### APPENDIX

Water Quality Report on Impacts to Kawa Stream from Proposed Expansion of Hawaiian Memorial Park – July 2018 Prepared by: Element Environmental LLC

### Kawa Stream Watershed Impact Analysis Report

Water Quality Report on Impacts to Kawa Stream from Proposed Expansion of Hawaiian Memorial Park Kaneohe, Oahu, Hawaii



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Prepared by:



July 2018

#### **Executive Summary**

This report evaluates the impacts to water quality in Kawa Stream resulting from the proposed expansion of the Hawaiian Memorial Park (HMP) into 53.45-acres of currently undeveloped forest land located adjacent to the existing cemetery. The flow and water quality of perched groundwater input and storm runoff to Kawa Stream and its tributaries was monitored over a 71-day period between December 11, 2017 and February 20, 2018. A cutthroat flume was installed just above the end of Lipalu Street to monitor the volume of ephemeral storm water runoff that flows in the drainageway within the undeveloped, forested watershed into which the proposed cemetery expansion will occur. Rating curves were also developed for the United States Geological Survey (USGS) gaging station located on the lower reaches of Kawa Stream. The mean concentration levels of nutrients (total phosphorous, total nitrogen and nitrates) and total suspended solids (TSS) at various monitoring locations within the Kawa stream watershed were determined by combining the analytical results obtained on samples collected during this and previous studies. In addition, a total of 42 samples of perched groundwater and stream water collected under groundwater and rainfall runoff dominant flow conditions were analyzed for pesticide content during this study.

Groundwater input was found to be the primary source of nitrate to Kawa stream. The total phosphorous, total nitrogen and pesticide (i.e. glyphosate) loads in the stream were determined to be related to particulate loading to the stream during rainfall runoff events. The vast majority of nutrients, TSS and pesticides leave the watershed during large, intense rainfall events. The storm event during the afternoon of 2/18/2018 contributed the majority of nutrient and sediment load to Kaneohe Bay during the 71-day monitoring period of this study. The maximum rainfall intensity measured at a tipping-rain gauge on the hillside above the cemetery during this storm event was 2.51 inches per hour (by comparison the 10 year-1 hour rainfall intensity for the Kaneohe area is 2.96 inches).

The water quality of runoff measured at the Lipalu flume during this study indicates that the runoff from the existing forested watershed is characterized by highly elevated levels of TSS, total nitrogen and total phosphorous compared to storm water generated elsewhere in the watershed that enters Kawa Stream. The draft preliminary engineering report for the proposed cemetery development calls for installation of retention basins with 12,500 cubic feet (93,500 gallons) of storage in the lower portion of the development that will improve the water quality of the storm water runoff currently exiting the property (Sam O. Hirota, 2018). These retention basins will lower the TSS, and to a lesser degree total nitrogen and total phosphorous loads, entering Kawa stream by retaining and treating (by settling) the first flush of runoff generated during the infrequent high-intensity rainfall events that initiate surface water runoff from the portion of the currently forested watershed that will be converted to cemetery use.

#### Introduction

There are plans to expand the size of the existing 80-acre HMP cemetery into an adjacent, makai 53.45-acre plot of undeveloped land to accommodate future burial sites as the existing cemetery is reaching capacity. Previous land uses on this undeveloped property included grazing and possibly agriculture (pineapple cultivation) use. Only 28.2 of the 53.45-acre expansion area would be used for cemetery use. The remaining 25.25 acres would consist of internal roadways (3-acres), open space (7.75-acres), and land for the establishment of a cultural preserve (14.5-acres). Small private structures will be placed throughout the cemetery grounds with special features, garden walls, walkways, and monuments similar to that present within other areas of the existing HMP. After grading of the undeveloped lot to establish appropriate slopes, the majority of the land would be landscaped with turf and would match the general appearance of the existing cemetery.

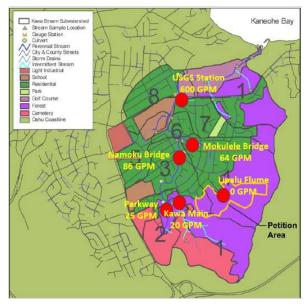
The watershed in which the cemetery expansion will occur does not have any perennial streams but does contain two drainageways that convey storm water runoff originating from the watershed during periods of heavy rainfall. Runoff within the watershed generally follows the existing topography and flows in an overall northwest direction toward the Pikoiloa Tract subdivision. The Pikoiloa subdivision does have a drainage system that collects storm water runoff from residences and roadways and channels this runoff into Kawa Stream and ultimately into Kaneohe Bay. The majority of runoff that will be generated from the proposed development currently flows into a large drainage culvert constructed just mauka of the end of Lipalu Street. The western end of the proposed development drains to a smaller drainage culvert located on Ohaha Place. This culvert receives runoff from the forested hillslope located above Ohaha Place as well as from seepage from the area around a Plantation era well located within this watershed.

#### **Project Site Description**

Kawa Stream is a perennial stream composed of approximately 2.8 miles of main and tributary stream courses located within a 1.13 square mile (723.2 acre) watershed in Kaneohe, Hawaii. The contributory watershed has a maximum elevation of 938 feet (286 meters). On maps, the main course of Kawa Stream is depicted as originating within the Hawaii State Veteran's Cemetery. The stream has an average gradient of 11% before discharging into the southern portion of Kaneohe Bay. During dry periods of the year, the uppermost groundwater baseflow actually enters Kawa stream from the basin located below the HMP. The stream receives perched groundwater input and storm runoff that originates from both forested and urbanized areas that include two cemeteries (HMP and the adjacent Hawaii State Veteran's Cemetery), residential and commercial developments, schools and parks, a golf course, and a municipal sewer pumping station. The eastern edge of this watershed is delineated by the ridge of hills that separate Kaneohe from Kailua, and the shoreline runs from Kokokahi and BayView GolfPark on the east to Waikalua (an early Hawaiian fishpond) on the west.

Kawa Stream is a Class 2 inland water body. The objective of Class 2 waters is to protect their use for recreational purposes, the support and propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation. (Hawaii Administrative Rules §11-54-03). A Stream Bioassessment report prepared for Kawa Stream found that the stream does not in general provide good habitat for native aquatic organisms and does not support any substantial populations of native fish and crustaceans (Burr, 2001).

Kawa stream is perennial due to baseflow that originates from springs located throughout the watershed which are fed by shallow, likely discontinuous perched groundwater bodies. The watershed contains both upland forestland and comparatively impervious residential areas which (along with roadways) are estimated to cover approximately 40% of the total watershed (Oceanit 2002). The average volume of groundwater input to Kawa Stream above the USGS monitoring station site during the monitoring period evaluated during this study (December 2017 to February 2018) is estimated to be around 600 gallons per minute (GPM). The adjacent figure shows the flow rates measured in various portions of Kawa Stream and its tributaries on February 12, 2018 after five days of dry conditions. The stream flow measured at the Parkway site reflects the approximate volume of baseflow that originates from the basin located below the current HMP. A seepage run conducted on January 25, 2018 in the basin below the existing cemetery measured spring flow of 5 gpm in the



slope below the cemetery's maintenance facility, 2 gpm from the nearby buried culvert that drains the cemetery and receives perched groundwater input and around 8 gpm of perched groundwater inflow across the course of the small stream as it flows from the spring and culvert to behind the recreational center at Parkway. Water samples collected during this and previous studies from various monitoring locations throughout the watershed after several days of no rain reflect the water quality of the perched groundwater rather than the water quality of rainfall runoff.

#### Kawa Stream TMDL

The Clean Water Act required the State of Hawaii to initiate a pollutant-specific water quality planning process that would identify impaired waters within the state. More than 30 streams on Oahu were initially identified by the State as water-quality impaired, primarily for exceeding standards for nutrients and suspended sediment (Henderson and Harrigan, 2002). The State contracted Oceanit Laboratories, Inc., and AECOS, Inc. to conduct a technical study of water pollution in Kawa Stream and to determine relationships between measured pollutant loads and State water

quality standards (Oceanit 2002). Based on the findings from this study, Kawa stream was included in the list of impaired streams for nutrients (total nitrogen and phosphorous), turbidity and suspended solids prepared by the Hawaii Department of Health in 2004 to comply with Sections (§) 303(d) and 305(b) of the Clean Water Act (HDOH 2004). The State of Hawaii continues to coordinate with stakeholders and government agencies to reduce nonpoint-source pollution under the United States Environmental Protection Agency's Total Maximum Daily Load (TMDL) program of the Clean Water Act.

The Oceanit study established TMDLs, which reflect the maximum rate at which Kawa Stream can receive certain pollutants (in this case, nutrients and sediments) without exceeding the State's water quality standards. This TMDL report concluded that excess nitrogen is the most common pollutant problem in the watershed. Excessive phosphorous and sediment loading within the stream occurred only during storm events. The study estimated that the largest source areas for the measured nitrogen and sediment loads was residential areas and cemetery lands (combined, about 68% and 65% of total loads, respectively), whereas the largest source areas for phosphorous loads were from forest land and residential areas (combined, about 67% of the total loads). One concern is that these pollutants could enhance unwanted algae growth within the Kawa stream and impact coral reef resources in the receiving waters of Kaneohe Bay. Kaneohe Bay is also listed on the 2004 303 (d) list for nutrients, nitrates/nitrites, NH4 (ammonia), turbidity, *chlorophyll a* and enterococci. Kaneohe Bay provides important habitat for freshwater and marine species of importance to subsistence, commercial and cultural uses.

#### **Monitoring Equipment Installation**

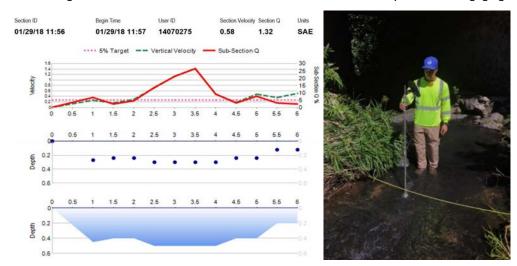
A 108-inch long, 48-inch wide cutthroat flume was installed in early December 2017 in the main drainageway exiting the undeveloped watershed into which the proposed cemetery expansion will occur. This drainageway receives storm water runoff from upland areas during periods of high-intensity rainfall. The flume is located approximately 200 feet mauka of the large cement drainage culvert constructed at the end of Lipalu Street. A pressure transducer was installed in the stilling well of the flume on December 11 to allow continuous monitoring of ephemeral stream flow within this drainageway. A manual rain gauge was installed on the ridgeline between the existing Hawaiian Memorial Cemetery and the adjacent watershed into which the cemetery expansion will occur on December 11, 2017. A tipping rain gauge was installed at the same location on December 18, 2017. Th tipping rain gauge recorded every one hundredth of an inch of rainfall that fell along the ridgeline at the project site which allowed determination of rainfall totals and intensities associated with individual storm events during the 71 days of monitoring.



Wooden 108-inch length, 48-inch wide cutthroat flume and rain gauges installed within watershed

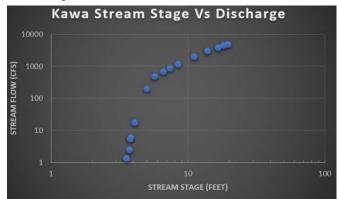
#### Flow Monitoring and Rating Curve Development

The United States Geological Survey (USGS) began real-time stream flow monitoring at a gaging station located just mauka of Kaneohe Bay Drive in October 2016. The USGS currently provides real-time stage (height of stream flow) data rather than flow volume estimates on their hydrologic website because a rating curve has not yet been developed for this monitoring station. During this study, we developed two rating curves for this gaging station by making a series of flow measurements of stream flow at different stream stages (stream height) and combining this information with other point measurements of stream flow made by the USGS at this station since 2012. The flow within the stream was measured using a Pygmy meter which measures stream flow velocity and stream depth at six-inch intervals along a selected cross-section of the stream located in the vicinity of the USGS gaging station.



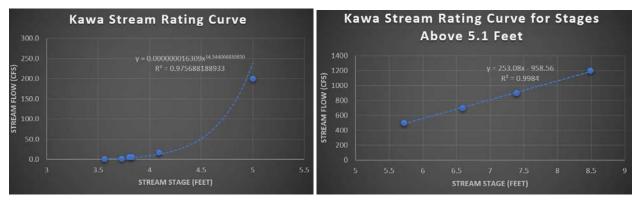
Measuring Stream Flow within Kawa Stream Using Pygmy Meter and Resultant Output from Measurements

The table and figure below contain and depict the existing data available for establishing a rating curve for the USGS monitoring station.



Flow (GPM)	Stage (Feet)	Flow (cfs)	Measurement	Date
Flow	Measure	ments Ma	de During Curren	t Study
593	3.56	1.3	Pygmy	1/29/2018
1110	3.73	2.5	Visual	2/15/2018
2455	3.8	5.5	Pygmy	2/15/2018
2715	3.83	6.1	Pygmy	2/15/2018
8000	4.09	17.8	Visual	2/14/2018
90000	5	200.5	Visual	2/14/2018
Prior USGS	6 Flow Me	asureme	nts at Current Mo	nitoring Site
224400	5.72	500	Visual?	3/12/2012
314160	6.59	700	Visual?	3/12/2012
403920	7.39	900	Visual?	3/12/2012
538560	8.49	1200	Visual?	3/12/2012
897600	11.07	2000	Visual?	3/12/2012
1346400	13.85	3000	Visual?	3/12/2012
1795200	16.63	4000	Visual?	3/12/2012
2019600	18.15	4500	Visual?	3/12/2012
2244000	19.59	5000	Visual?	3/12/2012

A break in slope is observed in the stream stage versus stream flow graph around a stage height of 5.1 feet. This stage height corresponds to a rise in stream level to a height where the stream expands to its maximum width between the hardened rock walls present along both sides of the stream at the USGS gaging station location. Because of this observed break in slope, two separate rating curves were developed to convert the stage readings measured at the USGS gaging station into stream flow values. For stage height so to 5.1 feet, a power equation relationship was developed for converting measured stage height into stream flow values. For stage height showe 5.1 feet, a linear equation relationship was developed to convert measured stage height values into stream flow values (see graphs below). The two photographs show the change in stream width that occurs in the vicinity of the USGS gaging station during low, baseflow conditions and at higher stage levels during storm events.



Rating Curve Equations Developed for Kawa Stream Gaging Station for Stage Heights Above and Below 5.1 Feet



Change in Kawa Stream Width Under Low Flow Conditions and Storm Flow Conditions at USGS Gaging Station

#### Spring, Perched Groundwater and Stream Sampling

Stream samples were collected for nutrient and total suspended solid (TSS) analysis from two primary locations during this study; the main stream course at the new USGS gaging station located just mauka of Kaneohe Bay Drive

and from the small groundwater fed tributary that enters the main course of Kawa Stream behind the Parkview recreation center. The USGS monitoring site receives groundwater input and stormwater runoff from the entire watershed located mauka of Kaneohe Bay Drive while the Parkview monitoring site receives groundwater input and stormwater runoff from the existing Hawaiian Memorial Cemetery and the adjacent residential community (Leleua Place and Lelelua Loop).

Perched groundwater was collected for nutrient and formaldehyde analysis from two locations during this study: a small spring (Cascade Spring) located in the hillslope below the maintenance yard at HMP and from an old cement collection structure (Plantation Well) located below the new most recent expansion of HMP. The cement collection structure is a twelve-foot deep vault that was likely constructed to capture shallow perched groundwater while the area was formerly used for cattle grazing or pineapple cultivation. Additional stream and perched groundwater samples were collected from these primary monitoring locations and additional sites located throughout the watershed during this study for pesticide analysis.



Perched Groundwater Sampling Sites: Plantation Well and Cascade Spring



USGS Kawa Stream Gauge Sampling Site and Maintenance Culvert Sampling Sites

#### Spring, Perched Groundwater and Stream Sampling Results

The mean concentration of nutrients and TSS measured during this study, ongoing USGS measurements, and previous Oceanit, and Hawaii Department of Health water quality studies (Oceanit 2002) at monitoring sites within the Kawa Stream watershed are summarized in the table below. In addition, four perched groundwater samples collected from the Cascade Spring and Plantation Well were also analyzed for formaldehyde. Formaldehyde was not detected in any of these samples at an analytical detection limit of 5 parts per billion.

