80	0.23	4.02
										MW-89	0.34	4.75
										MW-91	0.05	3.10
										MW-93	0.99	6.57
										MW-100	0.01	4.75
										MW-106	0.97	3.47
										MW-107	0.62	4.75
										MW-112B	4.79	6.39
										SW-07	0.01	0.97

Notes:

ug/L/yr - Micrograms per liter per year
%/yr - Percent change per year

NA - Not applicable

Table 20 Summary of Mann-Kendall Trend Analysis of Chemicals of Potential Concern for 2014 Sampled Surface Water Locations

Analyte	Wells Tested	Insufficient Data	Non-detect	No Trend	Decreasing Trend	Probably Decreasing Trend	Stable Trend	Probably Increasing Trend	Increasing Trend
Perchlorate	12	2	1	2	2	2	3	0	0
1,1-Dichloroethene	12	2	7	1	1	0	1	0	0
Trichloroethene	12	2	7	0	1	0	1	1	0
1,4-Dioxane	12	2	2	0	1	1	5	0	1
Total Analysis	48	8	17	3	5	3	10	1	1

Table 21 Historical Perchlorate Trend Summary

	Locations Tested								
Trend Category	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
"N/A"-Insufficient Data	40	6	33	27	7	11	19	1	0
"ND" - Non Detect (new designation)	--	--	--	--	--	15	30	12	26
"NT" - No Trend	9	11	13	16	50	26	29	25	34
"S" - Stable	17	13	27	37	40	18	25	12	24
"I" - Increasing	1	2	4	6	7	3	6	9	11
"PI" -Probably Increasing	0	0	0	1	2	3	4	0	4
"D" - Decreasing	2	5	4	15	12	13	20	18	23
"PD" -Probably Decreasing	0	6	7	5	5	4	8	4	6
Total Locations	69	43	88	107	123	93	141	81	128

Notes:
-- ND (non-detect) was not a category designation prior to the 2011 statistics.

Table 22 Historical 1,1-Dichloroethene Trend Summary

	Locations Tested								
Trend Category	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
"N/A"-Insufficient Data	40	7	34	29	9	16	17	1	0
"ND" - Non Detect (new designation)	--	--	--	--	--	20	42	14	40
"NT" - No Trend	7	6	20	38	62	18	29	16	18
"S" - Stable	14	15	25	31	36	15	24	19	29
"I" - Increasing	1	1	1	2	6	5	7	10	13
"PI" -Probably Increasing	0	3	0	2	4	4	0	2	4
"D" - Decreasing	6	7	7	1	3	9	15	15	16
"PD" -Probably Decreasing	1	4	1	4	3	6	7	4	8
Total Locations Tested	69	43	88	107	123	93	141	81	128

Notes:
-- ND (non-detect) was not a category designation prior to the 2011 statistics.

Table 23 Historical Trichloroethene Trend Summary

Trend Category	Locations Tested								
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
"N/A"-Insufficient Data	40	7	34	29	8	17	17	1	0
"ND" - Non Detect (new designation)	--	--	--	--	--	19	42	15	40
"NT" - No Trend	8	13	28	44	66	24	35	21	30
"S" - Stable	16	16	21	28	33	15	24	19	29
"I" - Increasing	0	1	0	0	7	4	6	12	13
"PI" -Probably Increasing	0	0	1	1	5	2	2	3	2
"D" - Decreasing	4	4	3	4	4	10	9	9	10
"PD" -Probably Decreasing	1	2	1	1	0	2	6	1	4
Total Locations Tested	69	43	88	107	123	93	141	81	128

Notes:
-- ND (non-detect) was not a category designation prior to the 2011 statistics.

Table 24 Historical 1,4-Dioxane Trend Summary

Trend Category	Locations Tested								
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
"N/A"-Insufficient Data	40	6	33	29	7	10	18	1	0
"ND" - Non Detect (new designation)	--	--	--	--	--	12	34	8	33
"NT" - No Trend	5	6	19	28	43	23	30	23	28
"S" - Stable	20	7	21	36	44	19	24	15	29
"I" - Increasing	1	1	0	2	7	10	10	10	17
"PI" -Probably Increasing	0	1	0	1	4	2	4	7	5
"D" - Decreasing	2	15	11	7	15	13	17	15	12
"PD" -Probably Decreasing	1	7	4	4	3	4	4	2	4
Total Locations	69	43	88	107	123	93	141	81	128

Notes:
-- ND (non-detect) was not a category designation prior to the 2011 statistics.

Table 25 Summary of Increasing Trends for Chemicals of Potential Concern – Second Quarter 2014

Analyte:	Perchlorate			1,1-Dichloroethene			Trichloroethene			1,4-Dioxane		
Sampling Location	**Trend**	**Magnitude (%/yr)**	**Magnitude (µg/L/y)**	**Trend**	**Magnitude (%/yr)**	**Magnitude (µg/L/y)**	**Trend**	**Magnitude (%/yr)**	**Magnitude (µg/L/y)**	**Trend**	**Magnitude (%/yr)**	**Magnitude (µg/L/y)**
Burn Pit Area												
EW-13	Decreasing			No Trend			No Trend			Increasing	10.6	328
MW-31	Increasing	6.02	0.18	Probably Decreasing			No Trend			Non-detect		
MW-59A	Probably Increasing	20	281	Increasing	20	5.42	Increasing	15.3	2.91	Increasing	11.7	0.21
MW-59B	Stable			Probably Increasing	4.02	16.1	No Trend			No Trend		
MW-59D	No Trend			Increasing	3.10	12.4	No Trend			No Trend		
MW-60A	No Trend			Increasing	3.29	12.2	Increasing	4.75	11.4	Increasing	3.47	3.81
MW-60B	Stable			No Trend			Increasing	6.75	1.22	Increasing	24	2.85
MW-61C	No Trend			Increasing	8.21	9.03	Increasing	7.85	1.88	Increasing	4.20	0.26
MW-73C	Probably Increasing	11.1	0.05	Non-detect			Non-detect			Non-detect		
MW-110	Increasing	51	6.64	Non-detect			Non-detect			Non-detect		
MW-111B	Increasing	35	13,523	Increasing	22	2,190	Increasing	15.0	703	Stable		
MW-111E	Probably Increasing	37	14,600	Increasing	46	7756	Increasing	44	3,285	Stable		
MW-112A	No Trend			Stable			No Trend			Probably Increasing	4.93	3.06
MW-112B	No Trend			Probably Increasing	4.02	16.1	Increasing	4.56	17.3	Increasing	6.39	4.79
Rocket Motor Production Area												
IW-04	Decreasing			Increasing	11.3	1.70	Increasing	7.48	1.05	Stable		
MW-05	Probably Decreasing			No Trend			Increasing	5.48	5.42	Probably Increasing	0.91	0.29
MW-35	Probably Increasing	2.56	0.01	Non-detect			No Trend			Non-detect		
MW-68	Increasing	14.2	1,381	Increasing	8.58	0.70	No Trend			Increasing	22	3.50
MW-75C	Increasing	13.5	0.10	Non-detect			Non-detect			Non-detect		
MW-88	Increasing	9.67	116	No Trend			No Trend			No Trend		
MW-89	Increasing	1.04	22	Decreasing			Stable			Increasing	4.75	0.34
MW-91	Increasing	7.12	178	No Trend			No Trend			Increasing	3.10	0.05
MW-98B	Stable			Increasing	5.48	0.77	Probably Increasing	4.20	1.05	Probably Increasing	6.02	0.57
Northern Protero Creek Area												
F33-TW06	Non-detect			Stable			Probably Increasing	5.66	0.01	No Trend		
F33-TW07	Non-detect			Increasing	16.2	0.02	Non-detect			No Trend		
MW-09	Decreasing			Non-detect			Non-detect			Increasing	3.47	0.20
MW-19	Decreasing			Probably Increasing	0.91	0.25	No Trend			Probably Decreasing		
MW-48	Non-detect			Non-detect			Non-detect			Probably Increasing	3.47	0.04
MW-76A	Non-detect			Non-detect			Non-detect			Increasing	10.0	0.23
MW-80	Non-detect			Stable			Stable			Increasing	4.02	0.23
MW-82	Stable			Stable			Non-detect			Probably Increasing	2.74	0.08
MW-104	Non-detect			Probably Decreasing			Increasing	17.5	0.51	Decreasing		
MW-106	Increasing	49	31	Increasing	10.0	3.61	Increasing	27.4	8.21	Increasing	3.47	0.97
MW-107	Stable			Increasing	13.9	1.29	Increasing	9.13	0.89	Increasing	4.75	0.62
P-03	No Trend			Probably Increasing	9.86	0.09	Non-detect			No Trend		
Massacre Canyon Entrance Area												
MW-70	No Trend			Decreasing			Stable			Increasing	3.83	0.11
MW-87B	Increasing	7.67	3.37	Stable			Stable			Stable		
MW-93	No Trend			Increasing	10.4	0.08	Increasing	7.67	0.18	Increasing	6.57	0.99
MW-100	No Trend			Non-detect			Non-detect			Increasing	4.75	0.01
OW-08	Increasing	6.21	0.03	Non-detect			Non-detect			Non-detect		

Notes:

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

µg/L/yr - Micrograms per liter per year

%/yr - Percent change per year

Table 26 Well Classification and Sampling Frequency

Classification	Sampling Frequency
Plume Monitoring - Horizontal Extent Wells	Annual or Biennial
Plume Monitoring - Vertical Extent Wells	Biennial
Increasing Trend Wells	Semiannual
Remedial Monitoring Wells	Semiannual
Guard Wells	Semiannual
Redundant Wells	Suspend
New Wells	Quarterly

Table 27 Summary of 2014 and Proposed 2015 Monitoring Program Well Sampling Status

Program Year	Semiannual Surface Water Samples	Quarterly Groundwater Samples	Semiannual Groundwater Samples	Annual Groundwater Samples	Annual Private Production Well Samples	Biennial Groundwater Samples
2014	21	0	9	72	4	53
2015	21	0	9	71	4	54

Table 28 Groundwater Quality Monitoring Frequency Recommendations

Monitoring Well	2014 Well Classifica -tion	2015 Well Classifica -tion	1st Quarter 2015 to 4th Quarter 2015 Monitoring Program																								
			VOCs (EPA SW8260B or E524.2)					Perchlorate (EPA E331.0 or E332.0)					1,4-Dioxane (EPA 8270C SIM)					CA Parameters (various methods)					Lead (EPA SW6020)				
			2015					2015					2015					2015					2015				
			1 Q	2 Q	3 Q	4 Q	B I	1 Q	2 Q	3 Q	4 Q	B I	1 Q	2 Q	3 Q	4 Q	B I	1 Q	2 Q	3 Q	4 Q	B I	1 Q	2 Q	3 Q	4 Q	B I
Surface Water Locations																											
SW-01	-	-		●		●			●		●			●		●											
SW-02	-	-		●		●			●		●			●		●											
SW-03	-	-		●		●			●		●			●		●											
SW-04	-	-		●		●			●		●			●		●											
SW-06	-	-	●	●		●		●	●		●		●	●		●											
SW-07	-	-	●	●		●		●	●		●		●	●		●											
SW-08	-	-		●		●			●		●			●		●											
SW-09	-	-	●	●		●		●	●		●		●	●		●											
SW-10	-	-	●	●		●		●	●		●		●	●		●											
SW-11	-	-	●	●		●		●	●		●		●	●		●											
SW-12	-	-	●	●		●		●	●		●		●	●		●											
SW-13	-	-	●	●		●		●	●		●		●	●		●											
SW-14	-	-	●	●		●		●	●		●		●	●		●											
SW-15	-	-	●	●		●		●	●		●		●	●		●											
SW-16	-	-	●	●		●		●	●		●		●	●		●											
SW-16B	-	-	●	●		●		●	●		●		●	●		●											
SW-17 (alternate)	-	-																									
SW-18	-	-	●	●		●		●	●		●		●	●		●											
SW-19	-	-	●	●		●		●	●		●		●	●		●											
SW-20	-	-		●		●			●		●			●		●											
SW-21	-	-		●		●			●		●			●		●											
SW-22	-	-		●		●			●		●			●		●											
Private Production Wells																											
PPW1	-	-		●					●					●													
PPW2	-	-		●					●					●													
PPW3	-	-		●					●					●													
PPW4	-	-		●					●					●													
Monitoring Wells																											
EW-13	PH	PH		●					●					●													
F33-TW2	PH/CA	PH/CA		●					●					●					●								
F33-TW3	PH	PH		●					●					●													
F33-TW6	PH/CA	PH/CA		●					●					●					●								
F33-TW7	PH	PH		●					●					●													
F34-TW1	PH	PH		●					●					●													
IW-04	PH	PH		●					●					●													
MW-01	PV	PV					●					●					●										
MW-02	PH	PH					●					●					●										
MW-03	PV	PV					●					●					●										
MW-05	PH/CA	PH/CA		●					●					●					●								
MW-06	PV	PV					●					●					●										
MW-07	PH	PH		●					●					●													
MW-08	PV	PV		●					●					●													
MW-09	PH	PH		●					●					●													
MW-11	PH	PH					●					●					●										
MW-12	PH	PH					●					●					●										
MW-13	PH	PH		●					●					●													
MW-14	PH	PH		●					●					●													
MW-15	G	G		●		●			●		●			●		●											
MW-17	PH	PH		●					●					●													
MW-18	G	G		●		●			●		●			●		●											
MW-19	PH	PH		●					●					●													
MW-22	PH	PH		●					●					●													
MW-23	PV	PV					●					●					●										
MW-26	PH	PH		●					●					●													
MW-27	PH	PH					●					●					●										
MW-28	PH	PH		●					●					●													
MW-29	PH	PH		●					●					●													
MW-31	PV	PV					●					●					●										
MW-32	PV	PV					●					●					●										
MW-34	PH	PH		●					●					●													
MW-35	PH	PH		●					●					●													
MW-36	PH	PH		●					●					●													
MW-40	PH	PH		●					●					●													
MW-43	PV/CA	PV/CA		●					●					●					●								
MW-45	PH	PH		●					●					●													
MW-46	PH	PH		●					●					●													
MW-47	PH	PH					●					●					●										
MW-48	PV/CA	PV/CA		●					●					●					●								
MW-49	PH	PH					●					●					●										
MW-53	PH	PH		●					●					●													
MW-54	PH	PH		●					●					●													
MW-55	PV	PV					●					●					●										
MW-56A	PV	PV					●					●					●										
MW-56B	PV	PV					●					●					●										
MW-56C	PH	PH		●					●					●													

Table 28 Groundwater Quality Monitoring Frequency Recommendations (continued)

Monitoring Well	2014 Well Classifica-tion	2015 Well Classifica-tion	1st Quarter 2015 to 4th Quarter 2015 Monitoring Program																								
			VOCs (EPA SW8260B or E524.2)					Perchlorate (EPA E331.0 or E332.0)					1,4-Dioxane (EPA 8270C SIM)					CA Parameters (various methods)					Lead (EPA SW6020)				
			2015					2015					2015					2015					2015				
			1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI
MW-59A	PV/I	PV/I		●		●			●		●			●		●											
MW-59B	PH	PH		●					●					●													
MW-59D	PV	PV					●					●					●										
MW-60A	PV	PV					●					●					●										●
MW-60B	PH/I	PH/I		●		●			●		●			●		●											
MW-61A	PV	PV					●					●					●										
MW-61B	PH	PH		●					●					●													
MW-61C	PV	PV					●					●					●										
MW-62A	PH	PH					●					●					●										
MW-66	PH	PH		●					●					●													
MW-67	G	G		●		●			●		●			●		●											
MW-68	PH/I	PH/I		●		●			●		●			●		●											
MW-69	PH	PH					●					●					●										
MW-70	PH/CA	PH/CA		●					●					●					●								
MW-71A	PV	PV					●					●					●										
MW-71B	PH	PH		●					●					●													
MW-71C	PH	PH					●					●					●										
MW-72A	PV	PV					●					●					●										
MW-72B	PH	PH					●					●					●										
MW-72C	PV	PV					●					●					●										
MW-73A	PV	PV					●					●					●										
MW-73B	PH	PH					●					●					●										
MW-73C	PV	PV					●					●					●										
MW-74A	PV	PV					●					●					●										
MW-74B	PV	PV					●					●					●										
MW-74C	PH	PH					●					●					●										
MW-75A	PV	PV					●					●					●										
MW-75B	PH	PH					●					●					●										
MW-75C	PV/I	PV					●					●					●										
MW-76A	PV	PV					●					●					●										
MW-76B	PH/CA	PH/CA		●					●					●					●								
MW-76C	PV	PV					●					●					●										
MW-77A	PV	PV					●					●					●										
MW-77B	PH	PH		●					●					●													
MW-78	PV	PV					●					●					●										
MW-79A	PV	PV					●					●					●										
MW-79C	PV	PV					●					●					●										
MW-80	PV	PV					●					●					●										
MW-81	PV	PV					●					●					●										
MW-82	PH	PH		●					●					●													
MW-83	PH	PH		●					●					●													
MW-84A	PV	PV					●					●					●										
MW-84B	PV	PV					●					●					●										
MW-85A	PV	PV					●					●					●										
MW-85B	PH	PH		●					●					●													
MW-86A	PV	PV					●					●					●										
MW-86B	PH	PH		●					●					●													
MW-87A	PV	PV					●					●					●										
MW-87B	PH	PH		●					●					●													
MW-88	PH	PH		●					●					●													
MW-89	PH	PH		●					●					●													
MW-90	PH	PH		●					●					●													
MW-91	PH	PH		●					●					●													
MW-92	PH	PH		●					●					●													
MW-93	PH	PH		●					●					●													
MW-94	PH	PH		●					●					●													
MW-95	PH	PH		●					●					●													
MW-96	PH	PH					●					●					●										
MW-97	PH	PH					●					●					●										
MW-98A	PV	PV					●					●					●										
MW-98B	PH	PH		●					●					●													
MW-99	PV	PV					●					●					●										
MW-100	G	G		●		●			●		●			●		●											
MW-101	PH	PH		●					●					●													
MW-102	PH/CA	PH/CA		●					●					●					●								
MW-103	PH	PH		●					●					●													
MW-104	PH/CA/I	PH/CA		●					●					●					●								
MW-105	PH	PH		●					●					●													
MW-106	PH/I	PH/I		●		●			●		●			●		●											
MW-107	PH/CA	PH/CA		●					●					●					●								
MW-108	PH	PH		●					●					●													
MW-109	PH/CA	PH/CA		●					●					●					●								
MW-110	PH	PH/I		●		●			●		●			●		●											
MW-111A	PV	PV		●					●					●													
MW-111B	PV	PV		●					●					●													
MW-111C	PV	PV		●					●					●													