Location	Flow Regime	Total Phosphorous	Total Nitrogen	Nitrate plus Nitrite	Total Suspended Solids	Sample Count
		mg/L	mg/L	mg/L	mg/L	
Perched Groundwater	Groundwater Dominant	0.11	1.7	1.29	12.1	5
Bayview Golf Course	Groundwater Dominant <sup>1</sup>	0.04	1.45	1.09	2.6	24
Bayview Golf Course	Runoff Dominant <sup>2</sup>	0.11	0.73	0.40	262.0	1
Kawa Stream-USGS	Groundwater Dominant	0.07	0.95	0.70	7.6	2
Kawa Stream-USGS	Runoff Dominant	0.90	2.10	0.25	189.2	22
Parkway	Groundwater Dominant	0.04	1.07	0.79	4.9	26
Parkway	Runoff Dominant	0.37	1.04	0.38	96.5	7
Lipalu Flume	Runoff Dominant	1.04	10.8	0.25	3,470	2
<sup>1</sup> Groundwater Dominant	t if Conductance >200 μS/cm	or TSS < 20 mg/L				
<sup>2</sup> Runoff Dominant if Con	ductance < 200 μS/cm or TSS	> 20 mg/L				

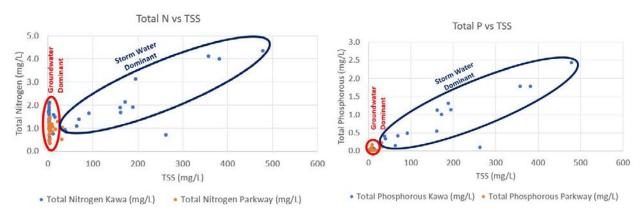
The perched groundwater samples include data collected from the Plantation Well, the Cascade Spring and the Maintenance Culvert during this study. The stream data from Bayview Golf Course was collected by the Hawaii Department of Health over a year of monthly stream monitoring conducted between September 1999 to September 2000 (Oceanit 2002). These samples were collected from a small bridge within Bayview Golf Course located about 1,000 feet north and downstream of the USGS monitoring station. The nutrient data for the Kawa Stream location was obtained from samples conducted by E2 during this study, from water quality sampling conducted at this location by the USGS since early 2017, and from data obtained during the Oceanit TMDL study (Oceanit, 2002). The nutrient data for the Parkway site was collected during this study, the Oceanit TMDL study and the yearlong HDOH monitoring conducted between 1999 and 2000. The nutrient data for the Lipalu Flume was collected during this study.

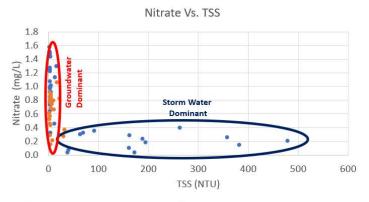
The nutrient data collected from the Bayview, USGS Gauge and Parkway sites was broken into two sets based upon the flow conditions present at the time the samples were collected. If the turbidity measured in the sample was less than 20 NTU and the electrical conductance above 200  $\mu$ S/cm, then the sample was considered to be predominately composed of water that originated from groundwater input to the stream. If the turbidity of the sample was above 20 NTU and the electrical conductance below 200  $\mu$ S/cm, then the sample was considered to be predominately composed of storm water runoff. The data in this table clearly shows that groundwater dominant baseflow within Kawa stream is characterized by relatively low concentrations of total phosphorous (0.04-0.11 mg/l) and total suspended solids (4.9-12 mg/l), intermediate concentrations of total nitrogen (0.95-1.7 mg/l) and somewhat elevated concentration levels of Nitrate plus Nitrite (0.70-1.29 mg/l). Runoff dominated stream samples tend to have somewhat elevated concentrations of total phosphorous (0.11-1.04 mg/l), elevated concentration levels of total suspended solids (96.5-3,470 mg/l), elevated concentrations of total nitrogen (1.45-10.8 mg/l) and comparatively low concentration levels of Nitrate plus Nitrite (0.25-0.40 mg/l). The photo below visually depicts the range in turbidity of the stream and tributary samples collected from throughout the watershed during the storm event on 2/7/2018 that lasted from 12:30 to 19:15.



2/7/18 Storm Samples (L to R): Kawa@12:53; Kawa@13:35; Mokulele Bridge@13:40; Parkway Bridge@13:46; Parkway@13:52; Lipalu Flume@14:00; Kawa@14:10

The following graphs depict the relationship between nutrients (Total Nitrogen, Nitrate and Total Phosphorous) and total suspended solids measured at the USGS Kawa Stream gaging site and behind the Parkway Recreational Center. The data plotted on the left side of these variation diagrams (TSS from  $0 \sim 25 \text{ mg/l}$ ) represent stream samples that predominately originated from perched groundwater input (which are characterized by generally low TSS concentrations, see previous table of mean TSS values measured in the watershed under groundwater and runoff dominant conditions) while the higher TSS concentration data represent samples composed predominately of storm water runoff.





Nitrate Nitrite as N Kawa (mg/L)
 Nitrate Nitrite as N Parkway (mg/L)

The nitrate versus TSS graph clearly indicates that groundwater is the primary source of nitrates to Kawa Stream. The strong correlation observed between total phosphorous concentrations and total suspended sediment indicates that the increasing concentrations of phosphorous are likely related to particulate loading to the stream during rainfall runoff events. The increasing total Nitrogen concentrations and low nitrate concentrations measured in samples containing high concentrations of TSS suggest that increasing concentrations of inorganic nitrogen are also related to particulate loading to the stream during rainfall runoff events. The fact that the samples collected from the Parkway site plot along the same variation trends as the Kawa Stream data suggest that the nutrient and TSS contribution to Kawa Stream from the existing cemetery are not elevated compared to the contributions of these constituents received from the urban portion of the watershed.

The total phosphorous, total nitrogen and total suspended solids concentrations present in the runoff measured at the Lipalu Flume from the undeveloped watershed are elevated in comparison to the concentrations of these constituents measured elsewhere throughout the watershed. The total suspended solid concentrations present in the runoff from this undeveloped forestland is particularly elevated compared to concentrations measured elsewhere, including the Parkway monitoring site which receives runoff from the existing cemetery. The elevated concentrations may reflect the higher amounts of rainfall and rainfall intensity required to initiate flow within this

forested watershed. The photographs below show the turbid, chocolate-brown runoff that passed through the Lipalu flume during the storm event on 2/5/2018.



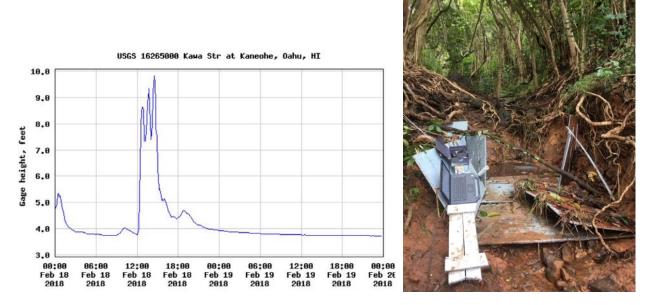
Turbid Runoff at Lipalu Flume on 2/5/2018 around 15:30

#### Kawa Stream and Lipalu Flume Flow Analysis

The volume of stream and runoff flow at the Lipalu Flume and USGS gaging station were continuously monitored from December 11, 2017 to February 18, 2018 and February 20, 2018, respectively. The volume of stream flow at the USGS station was determined by downloading the 15-minute stage values for this station for this period from the USGS website and converting the recorded stage values into flow volumes using the two rating curves developed during this study. The volume of storm water runoff at the Lipalu Flume during this period was determined by downloading the pressure transducer data collected from the stilling well in the flume. The transducer was programmed to measure water levels in the stilling well at one-minute intervals. The water level heights measured in the flume were then converted to water flow rates using the rating curves developed for the 108-inch long by 48inch wide flume that was installed in this drainageway. The monitoring period at the Lipalu Flume was terminated at noon of February 18, 2018 for this analysis since the large storm event that began shortly after noon on February 18 partially destroyed the Lipalu Flume just over two hours later. The pressure transducer at the flume recorded a water level of over 4.55-foot height shortly before the stilling well was uplifted and displaced and the side walls at the back end of the flume collapsed around 14:20. At the time of its collapse, the water level at the flume was over 1.5 feet higher than the sidewalls of the flume. A three-foot high level in the flume is associated with a flow rate of 80.4 cfs, or over 36,000 gallons per minute. It is likely that the peak flow volume during this intense storm was on the order of 200 cfs. The flow measured at the USGS gaging station rose from 10 cfs at 12:15 to 1,000 cfs at 12:30 during the initial intense period of rainfall associated with this storm.

Kawa stream is a perennial stream and is fed by perched groundwater input during dry periods of the year. The drainageway monitored by the Lipalu Flume only flow during large or high-intensity rainfall events. During the 71-

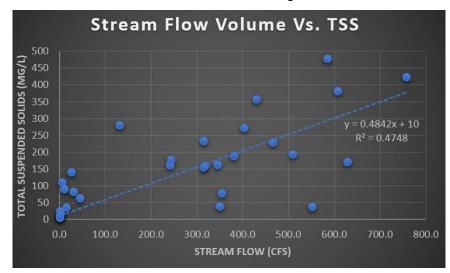
day monitoring period, runoff was measured at the Lipalu Flume on the following nine days: 12/26/17, 1/27/18, 2/4/18, 2/5/18, 2/7/18, 2/15/18, 2/15/18, 2/17/18 and 2/18/18. From December 11, 2017 to the morning of February 20, 2018, a total of 304 million gallons of water passed the USGS gaging station. A total of 203 million gallons of water passed the USGS gaging station between December 11, 2017 and noon February 18, 2018, just prior to the large storm event that destroyed the LIpalu Flume.

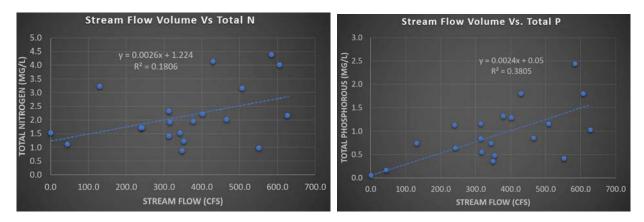


2/18/18 Storm Hydrograph and Resultant Damage to Lipalu Flume Where the Depth of Water Exceeded 4.5 Feet

#### Nutrient and Total Suspended Solids Runoff Analysis

The nutrient and total suspended loads that left the watershed was calculated using the flow and water quality data collected at the USGS monitoring station. Regressions were run between the total nitrogen, total phosphorous and total suspended solid concentrations measured in stream water at this monitoring site as a function of the stream flow (based on the stage level measured at the gaging station). The resulting variation diagrams are depicted below along with the linear regression equations and associated coefficient of determination, or r-squared values. The r-squared value is a statistical measure of how close the data fit the regression line.





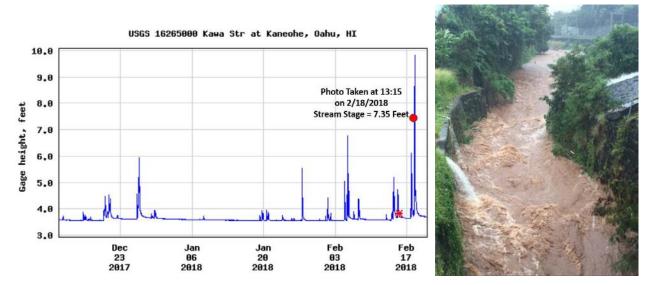
Relationship Between Stream Flow and Nutrient and TSS Concentrations at Kawa Stream Gaging Station

These regression equations were used to estimate the mass of total Nitrogen, total Phosphorous and TSS that passed by the USGS gaging station during the 71-day monitoring period between December 11, 2017 and the morning of February 20, 2018. A total of 304 million gallons of water flowed past the USGS gauge during the monitoring period. Using the regression equations developed in the variation diagrams above, it is estimated that 232,966 kilograms (256.8 tons) of suspended solids, 2,599 kilograms of total nitrogen (2.9 tons) and 1,155 kilograms of total phosphorous (1.3 tons) were entrained in this water passing the gauging station during the monitoring period. The vast majority of the sediment and nutrient loads were carried in Kawa Stream during nine storm events that occurred during the monitoring period. The table below summarizes streamflow and the estimated mass of TSS and total Nitrogen and Phosphorous associated with each storm event.

Storm Date/Time Start	Storm Date/Time End	Time Interval Streamflow (gal)	Mass of TSS (kg)	Mass of Total N (kg)	Mass of Total P (kg)
12/19/17: 17:00	12/21/18: 5:00	8,387,379	624	41	3
12/26/17: 10:30	12/27/17: 0:00	39,200,912	20,998	286	104
1/27/18: 13:00	1/27/18: 18:30	7,876,324	3,906	56	19
2/4/18: 20:30	2/5/18: 0:00	2,466,395	634	14	3
2/5/18: 6:30	2/5/18: 19:00	17,629,921	12,247	144	61
2/7/18: 12:30	2/7/18: 19:15	1,664,682	111	8	1
2/14/18: 7:00	2/14/18: 20:00	10,110,376	2,416	58	12
2/17/18 21:00	2/18/18 5:00	26,728,954	15,565	202	77
2/18/18 12:00	2/19/18 1:00	96,911,874	172,127	1,354	853
Total Storm F	low and Mass	210,976,816	228,628	2,162	1,134
Total Flow and Mass of Co from 12/11/1		304,270,034	232,966	2,599	1,155
Percentage of Flow and Con Rainfall	nstituent Mass During Nine l Events	69.3%	98.1%	83.2%	99.2%
Percentage of Flow and Rainfall Event that Starte		31.9%	73.9%	52.1%	73.9%

While 69.3 percent of the stream flow occurred during these nine storm events, 98.1 percent of the suspended sediment, 99.2% of the total phosphorous load and 83.2 percent of the total nitrogen load occurred during these nine discrete rainfall-runoff events. The USGS has observed that single storm events may deliver the equivalent of years, even decades, of the pollutant loads received by coastal waters over time under less extreme weather conditions. During a three-year sediment yield study of the Waikele watershed between 2007 and 2010, a single

storm event on December 11, 2008 accounted for more than 90 percent of the three-year suspended-sediment yield from the watershed (Izuka, 2012). The same phenomenon is observed in the Kawa watershed. The intense rainfall event that began around noon on 2/18/2018 accounted for roughly 74 percent of the total suspended sediment yield and total phosphorous load and 52 percent of the total nitrogen load measured over the entire 71-day monitoring period. As previously mentioned, the stream flow at the USGS gaging station rose 100-fold (from 10 to 1,000 cfs) in a fifteen-minute period of time during this storm. The resultant raging stream flow undoubtedly scoured the un-hardened portions of Kawa Stream leading to changes in the size, shape and composition of the channel. As a result, these large episodic storm events produce the vast majority of sediment and nutrient loads that enter Kaneohe Bay from Kawa Stream.



Kawa Stream Hydrograph During 71-Day Monitoring Period / Photo Taken at 13:15 During 2/18/18 Storm Event

#### Impact to TMDL from Proposed Cemetery Expansion

The storm water runoff data collected from the Lipalu Flume can be used to evaluate the future impact to suspended sediment and nutrient loads that exit the watershed as a result of the proposed cemetery expansion. The cemetery expansion is being designed with retention/detention basins that will capture and treat the runoff generated from

the developed cemetery lands (Sam O. Hirota, 2018). The proposed expansion involves converting a 53.45acre area from undeveloped forested land use to cemetery use. The watershed that contributes flow to the Lipalu flume is estimated to be approximately 56acres in size, approximately half of which will be covered by the proposed cemetery expansion. The onehour, 100-year design storm event for the Kaneohe area is around 4.5 inches/hour (City and County of Honolulu, 2000). The largest storm during the study monitoring period was the 2/18/18 event that started just after noon. The highest one-hour rainfall total associated with this runoff event was 2.51 inches which fell



between 12:05 and 13:05 on 2/18/18. The highest ten-minute rainfall intensity measured during this storm was 0.57 inches which fell at the beginning of this storm event between 12:05 and 12:15. This pulse of rain led to the measured streamflow in Kawa stream to increase from 10 to 1,000 cfs in fifteen minutes at the USGS gaging station (largely due to runoff from the impervious surfaces (roofs and roadways) within the lower portions of the watershed). The current engineering design for the cemetery expansion calls for installation of 12,700 cubic feet

(~95,000 gallons) of permanent retention/detention structures that will be used to temporarily store and infiltrate surface water runoff. The engineering analysis estimates that the detention/retention basins that will be constructed will reduce the volume of discharge associated with the design 10 year -1hr and the 100 year -1hr storm event by around 5.5% from the areas within the watershed that will be developed into a cemetery (Sam O. Hirota, 2018).

The table below summarizes the storm runoff volumes measured at the Lipalu Flume during the monitoring period. The large storm on 2/18/2018 led to the partial collapse of the flume around 14:20 as the water level in the drainage way reached about 4.5 feet height (1.5 feet above the top of the flume). Thus, the flow data and mass estimates of nutrient and suspended sediments for this storm event are not accurate but are provided to show that the volume of runoff from this single storm dwarfed the volume of runoff generated during the previous eight runoff events. Based upon the hydrograph measured at the USGS gaging station on Kawa Stream and the rainfall recorded during this storm event, it is likely that storm runoff continued to flow through the damaged flume for another four to six hours during this storm event and that the actual volume of storm runoff related to this storm was likely on the order of five to eight million gallons (or 3 to 6 times the total flow of all the previous runoff events during the monitoring period combined).

Flow Date / Time Start	Flow Date / Time End	Event Rainfall (inches)	Time Interval Streamflow (gal)	Mass of TSS (kg)	Mass of Total N (kg)	Mass of Total P (kg)	Notes
12/26/2017 11:15	12/26/2017 20:01	3.72	206,339	2,710	8.4	0.8	Less than 0.1" within 72hrs
1/27/2018 13:56	1/27/2018 14:36	1.03	17,126	225	0.7	0.1	Less than 0.1" within 72hrs
2/4/2018 21:24	2/4/2018 21:43	0.36	7,874	103	0.3	0.0	Less than 0.1" within 48hrs
2/5/2018 6:32	2/5/2018 16:49	1.24	202,757	2,663	8.3	0.8	
2/7/2018 13:23	2/7/2018 17:24	0.6	41,912	551	1.7	0.2	
2/14/2018 7:24	2/14/2018 17:19	1.6	208,783	2,742	8.5	0.8	Less than 0.1" within 48hrs
2/15/2018 4:33	2/15/2018 13:01	0.89	219,222	2,880	9.0	0.9	
2/17/2018 20:10	2/18/2018 7:24	2.26	542,017	7,120	22.2	2.1	
Total Meas	ured Flow		1,446,030	18,994	59.1	5.7	
2/18/2018 12:24	2/18/2018 14:20	6.95	2,563,491	33,672	104.8	10.1	***Flow Exceeded Flume Boundaries, Data Is Not Accurate***

The contribution of streamflow, total suspended solids and nutrients generated from the watershed in which the cemetery expansion will occur for the monitoring period between 12/11/2017 and noon on 2/18/2018 (before the large storm that destroyed the flume hit) is calculated in the table above. The measured volume of runoff generated by this watershed (1,446,030 gallons) represent approximately 0.71% of the total water flow measured at the USGS gaging station on Kawa stream during the same abbreviated monitoring period (202,958,400 gallons) between 12/11/2017 and noon 2/18/2018). The TSS, total nitrogen and total phosphorous loads measured in Kawa stream between 12/11/2017 and noon 2/18/2018 were 60,643, 1,225 and 301 kilograms, respectively. Thus, the total suspended solid load leaving the watershed monitored by the Lipalu flume represents about 31.3% (18,994 kg/60,643 kg) of the TSS load measured at the USGS gaging station during the abbreviated monitoring period up to noon of 2/18/2018. By comparison, this watershed contributed 4.8% (59.1 kg/1,225 kg) and 1.9% (5.7 kg/301 kg) respectively of the total nitrogen and total phosphorus mass measured at the USGS gaging station during this same abbreviated monitoring period.

The proposed 53.45-acre cemetery expansion load will reduce the sediment and nutrient loads leaving the portion of the existing forested watershed that is converted to cemetery use by treating the first flush of runoff generated

during high-intensity rainfall events in retention/detention basins designed with 12,500 cubic feet (93,500 gallons) of storage capacity. The exact amount of sediment and nutrient reduction that will occur on an annual basis will depend on the timing, size (rainfall amount) and intensity of the specific rainfall events that occur during any given year as well as the infiltration capacity of the detention/retention basins ultimately installed.

#### **Pesticide Analysis**

A stream water sample was collected from Kawa Stream by the United States Geological Survey (USGS) on February 11, 2017 as part of the 2016 Interagency Pesticide Monitoring Initiative established between the State of Hawaii Department of Agriculture and the USGS. This sample was collected during the beginning of a moderately heavy rainfall event where the USGS gauge had reached a stage of 5.29 feet associated with 380 cfs of stream flow. The table below shows the pesticide concentrations detected in the filtered sample collected from Kawa Stream on 2/11/17.

Pesticide	Detected Concentration	Detection Limit	Pesticide Usage
	ng/liter	ng/liter	
2,4-D	208	62	2,4-D is one of the oldest and most widely available herbicides in the world, having been commercially available since 1945. It can be found in numerous commercial lawn herbicide mixtures, and is widely used as a weedkiller on cereal crops, pastures, and orchards. Over 1,500 herbicide products contain 2,4-D as an active ingredient.
Imazaquin	165	18	Imazaquin is primarily used as a herbicide to control weed growth on lawns and turf fields.
Diuron	87.5	5	Diuron is an herbicide that is used as a spray for selective control of weeds in certain crops and for nonselective weed control on non-cropland areas. Diuron may be applied to soil prior to emergence of weeds to control susceptible weed seedlings for an extended period of time.
Fipronil	55.1	4	Fipronil is a broad-spectrum insecticide that belongs to the phenylpyrazole chemical family. Because of its effectiveness on a large number of pests, fipronil is used as the active ingredient in flea control products for pets and home roach traps as well as field pest control for corn, golf courses, and commercial turf.
Carbaryl	6.7	5.6	Carbaryl (1-naphthyl methylcarbamate) is a chemical in the carbamate family used chiefly as an insecticide.

E2 had originally proposed analyzing stream and groundwater samples collected during this project for the herbicide Glyphosate using an enzyme-linked immunosorbent assay (ELISA) method. Glyphosate (Roundup) was selected for analysis since it is the world's most widely used broad-spectrum herbicide, accounting for about 25% of the global herbicide market. Due to its high usage, glyphosate tends to be ubiquitous in the environment and our food supply. Since the detected pesticides 2,4-D and Diuron can also be analyzed using ELISA, it was decided to expand the pesticide analyses to add these two pesticides that were detected in the USGS sample collected from Kawa Stream.

The USGS previously tested surface waters for pesticides between 1999 to 2001 in three streams (Waikele, Manoa and Waihee) on the island of Oahu (Anthony et al., 2004). Stream samples were collected during dry periods (base flow conditions) and during wet periods with storm runoff. Diuron and 2,4-D were detected in stream samples collected from both Waikele and Manoa streams during this study. These pesticides were not detected in Waihee Stream.

The State of Hawaii Department of Health collected surface water samples from 24 sites statewide for pesticide analysis between December 2013 and January 2014 (HDOH 2014). Diuron was detected in Waikele and Manoa Streams while 2,4-D was detected in Waikele Stream during this study. Glyphosate was detected in water samples collected from three of the seven sampling sites: Manoa stream on Oahu, a taro patch in Hanalei, Kauai and in an agricultural ditch located in the Mana Plain on Kauai. Co-located sediment samples were collected from the seven stream sampling sites during this study. Glyphosate was detected at concentrations ranging from 6.8 to 1,100  $\mu$ g/kg in all seven stream bed sediment samples collected.

The Surfrider Foundation conducted repetitive sampling at a number of streams located on the islands of Kauai and Oahu in 2016 and 2017. All the stream samples collected were analyzed for atrazine and glyphosate concentrations

using an ELISA method that allows these pesticides to be detected at part per trillion concentration levels. Glyphosate was detected in 60 percent of the stream samples collected at concentrations ranging from 70 to greater than 4,000 ng/L (parts per trillion). Sediment samples were also collected from a subset of these sites. Glyphosate was detected in 74% of the sediment samples collected at concentrations ranging from 33 to 5,500 µg/kg (parts per billion). The table below shows the concentration of these three pesticides (diuron, 2,4-D, and glyphosate) that have been detected in Hawaiian streams during previous studies along with the concentration of diuron and 2,4-D measured in Kawa Stream by the USGS. It should be noted that these pesticides are not always detected (see detection frequency values in table) and that the detected values are present at trace levels, typically in the low to mid-part per trillion concentration levels. In order to put the detected pesticide concentrations in perspective, the table includes concentration levels of glyphosate that have been measured in common beers and wines sold in Germany and the United States (Munich Environmental Institute, 2016; Glaze et al., 2017). The concentration levels of glyphosate in beers and wines are typically a couple of orders of magnitude higher (part per billion levels) than the levels commonly detected in Hawaiian streams. However, the German Federal Institute for Risk Assessment (Bundesinstitut für Risikobewertung, BfR) concluded that the highest glyphosate concentration detected in German beer (30 parts per billion) does not constitute a risk to human health and that an adult would need to drink 1,000 liters of beer in a single day for these levels of glyphosate to pose a health risk.

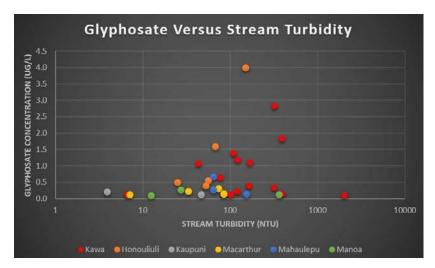
Pesticide	Detected Concentration Range (ng/L)	Detection Frequency	Detection Limit (ng/L)	Number of Samples	Locations Where Pesticide Was Detected	Source
Diuron	10 - 180	23%	10	30	Waikele and Manoa Streams	Anthony et al., 2004
Diuron	20(E) - 70	13%	40	24	Waikele and Manoa Streams	HDOH, 2014
Diuron	88	100%	5	1	Kawa Stream	USGS, 2017
2,4-D	90-100	10%	80	30	Waikele and Manoa Streams	Anthony et al., 2004
2,4-D	80 - 90	4%	60	24	Waikele Stream	HDOH, 2014
2,4-D	208	100%	62	1	Kawa Stream	USGS, 2017
Glyphosate	30-110	43%	20	7	Oahu: Manoa Stream; Kauai: Hanalei Taro Field, Mana Plain Agricultural Ditch	HDOH, 2014
Glyphosate	70 - > 4,000	60%	75	55	Oahu: Manoa, Honoululi, Kaupuni and Waialae Streams; Kauai: Hanamaulu, Hanapepe, Mahaulepu, Mana Plain Agricultural Ditch	Gray and Heskett, 2018
	Compariso	n of Glyphosate	Concentration	s Measured in	Streams to Concentrations Measured	ured
		i	n Domestic and	I Foreign Beers		
Glyphosate	460 - 29,700	100%	200	14	14 Most Popular Beers Sold in Germany	Munich Environmental Institute, 2016
Glyphosate	380 - 196,000	95%	380	112	Domestic and imported Beers purchased in Philadelphia, Pennsylvania	Glaze et al., 2017
Glyphosate	2,600 - 29,000	100%	380	30	Red (cabernet, merlot) and white (chardonnay, pinot grigio) wine purchased in Philadelphia, Pennsylvania	Glaze et al., 2017

A total of 42 primary stream and groundwater samples collected during this study were analyzed for Glyphosate, Diuron and 2,4-D using ELISA. The water quality parameters associated with these samples are compiled in the appendix to this report. The table on the following page summarizes the concentration levels of pesticides detected in these 42 samples along with their frequency of detection. Glyphosate was the most commonly detected pesticide (15 detections out of 42 primary samples). Diuron was detected in 7 of the 42 primary samples analyzed while 2,4-D was only detected in a single primary sample analyzed. The pesticides were most commonly detected in stream samples collected under rainfall runoff conditions when the total suspended solid concentrations tended to be elevated. This suggests that the source of the detected pesticides is from pesticide contaminated sediments that either get transported into Kawa Stream during rainfall events or are already present in the alluvial deposits located adjacent to the stream that get resuspended into the stream by scouring of these deposits during periods of high stream flow. The detected concentration levels of glyphosate are similar at the Parkway monitoring site which receives runoff from the existing cemetery, as were measured at the Kawa Stream monitoring site, that receives runoff from the entire watershed. This suggests that the input of glyphosate into the stream from the cemetery is broadly similar to the input of glyphosate from the residential communities that provide runoff to Kawa Stream. The generally trace concentrations of Diuron detected may reflect residual pesticide input to the stream from prior agricultural usage of the area, based upon the detection of this pesticide in runoff from the currently undeveloped watershed at the Lipalu Flume.

		Glypl	hosate	Diu	iron	2,4	-D	
Location	Flow Regime	Detect Range (ng/L)	Detect Frequency	Detect Range (ng/L)	Detect Frequency	Detect Range (ng/L)	Detect Frequency	Sample Count
Perched Groundwater <sup>1</sup>	Groundwater Dominant	121 - 1,072	25%	1 J	13%	< 1,000	0%	8
Kawa Stream	Groundwater Dominant <sup>2</sup>	772	10%	< 1	0%	< 1,000	0%	10
Kawa Stream	Runoff Dominant <sup>3</sup>	90 - 1,836	89%	4 - 6 J	22%	3,050	11%	9
Parkway	Groundwater Dominant	< 1	0%	< 1	0%	< 1,000	0%	4
Parkway	Runoff Dominant	343 - 2,831	43%	1-1,293	29%	< 1,000	0%	7
Lipalu Flume	Runoff Dominant	< 1	0%	14 - 21 J	50%	< 1,000	0%	4
J: Estimated val	ue							
<sup>1</sup> Perched ground	lwater includes sampl	es collected fro	m Cascade Spri	ng, Maintenan	ce Culvert and F	lantation Well		
<sup>2</sup> Groundwater if	f Conductance >200 µ	S/cm or TSS <	20 mg/L					
<sup>3</sup> Runoff impacte	ed if Conductance < 2	00 μS/cm or TS	SS > 20 mg/L					

Glyphosate was detected in all four stream samples collected from Kawa Stream at the USGS gaging station between 6:40 and 16:05 on 2/5/2018 at concentrations ranging from 120 to 1,098 ng/L. Extrapolating the glyphosate data measured in these four samples over the entire duration of this storm event allows an estimate of the total mass/volume of glyphosate that travelled past the USGS gaging station. The total mass of glyphosate in the roughly 17.6 million gallons of runoff that occurred during this storm event is estimated to be 12.9 grams, or 7.6 milliliters (a little less than a tablespoon), of glyphosate. In comparison, the total mass of TSS, total nitrogen and total phosphorous associated with this runoff event was 12,247, 144 and 61 kilograms, respectively.

The figure below plots the glyphosate data measured during this study along with glyphosate concentrations measured in various streams on the islands of Oahu and Kauai during the Surfrider study as a function of the turbidity of the sample (Gray and Heskett, 2018). This graph shows that there is a lot of scatter in the existing data but that samples that contain greater than 0.5 part per billion glyphosate tend to be moderately to highly turbid samples (> 50 NTU). This finding is consistent with the common detection of glyphosate in stream bed sediments (100% of sediment samples in HDOH study and 74% of sediment samples in the Surfrider study) which supports the hypothesis that the source of the glyphosate is resuspension of sediments contaminated with glyphosate during storm runoff events.



Relationship Between Measured Glyphosate Concentration and Stream Turbidity

#### References

- Anthony, Stephen S., Hunt, Jr., Charles D., Brasher, Anne M., Miller, Lisa D., and Tomlinson, Michael S., 2004, Water quality on the island of Oahu, Hawaii: Reston, Va., U.S. Geological Survey Circular 1239, 37 p.
- Burr, S. 2001. Kawa Stream Bioassessment. State of Hawaii Department, Environmental Planning Office.
- City and County of Honolulu, Department of Planning and Permitting. 2000. Rules Relating to Storm Drainage Standards. Guidance dated January 2000.
- Glaze, T., Kamp, L., Rubio, F., and Enguehard, S. 2017. Analysis of Glyphosate in Food and Beverage Samples by ELISA and Lateral Flow Immunoassay. Presentation at 2017 RAFA Recent Advances in Food Analysis Meeting.
- Gray, J. and M. Heskett. 2018. Water Quality Study of Nearshore Environments, Oahu and Kauai, Hawaii. Water quality study performed for the Surfrider Foundation.
- Hawaii Department of Health, Environmental Planning Office. 2002. How to Reduce Pollutant Loads and Improve Water Quality in Kawa Stream (Kaneohe, Oahu). A Total Maximum Daily Load Implementation Plan for Watershed Health. Plan dated October 2002.
- Hawaii Department of Health, Environmental Planning Office. 2004. Final, 2004 List of Impaired Waters in Hawaii, Prepared Under Clean Water Act 303(d). Report dated June 16, 2004 prepared by Linda Koch, June Harrigan-Lum and Katina Henderson.
- Hawaii Department of Health Hazard Evaluation and Emergency Response Office. 2014. 2013-14 State Wide Pesticide Sampling Pilot Project Water Quality Findings. A joint investigation by the Hawaii State Departments of Health and Agriculture, dated May 2014.
- Izuka, S.K., 2012, Sources of suspended sediment in the Waikele watershed, Oʻahu, Hawaiʻi: U.S. Geological Survey Scientific Investigations Report 2012–5085, 28 p.
- Munich Environmental Institute. 2016. A study on the contamination of German beer with the pesticide glyphosate. Article published on February 25, 2016 by the Umweltinstitut Münchene.V. (Munich Environmental Institute).

- Oceanit Laboratories, Inc. 2002. Total Maximum Daily Loads of Total Suspended Solids, Nitrogen and Phosphorous for Kawa Stream, Kaneohe, Hawaii. Report prepared March 2002 in conjunction with AECOS, Inc. and the State of Hawaii Environmental Planning Office.
- Sam O. Hirota, Inc. 2018. Draft Preliminary Engineering Report. Hawaiian Memorial Park Cemetery Expansion Report. Revised draft prepared April 2018 for HHP Planners.