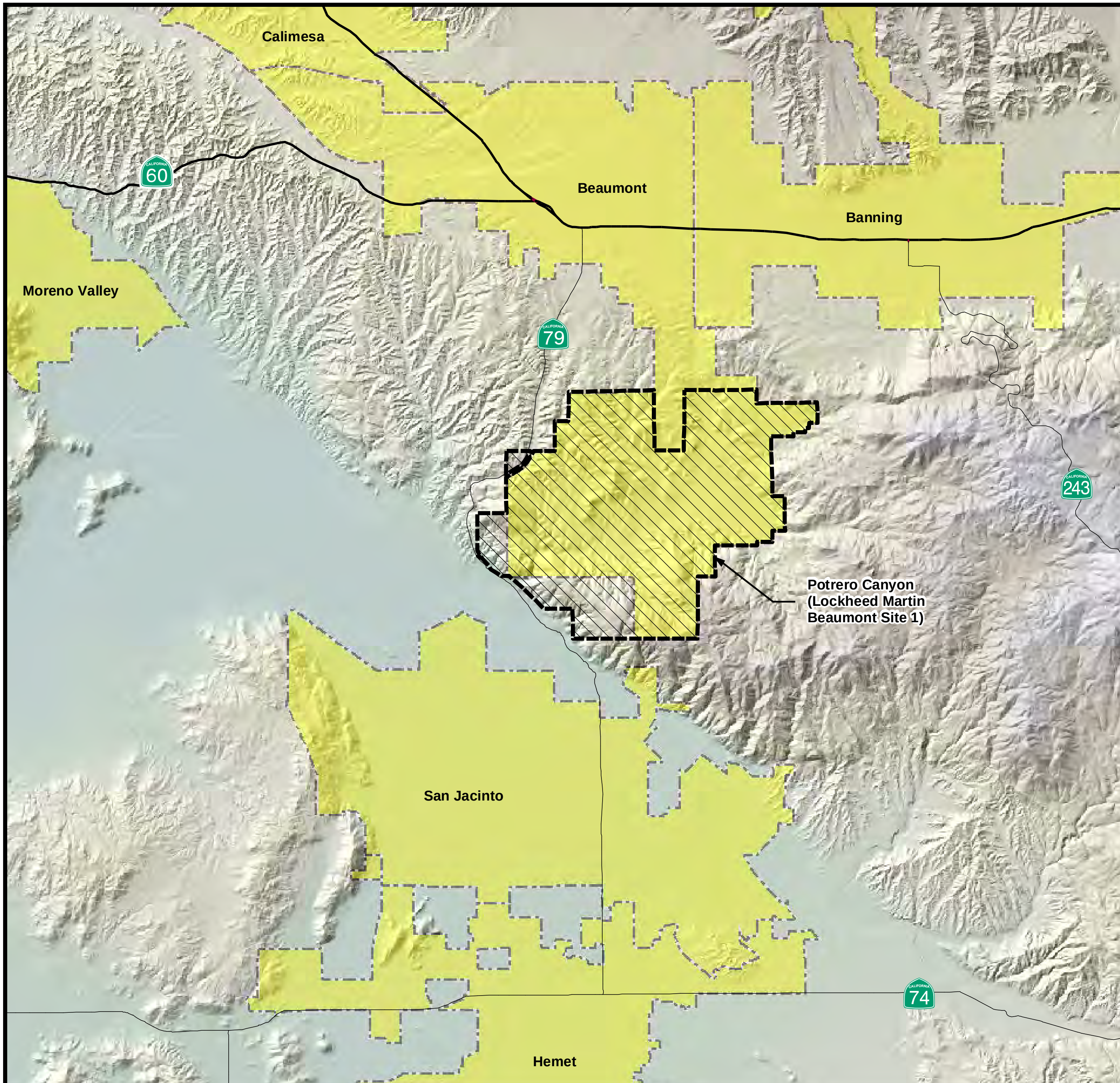
Table 28 Groundwater Quality Monitoring Frequency Recommendations (continued)

Monitoring Well	2014 Well Classifica-tion	2015 Well Classifica-tion	1st Quarter 2015 to 4th Quarter 2015 Monitoring Program																								
			VOCs (EPA SW8260B or E524.2)					Perchlorate (EPA E331.0 or E332.0)					1,4-Dioxane (EPA 8270C SIM)					CA Parameters (various methods)					Lead (EPA SW6020)				
			2015					2015					2015					2015					2015				
			1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI	1Q	2Q	3Q	4Q	BI
MW-111D	PV	PV		●					●					●													
MW-111E	PH	PH		●					●					●													
MW-112A	PV	PV		●					●					●													
MW-112B	PV	PV		●					●					●													
MW-112C	PH	PH		●					●					●													
OW-01	PH	PH					●					●					●										
OW-02	PH	PH		●					●					●													
OW-08	PH	PH					●					●					●										
P-02	PH	PH		●					●					●													
P-03	PH	PH		●					●					●													
P-05	PH	PH		●					●					●													
Monitoring Wells (Not Sampled)																											
MW-04	R	R																									
MW-10	R	R																									
MW-20	R	R																									
MW-21	R	R																									
MW-24	R	R																									
MW-30	R	R																									
MW-37	R	R																									
MW-38	R	R																									
MW-39	R	R																									
MW-41	R	R																									
MW-42	R	R																									
MW-44	R	R																									
MW-50	R	R																									
MW-51	R	R																									
MW-52	R	R																									
MW-56D	R	R																									
MW-57A	R	R																									
MW-57B	R	R																									
MW-57C	R	R																									
MW-57D	R	R																									
MW-58A	R	R																									
MW-58B	R	R																									
MW-58C	R	R																									
MW-58D	R	R																									
MW-59C	R	R																									
MW-61D	R	R																									
MW-62B	R	R																									
MW-63	R	R																									
MW-64	R	R																									
MW-65	R	R																									
OW-03	R	R																									
OW-05	R	R																									
OW-06	R	R																									
OW-07	R	R																									
P-04	R	R																									
P-06D	R	R																									
P-06S	R	R																									
IW-01	R	R																									
IW-02	R	R																									
IW-03	R	R																									
IW-05	R	R																									
EW-01	R	R																									
EW-02	R	R																									
EW-08	R	R																									
EW-09	R	R																									
EW-10	R	R																									
EW-11	R	R																									
EW-12	R	R																									
EW-14	R	R																									
EW-15	R	R																									
EW-16	R	R																									
EW-18	R	R																									
EW-19	R	R																									
EW-20	R	R																									
		Totals	13	105	0	30	54	13	105	0	30	54	13	105	0	30	54	0	11	0	0	0	0	0	0	0	1
			202					**202**					**202**					**11**					**1**				

Notes:

(highlight)	Highlighting indicates change in sampling frequency or well classification	BI -	Biennial	PH -	Plume monitoring - Horzontal
EPA -	United States Environmental Protection Agency	G -	Guard well	PV -	Plume monitoring - Vertical
VOCs -	Volatile organic compounds	I -	Increasing contaminant trend well	R -	Redundant well
CA -	Contaminant attenuation	N -	New Well	RW -	Remedial Well

FIGURES



0 2 Miles

Adapted from:

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

LEGEND

Interstate/Freeway

State Highway

County Boundary

Potrero Canyon Site Boundary

City/Municipality

Potrero Canyon
(Lockheed Martin Beaumont Site 1)

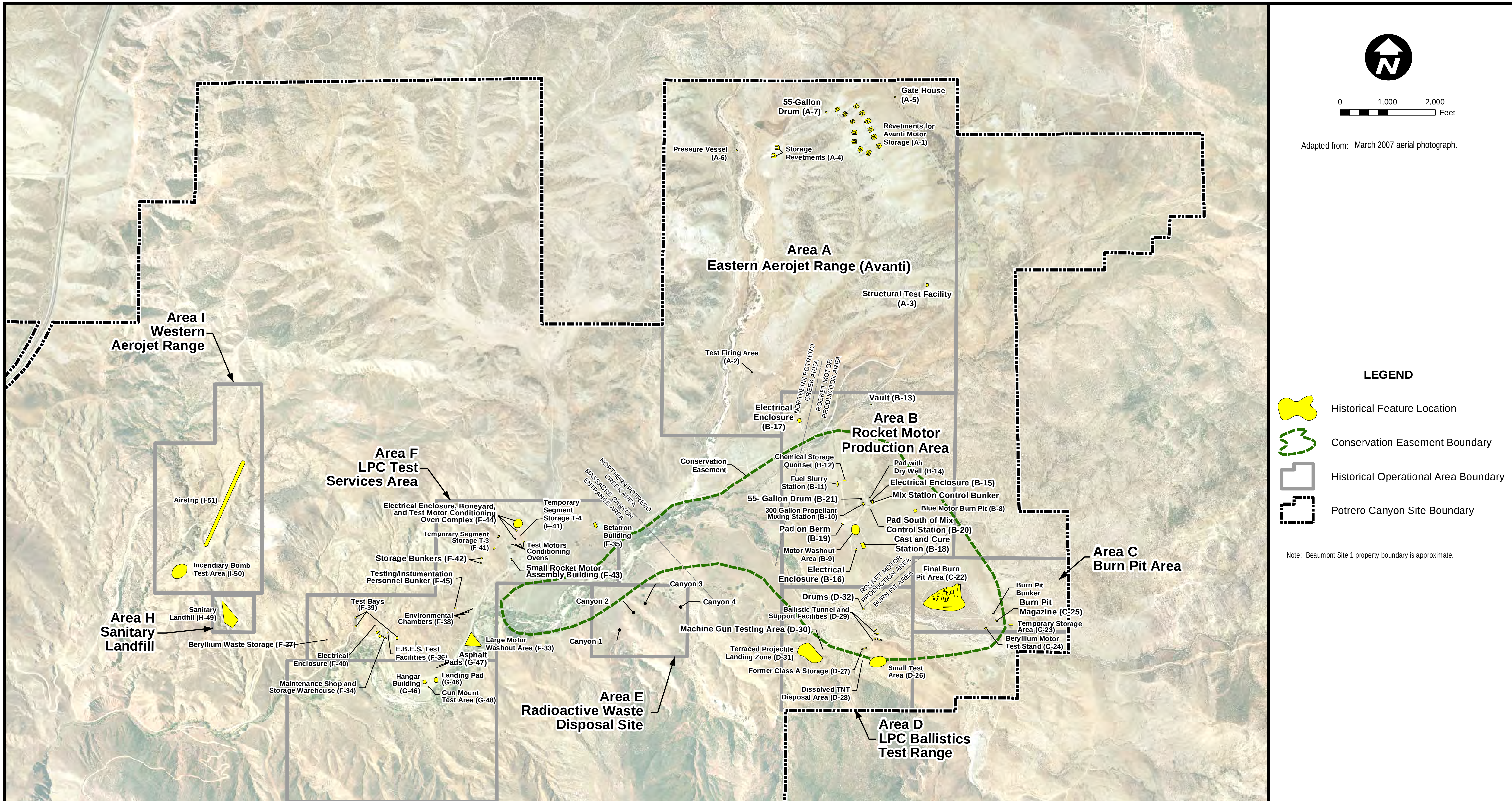
Figure 1

Regional Location of Potrero Canyon Site

TETRA TECH

X:\GIS\Lockheed_S1_Q1Q214\Region.mxd

P:\GIS\Lockheed_S1_Q1Q214\Site.mxd

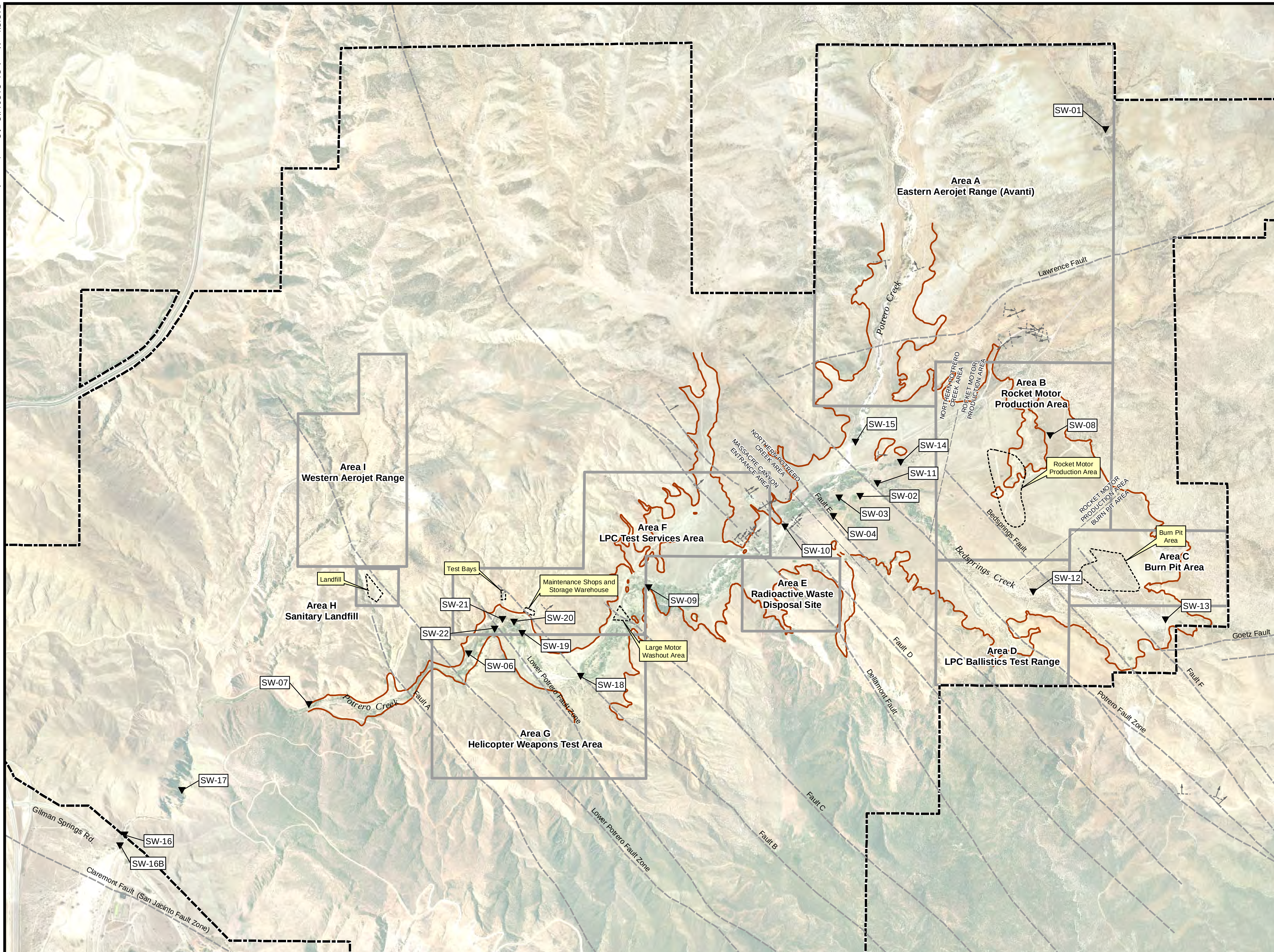


Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 2
Historical Operational Areas, Site Features, and Conservation Easement

TETRA TECH

P:\GIS\Lockheed_S1_Q1Q214\Surf Samp Loc.mxd



N

0 1,000 2,000 Feet

Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

LEGEND

- Surface Water Sample Location
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Bedrock/Alluvium Surface Contact
  Dashed where inferred
- Source Areas
- Historical Operational Area Boundary
- Potrero Canyon Site Boundary

Notes:
Beaumont Site 1 property boundary is approximate.