### Appendix A

Water Quality Data Obtained During Study

Pesticide Samples in 4	4oz Boston Round	d Ambers	Formaldehyde	Glyphosate	Diuron	2,4-D	Total Nitrogen	Nitrate Nitrite	Total Kjeldahl	Total Phosphorous	Total Suspended	Visual Flow Rate Estimate			Specific Conductance	Salinity	рН	Turbidity	Dissolved Oxygen
Sample Site	Date	Time	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	as N (mg/L)	Nitrogen (mg/L)	(mg/L)	Solids (mg/L)	(GPM)	Height (Feet)	(°C)	(mS/cm)	Samily	pn	(NTU)	(mg/L)
Maintenance Culvert	12/18/2017	16:05		< 0.001	< 0.001	< 1.0					13								
Cascade Spring	12/18/2017	15:45	< 0.005				3.4	3.4	< 0.10	0.088		NA		23.9	0.249		6.71	0	5.55
Plantation Well	12/18/2017	16:40	< 0.005	< 0.001	< 0.001	< 1.0	0.4	0.4	< 0.10	0.096		NA		24.2	0.208		7.02	0	3.51
Parkway	12/18/2017	17:05		< 0.001	< 0.001	< 1.0						50 gpm							
Kawa Stream	12/18/2017	18:20		< 0.001	< 0.001	< 1.0	1.5	1.3	0.2	0.040		765 gpm	3.55	23.98	0.272		6.76	0	4.38
Parkway	12/26/2017	11:40		< 0.001	1.293	< 1.0	1.3	0.31	1.0	0.640	150	100 gpm		23.52	0.105	0.05	6.65	492	6.05
Kawa Stream	12/26/2017	12:00		0.646	0.004 J	< 1.0	1.1	0.31	0.75	0.160	63	28,590 gpm	4.46	23.85	0.112	0.06	7.35	76.3	5.86
Lipalu Flume	12/26/2017	13:50		< 0.001	0.014 J	< 1.0	16.0	0.044	16.0	0.970	4000	100 gpm		21.45	0.073	0.04	6.66	> 6000	6.09
Parkway	12/26/2017	14:05		< 0.001	< 0.001	< 1.0	1.9	0.09	1.8	0.850	340	300 gpm		22	0.054	0.03	6.95	520	5.41
Kawa Stream	12/26/2017	14:15		< 0.001	< 0.001	< 1.0	1.9	0.11	1.8	0.550	160	142,270 gpm	5.1	22.63	0.054	0.03	7.58	19	5.36
Maintenance Culvert	1/25/2018	_	_		-		-	-	-	-		2 gpm	-	_	_	_	_	-	
Cascade Spring	1/25/2018	-	-		-		-	-	-	-	-	4-6 gpm		_	-	_	_	<u> </u>	-
Parkway	1/25/2018						-	-				15 gpm		-	_	-	-	<u> </u>	-
Kawa Stream	1/25/2018	-		0.772	< 0.001	< 1.0	-	-	_	-	-	180-220 gpm	3.54	_	_	-	-		-
Kawa Stream	1/27/2018	14:40		1.836	< 0.001	< 1.0	3.2	0.38	2.8	0.73	280	4500 gpm	4.75	23.65	0.056	0.03	7.7	389	5.15
Parkway	1/27/2018	14:50		2.831	< 0.001 J	< 1.0	1.3	0.59	0.67	0.73	110	150 gpm	т.75	23.14	0.107	0.05	7.07	320	4.48
Maintenance Culvert	1/27/2018	14.30		2.031	0.001 J	< 1.0	1.5	1.2	0.42	0.18	110	15-20 gpm		23.14	0.149	0.03	7.13	82.5	4.77
Plantation Well		13:03	< 0.005						< 0.10			13-20 gpm		23.9	0.149	0.07	6.5	3.2	4.77
	1/29/2018			. 0.001	- 0.001	- 1.0	0.36	0.38		0.11	7.2	-							
Cascade Spring	1/29/2018	13:06	< 0.005	< 0.001	< 0.001	< 1.0	2.8	1.1	1.7	0.095	11	30 gpm		21.22	0.279		7.85	24.6	4.74
Parkway	1/29/2018	13:15										50 gpm		-	-	-	-		-
Kawa Stream	1/29/2018	12:43		< 0.001	< 0.001	< 1.0						593 gpm (pygmy)	3.53	-	-	-	-	-	-
Maintenance Culvert	1/31/2018	14:25		1.072	< 0.001	< 1.0						5 gpm		23.71	0.424		7.12	42.8	5.23
Cascade Spring	1/31/2018	14:34		0.121	0.001 J	< 1.0						15 gpm		23.32	0.281		7.48	6.6	5.61
Parkway	1/31/2018	14:49		< 0.001	< 0.001	< 1.0						20 gpm		23.28	0.25		7.6	15.7	5.77
Downstream of Cascade	1/31/2018	14:49		< 0.001	< 0.001	< 1.0						20 gpm		23.54	0.231		7.62	15.7	5.13
Kawa Stream	1/31/2018	13:50		< 0.001	< 0.001	< 1.0						100 gpm	3.53	23.73	0.279		7.85	24.6	4.74
Kawa Stream	2/4/2018	14:00		< 0.001	< 0.001	< 1.0					6	375 gpm	3.53	24.31	0.275	0.13	6.55	2.5	5.91
Parkway	2/4/2018	14:30		< 0.001	< 0.001	< 1.0					5.7	36 gpm		24.02	0.197	0.09	6.96	1.1	6.26
Kawa Stream	2/5/2018	6:40		0.120	< 0.001	< 1.0					35.3	9,155 gpm	4.15	22.11	0.171	0.08	6.54	100	5.09
Kawa Stream	2/5/2018	6:50		0.219	< 0.001	< 1.0					83	19,300 gpm	4.35	21.79	0.102	0.05	6.62	120	6.5
Parkway	2/5/2018	7:25		1.098	< 0.001	< 1.0					91	300 gpm		21.27	0.079	0.04	6.85	167	5.66
Kawa Stream	2/5/2018	9:10		0.156	< 0.001	< 1.0					424	341,000 gpm	6.78	21.54	0.049	0.03	7.47	388	5.92
Lipalu Flume	2/5/2018	9:30		< 0.001	< 0.001	< 1.0	2.4	0.89	1.5	0.4	380	10 gpm	-	21.9	0.104	0.05	6.7	1115	6.06
Lipalu Flume	2/5/2018	15:30		< 0.001	< 0.001	< 1.0	5.5	0.46	5	1.1	2940	550 gpm		20.92	0.057	0.03	7.9	>6000	6.45
Parkway	2/5/2018	15:45		0.343	< 0.001	< 1.0			-		116	~350 gpm		21.74	0.087	0.05	6.27	314	6.29
Bridge Crossing	2/5/2018	15:55		< 0.001	< 0.001	< 1.0					3060	~3000 gpm		21.95	0.055	0.03	6.55	>6000	6.67
Kawa Stream	2/5/2018	16:05		0.090	< 0.001	< 1.0					860	32,942 gpm	4.5	22.09	0.053	0.03	6.54	2000	6.78
Kawa Stream	2/6/2018	9:50		< 0.001	< 0.001	< 1.0				<u></u>	25	1,032 gpm	3.61	22.09	0.285	0.03	6.52	68.5	6.24
Kawa Stream	2/7/2018	12:53		< 0.001	< 0.001	< 1.0					18	1,212 gpm	3.65	23.76	0.285	0.14	6.57	18	6.6
Kawa Stream	2/7/2018	13:35		< 0.001	< 0.001	< 1.0					109	3,187 gpm	3.88	23.70	0.241	0.13	6.48	160	6.43
Main Road Bridge	2/7/2018	13:40		1.398	< 0.001	< 1.0					29	~900 gpm	5.00	23.81	0.069	0.12	6.66	100	6.57
	2/7/2018	13:40		< 0.001	< 0.001	< 1.0					29 96	~900 gpm ~1200 gpm		23.83	0.069	0.04	6.55	108	6.43
Parkway Bridge																			
Parkway	2/7/2018	13:52		< 0.001	< 0.001	< 1.0					86	~300 gpm		23.19	0.233	0.11	6.49	178	6.45
Lipalu Flume	2/7/2018	14:00		< 0.001	0.021 J	< 1.0					1310	15 gpm	4.04	22.52	0.092	0.05	6.76	2000	6.5
Kawa Stream	2/7/2018	14:10		0.403	0.006 J	< 1.0					90	6,014 gpm	4.04	22.83	0.154	0.08	6.58	163	6.29
Kawa Stream	2/9/2018	8:50		< 0.001	< 0.001	< 1.0					7.8	898 gpm	3.58	21.1	0.319	0.15	7.07	20.8	6.45
Parkway	2/9/2018	9:10		< 0.001	< 0.001	< 1.0					5.4	120 gpm		20.81	0.245	0.12	7.22	5	6.34

Pesticide Samples in 4	loz Boston Round	d Ambers	Formaldehyde	Glyphosate	Diuron	2,4-D	Total Nitrogen	Nitrate Nitrite	Total Kjeldahl	Total Phosphorous	Total Suspended	Visual Flow	USGS Stage	Temperature	Specific	Salinita	-11	Turbidity	Dissolved
Sample Site	Date	Time	(mg/L)	(µg/L)	(µg/L)	(µg/L)	(mg/L)	as N (mg/L)	Nitrogen (mg/L)	(mg/L)	Solids (mg/L)	Rate Estimate (GPM)	Height (Feet)	(° C)	Conductance (mS/cm)	Salinity	рН	(NTU)	Oxygen (mg/L)
Maintenance Culvert	2/9/2018	15:00		< 0.001	< 0.001	< 1.0					3.6	15 gpm		22.52	0.421	0.2	6.96	9.6	5.84
Cascade Spring	2/9/2018	14:52		< 0.001	< 0.001	< 1.0					1.4	30 gpm		22.31	0.305	0.15	7.62	22.3	6.77
Downstream of Cascade	2/9/2018	14:45										37.5 gpm		NM	NM	NM	NM	NM	NM
Plantation Well	2/9/2018	15:30		< 0.001	< 0.001	< 1.0					1.8	-		23.79	0.224	0.11	6.72	3.1	3.18
Mokuelele Bridge	2/12/2018	14:02		< 0.001	< 0.001	< 1.0					3.6	64 gpm		26.41	0.298	0.14	6.76	1.1	6.48
Parkway	2/12/2018	14:20		< 0.001	< 0.001	< 1.0					4.2	25 gpm		23.18	0.244	0.12	7.18	2	6.35
Main Kawa at Parkway	2/12/2018	14:25		< 0.001	< 0.001	< 1.0					3.2	20 gpm		23.15	0.249	0.12	7.13	0.2	6.49
Namoku Bridge	2/12/2018	14:55		< 0.001	< 0.001	< 1.0					4.2	86 gpm		23.93	0.255	0.12	6.9	0.9	6.72
Kawa Stream	2/12/2018	15:55		< 0.001	< 0.001	< 1.0					9.6	808 gpm	3.56	24.21	0.277	0.13	7.06	6.5	6.25
Kawa Stream	2/14/2018	8:00		1.195	< 0.001	3.051					141	16,070 gpm	4.3	22.62	0.13	0.07	6.41	121	6.33

### Appendix B

Laboratory Reports



THE LEADER IN ENVIRONMENTAL TESTING

## **ANALYTICAL REPORT**

#### TestAmerica Laboratories, Inc.

TestAmerica Irvine 17461 Derian Ave Suite 100 Irvine, CA 92614-5817 Tel: (949)261-1022

TestAmerica Job ID: 440-198845-1 Client Project/Site: Hawaiian Memorial Cemetery

#### For:

Element Environmental, LLC 98-030 Hekaha Street, Unit 9 Aiea, Hawaii 96701



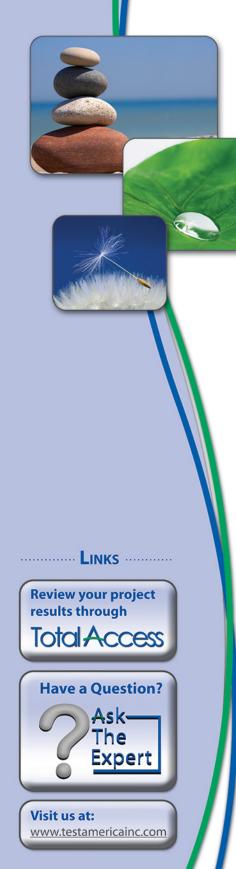
Attn: James Tsubone

Authorized for release by: 1/3/2018 10:07:17 AM David Alltucker, Project Manager I (916)374-4383 david.alltucker@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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### **Sample Summary**

#### Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

TestAmerica Job ID: 440-198845-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-198845-1	Cascade Spring	Water	12/18/17 15:45	12/20/17 10:50
440-198845-2	Maintenance Culver	Water	12/18/17 16:05	12/20/17 10:50
440-198845-3	Kawa Stream Xng	Water		12/20/17 10:50
440-198845-4	Plantation Well	Water	12/18/17 16:40	12/20/17 10:50

### 1 2 3 4 5 6 7 8 9 10 11 12 13

#### Job ID: 440-198845-1

#### Laboratory: TestAmerica Irvine

#### Narrative

Job Narrative 440-198845-1

#### Receipt

The samples were received on 12/20/2017 10:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9° C.

#### HPLC/IC

Method(s) 8315A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 440-447739 and analytical batch 440-447867. The associated laboratory control sample/laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### **General Chemistry**

Method(s) SM 2540D: The sample duplicate (DUP) precision for analytical batch 320-201148 was outside control limits. Sample non-homogeneity is suspected. Samples are not being re-extracted and reanalyzed because the relative percent difference (RPD) does not apply to samples are less than 5x the reporting limit (RL). Data is being reported.

Method(s) 353.2: The following samples were diluted to bring the concentration of target analytes within the calibration range: Cascade Spring (440-198845-1), Kawa Stream Xng (440-198845-3), (440-198845-B-3 MS) and (440-198845-B-3 MSD) in analytical batch 320-201658. Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

Client Sample ID: Casca Date Collected: 12/18/17 15:4 Date Received: 12/20/17 10:5	45				La	ib Sample	ID: 440-198 Matrix	845-1 Water
Method: 8315A - Carbonyl ( Analyte	Compounds (HPLC) Result Qualifier	RL	МП	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde		0.010	0.0050			12/20/17 16:55		1
_				5				
General Chemistry								
Analyte	Result Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND	0.20		mg/L		12/28/17 11:22	12/29/17 15:42	
Nitrate Nitrite as N	3.4	0.10	0.0062	-			12/28/17 10:29	2
Phosphorus, Total	0.088	0.050		mg/L		12/27/17 10:03	12/27/17 15:05	• • • • • • • •
Nitrogen, Total	3.4	0.11	0.11	mg/L			12/30/17 10:40	
Client Sample ID: Maint	enance Culver				La	b Sample	ID: 440-198	845-2
Date Collected: 12/18/17 16:0					_•		Matrix	
Date Received: 12/20/17 10:5								
_								
General Chemistry Analyte	Result Qualifier	RL	мп	Unit	D	Prepared	Analyzed	Dil Fa
Total Suspended Solids		5.0		mg/L			12/22/17 14:05	
lient Sample ID: Kawa	Stream Xng				La	b Sample	ID: 440-198 Matrix	
Client Sample ID: Kawa Date Collected: 12/18/17 18:2	Stream Xng 20				La	ıb Sample		
Client Sample ID: Kawa Date Collected: 12/18/17 18:2	Stream Xng 20				La	ıb Sample		
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte	Stream Xng 20 50 Result Qualifier	RL		Unit	La	Prepared	Matrix Analyzed	: Wate
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry	Stream Xng 20 50		0.10	mg/L			Matrix Analyzed	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte	Stream Xng 20 50 Result Qualifier			mg/L		Prepared	Matrix Analyzed	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen	Stream Xng 20 50 Result Qualifier 0.20	0.20	0.10 0.0062	mg/L		Prepared 12/28/17 11:22	Matrix Analyzed 12/29/17 15:42	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total	Stream Xng 20 50 Result Qualifier 0.20 1.3	0.20	0.10 0.0062 0.025	mg/L mg/L		Prepared 12/28/17 11:22	Matrix Analyzed 12/29/17 15:42 12/28/17 11:03	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total	Stream Xng           20           50           Result           Qualifier           0.20           1.3           0.040           1.5	0.20 0.10 0.050	0.10 0.0062 0.025	mg/L mg/L mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03	Matrix Analyzed 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05 12/30/17 10:40	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total Client Sample ID: Planta Date Collected: 12/18/17 16:4	Stream Xng           20           50           Result           0.20           1.3           0.040           1.5           ation Well           40	0.20 0.10 0.050	0.10 0.0062 0.025	mg/L mg/L mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03	Matrix Analyzed 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total Client Sample ID: Planta Date Collected: 12/18/17 16:4	Stream Xng           20           50           Result           0.20           1.3           0.040           1.5           ation Well           40	0.20 0.10 0.050	0.10 0.0062 0.025	mg/L mg/L mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03	Matrix <u>Analyzed</u> 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05 12/30/17 10:40 ID: 440-198	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total Client Sample ID: Planta Date Collected: 12/18/17 16:4 Date Received: 12/20/17 10:5 Method: 8315A - Carbonyl	Stream Xng 20 50	0.20 0.10 0.050 0.11	0.10 0.0062 0.025 0.11	mg/L mg/L mg/L mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03 Ib Sample	Matrix <u>Analyzed</u> 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05 12/30/17 10:40 ID: 440-198 Matrix	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total Client Sample ID: Planta Date Collected: 12/18/17 16:4 Date Received: 12/20/17 10:5 Method: 8315A - Carbonyl G Analyte	Stream Xng 20 50	0.20 0.10 0.050 0.11	0.10 0.0062 0.025 0.11	mg/L mg/L mg/L mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03 Ib Sample Prepared	Matrix <u>Analyzed</u> 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05 12/30/17 10:40 ID: 440-198 Matrix Analyzed	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total Client Sample ID: Planta Date Collected: 12/18/17 16:4 Date Received: 12/20/17 10:5 Method: 8315A - Carbonyl	Stream Xng 20 50	0.20 0.10 0.050 0.11	0.10 0.0062 0.025 0.11	mg/L mg/L mg/L mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03 Ib Sample Prepared	Matrix <u>Analyzed</u> 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05 12/30/17 10:40 ID: 440-198 Matrix	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total Client Sample ID: Planta Date Collected: 12/18/17 16:4 Date Received: 12/20/17 10:5 Method: 8315A - Carbonyl ( Analyte Formaldehyde	Stream Xng 20 50 Result Qualifier 0.20 1.3 0.040 J 1.5 ation Well 40 50 Compounds (HPLC) Result Qualifier ND	0.20 0.10 0.050 0.11 <b>RL</b> 0.010	0.10 0.0062 0.025 0.11 <b>MDL</b> 0.0050	mg/L mg/L mg/L Unit mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03 1b Sample Prepared 12/20/17 16:55	Matrix <u>Analyzed</u> 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05 12/30/17 10:40 <b>ID: 440-198</b> Matrix <u>Analyzed</u> 12/21/17 10:51	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total Client Sample ID: Planta Date Collected: 12/18/17 16:4 Date Received: 12/20/17 10:5 Method: 8315A - Carbonyl O Analyte Formaldehyde General Chemistry Analyte	Stream Xng 20 50 Result Qualifier 0.20 1.3 0.040 J 1.5 ation Well 40 50 Compounds (HPLC) Result Qualifier ND Result Qualifier	0.20 0.10 0.050 0.11 	0.10 0.0062 0.025 0.11 MDL 0.0050 MDL	mg/L mg/L mg/L Unit mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03 10 Sample Prepared 12/20/17 16:55 Prepared	Matrix <u>Analyzed</u> 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05 12/30/17 10:40 ID: 440-198 Matrix <u>Analyzed</u> 12/21/17 10:51 <u>Analyzed</u>	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total Client Sample ID: Planta Date Collected: 12/18/17 16:4 Date Received: 12/20/17 10:5 Method: 8315A - Carbonyl ( Analyte Formaldehyde General Chemistry Analyte Total Kjeldahl Nitrogen	Stream Xng 20 50 Result Qualifier 0.20 1.3 0.040 J 1.5 ation Well 40 50 Compounds (HPLC) Result Qualifier ND Result Qualifier	0.20 0.10 0.050 0.11 	0.10 0.0062 0.025 0.11 MDL 0.0050 MDL 0.10	mg/L mg/L mg/L Unit mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03 1b Sample Prepared 12/20/17 16:55	Matrix <u>Analyzed</u> 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05 12/30/17 10:40 <b>ID: 440-198</b> Matrix <u>Analyzed</u> 12/21/17 10:51 <u>Analyzed</u> 12/29/17 15:42	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total Client Sample ID: Planta Date Collected: 12/18/17 16:4 Date Received: 12/20/17 10:5 Method: 8315A - Carbonyl G Analyte Formaldehyde General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N	Stream Xng 20 50 Result Qualifier 0.20 1.3 0.040 J 1.5 ation Well 40 50 Compounds (HPLC) Result Qualifier ND Result Qualifier ND 0.37	0.20 0.10 0.050 0.11 	0.10 0.0062 0.025 0.11 0.11 0.0050 MDL 0.10 0.0031	mg/L mg/L mg/L Unit mg/L Unit mg/L mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03 10 Sample Prepared 12/20/17 16:55 Prepared 12/28/17 11:22	Matrix Analyzed 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05 12/30/17 10:40 ID: 440-198 Matrix Analyzed 12/21/17 10:51 Analyzed 12/29/17 15:42 12/28/17 10:37	Dil Fac
Client Sample ID: Kawa Date Collected: 12/18/17 18:2 Date Received: 12/20/17 10:5 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Nitrogen, Total Client Sample ID: Planta Date Collected: 12/18/17 16:4 Date Received: 12/20/17 10:5 Method: 8315A - Carbonyl G Analyte Formaldehyde General Chemistry Analyte Total Kjeldahl Nitrogen	Stream Xng 20 50 Result Qualifier 0.20 1.3 0.040 J 1.5 ation Well 40 50 Compounds (HPLC) Result Qualifier ND Result Qualifier	0.20 0.10 0.050 0.11 	0.10 0.0062 0.025 0.11 0.11 0.0050 MDL 0.0050 MDL 0.10 0.0031 0.025	mg/L mg/L mg/L Unit mg/L	D	Prepared 12/28/17 11:22 12/27/17 10:03 10 Sample Prepared 12/20/17 16:55 Prepared	Matrix <u>Analyzed</u> 12/29/17 15:42 12/28/17 11:03 12/27/17 15:05 12/30/17 10:40 ID: 440-198 Matrix <u>Analyzed</u> 12/21/17 10:51 <u>Analyzed</u> 12/29/17 15:42 12/28/17 10:37	Dil Fac

#### Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

4
5
6
8
9
13

Method	Method Description	Protocol	Laborator
3315A	Carbonyl Compounds (HPLC)	SW846	TAL IRV
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL IRV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAC
365.3	Phosphorus, Total	EPA	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL SAC
Fotal Nitrogen	Nitrogen, Total	EPA	TAL IRV

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions. SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022 TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Initial

Amount

100 mL

25 mL

50 mL

Batch

Number

447739

448022

449033

449382

201658

448756

448836

449484

Final

Amount

1 mL

25 mL

50 mL

Dil

1

1

2

1

1

Factor

Run

**Client Sample ID: Cascade Spring** 

Batch

Туре

Prep

Prep

Analysis

Analysis

Analysis

Analysis

Analysis

Prep

Date Collected: 12/18/17 15:45

Date Received: 12/20/17 10:50

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

### Lab Sample ID: 440-198845-1

Analyst

Prepared

or Analyzed

12/20/17 16:55 FTD

12/21/17 10:32 IVA

12/28/17 11:22 AN

12/29/17 15:42 AN

12/28/17 10:29 TCS

12/27/17 10:03 MMP

12/27/17 15:05 MMP

Matrix: Water

Lab

TAL IRV

TAL IRV

TAL IRV

TAL IRV

TAL SAC

TAL IRV

TAL IRV

7

#### 12/30/17 10:40 TLN TAL IRV Lab Sample ID: 440-198845-2

Lab Sample ID: 440-198845-3

Lab Sample ID: 440-198845-4

Matrix: Water

Matrix: Water

Matrix: Water

#### **Client Sample ID: Maintenance Culver** Date Collected: 12/18/17 16:05 Date Received: 12/20/17 10:50

Batch

8315A

351.2

351.2

353.2

365.3

Method

8315 W Prep

365.2/365.3/365

**Total Nitrogen** 

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	100 mL	100 mL	201148	12/22/17 14:05	JMD	TAL SAC

#### Client Sample ID: Kawa Stream Xng Date Collected: 12/18/17 18:20 Date Received: 12/20/17 10:50

#### Batch Batch Dil Initial Final Batch Prepared Method Factor Number or Analyzed Prep Type Type Run Amount Amount Analyst Lab Total/NA 351.2 449033 Prep 25 mL 25 mL 12/28/17 11:22 AN TAL IRV Total/NA Analysis 351.2 449382 12/29/17 15:42 AN TAL IRV 1 353.2 Total/NA Analysis 2 201658 12/28/17 11:03 TCS TAL SAC Total/NA 365.2/365.3/365 448756 12/27/17 10:03 MMP TAL IRV Prep 50 mL 50 mL Total/NA Analysis 365.3 1 448836 12/27/17 15:05 MMP TAL IRV Total/NA 449484 12/30/17 10:40 TLN TAL IRV Analysis **Total Nitrogen** 1

#### **Client Sample ID: Plantation Well** Date Collected: 12/18/17 16:40 Date Received: 12/20/17 10:50

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_W_Prep		· ·	100 mL	1 mL	447739	12/20/17 16:55	FTD	TAL IRV
Total/NA	Analysis	8315A		1			448022	12/21/17 10:51	IVA	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	449033	12/28/17 11:22	AN	TAL IRV
Total/NA	Analysis	351.2		1			449382	12/29/17 15:42	AN	TAL IRV
Total/NA	Analysis	353.2		1			201658	12/28/17 10:37	TCS	TAL SAC
Total/NA	Prep	365.2/365.3/365			50 mL	50 mL	448756	12/27/17 10:03	MMP	TAL IRV
Total/NA	Analysis	365.3		1			448836	12/27/17 15:05	MMP	TAL IRV
Total/NA	Analysis	Total Nitrogen		1			449484	12/30/17 10:40	TLN	TAL IRV

#### Lab Chronicle

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

#### Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022 TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Sample ID: MB 440-447739/1-A

Matrix: Water

Method: 8315A - Carbonyl Compounds (HPLC)

8

# Client Sample ID: Method Blank Prep Type: Total/NA

		MB											
Analyte	Result	Qualifier		RL	I	NDL	Unit		) P	repared	Analyzed	I	Dil Fac
Formaldehyde	ND			0.010	0.0	050	mg/L		12/2	0/17 06:07	12/20/17 16:	27	
Lab Sample ID: LCS 440-44773	39/2-A							Clie	nt Sa	mple ID:	Lab Contro	ol Sa	mple
Matrix: Water											<b>Prep Type:</b>	Tot	al/NA
Analysis Batch: 447867											Prep Batc	h: 44	7739
-			Spike		LCS	LCS					%Rec.		
Analyte			Added		Result	Quali	ifier	Unit	D	%Rec	Limits		
Formaldehyde			0.0500		0.0407			mg/L		81	70 - 129		
Lab Sample ID: LCSD 440-447	739/3-A						С	lient Sa	mple	ID: Lab	Control Sa	mple	e Dup
													al/NA
-											Prep Type:	Tot	
Matrix: Water											Prep Type: Prep Batc		
			Spike		LCSD	LCSE	כ						
Matrix: Water			Spike Added		LCSD Result			Unit	D	%Rec	Prep Batc %Rec.		7739

Lab Sample ID: MB 320-201658/15 Matrix: Water									С	lie	nt Sar	nple ID: M Prep Ty		
Analysis Batch: 201658	мв	МВ												
Amalida		Qualifier		RL		MDL	11!4		~	Β.		<b>A</b>		Dil Fac
Analyte										PI	repared			DIFAC
Nitrate Nitrite as N	ND			0.050	0.0	0031	mg/L					12/28/17	10:25	1
Lab Sample ID: LCS 320-201658/10	5							C	ient S	an	nple II	D: Lab Coi	ntrol S	ample
Matrix: Water												Prep Ty		
Analysis Batch: 201658														
			Spike		LCS	LCS						%Rec.		
Analyte			Added		Result	Qual	ifier	Unit		D	%Rec	Limits		
Nitrate Nitrite as N			1.00		0.990			mg/L		_	99	90 - 110		
Lab Sample ID: 440-198845-3 MS									Clien	t S	ample	ID: Kawa	Strea	m Xna
Matrix: Water												Prep Ty		_
Analysis Batch: 201658														
	ple Sa	mple	Spike		MS	MS						%Rec.		
Analyte Res	ult Qu	alifier	Added		Result	Qual	ifier	Unit		D	%Rec	Limits		
Nitrate Nitrite as N	1.3		2.00		3.16			mg/L		—	95	90 - 110		
					3.10			ing/∟						
Lab Sample ID: 440-198845-3 MSD					3.10			Ū	Clien	t S	ample		Strea	m Xna
Lab Sample ID: 440-198845-3 MSD Matrix: Water					3.10			Ū	Clien	t S	ample	ID: Kawa		-
Matrix: Water					3.10			Ū	Clien	t S	ample			-
Matrix: Water Analysis Batch: 201658		mple				MSD		Ū	Clien	t S	ample	ID: Kawa		-
Matrix: Water Analysis Batch: 201658 Sam	ple Sar sult Qu	•	Spike			-		Ū		t S D	ample %Rec	ID: Kawa Prep Ty		tal/NA

Method:	365.3	- Phos	phorus,	Total

Lab Sample ID: MB 440-448756/1-/	4									Clie	nt Sam	•	Metho		
Matrix: Water													Гуре: Т		
Analysis Batch: 448836												Prep	Batch:	4487	75
	MB	MB													
Analyte	Result	Qualifier		RL		MDL			D	Pre	epared		alyzed	Dil	Fa
Phosphorus, Total	ND			0.050	0	.025	mg/L		_	12/27	/17 10:0	3 12/27	/17 15:04		
Lab Sample ID: LCS 440-448756/2	A							Clie	ent	Sam	ple ID	: Lab C	ontrol	Sam	pl
Matrix: Water												Prep <sup>-</sup>	Туре: Т	otal/	N
Analysis Batch: 448836												Prep	Batch:	4487	75
-			Spike		LCS	LCS						%Rec.			
Analyte			Added		Result	Qual	ifier	Unit		D	%Rec	Limits			
Phosphorus, Total			0.501		0.486			mg/L			97	80 - 12	0		
Matrix: Water										Cilei	nt Sam	ple ID: Prep	Туре: Т		
Matrix: Water Analysis Batch: 201148		МВ										Prep	Туре: Т	otal/	'N
Matrix: Water Analysis Batch: 201148 <sup>Analyte</sup>	Result	MB Qualifier		RL	I	MDL			D		epared	Prep Ana	Type: T alyzed		'N
Matrix: Water Analysis Batch: 201148 <sup>Analyte</sup>				<b>RL</b> 5.0			Unit mg/L					Prep Ana	Туре: Т	otal/	'N
Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids Lab Sample ID: LCS 320-201148/2	Result				1			Clic	<b>D</b>	Pre	epared	Prep	Type: T alyzed /17 14:05	otal/ Dil Sam	Fi
Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids Lab Sample ID: LCS 320-201148/2 Matrix: Water	Result							Clie	<b>D</b>	Pre	epared	Prep	Type: T alyzed (17 14:05	otal/ Dil Sam	Fa P
Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids Lab Sample ID: LCS 320-201148/2 Matrix: Water	Result					5.0		Clie	<b>D</b>	Pre	epared	Prep - An: 12/22 : Lab C Prep -	Type: T alyzed (17 14:05 Control Type: T	otal/ Dil Sam	'N Fa
Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids Lab Sample ID: LCS 320-201148/2 Matrix: Water Analysis Batch: 201148	Result		Spike		LCS	5.0	mg/L		<b>D</b>	Pro Sam	epared	Prep Ana 12/22/ : Lab C Prep %Rec.	Type: T alyzed /17 14:05 Control Type: T	otal/ Dil Sam	'N Fa
Lab Sample ID: MB 320-201148/1 Matrix: Water Analysis Batch: 201148 Total Suspended Solids Lab Sample ID: LCS 320-201148/2 Matrix: Water Analysis Batch: 201148 Analyte	Result		Added		LCS Result	5.0	mg/L	Unit	<b>D</b>	Pro Sam	epared nple ID %Rec	Prep Ani 12/22 Lab C Prep %Rec. Limits	Type: T alyzed (17 14:05 Control Type: T	otal/ Dil Sam	'N. Fa
Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids Lab Sample ID: LCS 320-201148/2 Matrix: Water Analysis Batch: 201148 Analyte	Result		•		LCS	5.0	mg/L		<b>D</b>	Pro Sam	epared	Prep Ana 12/22/ : Lab C Prep %Rec.	Type: T alyzed (17 14:05 Control Type: T	otal/ Dil Sam	Fi
Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids Lab Sample ID: LCS 320-201148/2 Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids	Result		Added		LCS Result	5.0	mg/L	Unit mg/L	D_ ent	Pro Sam	epared nple ID %Rec 97	Prep Ana 12/22 : Lab C Prep %Rec. Limits 85-11 : Maint	Type: T alyzed 17 14:05 Control Type: T 5 enance	Dil Dil Sam otal/	
Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids Lab Sample ID: LCS 320-201148/2 Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids Lab Sample ID: 440-198845-2 DU Matrix: Water	Result		Added		LCS Result	5.0	mg/L	Unit mg/L	D_ ent	Pro Sam	epared nple ID %Rec 97	Prep Ana 12/22 : Lab C Prep %Rec. Limits 85-11 : Maint	Type: T           alyzed           (17 14:05)           control           Type: T           5	Dil Dil Sam otal/	'N Fa N
Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids Lab Sample ID: LCS 320-201148/2 Matrix: Water Analysis Batch: 201148 Analyte Total Suspended Solids Lab Sample ID: 440-198845-2 DU Matrix: Water Analysis Batch: 201148	Result ND	Qualifier	Added		LCS Result 968	5.0 LCS Qual	mg/L	Unit mg/L	D_ ent	Pro Sam	epared nple ID %Rec 97	Prep Ana 12/22 : Lab C Prep %Rec. Limits 85-11 : Maint	Type: T alyzed 17 14:05 Control Type: T 5 enance	Dil Dil Sam otal/ otal/	Γ Pl N
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### QC Association Summary

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery TestAmerica Job ID: 440-198845-1

#### HPLC/IC

#### Prep Batch: 447739

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batcl
440-198845-1	Cascade Spring	Total/NA	Water	8315_W_Prep	
440-198845-4	Plantation Well	Total/NA	Water	8315_W_Prep	
MB 440-447739/1-A	Method Blank	Total/NA	Water	8315_W_Prep	
LCS 440-447739/2-A	Lab Control Sample	Total/NA	Water	8315_W_Prep	
LCSD 440-447739/3-A	Lab Control Sample Dup	Total/NA	Water	8315_W_Prep	
analysis Batch: 447	867				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
MB 440-447739/1-A	Method Blank	Total/NA	Water	8315A	44773
LCS 440-447739/2-A	Lab Control Sample	Total/NA	Water	8315A	44773
LCSD 440-447739/3-A	Lab Control Sample Dup	Total/NA	Water	8315A	44773
Analysis Batch: 448	022				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
440-198845-1	Cascade Spring	Total/NA	Water	8315A	44773
440-198845-4	Plantation Well	Total/NA	Water	8315A	44773
General Chemist	ry				
Analysis Batch: 201	148				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
440-198845-2	Maintenance Culver	Total/NA	Water	SM 2540D	
MB 320-201148/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 320-201148/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-198845-2 DU	Maintenance Culver	Total/NA	Water	SM 2540D	
nalysis Batch: 201	658				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
440-198845-1	Cascade Spring	Total/NA	Water	353.2	
440-198845-3	Kawa Stream Xng	Total/NA	Water	353.2	
440-198845-4	Plantation Well	Total/NA	Water	353.2	
MB 320-201658/15	Method Blank	Total/NA	Water	353.2	
LCS 320-201658/16	Lab Control Sample	Total/NA	Water	353.2	
440-198845-3 MS	Kawa Stream Xng	Total/NA	Water	353.2	
440-198845-3 MSD	Kawa Stream Xng	Total/NA	Water	353.2	
rep Batch: 448756					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
440-198845-1	Cascade Spring	Total/NA	Water	365.2/365.3/365	
440-198845-3	Kawa Stream Xng	Total/NA	Water	365.2/365.3/365	
440-198845-4	Plantation Well	Total/NA	Water	365.2/365.3/365	
MB 440-448756/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	
LCS 440-448756/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	
Analysis Batch: 448	836				
l ah Cammia ID		<b>BT</b>	N		