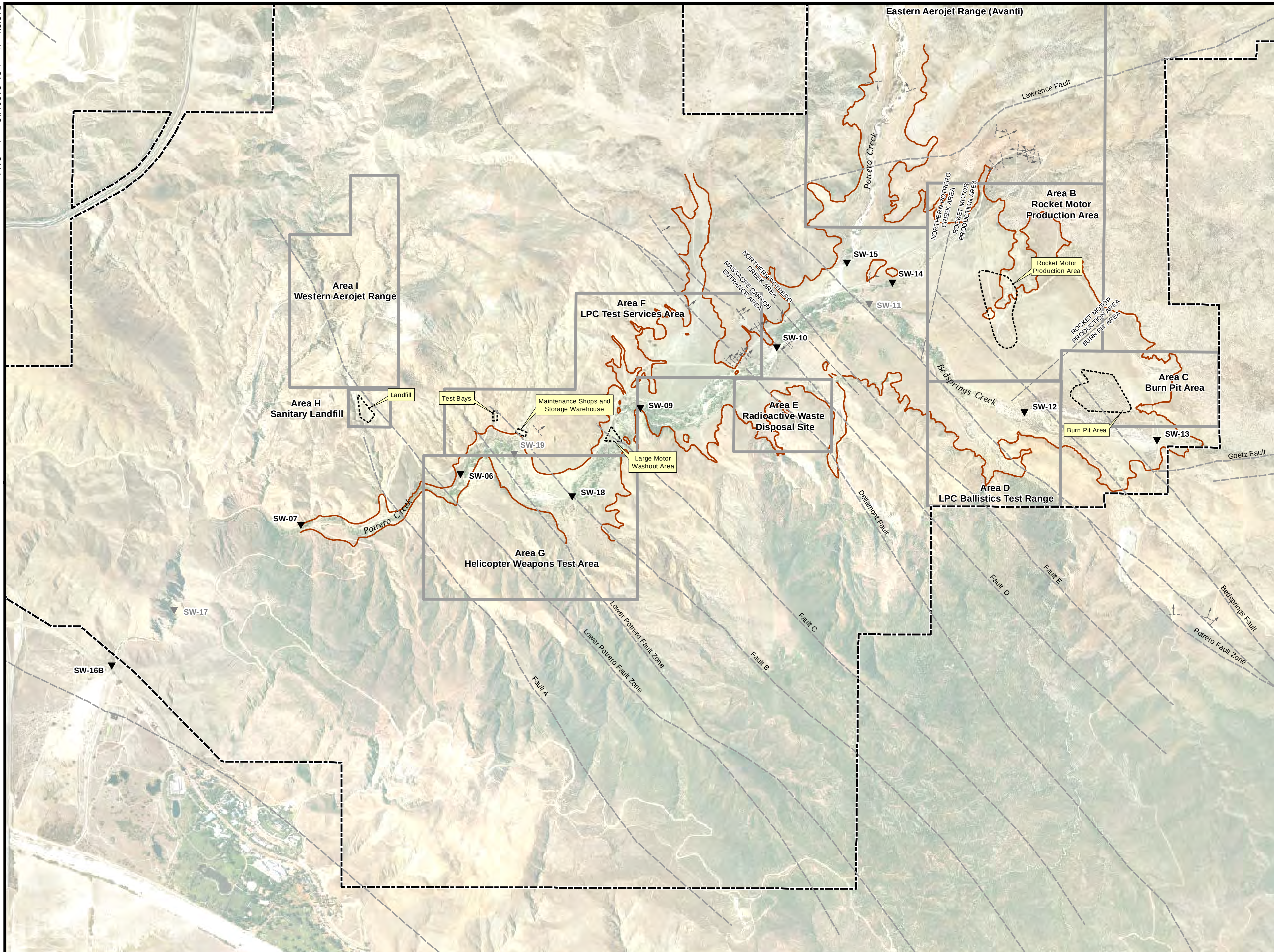
Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 3

Surface Water Sampling Locations

TETRA TECH

P:\GIS\Lockheed_S1_Q1Q2141Samp Loc Q114.mxd



Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

LEGEND

- Surface Water Sample Location (First Quarter 2014)
- Surface Water Sample Location (First Quarter 2014 - Dry)
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Bedrock/Alluvium Surface Contact — Dashed where inferred
- Source Areas
- Historical Operational Area Boundary
- Potrero Canyon Site Boundary

Note:

Beaumont Site 1 property boundary is approximate.

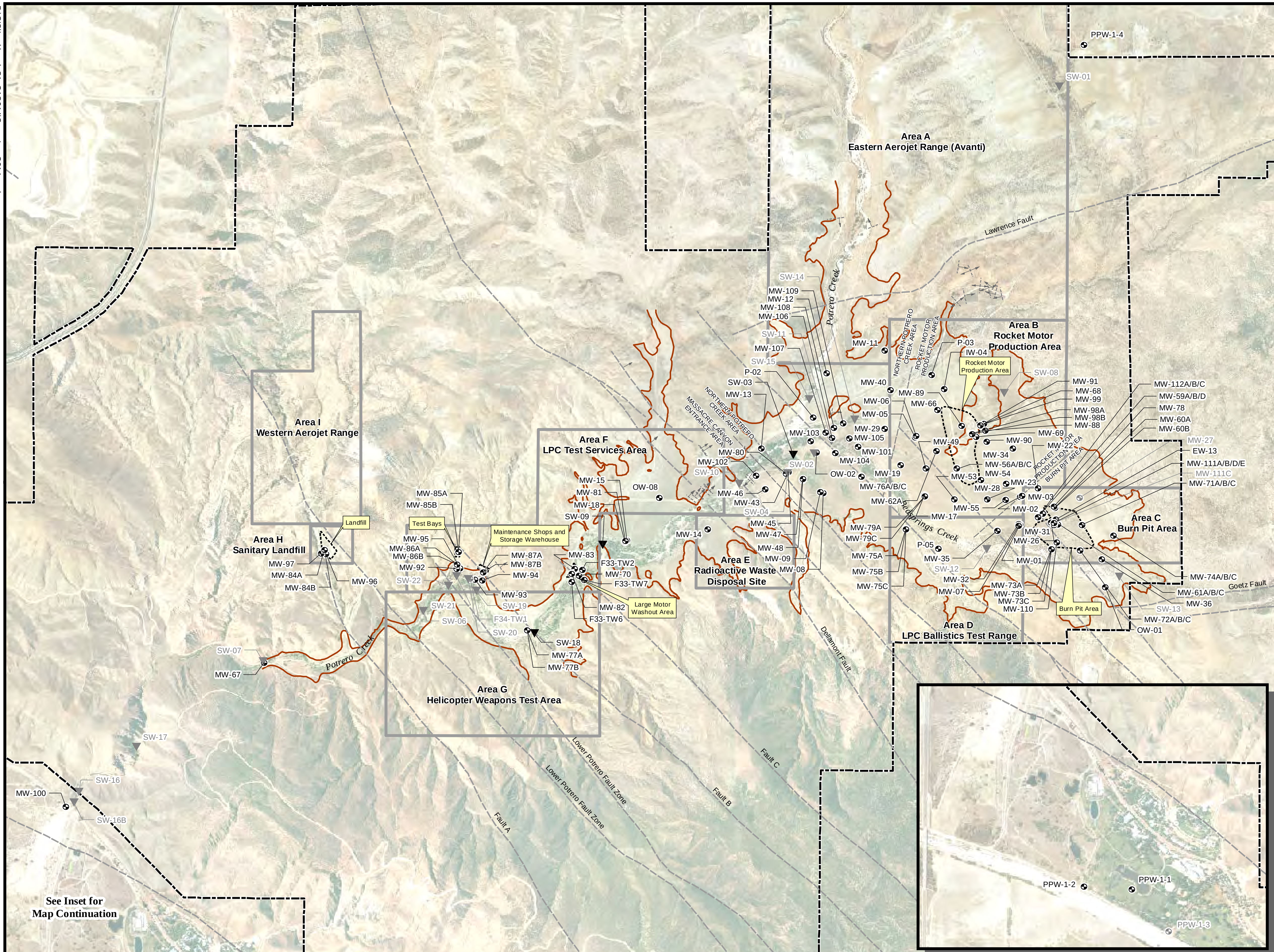
Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 4

Sampling Locations - First Quarter 2014

TETRA TECH

P:\GIS\Lockheed_S1_Q1Q214\Samp Loc Q214.mxd



0 1,000 2,000
Feet

Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study*, *Tetra Tech, 2009.*

LEGEND

- Sampled Well (Second Quarter 2014)
- Well Location (unable to sample)
- Surface Water Sample Location (Second Quarter 2014)
- Surface Water Sample Location (Second Quarter 2014 - dry)
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Bedrock/Alluvium Surface Contact
  Dashed where inferred
- Source Areas
- Historical Operational Area Boundary
- Potrero Canyon Site Boundary

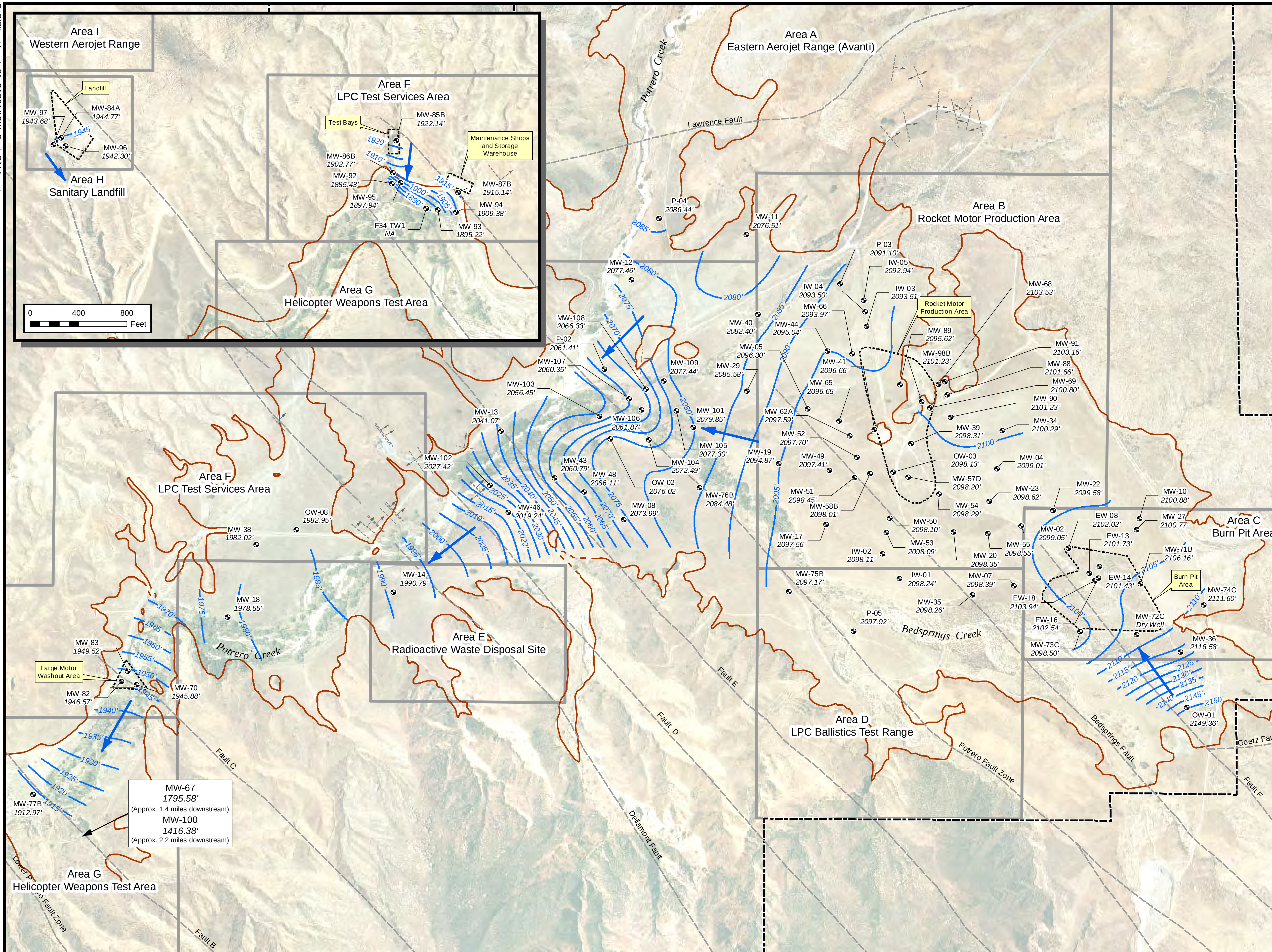
Note:

Beaumont Site 1 property boundary is approximate.

Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 5
Sampling Locations -
Second Quarter 2014

TETRA TECH



0 500 1,000
Feet

Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

LEGEND

MW-10
2107.31' — Monitoring Well Location with Groundwater Elevation (First Quarter 2014)

Groundwater Elevation Contour

Fault, Accurately Located Showing Dip

Fault, Approximately Located

Bedrock/Alluvium Surface Contact (Dashed where inferred)

Groundwater Flow Direction

Source Areas

Potrero Canyon Site Boundary

Historical Operational Area Boundary

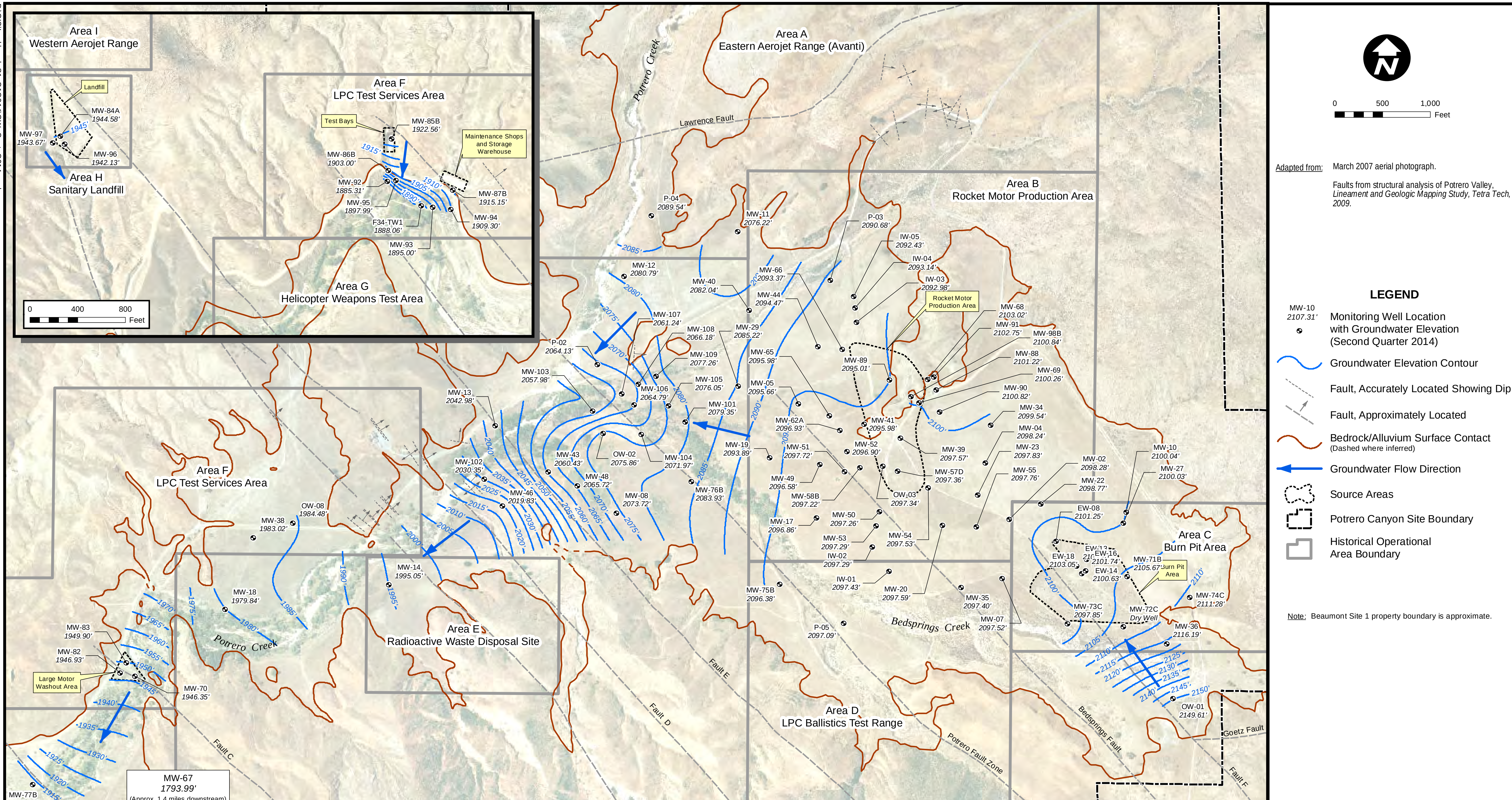
Note: Beaumont Site 1 property boundary is approximate.

Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 6
Groundwater Contours for Alluvium and Weathered Mount Eden Formation- First Quarter 2014

TETRA TECH

P:\GIS\Lockheed_S1_Q1Q214\GW_Cont_Q114.mxd

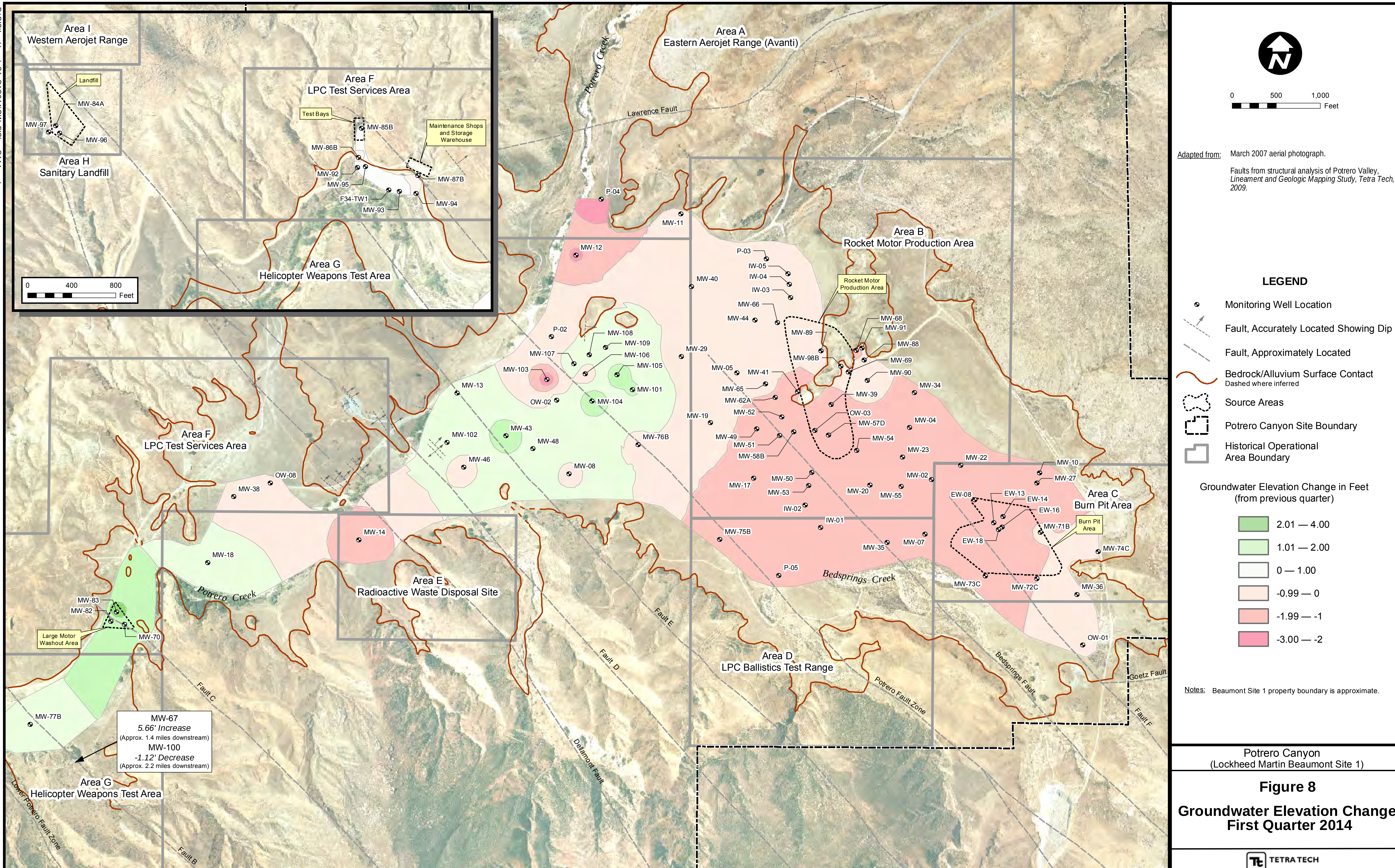


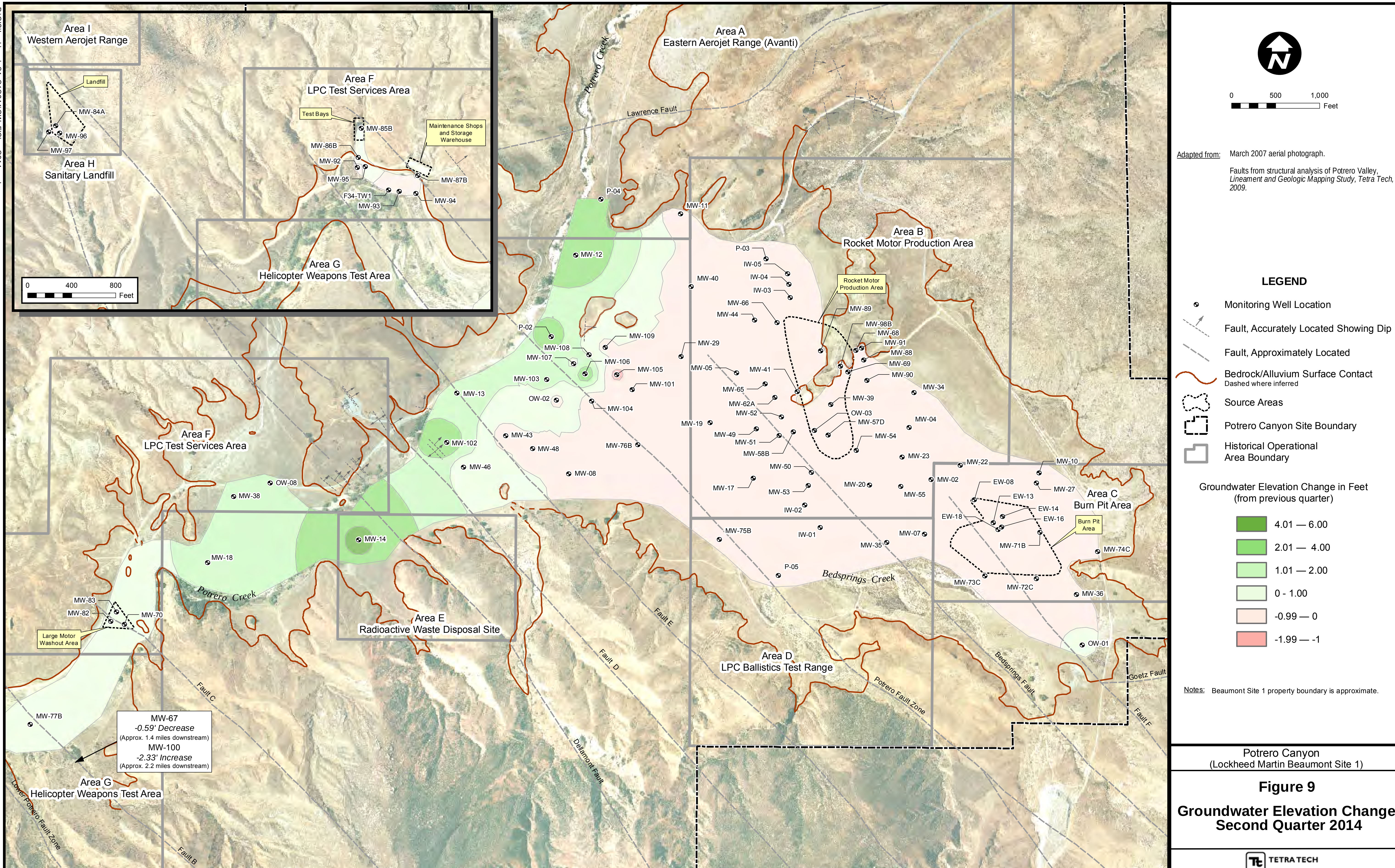
Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 7
Groundwater Contours for Alluvium and Weathered Mount Eden Formation- Second Quarter 2014

TETRA TECH

P:\GIS\Lockheed_S1_Q1\2014\GW_ElChg_Q114.mxd



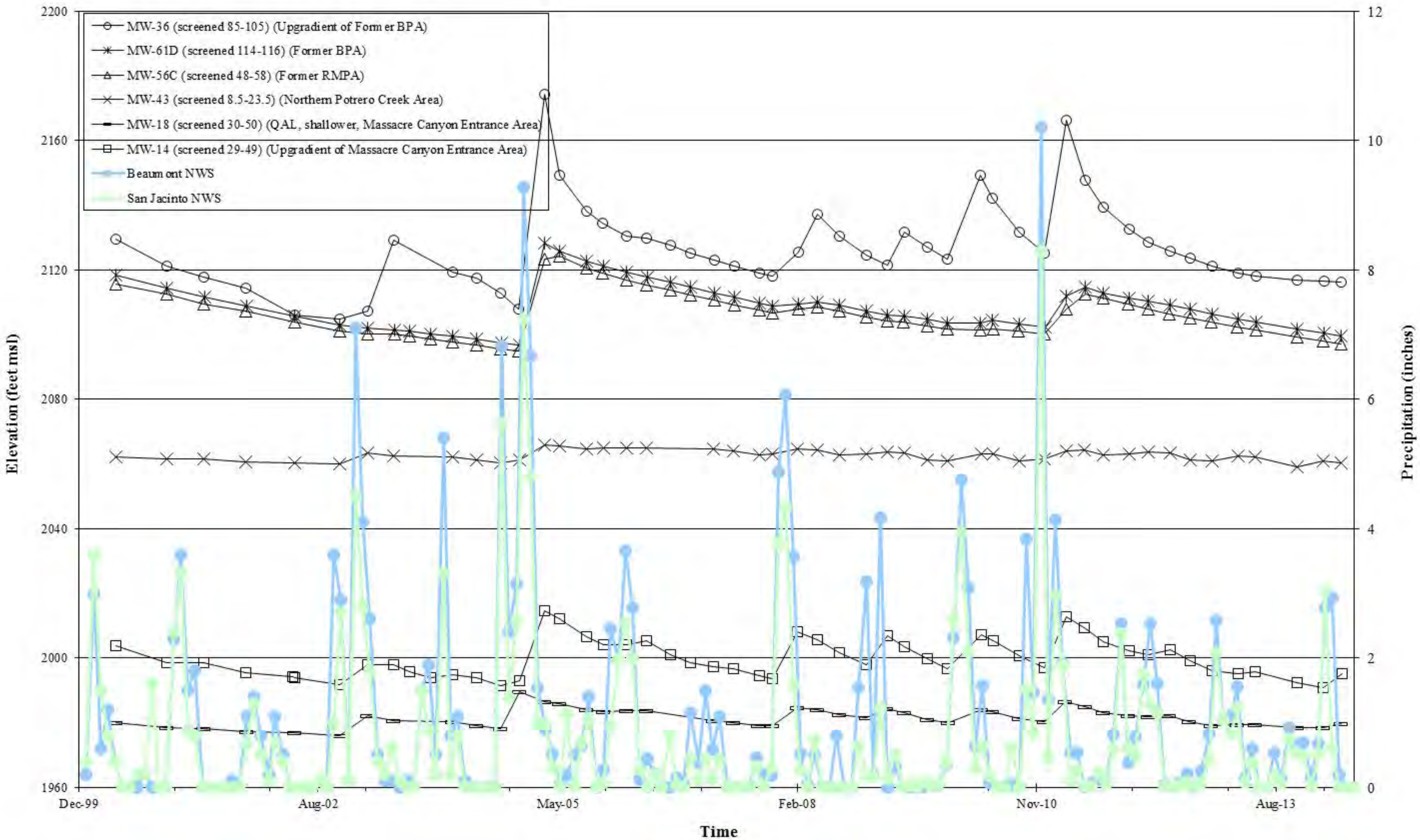


Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 9

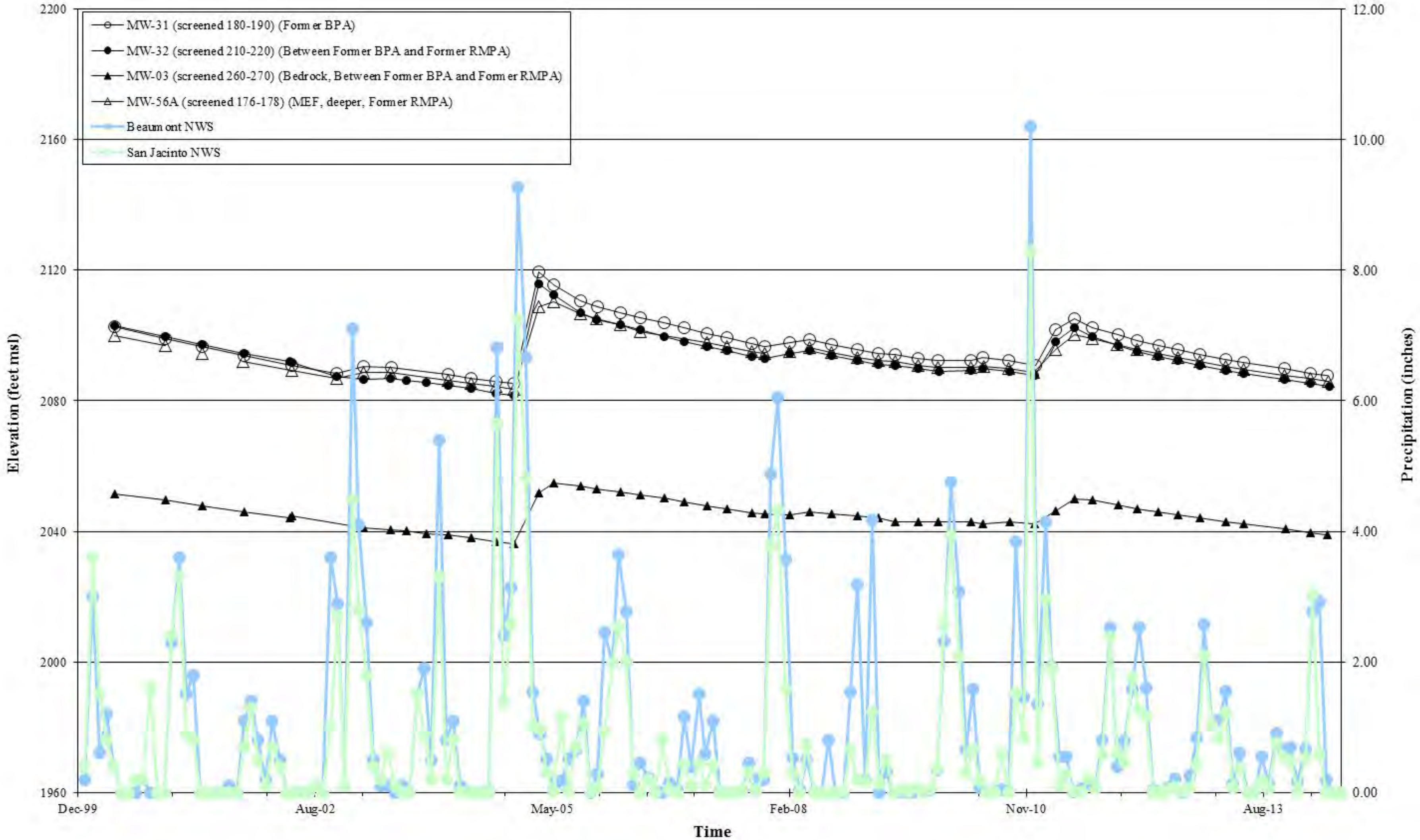
**Groundwater Elevation Change-
Second Quarter 2014**

Figure 10 Groundwater Elevations vs. Time - Selected Alluvial and Shallow Mount Eden Formation Wells



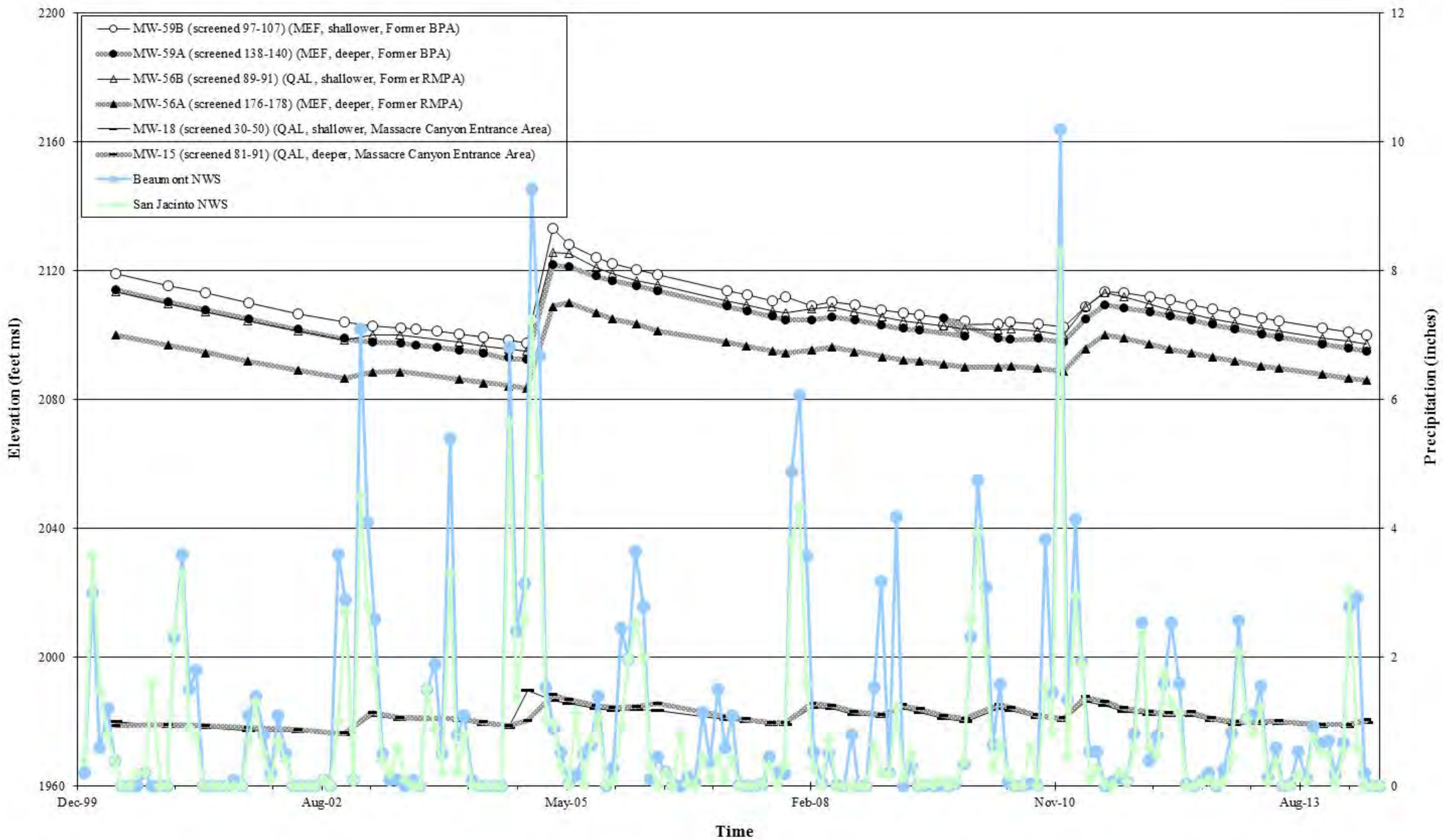
Notes: BPA – Burn Pit Area msl – mean sea level NWS - National Weather Service QAL – Quaternary alluvium RMPA – Rocket Motor Production Area