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
440-198845-1	Cascade Spring	Total/NA	Water	365.3	448756
440-198845-3	Kawa Stream Xng	Total/NA	Water	365.3	448756
440-198845-4	Plantation Well	Total/NA	Water	365.3	448756
MB 440-448756/1-A	Method Blank	Total/NA	Water	365.3	448756

# **QC** Association Summary

#### Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

# **General Chemistry (Continued)**

## Analysis Batch: 448836 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 440-448756/2-A	Lab Control Sample	Total/NA	Water	365.3	448756
rep Batch: 449033					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-198845-1	Cascade Spring	Total/NA	Water	351.2	
440-198845-3	Kawa Stream Xng	Total/NA	Water	351.2	
440-198845-4	Plantation Well	Total/NA	Water	351.2	
nalysis Batch: 4493	382				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-198845-1	Cascade Spring	Total/NA	Water	351.2	449033
440-198845-3	Kawa Stream Xng	Total/NA	Water	351.2	449033
440-198845-4	Plantation Well	Total/NA	Water	351.2	449033
Analysis Batch: 4494	484				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-198845-1	Cascade Spring	Total/NA	Water	Total Nitrogen	
440-198845-3	Kawa Stream Xng	Total/NA	Water	Total Nitrogen	
440-198845-4	Plantation Well	Total/NA	Water	Total Nitrogen	
•					

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

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# Qualifiers

#### **General Chemistry**

Qualifier	Qualifier Description
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

# Glossary

	The second se	
Abbreviation	These commonly used abbreviations may or may not be present in this report.	
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis	<b>Š</b>
%R	Percent Recovery	
CFL	Contains Free Liquid	9
CNF	Contains No Free Liquid	
DER	Duplicate Error Ratio (normalized absolute difference)	10
Dil Fac	Dilution Factor	
DL	Detection Limit (DoD/DOE)	
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision Level Concentration (Radiochemistry)	
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	13 14
LOQ	Limit of Quantitation (DoD/DOE)	15
MDA	Minimum Detectable Activity (Radiochemistry)	
MDC	Minimum Detectable Concentration (Radiochemistry)	
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
NC	Not Calculated	
ND	Not Detected at the reporting limit (or MDL or EDL if shown)	
PQL	Practical Quantitation Limit	
QC	Quality Control	
RER	Relative Error Ratio (Radiochemistry)	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	
TEO	Toxicity Equivalent Quotient (Dioxin)	

TEQ Toxicity Equivalent Quotient (Dioxin)

#### Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

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11 12 13

## Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	CA01531	06-30-18
Arizona	State Program	9	AZ0671	10-14-18
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 17-003R	01-23-18 *
lawaii	State Program	9	N/A	01-29-18 *
Kansas	NELAP	7	E-10420	07-31-18
Nevada	State Program	9	CA015312018-1	07-31-18
New Mexico	State Program	6	N/A	01-29-18 *
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-18 *
JSDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-18

# Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-055	01-31-18
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-18
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-18
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	12-31-17 *
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-18
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-18
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-18
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-28-18
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	07-31-18
USDA	Federal		P330-11-00436	12-30-17 *
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-17
Wyoming	State Program	8	8TMS-L	01-28-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

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										5. 1000 (1899 (2
										0 999 0
Note: Since laboratory accreditations are subject to change. TestAmerica Laboratories, inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does no currently maintain accreditation in the State of Orgin listed above for analysts/lests/matrix being analyzed, the samples must be shipped back to the TestAmerica Laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, inc.	Laboratones, inc. places the c ysis/tests/matinx being analyze o current to date, return the sig	ownership of me ed, the samples pred Chain of C	athod, analyte ? must be shipp tustody attestin	& accreditation ed back to the ig to said comp	Compliance upon TestAmerica labo	i out subcontract Sratory or other in merica Laborator	t laboratories. T instructions will t ries, inc.	his sample shipm be provided. Any	ient is forwarded ur changes to accredi	method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not iss must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica of Custody attesting to said complicance to TestAmerica Laboratories, inc.
Possible Hazard Identification					Sample D	isposal ( A fu	ee may be a	assessed if san	mples are reta	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)
Deliverable Requested: I, II, IV, Other (specify)	Primary Deliverable Rank:	ible Rank: 2			Special Ins	Special Instructions/QC Requirements:	Requiremer	its:		
Empty Kit Relinquished by:		Date			Time:			Method of Shipment	Shipment:	-
Tetrace of the state of the sta	Dated inter	for	- M	Comparing	Received by	A Nap	1		Date/Time: // D	7 COOPANY Sac
Biblingtophead by	Date/Time:		0	Company	Received by	1) Jap			Date/Time	Company
Relinquished by	Date/Time:		0	Company	Received by	d by:			Date/Time;	Company
Custody Seals Intact: Custody Seal No .:					Cooler T	emperature(s) °(	Cooler Temperature(s) °C and Other Remarks:	marks:		

#### Login Number: 198845 List Number: 1 Creator: Escalante, Maria I

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

List Source: TestAmerica Irvine

#### Login Number: 198845 List Number: 2 Creator: Nelson, Kym I

List Source: TestAmerica Sacramento

List Creation: 12/22/17 12:18 PM

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

Residual Chlorine Checked.

N/A



THE LEADER IN ENVIRONMENTAL TES ING

Samr	440-198845 Field Sheet
Job:	

4176 2737 0872 Tracking #

13

14

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:	
	Ice Ury Other
·	Cooler Custody Seal:
	Sample Custody Seal:
	Cooler ID:
	Temp: Observed 3.3
	Corrected:
	From: Temp Blank D Sample
	NCM Filed: Yes D No D
	Yes No NA
	Perchlorate has headspace?
	CoC is complete w/o discrepancies?
	Samples received within holding time?
	Sample preservatives verified?
	Cooler compromised/tampered with?
	Samples compromised/tampered with?
	COC and Samples w/o discrepancies?
	Sample containers have legible labels?
	Containers are not broken or leaking?
	Sample date/times are provided.
	Appropriate containers are used?
	Sample bottles are completely filled?
	Zero headspace?*
	Multiphasic samples are not present?
	Initials: D4 Date: 12/22/17
	*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4"

Q:\DOCUMENT-MANAGEMENT\FORMS\QA-812 REV 1.4 SAMPLE RECEIVING NOTES 2017-10-09.DOC

QA-812 RKE 10/09/2017



THE LEADER IN ENVIRONMENTAL TESTING

# **ANALYTICAL REPORT**

# TestAmerica Laboratories, Inc.

TestAmerica Irvine 17461 Derian Ave Suite 100 Irvine, CA 92614-5817 Tel: (949)261-1022

TestAmerica Job ID: 440-199358-1 Client Project/Site: Hawaiian Memorial Cemetery

# For:

Element Environmental, LLC 98-030 Hekaha Street, Unit 9 Aiea, Hawaii 96701



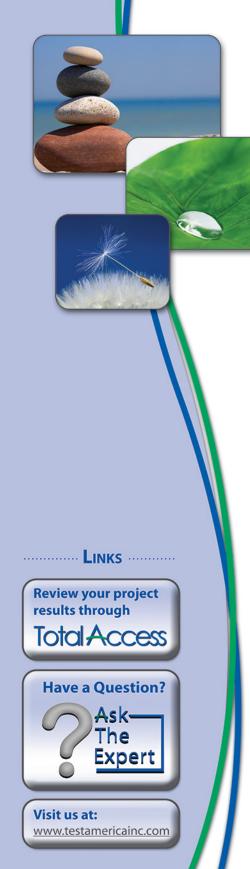
Attn: James Tsubone

Authorized for release by: 1/15/2018 3:56:48 PM David Alltucker, Project Manager I (916)374-4383 david.alltucker@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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# **Sample Summary**

## Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

TestAmerica Job ID: 440-199358-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
440-199358-1	KAWA STREAM-12:00-1226	Water	12/26/17 12:00	12/29/17 09:30
440-199358-2	KAWA STREAM-14:15-1226	Water	12/26/17 14:15	12/29/17 09:30
440-199358-3	PARKWAY-11:40-1226	Water	12/26/17 11:40	12/29/17 09:30
440-199358-4	PARKWAY-1405-1226	Water	12/26/17 14:05	12/29/17 09:30
440-199358-5	LIPALU-1350-1226	Water	12/26/17 13:50	12/29/17 09:30

# Job ID: 440-199358-1

#### Laboratory: TestAmerica Irvine

Narrative

Job Narrative 440-199358-1

#### Receipt

The samples were received on 12/29/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.4° C.

#### **General Chemistry**

Method(s) SM 2540D: The following samples were diluted due to the nature of the sample matrix: PARKWAY-1405-1226 (440-199358-4) and LIPALU-1350-1226 (440-199358-5) in 320-202107. Elevated reporting limits (RLs) are provided.

Method(s) SM 2540D: The following sample had limited sample volume and observable sediment. Analyst ran at a dilution in order to have volume in case a re-analysis was needed. PARKWAY-1405-1226 (440-199358-4)

Method(s) SM 2540D: There was heavy sediment observed in the following sample. Sample needs to be re-analyzed. LIPALU-1350-1226 (440-199358-5)

Method(s) SM 2540D: The following samples LIPALU-1350-1226 (440-199358-5) and (440-199358-B-5 DU) were initially analyzed in analytical batch 202107 using 50mL of sample volume due to visibly high particulates present in the sample. During the filtration process in the initial analysis, the filtration time exceeded 15 minutes. Analyst suspects that the amount of total suspended solids could not be accurately measured in initial analysis due to a long filtration time. The sample and a duplicate were reanalyzed, outside of holding time, using 5mL of sample volume. Sample results from both analysis were not comparable, as suspected; however, the relative percent difference (RPD) in the second analysis, between the parent sample and it's duplicate, met acceptable limits. Data is being reported with this narration.

Method(s) 353.2: The following samples were diluted due to the nature of the sample matrix: KAWA STREAM-12:00-1226 (440-199358-1) and PARKWAY-11:40-1226 (440-199358-3) in 320-202586. Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Date Collected: 12/26/17 12:00 Date Received: 12/29/17 09:30	5 I REAM-	12:00-1226				La	b Sample	ID: 440-199 Matrix	
General Chemistry Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Total Kjeldahl Nitrogen	0.75		0.20	0.10	mg/L		01/02/18 11:14	01/02/18 16:01	
Nitrate Nitrite as N	0.31		0.10	0.0062	mg/L			01/04/18 14:39	
Phosphorus, Total	0.16		0.050	0.025	mg/L		01/10/18 18:00	01/11/18 12:02	
Total Suspended Solids	63		5.0	5.0	mg/L			01/02/18 10:14	
Nitrogen, Total	1.1		0.11	0.11	mg/L			01/11/18 10:32	
Client Sample ID: KAWA S	STREAM-	4:15-1226				La	b Sample	ID: 440-199	
Date Collected: 12/26/17 14:15 Date Received: 12/29/17 09:30								Matrix	: wate
General Chemistry									
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fa
Total Kjeldahl Nitrogen	1.8		0.20		mg/L		01/02/18 11:14		
Nitrate Nitrite as N	0.11		0.050	0.0031	-			01/04/18 14:37	
Phosphorus, Total	0.55		0.25	0.13	mg/L		01/10/18 18:00	01/11/18 12:02	
Total Suspended Solids	160		5.0	5.0	mg/L			01/02/18 10:14	
Nitrogen, Total	1.9		0.11	0.11	mg/L			01/11/18 10:32	
Client Sample ID: PARKW Date Collected: 12/26/17 11:40 Date Received: 12/29/17 09:30								ID: 440-199 Matrix	
General Chemistry Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Total Kjeldahl Nitrogen	1.0		0.20		mg/L		•		
Nitrate Nitrite as N	0.31		0.10	0.0062	-			01/04/18 14:49	
Phosphorus, Total	0.64		0.050	0.025	-		01/10/18 18:00	01/11/18 12:02	
			5.0	5.0	mg/L			01/02/18 10:14	
	150				J			04/44/40 40:00	
Total Suspended Solids Nitrogen, Total	150 1.3		0.11	0.11	mg/L			01/11/18 10:32	
Total Suspended Solids Nitrogen, Total Client Sample ID: PARKW Date Collected: 12/26/17 14:05 Date Received: 12/29/17 09:30	1.3	1226		0.11	mg/L	La	b Sample	ID: 440-199 Matrix	
Total Suspended Solids Nitrogen, Total Client Sample ID: PARKW Date Collected: 12/26/17 14:05	1.3 AY-1405-	1226 Qualifier		0.11		La		ID: 440-199	: Wate
Total Suspended Solids Nitrogen, Total Client Sample ID: PARKW Date Collected: 12/26/17 14:05 Date Received: 12/29/17 09:30 General Chemistry Analyte	1.3 AY-1405-		0.11	MDL			<b>b Sample</b> <b>Prepared</b> 01/02/18 11:14	ID: 440-199 Matrix	: Wate
Total Suspended Solids Nitrogen, Total Client Sample ID: PARKW Date Collected: 12/26/17 14:05 Date Received: 12/29/17 09:30 General Chemistry	1.3 AY-1405- Result		0.11 RL	<b>MDL</b> 0.10	Unit mg/L		Prepared	ID: 440-199 Matrix Analyzed	: Wate
Total Suspended Solids Nitrogen, Total Client Sample ID: PARKW Date Collected: 12/26/17 14:05 Date Received: 12/29/17 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N	1.3 AY-1405- Result 1.8		0.11 RL 0.20	<b>MDL</b> 0.10 0.0031	Unit mg/L mg/L		Prepared	ID: 440-199 Matrix Analyzed 01/02/18 16:01	: Wate
Total Suspended Solids Nitrogen, Total Client Sample ID: PARKW Date Collected: 12/26/17 14:05 Date Received: 12/29/17 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total	1.3 AY-1405- Result 1.8 0.090		0.11 RL 0.20 0.050	MDL 0.10 0.0031 0.13	Unit mg/L mg/L mg/L		Prepared 01/02/18 11:14	ID: 440-199 Matrix Analyzed 01/02/18 16:01 01/04/18 14:47	: Wate
Total Suspended Solids Nitrogen, Total Client Sample ID: PARKW Date Collected: 12/26/17 14:05 Date Received: 12/29/17 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N	1.3 AY-1405- Result 1.8 0.090 0.85		0.11 <b>RL</b> 0.20 0.050 0.25	MDL 0.10 0.0031 0.13 10	Unit mg/L mg/L		Prepared 01/02/18 11:14	ID: 440-199 Matrix Analyzed 01/02/18 16:01 01/04/18 14:47 01/11/18 12:03	: Wate
Total Suspended Solids Nitrogen, Total Client Sample ID: PARKW Date Collected: 12/26/17 14:05 Date Received: 12/29/17 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids	1.3 AY-1405- Result 1.8 0.090 0.85 340 1.9	Qualifier	0.11 <b>RL</b> 0.20 0.050 0.25 10	MDL 0.10 0.0031 0.13 10	Unit mg/L mg/L mg/L mg/L	D	Prepared 01/02/18 11:14 01/10/18 18:00	Analyzed 01/02/18 16:01 01/04/18 14:47 01/11/18 12:03 01/02/18 10:14	Dil Fa
Total Suspended Solids Nitrogen, Total Client Sample ID: PARKW Date Collected: 12/26/17 14:05 Date Received: 12/29/17 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids Nitrogen, Total Client Sample ID: LIPALU- Date Collected: 12/26/17 13:50 Date Received: 12/29/17 09:30 General Chemistry	1.3 AY-1405-	Qualifier	0.11 <b>RL</b> 0.20 0.050 0.25 10 0.11	MDL 0.10 0.0031 0.13 10 0.11	Unit mg/L mg/L mg/L mg/L	D	Prepared 01/02/18 11:14 01/10/18 18:00 b Sample	ID: 440-199 Matrix <u>Analyzed</u> 01/02/18 16:01 01/04/18 14:47 01/11/18 12:03 01/02/18 10:14 01/11/18 10:32 ID: 440-199 Matrix	Dil Fa
Total Suspended Solids Nitrogen, Total Client Sample ID: PARKW Date Collected: 12/26/17 14:05 Date Received: 12/29/17 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids Nitrogen, Total Client Sample ID: LIPALU- Date Collected: 12/26/17 13:50 Date Received: 12/29/17 09:30	1.3 AY-1405-	Qualifier	0.11 <b>RL</b> 0.20 0.050 0.25 10	MDL 0.10 0.0031 0.13 10 0.11 MDL	Unit mg/L mg/L mg/L mg/L	D	Prepared 01/02/18 11:14 01/10/18 18:00	ID: 440-199 Matrix Analyzed 01/02/18 16:01 01/04/18 14:47 01/11/18 12:03 01/02/18 10:14 01/11/18 10:32 ID: 440-199	Dil Fa

## Client Sample ID: LIPALU-1350-1226 Date Collected: 12/26/17 13:50 Date Received: 12/29/17 09:30

General Chemistry (Continu Analyte	ed) Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Di
Phosphorus, Total	0.97	0.25	0.13	mg/L		01/10/18 18:00	01/11/18 12:03	
Total Suspended Solids	4000 H	100	100	mg/L			01/05/18 10:28	
Nitrogen, Total	16	0.11	0.11	mg/L			01/11/18 10:32	

TestAmerica Job ID: 440-199358-1

# Lab Sample ID: 440-199358-5 Matrix: Water D Prepared Analyzed Dil Fac 5

1 1 1

> 11 12 13

# **Method Summary**

## Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

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Method	Method Description	Protocol	Laboratory
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL IRV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAC
365.3	Phosphorus, Total	EPA	TAL IRV
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL SAC
Total Nitrogen	Nitrogen, Total	EPA	TAL IRV
Protocol Ref	erences:		
EPA = US	Environmental Protection Agency		
	= "Methods For Chemical Analysis Of Water And Wastes", EPA-600/	1-70-020 March 1983 And Subsequent Revisions	

SM = "Standard Methods For The Examination Of Water And Wastewater",

#### Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

# Client Sample ID: KAWA STREAM-12:00-1226

Date Collected: 12/26/17 12:00 Date Received: 12/29/17 09:30

## Lab Sample ID: 440-199358-1 Matrix: Water

Lab Sample ID: 440-199358-2

Matrix: Water

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	449628	01/02/18 11:14	AN	TAL IRV
Total/NA	Analysis	351.2		1			449697	01/02/18 16:01	AN	TAL IRV
Total/NA	Analysis	353.2		2			202586	01/04/18 14:39	TCS	TAL SAC
Total/NA	Prep	365.2/365.3/365			50 mL	50 mL	451008	01/10/18 18:00	MMP	TAL IRV
Total/NA	Analysis	365.3		1			451155	01/11/18 12:02	MMP	TAL IRV
Total/NA	Analysis	SM 2540D		1	100 mL	100 mL	202107	01/02/18 10:14	TCS	TAL SAC
Total/NA	Analysis	Total Nitrogen		1			451126	01/11/18 10:32	TLN	TAL IRV

## Client Sample ID: KAWA STREAM-14:15-1226 Date Collected: 12/26/17 14:15 Date Received: 12/29/17 09:30

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	449628	01/02/18 11:14	AN	TAL IRV
Total/NA	Analysis	351.2		1			449697	01/02/18 16:01	AN	TAL IRV
Total/NA	Analysis	353.2		1			202586	01/04/18 14:37	TCS	TAL SAC
Total/NA	Prep	365.2/365.3/365			10 mL	50 mL	451008	01/10/18 18:00	MMP	TAL IRV
Total/NA	Analysis	365.3		1			451155	01/11/18 12:02	MMP	TAL IRV
Total/NA	Analysis	SM 2540D		1	100 mL	100 mL	202107	01/02/18 10:14	TCS	TAL SAC
Total/NA	Analysis	Total Nitrogen		1			451126	01/11/18 10:32	TLN	TAL IRV

## Client Sample ID: PARKWAY-11:40-1226 Date Collected: 12/26/17 11:40 Date Received: 12/29/17 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	449628	01/02/18 11:14	AN	TAL IRV
Total/NA	Analysis	351.2		1			449697	01/02/18 16:01	AN	TAL IRV
Total/NA	Analysis	353.2		2			202586	01/04/18 14:49	TCS	TAL SAC
Total/NA	Prep	365.2/365.3/365			50 mL	50 mL	451008	01/10/18 18:00	MMP	TAL IRV
Total/NA	Analysis	365.3		1			451155	01/11/18 12:02	MMP	TAL IRV
Total/NA	Analysis	SM 2540D		1	100 mL	100 mL	202107	01/02/18 10:14	TCS	TAL SAC
Total/NA	Analysis	Total Nitrogen		1			451126	01/11/18 10:32	TLN	TAL IRV

## Client Sample ID: PARKWAY-1405-1226 Date Collected: 12/26/17 14:05 Date Received: 12/29/17 09:30

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	449628	01/02/18 11:14	AN	TAL IRV
Total/NA	Analysis	351.2		1			449697	01/02/18 16:01	AN	TAL IRV
Total/NA	Analysis	353.2		1			202586	01/04/18 14:47	TCS	TAL SAC

TestAmerica Irvine

Matrix: Water

# 26 01/11/18 10:32 TLN TAL IRV

# Lab Sample ID: 440-199358-3 Matrix: Water

Lab Sample ID: 440-199358-4

# Client Sample ID: PARKWAY-1405-1226 Date Collected: 12/26/17 14:05

# Date Received: 12/29/17 09:30

<b>Prep Type</b> Total/NA	Batch Type	Batch Method 365.2/365.3/365	Run	Dil Factor	Initial Amount 10 mL	Final Amount 50 mL	Batch Number 451008	Prepared or Analyzed 01/10/18 18:00	Analyst	Lab
Total/NA	Prep Analysis	365.3 365.3		1	TO ML	50 ML	451008 451155	01/10/18 18:00		TAL IRV
Total/NA Total/NA	Analysis Analysis	SM 2540D Total Nitrogen		1 1	50 mL	100 mL	202107 451126	01/02/18 10:14 01/11/18 10:32		TAL SAC TAL IRV

## Client Sample ID: LIPALU-1350-1226 Date Collected: 12/26/17 13:50 Date Received: 12/29/17 09:30

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	449628	01/02/18 11:14	AN	TAL IRV
Total/NA	Analysis	351.2		2			449697	01/02/18 17:54	AN	TAL IRV
Total/NA	Analysis	353.2		1			202586	01/04/18 15:05	TCS	TAL SAC
Total/NA	Prep	365.2/365.3/365			10 mL	50 mL	451008	01/10/18 18:00	MMP	TAL IRV
Total/NA	Analysis	365.3		1			451155	01/11/18 12:03	MMP	TAL IRV
Total/NA	Analysis	SM 2540D		1	5 mL	100 mL	202702	01/05/18 10:28	JMD	TAL SAC
Total/NA	Analysis	Total Nitrogen		1			451126	01/11/18 10:32	TLN	TAL IRV

#### Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Lab Sample ID: MB 440-449628/3-A

Lab Sample ID: LCS 440-449628/4-A

Lab Sample ID: LCSD 440-449628/5-A

Matrix: Water

Total Kjeldahl Nitrogen

Total Kjeldahl Nitrogen

**Matrix: Water** 

**Matrix: Water** 

Analyte

Analyte

Analysis Batch: 449697

Analysis Batch: 449697

Method: 351.2 - Nitrogen, Total Kjeldahl

MB MB

ND

**Result Qualifier** 

RL

0.20

Spike

Added

5.00

MDL Unit

0.10 mg/L

Result Qualifier Unit

mg/L

LCS LCS

4.91

**Client Sample ID: Method Blank** 

01/02/18 11:14 01/02/18 16:01

Prepared

D

Prep Type: Total/NA

Prep Batch: 449628

Analyzed

# 8

Dil Fac

RPD RPD Limit

20

3

1

**Client Sample ID: Lab Control Sample** Prep Type: Total/NA Prep Batch: 449628 %Rec. Limits D %Rec 90 - 110 98 **Client Sample ID: Lab Control Sample Dup** Prep Type: Total/NA Batch: 449628

Analysis Batch: 449697							Prep B
	Spike	LCSD	LCSD				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Total Kjeldahl Nitrogen	5.00	5.05		mg/L		101	90 - 110

# Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 320-202586/15 Matrix: Water Analysis Batch: 202586								С	lien	t Sam	ple ID: Method Prep Type: To	
	MB	MB										
Analyte	Result	Qualifier		RL	I	MDL Un	it	D	Prep	bared	Analyzed	Dil Fac
Nitrate Nitrite as N	ND			0.050	0.0	0031 mg	/L				01/04/18 14:23	1
Lab Sample ID: LCS 320-202586/16							C	Client S	amp	ole ID:	Lab Control	
Matrix: Water											Prep Type: To	otal/NA
Analysis Batch: 202586			<b>.</b>									
			Spike		LCS	LCS					%Rec.	
Analyte			Added		Result	Qualifie	r Unit		D %	6Rec	Limits	
Nitrate Nitrite as N			1.00		1.05		mg/L	-		105	90 - 110	

## Method: 365.3 - Phosphorus, Total

Lab Sample ID: MB 440-45100 Matrix: Water Analysis Batch: 451155	)8/1-А мв	МВ						Cli	ent Sam	ple ID: Metho Prep Type: T Prep Batch:	otal/NA
Analyte	Result	Qualifier		RL	I	MDL Unit		D F	Prepared	Analyzed	Dil Fac
Phosphorus, Total	ND		0	0.050	0	.025 mg/L		01/	10/18 18:00	01/11/18 12:01	1
Lab Sample ID: LCS 440-4510 Matrix: Water	08/2-A						Clier	nt Sa	mple ID:	Lab Control Prep Type: T	
Analysis Batch: 451155										Prep Batch:	
			Spike		LCS	LCS				%Rec.	
Analyte			Added	I	Result	Qualifier	Unit	D	%Rec	Limits	
Phosphorus, Total			0.501		0.507		mg/L		101	80 - 120	

# QC Sample Results

TestAmerica Job ID: 440-199358-1

5

**8** 9

# Method: SM 2540D - Solids, Total Suspended (TSS)

MB       ME         Analyte       Result       Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       5.0       5.0       mg/L       01/02/18 10:14       1         Lab Sample ID: LCS 320-202107/2       Client Sample ID: Lab Control Sample       Prep Type: Total/NA         Matrix: Water       Added       Result       Qualifier       Unit       D       %Rec.         Analyte       Added       Result       Qualifier       Unit       D       %Rec.       mg/L       5.0 </th <th>Lab Sample ID: MB 320-202107/1 Matrix: Water Analysis Batch: 202107</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Cli</th> <th>ent San</th> <th>nple ID: Method Prep Type: Te</th> <th></th>	Lab Sample ID: MB 320-202107/1 Matrix: Water Analysis Batch: 202107									Cli	ent San	nple ID: Method Prep Type: Te	
Total Suspended Solids       ND       5.0       5.0       mg/L       01/02/18 10:14       1         Lab Sample ID: LCS 320-202107/2       Client Sample ID: Lab Control Sample       Prep Type: Total/NA         Matrix: Water       Analysis Batch: 202107       Spike       LCS LCS       %Rec.         Analyte       Added       Result Qualifier       Unit       D       %Rec.         Total Suspended Solids       1000       1000       mg/L       0/02/18 10:14       1         Lab Sample ID: MB 320-202702/1       Spike       LCS LCS       %Rec.       Limits         Matrix: Water       Analysis Batch: 202702       MB MB       Client Sample ID: Method Blank Prep Type: Total/NA         Analyte       Result Qualifier       RL       MDL Unit       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       5.0       5.0       mg/L       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       5.0       5.0       mg/L       D       Prepared       Analyzed       Dil Fac         Analyte       Result Qualifier       RL       MDL       Unit       D       %Rec.       Maint       ND         Lab Sample ID: LCS 320-202702/2<		ME	B MB										
Lab Sample ID: LCS 320-202107/2       Client Sample ID: Lab Control Sample Prep Type: Total/NA         Analyte       Spike       LCS LCS       %Rec.         Analyte       Added       Result       Qualifier       Unit       D       %Rec.         Lab Sample ID: MB 320-202702/1       MB MB       Client Sample ID: MB 320-202702/1       Client Sample ID: Method Blank         Matrix: Water       Analyte       Result       Qualifier       ND       D       Prep Type: Total/NA         Analyte       Result       Qualifier       RL       MDL       Unit       D       Prep Type: Total/NA         Analyte       Result       Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       5.0       5.0       mg/L       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       5.0       5.0       mg/L       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       Solide       LCS LCS       Kec.       LCS LCS       LCS LCS       Kec.       LCS LCS       LCS LCS       Kec.       Limits       Total/NA         Lab Sample ID: LCS 320-202702/2	Analyte	Resul	t Qualifier		RL	I	MDL	Unit		DI	Prepared	Analyzed	Dil Fac
Matrix: Water Analysis Batch: 202107     Spike Added     LCS     LCS <th< td=""><td>Total Suspended Solids</td><td>NE</td><td>)</td><td></td><td>5.0</td><td></td><td>5.0</td><td>mg/L</td><td></td><td></td><td></td><td>01/02/18 10:14</td><td>1</td></th<>	Total Suspended Solids	NE	)		5.0		5.0	mg/L				01/02/18 10:14	1
Spike       LCS       LCS       %Rec.         Analyte       Added       Result       Qualifier       Unit       D       %Rec.       Limits         Total Suspended Solids       1000       1000       1000       mg/L       D       %Rec.       Limits         Lab Sample ID: MB 320-202702/1       Katrix: Water       Client Sample ID: Method Blank       Prep Type: Total/NA         Analyte       Result       Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       5.0       5.0       mg/L       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       5.0       5.0       mg/L       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       5.0       5.0       mg/L       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       5.0       S.0       mg/L       D       Prep Type: Total/NA         Analyte       Added       Result       Qualifier       Qualifier       Unit       D       %Rec.       Limits         Total Suspended Solids       1000 <td< td=""><td>Matrix: Water</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Clie</td><td>ent Sa</td><td>Imple ID</td><td></td><td></td></td<>	Matrix: Water								Clie	ent Sa	Imple ID		
AnalyteAddedResultQualifierUnitD%RecLimitsTotal Suspended Solids100010001000mg/L0%RecLimitsLab Sample ID: MB 320-202702/1 Matrix: Water Analysis Batch: 202702MB MB ResultClient Sample ID: Method Blank Prep Type: Total/NAAnalyteResultQualifierRLMDLUnitDPreparedAnalyzed 01/05/18 10:28Dil FacTotal Suspended SolidsND5.05.0mg/LDPrepared 01/05/18 10:28Dil FacLab Sample ID: LCS 320-202702/2 Matrix: Water Analysis Batch: 202702SpikeLCSLCS ResultClient Sample ID: Lab Control Sample Prep Type: Total/NAAnalyteAddedResultQualifierUnitD%Rec. %Rec.AnalyteAddedResultQualifierUnitD%Rec. %Rec.AnalyteSample ID: 440-199358-5 DU 	Analysis Datch. 202107			Spike		LCS	LCS					%Rec.	
Total Suspended Solids10001000mg/L10085-115Lab Sample ID: MB 320-202702/1 Matrix: Water Analysis Batch: 202702MB MB Result QualifierClient Sample ID: Method Blank Prep Type: Total/NAAnalyte Total Suspended SolidsMDQualifier 5.0RLMDLUnit mg/LDPrepared Ot/05/18 10:28Dil Fac Ot/05/18 10:28Lab Sample ID: LCS 320-202702/2 Matrix: Water Analysis Batch: 202702MB MB ResultClient Sample ID: Lab Control Sample Prep Type: Total/NALab Sample ID: LCS 320-202702/2 Matrix: Water Analysis Batch: 202702Spike AddedLCS ResultLCS QualifierMit mg/LD%Rec. LimitsLab Sample ID: L40-199358-5 DU Matrix: Water Analysis Batch: 202702Sample Sample SampleDU DUDURPD Result QualifierLab Sample ID: L40-199358-5 DU Matrix: Water Analysis Batch: 202702Sample Sample Result QualifierDU DURPDAnalyteResult QualifierDU Result QualifierDU Result QualifierRPD Result QualifierRPD	Analyte			•					Unit	D	%Rec		
Lab Sample ID: MB 320-202702/1 Matrix: Water       Client Sample ID: Method Blank Prep Type: Total/NA         Analysis Batch: 202702       MB MB         Analyte       Result Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil Fac         Total Suspended Solids       ND       5.0       5.0       5.0       mg/L       D       Prepared       Analyzed       Dil Fac         Lab Sample ID: LCS 320-202702/2       ND       5.0       5.0       mg/L       D       Prepared       Analyzed       Dil Fac         Matrix: Water       ND       5.0       5.0       mg/L       D       Prepared       Analyzed       Dil Fac         Analyte       ND       Spike       LCS       LCS       Client Sample ID: Lab Control Sample       Prep Type: Total/NA         Analyte       Added       Result       Qualifier       Unit       D       %Rec.         Lab Sample ID: 440-199358-5 DU       Moto       965       Client Sample ID: LIPALU-1350-1226       Prep Type: Total/NA         Analyte       Sample Sample       DU DU       RPD       Prep Type: Total/NA				1000					ma/L			85 - 115	
Matrix: Water Analysis Batch: 202702     MB     MB       Analyte     Result     Qualifier     RL     MDL     Unit     D     Prepared     Analyzed     Dil Fac       Total Suspended Solids     ND     5.0     5.0     mg/L     D     Prepared     Analyzed     Dil Fac       Lab Sample ID: LCS 320-202702/2 Matrix: Water Analysis Batch: 202702     ND     5.0     mg/L     D     Prepared     Analyzed     Dil Fac       Analyte     ND     5.0     5.0     mg/L     D     Prepared     Analyzed     Dil Fac       Matrix: Water     ND     5.0     5.0     mg/L     D     Prepared     Analyzed     Dil Fac       Analysis Batch: 202702     ND     5.0     5.0     mg/L     D     Prep Type: Total/NA       Analyte     Analyte     Added     Result     Qualifier     Unit     D     %Rec.       Lab Sample ID: 440-199358-5 DU     Matrix: Water     Analysis Batch: 202702     Client Sample ID: LIPALU-1350-1226       Matrix: Water     Sample Sample     DU DU     RPD       Analyte     Result Qualifier     Result Qualifier     Unit     D     RPD									5				
AnalyteResultQualifierRLMDLUnitDPreparedAnalyzedDil FacTotal Suspended SolidsNDND5.05.05.0mg/LDPreparedAnalyzedDil FacLab Sample ID: LCS 320-202702/2Client Sample ID: Lab Control SampleMatrix: WaterAnalysis Batch: 202702SpikeLCSLCSMRec.AnalyteAddedResultQualifierUnitD%Rec.InterventionModel965Watrix:Matrix:D%Rec.Lab Sample ID: 440-199358-5 DU1000965Client Sample ID: LIPALU-1350-1226Prep Type: Total/NAMatrix: WaterAnalysis Batch: 202702Sample SampleDU DURPDRPDAnalyteResult QualifierDU DURPDLimit	Matrix: Water	ME	2 MB							Cli	ent San		
Total Suspended SolidsND5.05.0mg/L01/05/18 10:281Lab Sample ID: LCS 320-202702/2 Matrix: Water Analysis Batch: 202702Client Sample ID: Lab Control Sample Prep Type: Total/NAAnalyte Total Suspended SolidsSpike AddedLCS Result 1000LCS 965%Rec. mg/L// %Rec. Limits 96Lab Sample ID: 440-199358-5 DU Matrix: Water Analysis Batch: 202702Sample Sample Result QualifierDU DU 	Analyte				RI		мп	Unit		ם ח	Prenared	Analyzed	Dil Fac
Lab Sample ID: LCS 320-202702/2       Client Sample ID: Lab Control Sample         Matrix: Water       Analysis Batch: 202702         Analyte       Spike       LCS       LCS         Analyte       Added       Result       Qualifier       Unit       D       %Rec.         Item term       Added       Result       Qualifier       Unit       D       %Rec.         Lab Sample ID: 440-199358-5 DU       1000       965       Client Sample ID: LIPALU-1350-1226         Matrix: Water       Client Sample ID: LIPALU-1350-1226       Prep Type: Total/NA         Analysis Batch: 202702       Sample Sample       DU DU       RPD         Analyte       Result Qualifier       DU DU       RPD											ropurou	•	1
Matrix: Water Analysis Batch: 202702       Prep Type: Total/NA         Analyte Total Suspended Solids       Spike Added       LCS       LCS       VRec.         Analyte Total Suspended Solids       Added       Result       Qualifier       Unit       D       %Rec.         Lab Sample ID: 440-199358-5 DU Matrix: Water Analysis Batch: 202702       Sample Sample       DU       DU       Client Sample ID: LIPALU-1350-1226 Prep Type: Total/NA         Analyte       Result       Qualifier       DU       DU       RPD					0.0		0.0	<u>9</u> . =				0.000.00.00120	·
Matrix: Water Analysis Batch: 202702       Prep Type: Total/NA         Analyte Total Suspended Solids       Spike Added       LCS       LCS       VRec.         Analyte Total Suspended Solids       Added       Result       Qualifier       Unit       D       %Rec.         Lab Sample ID: 440-199358-5 DU Matrix: Water Analysis Batch: 202702       Sample Sample       DU       DU       Client Sample ID: LIPALU-1350-1226 Prep Type: Total/NA         Analyte       Result       Qualifier       DU       DU       RPD	Lab Sample ID: LCS 320-202702/2								Clie	ent Sa	mple ID	: Lab Control	Sample
Analysis Batch: 202702       Spike       LCS       LCS       LCS       %Rec.         Analyte       Added       Result       Qualifier       Unit       D       %Rec.       Limits													
Analyte Total Suspended SolidsSpike AddedLCS ResultLCS QualifierUnit mg/LD 96%Rec. Limits 96Lab Sample ID: 440-199358-5 DU Matrix: Water Analysis Batch: 202702Sample SampleDU ResultDU ResultClient Sample ID: LIPALU-1350-1226 Prep Type: Total/NAAnalyteResultQualifierDU ResultClient Sample ID: LIPALU-1350-1226 Prep Type: Total/NA	Analysis Batch: 202702												
Total Suspended Solids       1000       965       mg/L       96       85 - 115         Lab Sample ID: 440-199358-5 DU       Client Sample ID: LIPALU-1350-1226         Matrix: Water       Prep Type: Total/NA         Analysis Batch: 202702       Sample Sample       DU DU       RPD         Analyte       Result Qualifier       DU DU       RPD				Spike		LCS	LCS					%Rec.	
Lab Sample ID: 440-199358-5 DU     Client Sample ID: LIPALU-1350-1226       Matrix: Water     Prep Type: Total/NA       Analysis Batch: 202702     Sample Sample     DU DU     RPD       Analyte     Result Qualifier     Result Qualifier     Unit     D     RPD	Analyte			Added		Result	Qua	lifier	Unit	D	%Rec	Limits	
Matrix: Water       Prep Type: Total/NA         Analysis Batch: 202702       Sample Sample       DU DU       RPD         Analyte       Result Qualifier       Result Qualifier Unit       D       RPD Limit	Total Suspended Solids			1000		965			mg/L		96	85 - 115	
Sample         DU         RPD           Analyte         Result Qualifier         Result Qualifier         Unit         D         RPD	Matrix: Water								CI	ient S	Sample		
Analyte Result Qualifier Result Qualifier Unit D RPD Limit		nole Sa	mple			וום	DU						RPD
		•	-					lifier	Unit	D		RPI	