Figure 11 Groundwater Elevations vs. Time Selected Deeper Mount Eden Formation and Granitic/Metasedimentary Bedrock Wells

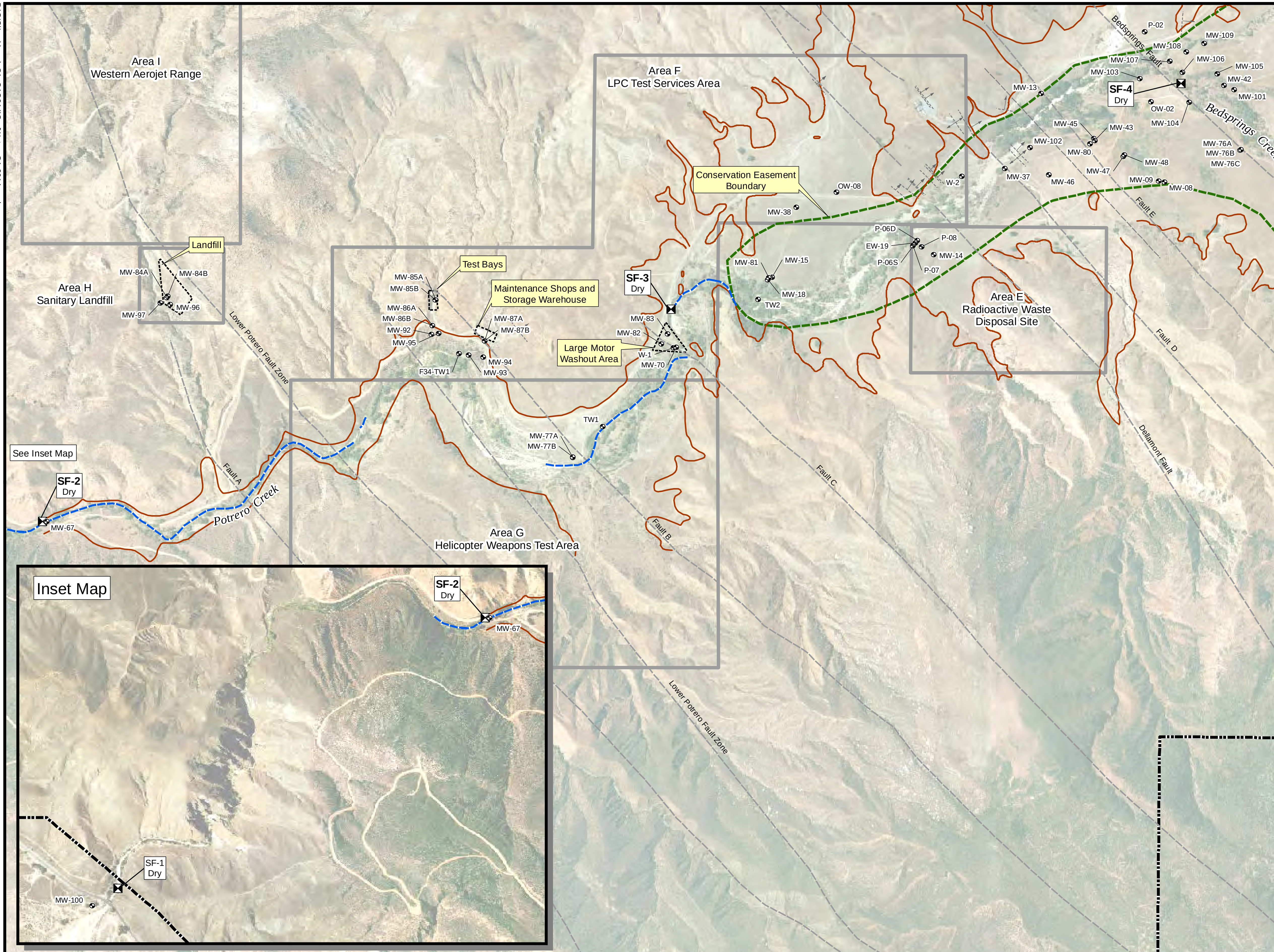


Notes: BPA – Burn Pit Area msl – mean sea level NWS - National Weather Service QAL – Quaternary alluvium RMPA – Rocket Motor Production Area

Figure 12 Groundwater Elevations Comparison - Selected Shallower and Deeper Screened Wells in the Alluvium and Shallow Mount Eden Formation



Notes: BPA – Burn Pit Area msl – mean sea level NWS - National Weather Service QAL – Quaternary alluvium RMPA – Rocket Motor Production Area



Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

LEGEND

- Existing Well Location
- Surface Flow Measurement Location
- Surface Water Flow
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Bedrock/Alluvium Surface Contact
  Dashed where inferred
- Source Areas
- Conservation Easement Boundary
- Potrero Canyon Site Boundary
- Historical Operational Area Boundary

Notes:

Beaumont Site 1 property boundary is approximate.

cfs - Cubic feet per second.

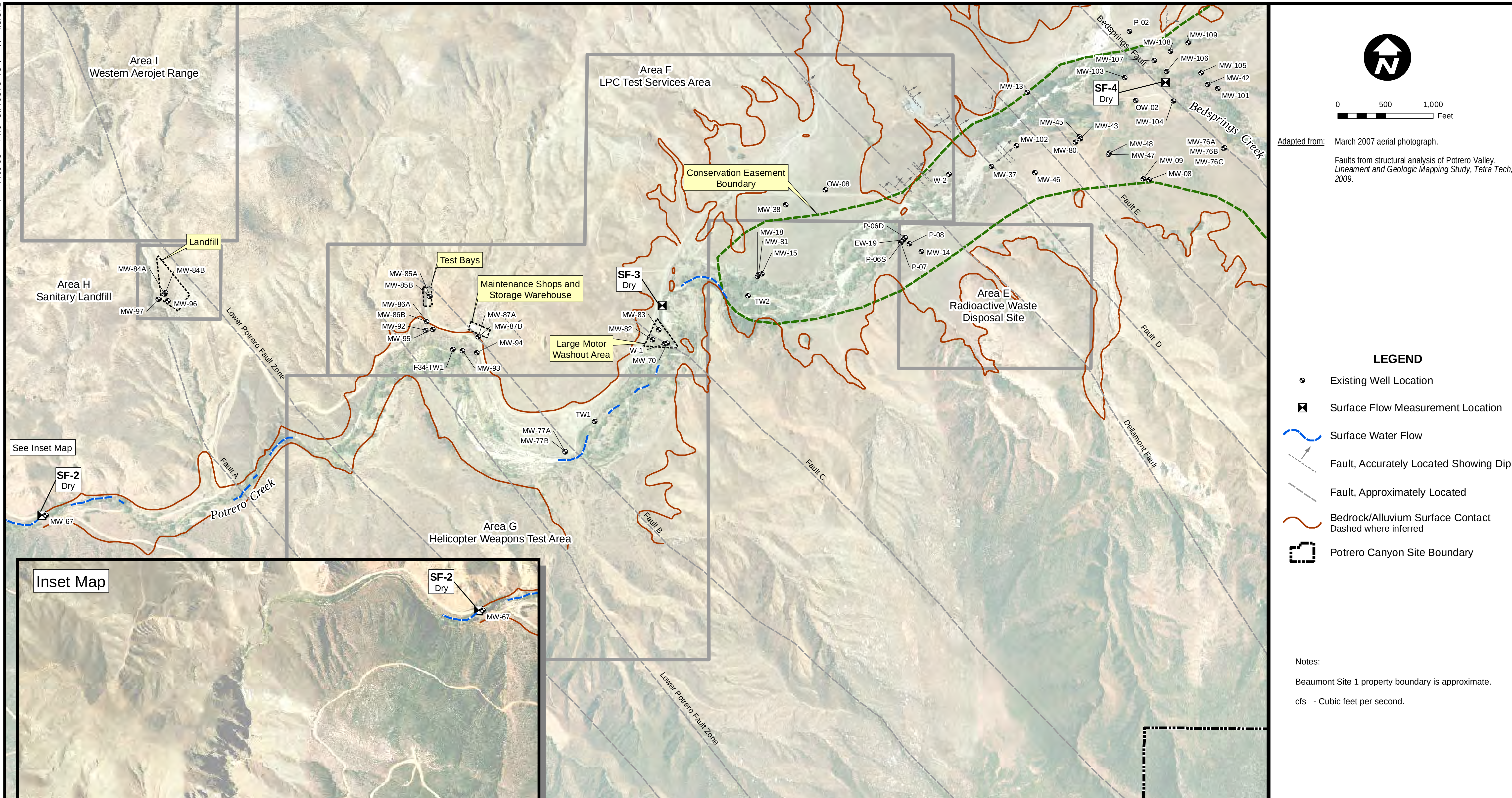
Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 13

**Surface Water Flow Locations-
First Quarter 2014**

TETRA TECH

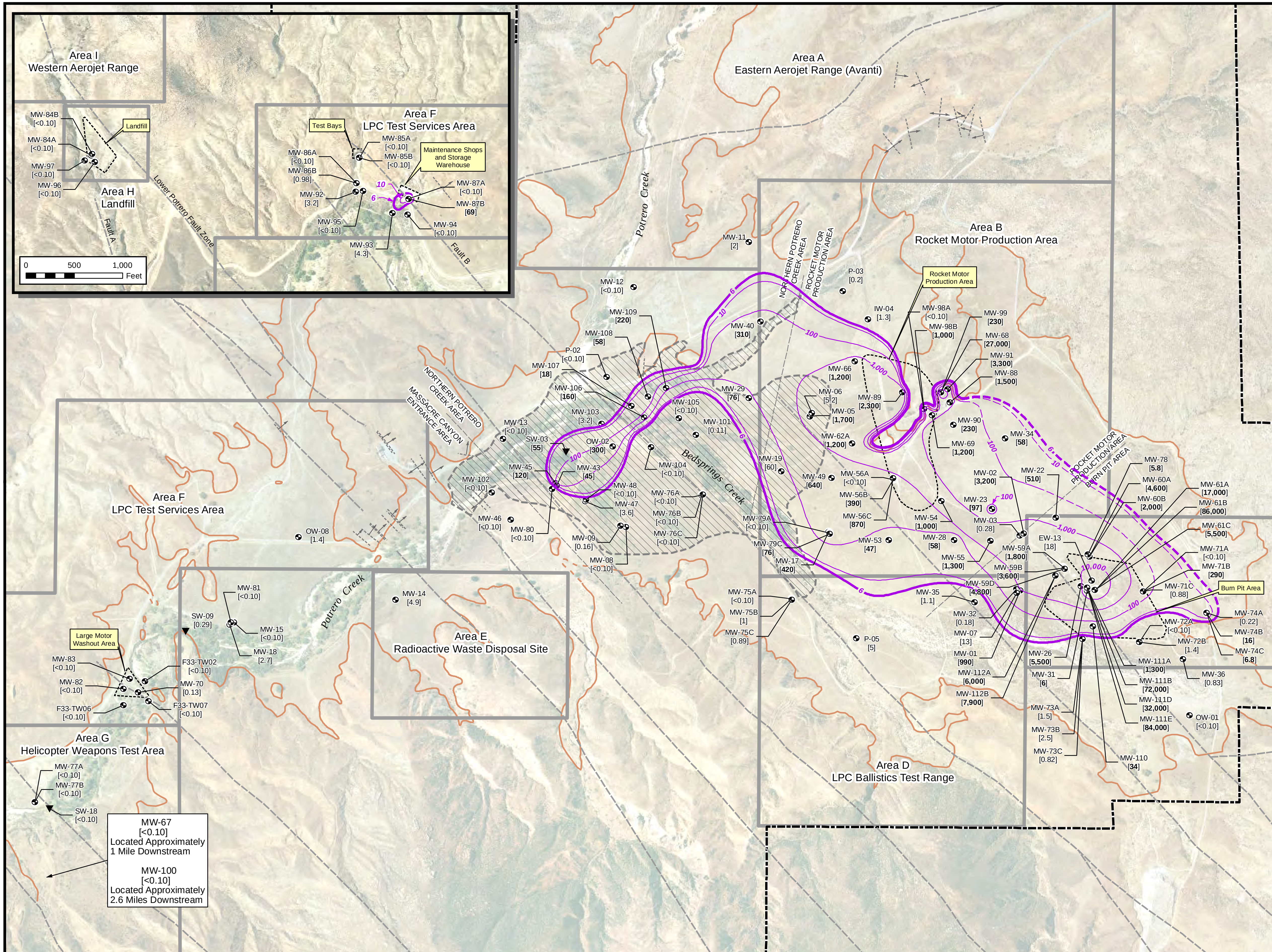
P:\GIS\Lockheed_S1_Q1Q214\SurfWater_Q1-2014.mxd



Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 14
**Surface Water Flow Locations-
Second Quarter 2014**

P:\GIS\Lockheed_S1_Q10214Perc.mxd



0 500 1,000 Feet

Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

LEGEND

- MW-22 [340] — Well ID [Perchlorate concentration]
- SW-07 [23] — Surface Water Sample Location [Perchlorate concentration]
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Perchlorate Concentration Contour (µg/L) - Dashed where inferred
- MCL Contour (6.0 µg/L) - Dashed where inferred
- Bedrock/Alluvium Surface Contact Dashed where inferred
- Source Areas
- Primary Contaminant Attenuation Area (phytoextraction and degradation)
- Potrero Canyon Site Boundary
- Historical Operational Area Boundary

Notes:

MCL - Maximum Contaminant Level.
Concentrations shown are in microgram per liter (µg/L)

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

Bold indicates MCL value exceeded.

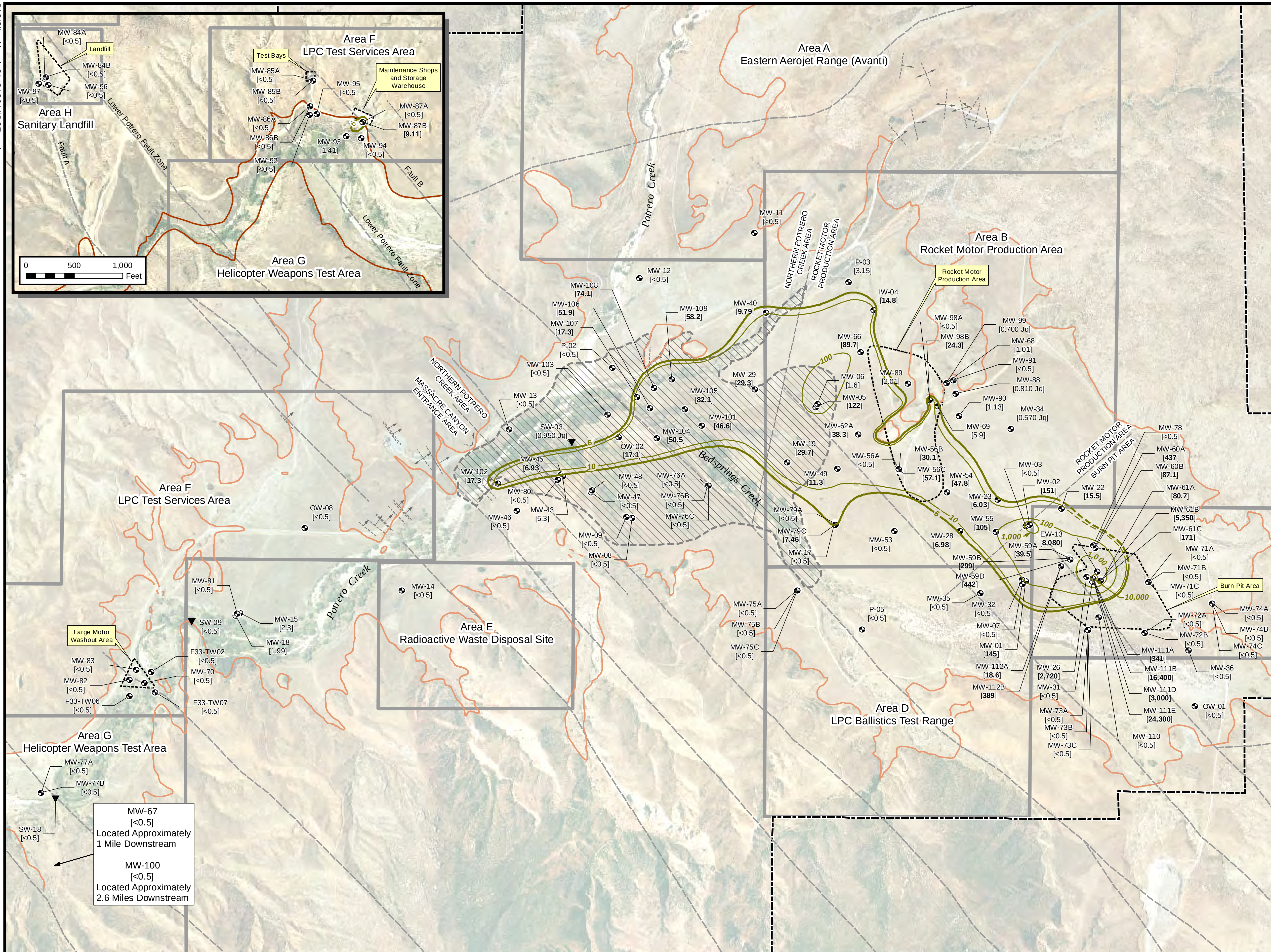
Beaumont Site 1 property boundary is approximate.

Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 15

Perchlorate Isoconcentration Map (µg/L) for Alluvium and Shallow Mount Eden Formation

TETRA TECH



0 500 1,000 Feet

Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

LEGEND

- MW-22 [340] Well ID [1,1-DCE concentration]
- SW-07 [23] Surface Water Sample Location [1,1-DCE concentration]
- Fault, Approximately Located
- Fault, Accurately Located Showing Dip
- 1,1-DCE Concentration Contour (µg/L) - Dashed where inferred
- MCL Contour (6.0 µg/L) - Dashed where inferred
- Bedrock/Alluvium Surface Contact Dashed where inferred
- Primary Contaminant Attenuation Area (phytoextraction and degradation)
- Source Areas
- Potrero Canyon Site Boundary
- Historical Operational Area Boundary

Notes:

MCL - Maximum Contaminant Level. Concentrations shown are in microgram per liter (µg/L)

1,1-DCE - 1,1-Dichloroethene.

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

Bold indicates MCL value exceeded.

Beaumont Site 1 property boundary is approximate.

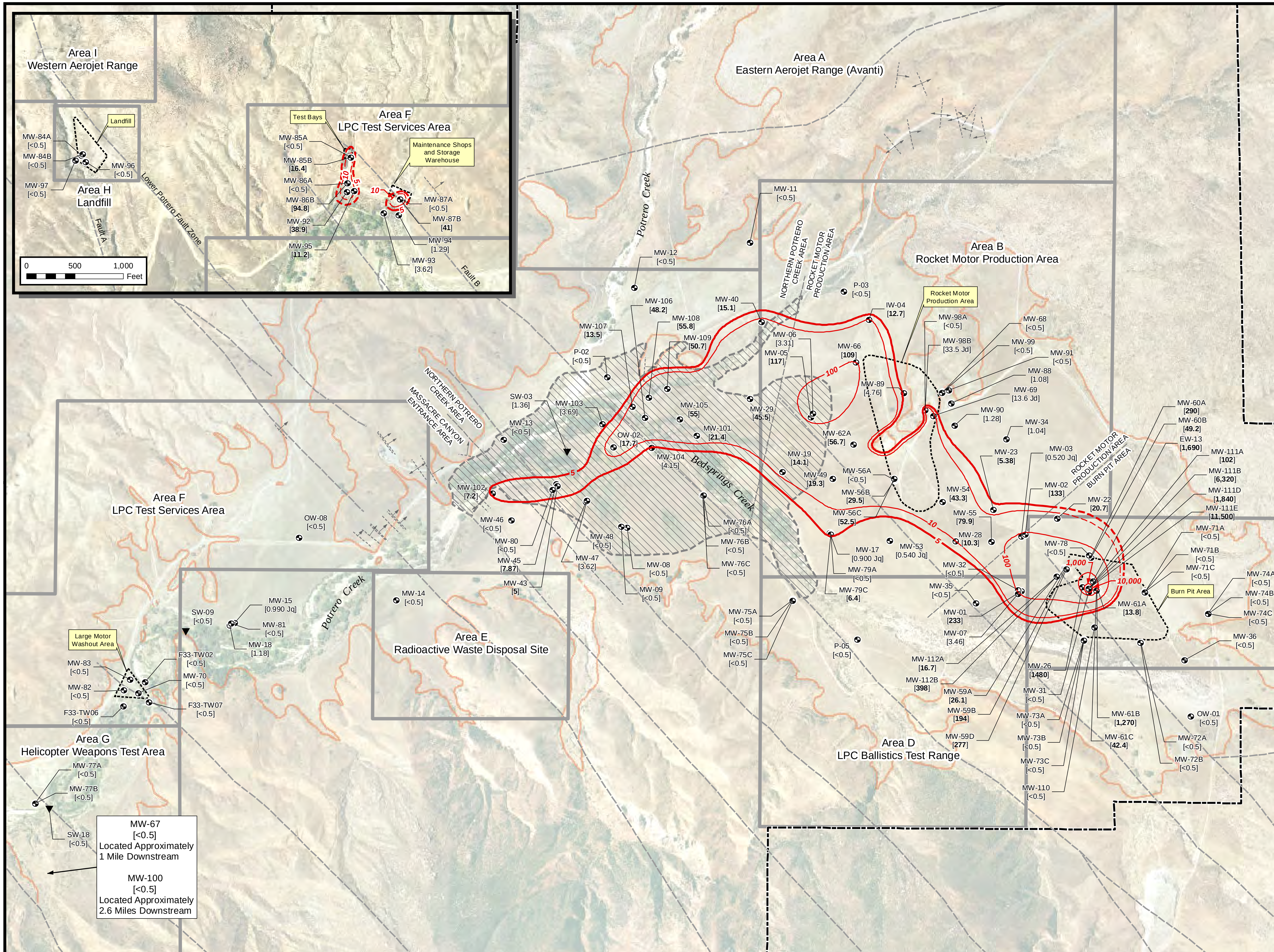
Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 16
1,1-DCE Isoconcentration Map (µg/L) for Alluvium and Shallow Mount Eden Formation

TETRA TECH

P:\GIS\Lockheed_S1_Q10214\DCE.mxd

P:\GIS\Lockheed_S1_Q1Q2\14TCE.mxd



0 500 1,000 Feet

Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study*, Tetra Tech, 2009.

LEGEND

- MW-22 [340] — Well ID [TCE concentration]
- SW-07 [24] — Surface Water Sample Location [TCE concentration]
- Fault, Approximately Located
- Fault, Accurately Located Showing Dip
- TCE Concentration Contour (µg/L) - Dashed where inferred
- MCL Contour (5.0 µg/L) - Dashed where inferred
- Bedrock/Alluvium Surface Contact Dashed where inferred
- Primary Contaminant Attenuation Area (phytoextraction and degradation)
- Source Areas
- Potrero Canyon Site Boundary
- Historical Operational Area Boundary

Notes:

MCL - Maximum Contaminant Level. Concentrations shown are in microgram per liter (µg/L)

TCE - Trichloroethene.

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

Bold indicates MCL value exceeded.

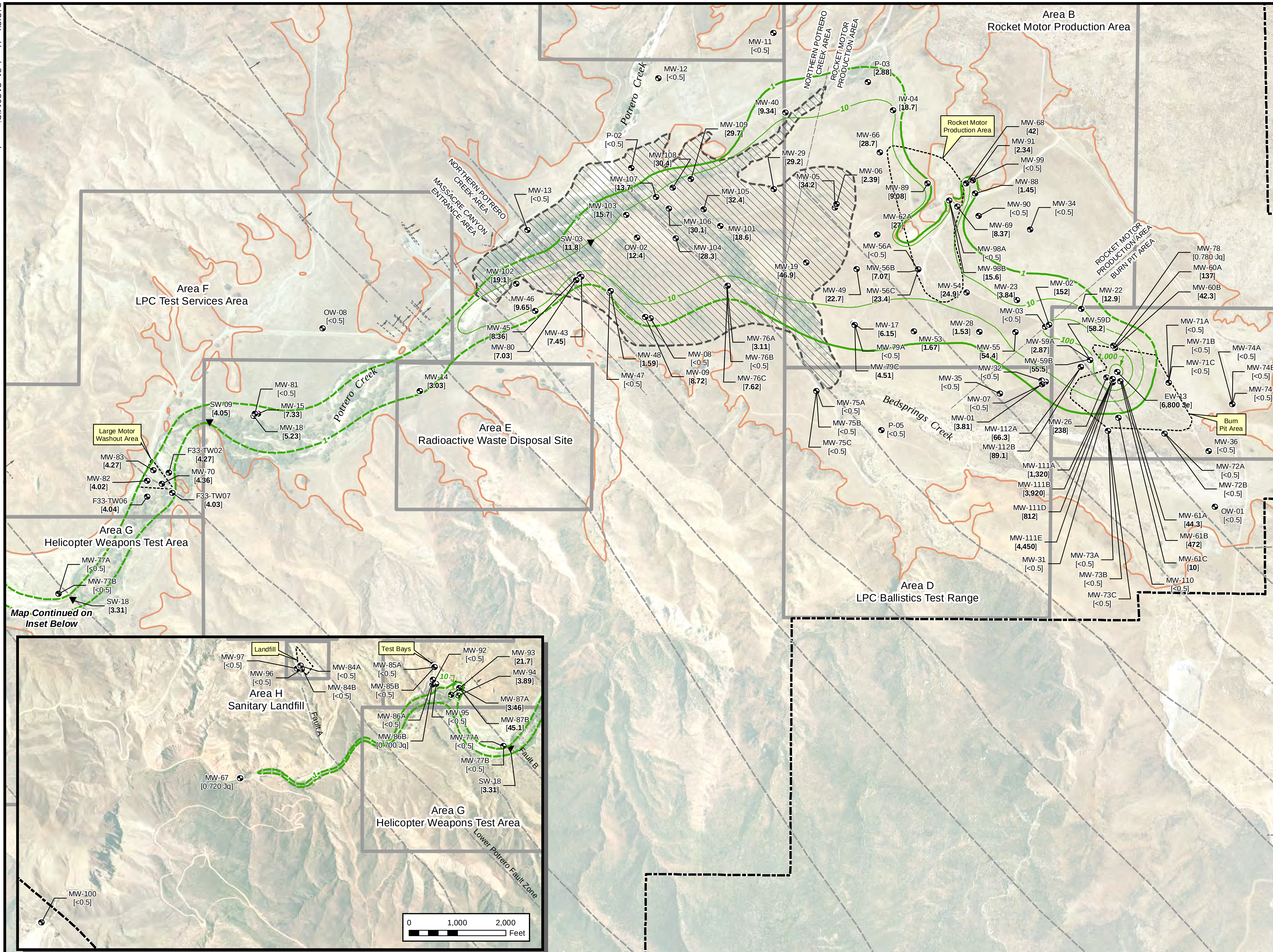
Beaumont Site 1 property boundary is approximate.

Portero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 17

TCE Isoconcentration Map (µg/L) for Alluvium and Shallow Mount Eden Formation

TETRA TECH



Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

LEGEND

- MW-22 [340] — Well ID [1,4-Dioxane concentration]
- SW-07 [23] — Surface Water Sample Location [1,4-Dioxane concentration]
- 1,4-Dioxane Concentration Contour (µg/L) - Dashed where inferred
- DWNL Contour (1.0 µg/L) - Dashed where inferred
- Bedrock/Alluvium Surface Contact - Dashed where inferred
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Primary Contaminant Attenuation Area (phytoextraction and degradation)
- Source Areas
- Historical Operational Area Boundary
- Potrero Canyon Site Boundary

Notes:

DWNL - Drinking water notification level.
Concentrations shown are in microgram per liter (µg/L)

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

Bold indicates DWNL value exceeded.

Beaumont Site 1 property boundary is approximate.

Potrero Canyon
(Lockheed Martin Beaumont Site 1)

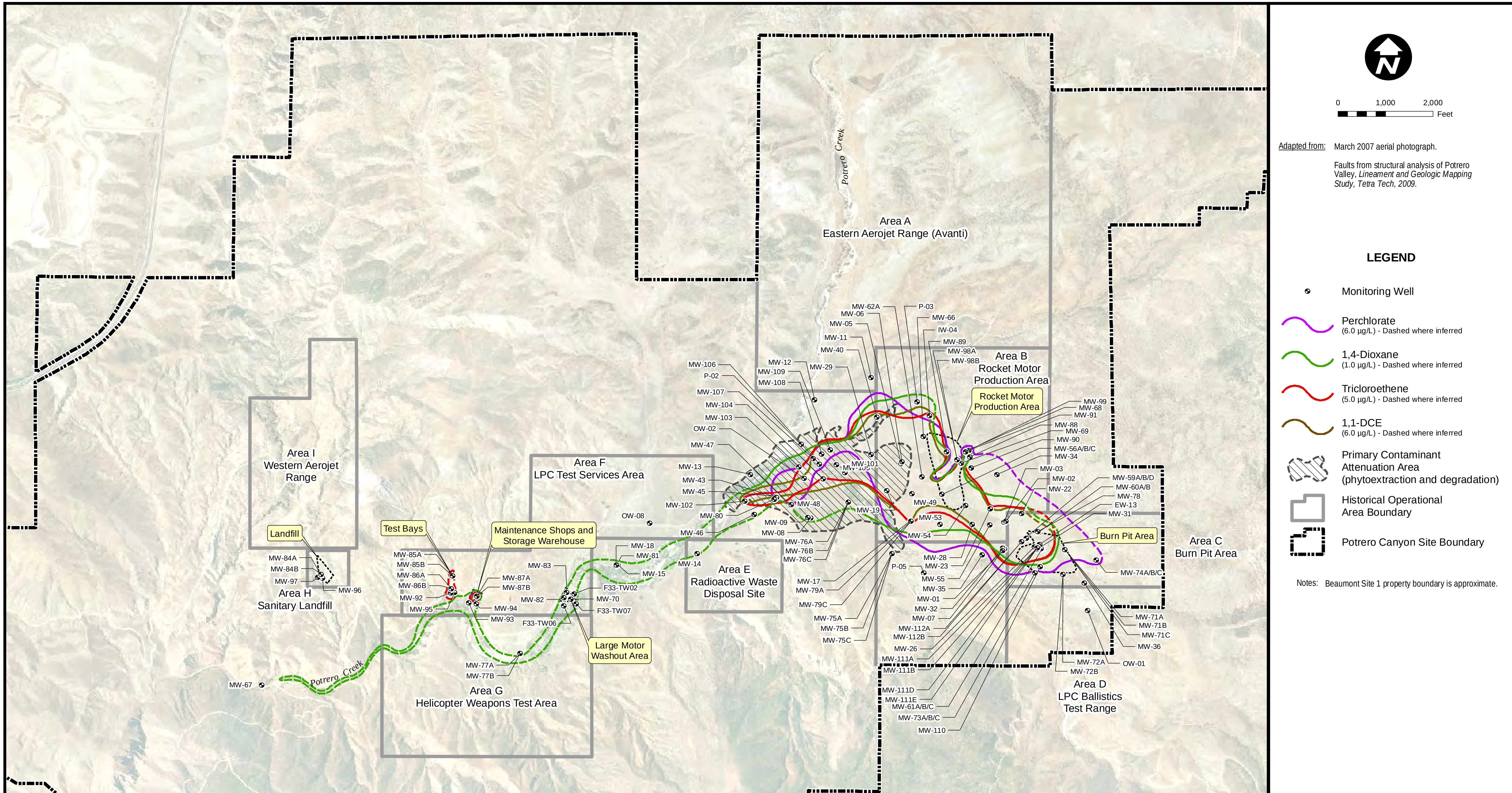
Figure 18

1,4-Dioxane Isoconcentration Map (µg/L) for Alluvium and Shallow Mount Eden Formation

TETRA TECH

P:\GIS\Lockheed_S1_Q10214Diox.mxd

P:\GIS\Lockheed_S1_Q1Q214COPC Extents.mxd

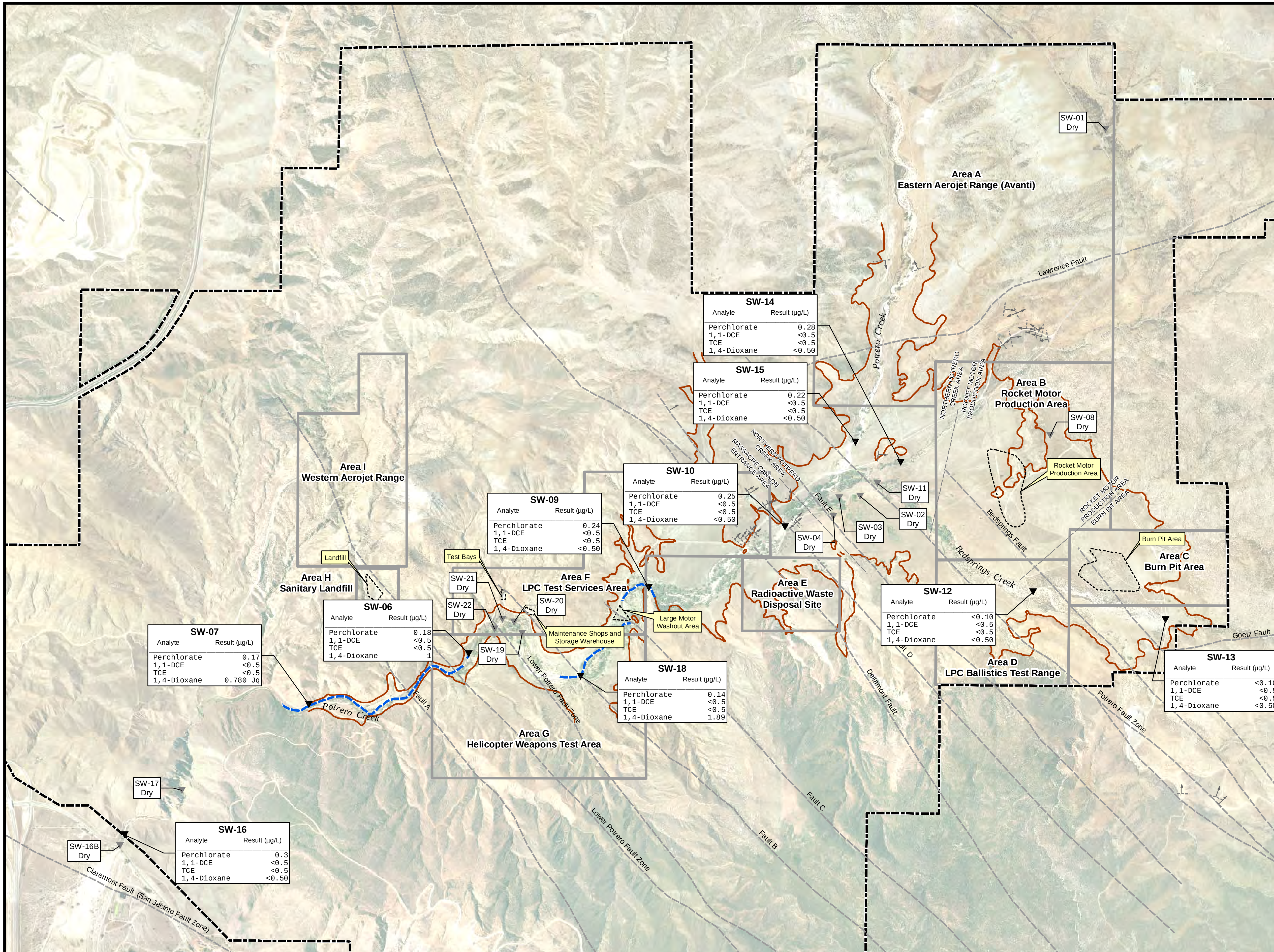


Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 19
Primary Chemicals of Potential Concern Extents for Alluvium and Shallow Mount Eden Formation

TETRA TECH

Path: P:\GIS\Lockheed_S1_Q1Q214\SurfWater_Q114 COPC.mxd



0 1,000 2,000
Feet

Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

LEGEND

- Surface Water Sample Location
- Surface Water Sample Location - Dry
- Surface Water Flow
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Bedrock/Alluvium Surface Contact
  Dashed where inferred
- Source Areas
- Potrero Canyon Site Boundary
- Historical Operational Area Boundary

Notes:

DCE - Dichloroethene.

TCE - Trichloroethene

µg/L - Micrograms per liter.

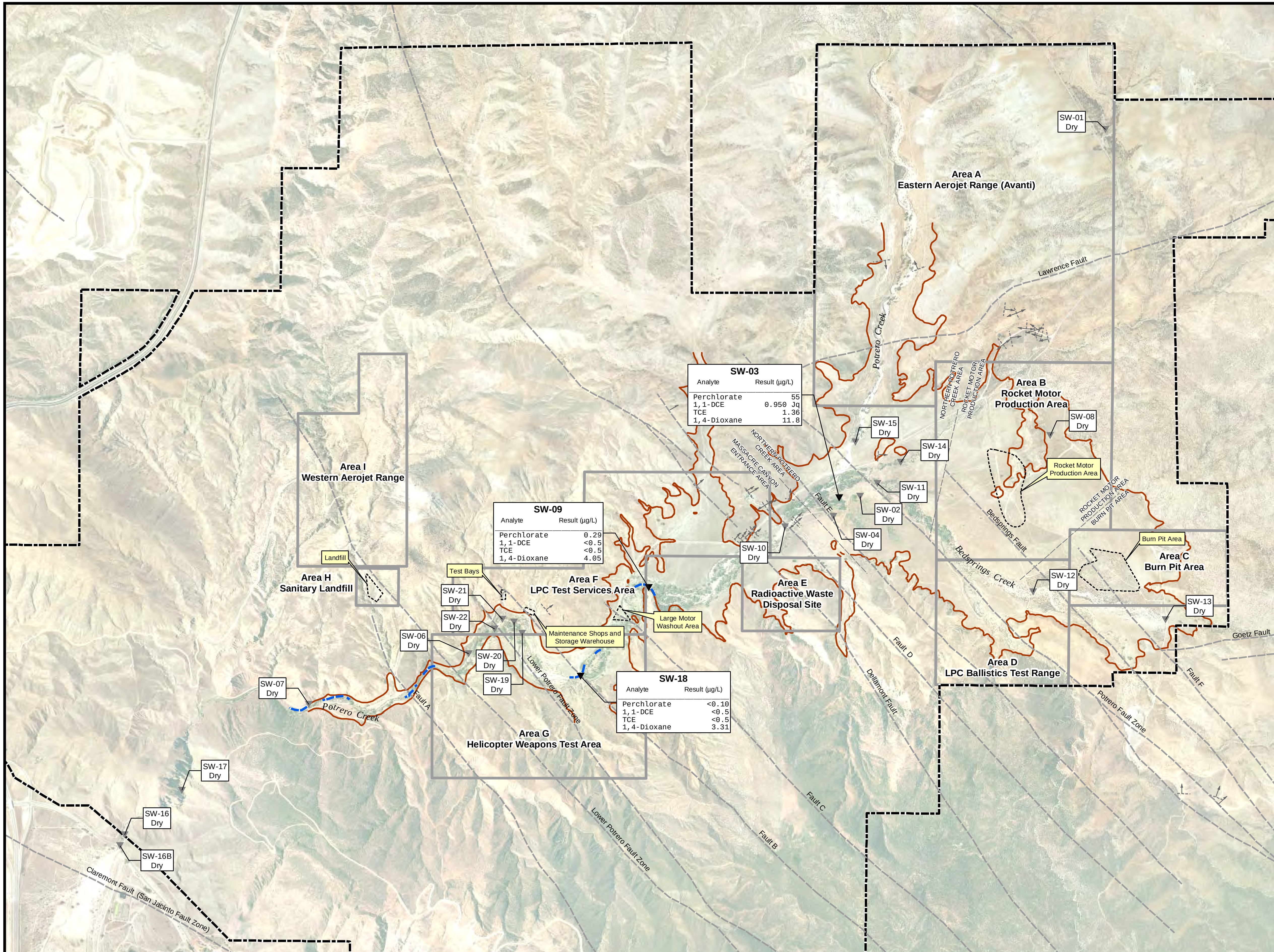
Beaumont Site 1 property boundary is approximate.

Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 20
Storm Water Primary Chemicals of Potential Concern Sampling Results (µg/L) First Quarter 2014

TETRA TECH

Path: P:\GIS\Lockheed_S1_Q1Q214\SurfWater_Q214 COPC.mxd



0 1,000 2,000
Feet

Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

LEGEND

- Surface Water Sample Location
- Surface Water Sample Location - Dry
- Surface Water Flow
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Bedrock/Alluvium Surface Contact
  Dashed where inferred
- Source Areas
- Potrero Canyon Site Boundary
- Historical Operational Area Boundary

Notes:

DCE - Dichloroethene.

TCE - Trichloroethene

µg/L - Micrograms per liter.

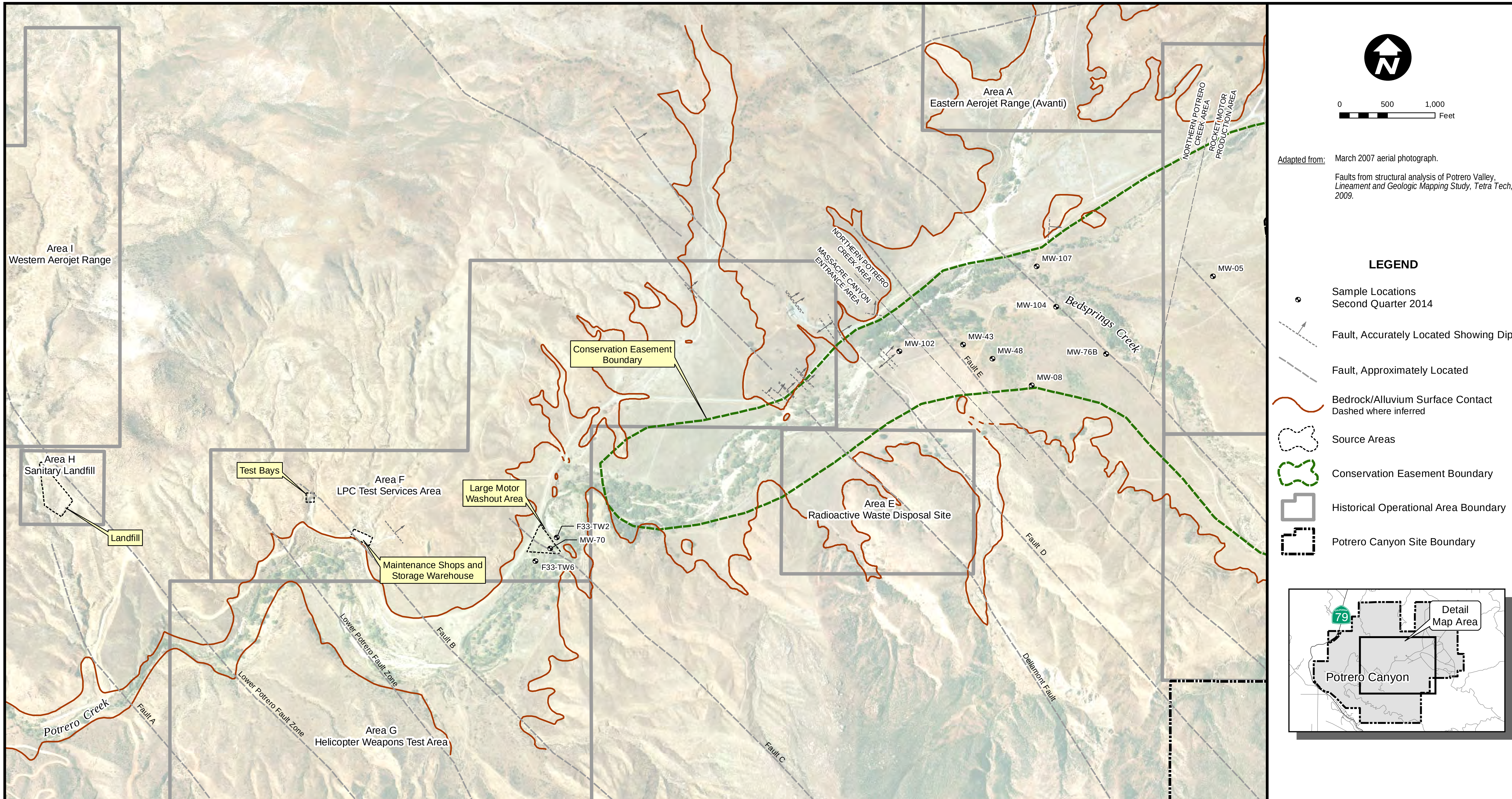
Beaumont Site 1 property boundary is approximate.

Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 21
Surface Water Primary Chemicals of Potential Concern Sampling Results (µg/L)
Second Quarter 2014

TETRA TECH

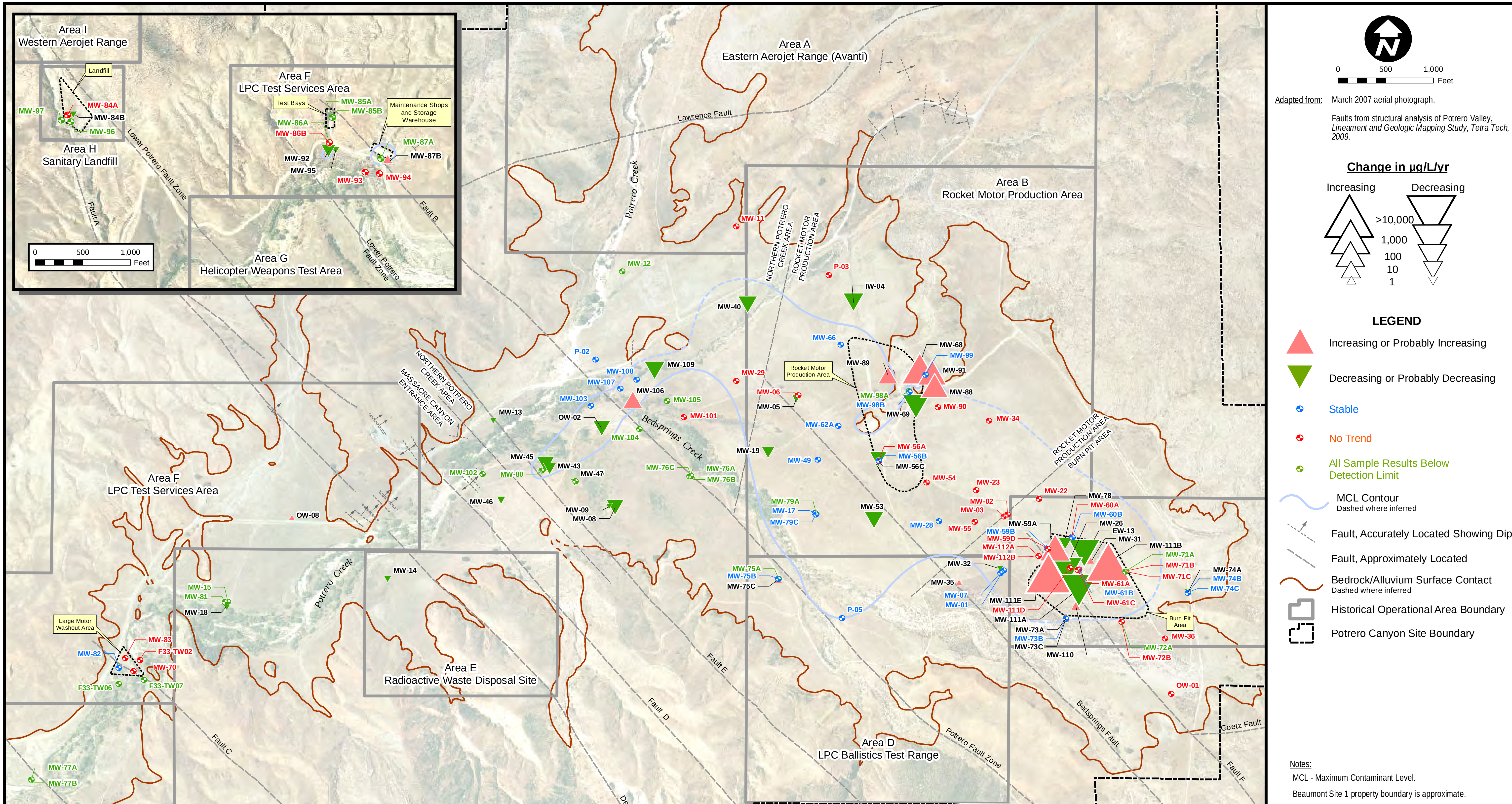
P:\GIS\Lockheed_S1_Q1Q214\MNA Sample.mxd



Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 22
Contaminant Attenuation Sampling Locations Second Quarter 2014

TETRA TECH



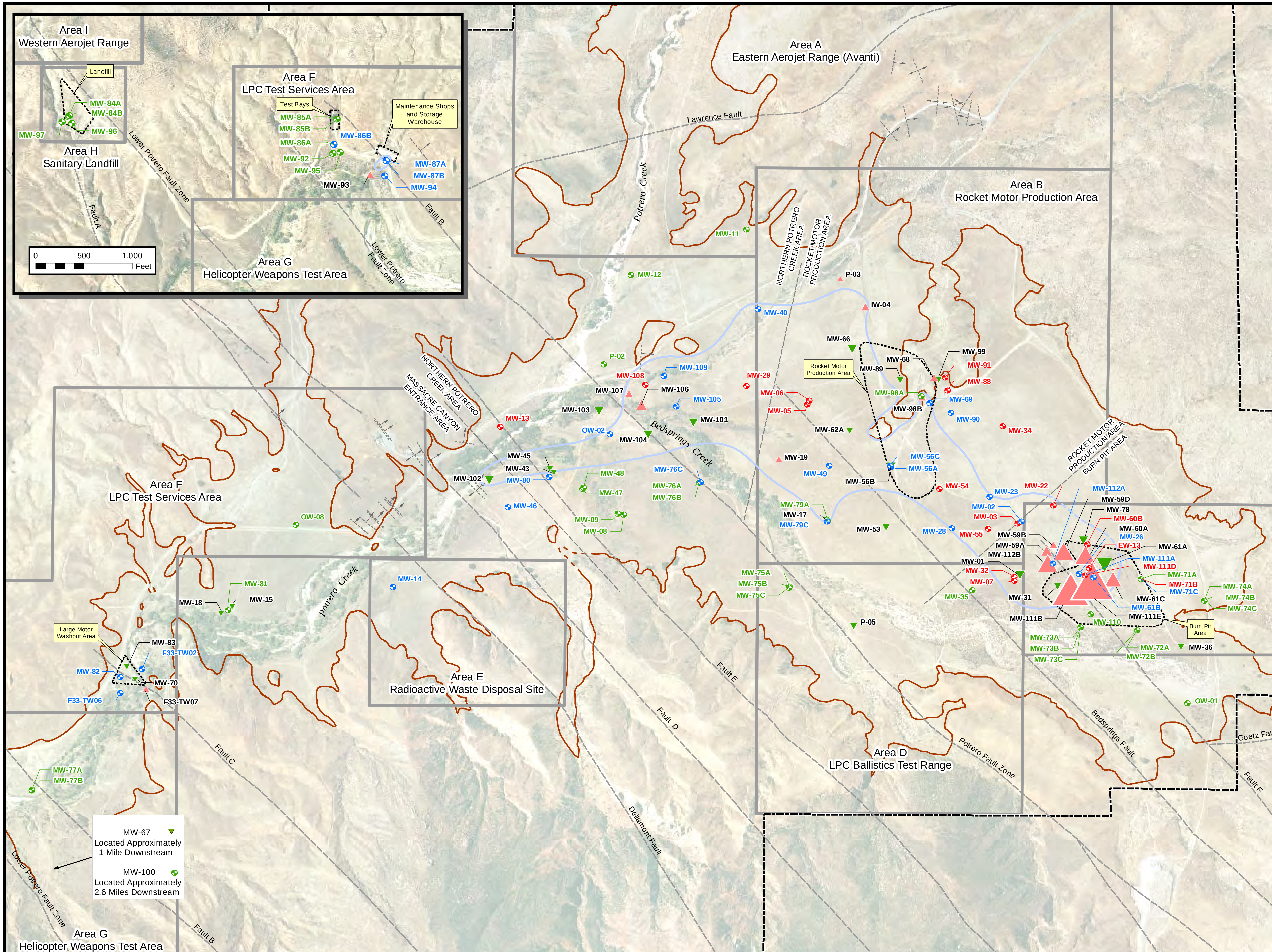
Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 23

Perchlorate Statistical Summary Analysis Results with Overlay Extent for Alluvium and Shallow Mount Eden Formation

TETRA TECH

P:\GIS\Lockheed_S1_Q10214\Trend DCE.mxd



0 500 1,000 Feet

Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

Change in µg/L/yr

Increasing Decreasing

>10,000
1,000
100
10
1

LEGEND

- Increasing or Probably Increasing
- Decreasing or Probably Decreasing
- Stable
- No Trend
- All Sample Results Below Detection Limit
- MCL Contour
  Dashed where inferred
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Bedrock/Alluvium Surface Contact
  Dashed where inferred
- Historical Operational Area Boundary
- Potrero Canyon Site Boundary

Notes:

MCL - Maximum Contaminant Level.

1,1-DCE - 1,1-Dichloroethene.

Beaumont Site 1 property boundary is approximate.

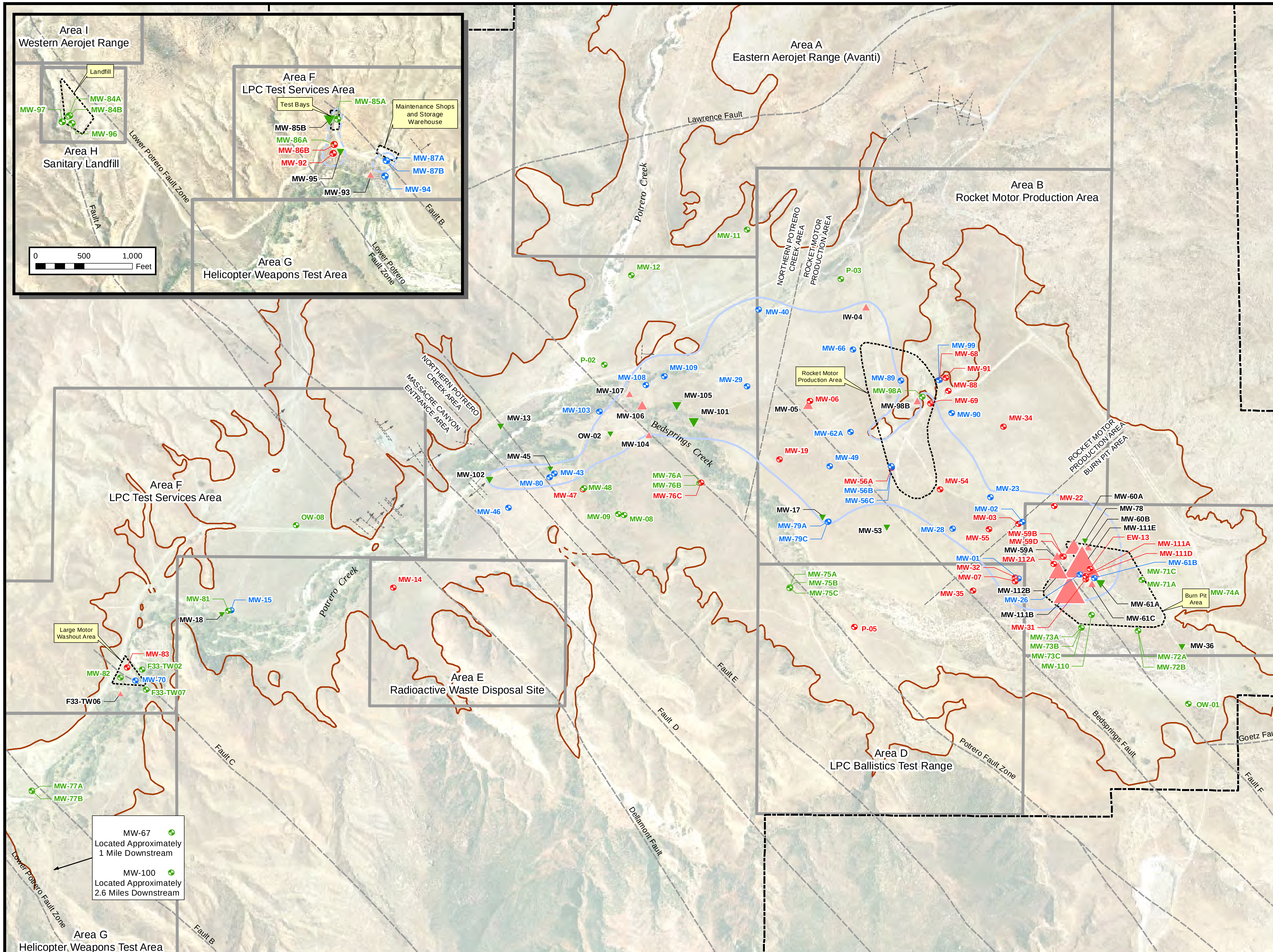
Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 24

1,1-DCE Statistical Summary Analysis Results with Overlay Extent for Alluvium and Shallow Mount Eden Formation

TETRA TECH

P:\GIS\Lockheed_S1_Q1\02\14\Trend TCE.mxd



0 500 1,000
Feet

Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

Change in µg/L/yr

Increasing | Decreasing
>10,000
1,000
100
10
1

LEGEND

- Increasing or Probably Increasing
- Decreasing or Probably Decreasing
- Stable
- No Trend
- All Sample Results Below Detection Limit
- MCL Contour
  Dashed where inferred
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Bedrock/Alluvium Surface Contact
  Dashed where inferred
- Historical Operational Area Boundary
- Potrero Canyon Site Boundary

Notes:

MCL - Maximum Contaminant Level.

TCE - Trichlorothene.

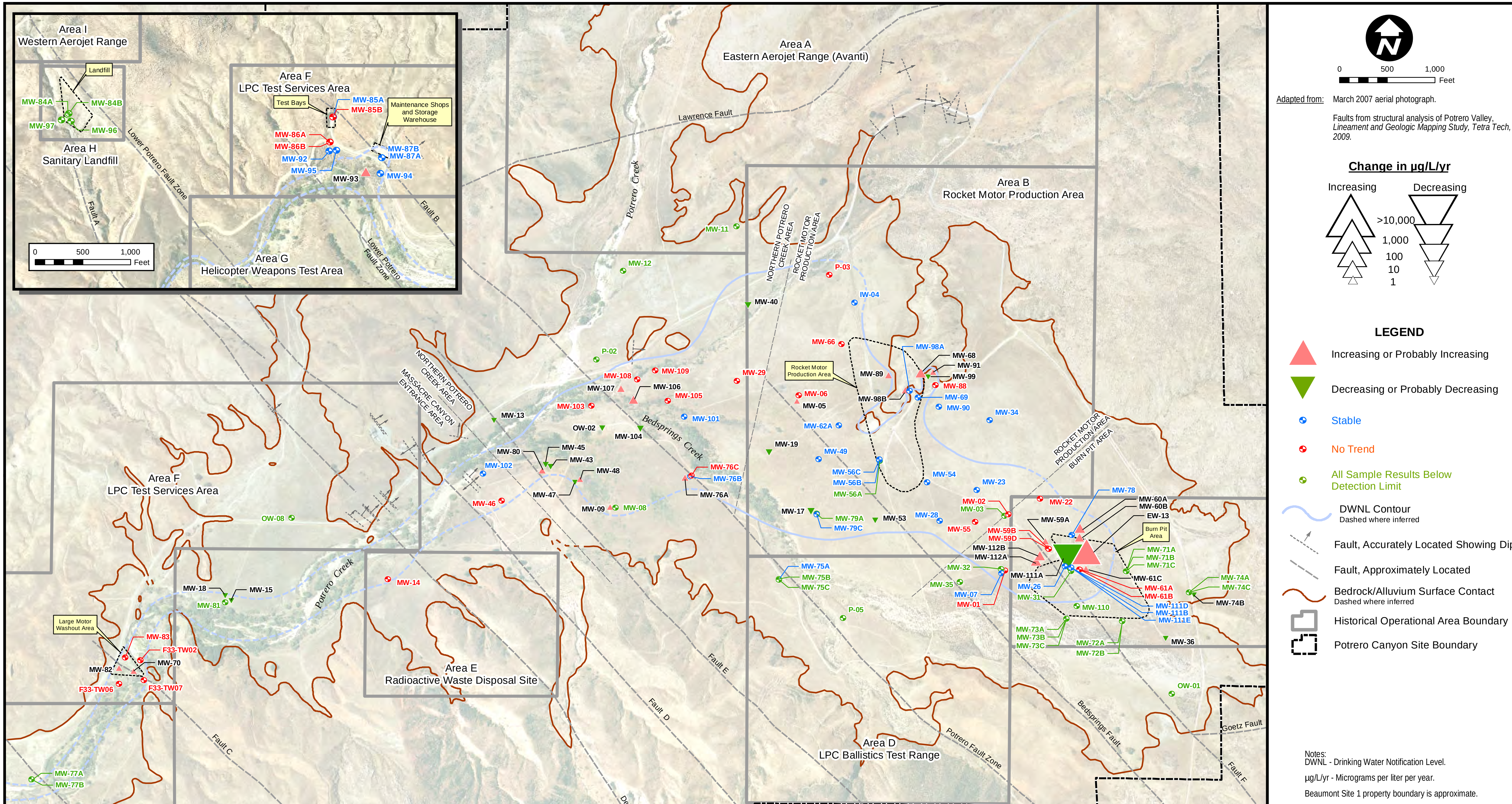
Beaumont Site 1 property boundary is approximate.

Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 25

TCE Statistical Summary Analysis Results with Overlay Extent for Alluvium and Shallow Mount Eden Formation

TETRA TECH



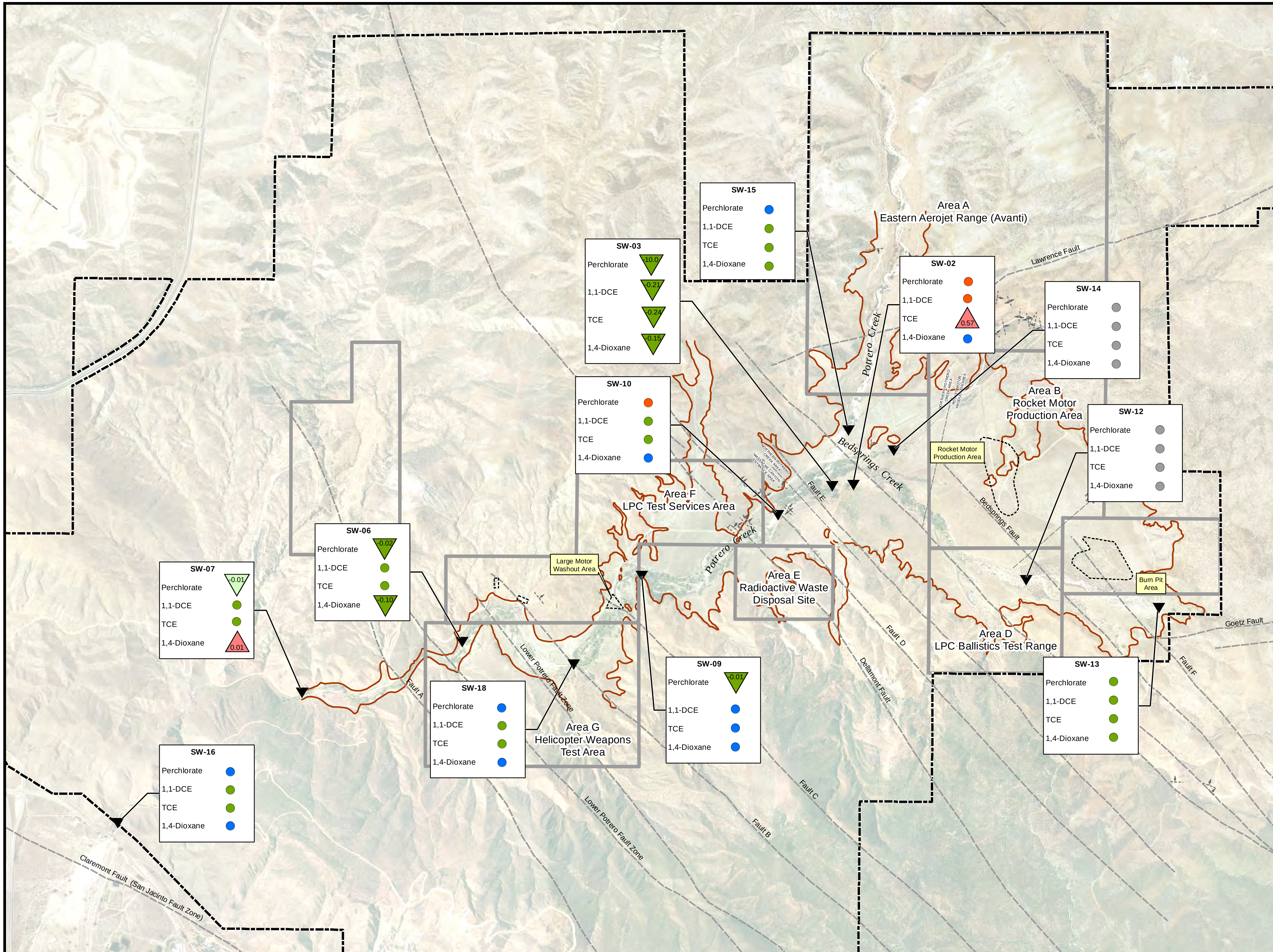
Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 26

1,4-Dioxane Statistical Summary Analysis Results with Overlay Extent for Alluvium and Shallow Mount Eden Formation

TETRA TECH

P:\GIS\Lockheed_S1_Q1Q2\14\Trend Surf_Water.mxd



Adapted from: March 2007 aerial photograph.

Faults from structural analysis of Potrero Valley, *Lineament and Geologic Mapping Study, Tetra Tech, 2009.*

LEGEND

- Increasing or Probably Increasing
- Decreasing or Probably Decreasing
- Stable
- No Trend
- All Sample Results Below Detection Limit
- Sample Not Available
- Surface Water Sample Location
- Fault, Accurately Located Showing Dip
- Fault, Approximately Located
- Bedrock/Alluvium Surface Contact
  Dashed where inferred
- Historical Operational Area Boundary
- Potrero Canyon Site Boundary

Notes:

Beaumont Site 1 property boundary is approximate.

Potrero Canyon
(Lockheed Martin Beaumont Site 1)

Figure 27

Suface Water Statistical Summary Analysis Results

TETRA TECH