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

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General Chemistry

Analysis Batch: 202107	
Lab Sample ID	Clier

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
440-199358-1	KAWA STREAM-12:00-1226	Total/NA	Water	SM 2540D	
440-199358-2	KAWA STREAM-14:15-1226	Total/NA	Water	SM 2540D	
440-199358-3	PARKWAY-11:40-1226	Total/NA	Water	SM 2540D	
440-199358-4	PARKWAY-1405-1226	Total/NA	Water	SM 2540D	
MB 320-202107/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 320-202107/2	Lab Control Sample	Total/NA	Water	SM 2540D	
Analysis Batch: 2028	586				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
440-199358-1	KAWA STREAM-12:00-1226	Total/NA	Water	353.2	
440-199358-2	KAWA STREAM-14:15-1226	Total/NA	Water	353.2	
440-199358-3	PARKWAY-11:40-1226	Total/NA	Water	353.2	
440-199358-4	PARKWAY-1405-1226	Total/NA	Water	353.2	
440-199358-5	LIPALU-1350-1226	Total/NA	Water	353.2	
MB 320-202586/15	Method Blank	Total/NA	Water	353.2	
LCS 320-202586/16	Lab Control Sample	Total/NA	Water	353.2	
nalysis Batch: 2027	702				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
440-199358-5	LIPALU-1350-1226	Total/NA	Water	SM 2540D	
MB 320-202702/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 320-202702/2	Lab Control Sample	Total/NA	Water	SM 2540D	
440-199358-5 DU	LIPALU-1350-1226	Total/NA	Water	SM 2540D	
rep Batch: 449628					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batc
440-199358-1	KAWA STREAM-12:00-1226	Total/NA	Water	351.2	
440-199358-2	KAWA STREAM-14:15-1226	Total/NA	Water	351.2	
440-199358-3	PARKWAY-11:40-1226	Total/NA	Water	351.2	
440-199358-4	PARKWAY-1405-1226	Total/NA	Water	351.2	
440-199358-5	LIPALU-1350-1226	Total/NA	Water	351.2	
MB 440-449628/3-A	Method Blank	Total/NA	Water	351.2	
LCS 440-449628/4-A	Lab Control Sample	Total/NA	Water	351.2	
LCSD 440-449628/5-A	Lab Control Sample Dup	Total/NA	Water	351.2	
Analysis Batch: 4496	<b>697</b>				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
440-199358-1	KAWA STREAM-12:00-1226	Total/NA	Water	351.2	44962
440-199358-2	KAWA STREAM-14:15-1226	Total/NA	Water	351.2	44962
440-199358-3	PARKWAY-11:40-1226	Total/NA	Water	351.2	44962
440-199358-4	PARKWAY-1405-1226	Total/NA	Water	351.2	44962
440-199358-5	LIPALU-1350-1226	Total/NA	Water	351.2	44962
MB 440-449628/3-A	Method Blank	Total/NA	Water	351.2	44962
LCS 440-449628/4-A	Lab Control Sample	Total/NA	Water	351.2	44962
LCSD 440-449628/5-A	Lab Control Sample Dup	Total/NA	Water	351.2	44962
rep Batch: 451008					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Bato
440-199358-1	KAWA STREAM-12:00-1226	Total/NA	Water	365.2/365.3/365	5
		Total/NA	Water	365.2/365.3/365	5
440-199358-2	KAWA STREAM-14:15-1226	TOtal/INA	vvalci	000.2/000.0/000	,

# **QC** Association Summary

#### Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

**Client Sample ID** 

LIPALU-1350-1226

Lab Control Sample

**Client Sample ID** 

KAWA STREAM-12:00-1226

KAWA STREAM-14:15-1226

PARKWAY-11:40-1226

PARKWAY-1405-1226

Method Blank

PARKWAY-1405-1226

**General Chemistry (Continued)** 

Prep Batch: 451008 (Continued)

Prep Type	Matrix	Method	Prep Batch	_
Total/NA	Water	365.2/365.3/365		5
Total/NA	Water	365.2/365.3/365		
Total/NA	Water	365.2/365.3/365		6
Total/NA	Water	365.2/365.3/365		0
				7
Prep Type Total/NA	Matrix	Method	Prep Batch	8
	Water	Total Nitrogen		
Total/NA	Water	Total Nitrogen		9
Total/NA	Water	Total Nitrogen		9
Total/NA	Water	Total Nitrogen		
Total/NA	Water	Total Nitrogen		10
				11

# Analysis Batch: 451126

Lab Sample ID

440-199358-4

440-199358-5

Lab Sample ID

440-199358-1

440-199358-2

440-199358-3

440-199358-4

MB 440-451008/1-A

LCS 440-451008/2-A

440-199358-5	LIPALU-1350-1226	Total/NA	Water	Total Nitrogen		
Analysis Batch: 4511	55					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
440-199358-1	KAWA STREAM-12:00-1226	Total/NA	Water	365.3	451008	
440-199358-2	KAWA STREAM-14:15-1226	Total/NA	Water	365.3	451008	
440-199358-3	PARKWAY-11:40-1226	Total/NA	Water	365.3	451008	
440-199358-4	PARKWAY-1405-1226	Total/NA	Water	365.3	451008	
440-199358-5	LIPALU-1350-1226	Total/NA	Water	365.3	451008	
MB 440-451008/1-A	Method Blank	Total/NA	Water	365.3	451008	
LCS 440-451008/2-A	Lab Control Sample	Total/NA	Water	365.3	451008	

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

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# Qualifiers

## **General Chemistry**

Qualifier	Qualifier Description						
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.						
Н	Sample was prepped or analyzed beyond the specified holding time						

# Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.	
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis	
%R	Percent Recovery	8
CFL	Contains Free Liquid	
CNF	Contains No Free Liquid	9
DER	Duplicate Error Ratio (normalized absolute difference)	
Dil Fac	Dilution Factor	10
DL	Detection Limit (DoD/DOE)	_
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision Level Concentration (Radiochemistry)	
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	
LOQ	Limit of Quantitation (DoD/DOE)	13
MDA	Minimum Detectable Activity (Radiochemistry)	13
MDC	Minimum Detectable Concentration (Radiochemistry)	
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
NC	Not Calculated	
ND	Not Detected at the reporting limit (or MDL or EDL if shown)	
PQL	Practical Quantitation Limit	
QC	Quality Control	
RER	Relative Error Ratio (Radiochemistry)	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	

TEQ Toxicity Equivalent Pactor (Dioxin) TEQ Toxicity Equivalent Quotient (Dioxin)

#### Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

#### Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

uthority	Program	EPA Region	Identification Number	Expiration Date
laska	State Program	10	CA01531	06-30-18
rizona	State Program	9	AZ0671	10-14-18
alifornia	LA Cty Sanitation Districts	9	10256	06-30-18
alifornia	State Program	9	CA ELAP 2706	06-30-18
uam	State Program	9	Cert. No. 17-003R	01-23-18 *
awaii	State Program	9	N/A	01-29-18 *
ansas	NELAP	7	E-10420	07-31-18
vada	State Program	9	CA015312018-1	07-31-18
w Mexico	State Program	6	N/A	01-29-18 *
orthern Mariana Islands	State Program	9	MP0002	01-29-17 *
egon	NELAP	10	4028	01-29-18 *
SDA	Federal		P330-15-00184	07-08-18
ashington	State Program	10	C900	09-03-18

# Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	UST-055	01-31-18
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-18
Colorado	State Program	8	CA00044	08-31-18
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-18
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	12-31-17 *
L-A-B	DoD ELAP		L2468	01-20-18
Louisiana	NELAP	6	30612	06-30-18
Maine	State Program	1	CA0004	04-18-18
Michigan	State Program	5	9947	01-31-18
Nevada	State Program	9	CA00044	07-31-18
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-18
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	07-31-18
USDA	Federal		P330-11-00436	12-30-17 *
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
Wyoming	State Program	8	8TMS-L	01-28-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

<b>TestAmerica Sacramento</b> 880 Riverside Parkway		Chain	Chain of Custody Record	THE LEADER IN ENVIRONMENTAL TESTING
West Sacramento, CA 95605-1500 phone 916.373.5600 fax 303.467.7248	Regulatory Program: Dbw	CINPDES	LI R.C.R. E Other:	TestAmerica Laboratories, inc.
Client Contact	SPENC	2	Site Contact: Date:	COC No.
Element Environmental, LLC	- 196 2	3953	Lab Contact: Carrier:	of COCs
98-030 Hekaha St. Unit 9	Analysis Turnaround Time	ne	3	Sampler:
Aiea/ HI/ 96701	CALENDAR DAYS C WORKING DAYS	DAYS		For Lab Use Only:
	TAT if differer		1°.	Walk-In Client:
(808) 488-1300 FAX	2 weeks			
1				Job / SDG No.:
#Od	1 day			
Sample Identification	Sample Sample (c=comp. Date Time G=Grab) M	# of Matrix Cont.	2/170/ 2/170/ 2/170/	Sample Specific Notes:
KALLA STEGAM - 12:00-1226				
1 - 1	7 51:11	2 2		
-44- 11:40-	9 01:11	3	× × ×	
PACC WAY -	5 5061	2	X X X	
1 12.	1350 6	W 2.		
of 20				
		-		
				2/
Preservation Used: 1= Ice, 2= HCI; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other	-NaOH; 6= Other			
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.	List any EPA Waste Codes for the sa	mple in the	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	
DNon-Hazard DFlammable DK Initiant	D Poison B D Unknown		C Return to Client     Disposal by Lab	D Archive for Months
رىد	ره (	90	7.6.3/2.8.	
Custody Seals intact: D Yes D No	Custody Seat No.:		Cooler Temp. (°C): Obs'd: Corr'd:	Therm ID No.:
0	7. 25	Date/Time: 1(2/2)/(7-13	Received t	HON Date/Time: HON Date/Time:
Relinquished by:		Date/Time:	Received 20 L	Date/Time:
Retinquished by:	Company:	Date/Time:	Received in Laboratory by: Company:	Date/Fime:
8				2.3 (3.4 Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017
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1/15/2018

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Alla DRI.     Carrier Trading blots.       Alla DRI.     Alla DRI.       All	<sup>2</sup> hone (949) 261-1022 Fax (949) 260-3297												
Prone         Et Addit           Interaction         Et		Sampler.			Lab PM: Alltucker	David R		Carrier Tracki		COC No: 440-117721.1			
Andread (1)         Analysis Requested         Analysis Requested           1/11/2016	1	Phone.			E-Mail:	urker@t	estamericaine com	State of Origin Hawaii		Page: Dane 1 of 1			
Out Date Requested.         Analysis Requested.           1/11/2016					Acr	aditatione F	Contrined (See note)	IDANDI		1 ayo 1 01 1			
Under Revertet:           Virtual Revertet:           An Frequented (days):           An Frequented (days):           An Frequented (days):           An Frequented (days):           Parameter (days):           An Frequented (days):           Parameter (days):           An Frequented (days):           Colspan="2">Antificient Antificient Antificie	TestAmerica Laboratories, Inc.				200	- CIONPING	'ianni ago' naimhai			440-199358-1			
M Faquested (days):           M Faquested (days):           Pole	Address 880 Riverside Parkwav.	Due Date Requester 1/11/2018	#				Analysi	s Requested		Preservation Co	des:		
POR         E. Niko Addition           Polar         Polar           Non #         Sample Ves or No)           Sov/#         Sample Ves or No)           Sov/#         Sample Ves or No)           Non #         X X X           No	ony West Sacramento	TAT Requested (da)	:(s):			1000				A - HCL B - NaOH C - Zn Acetate			
PO#         PO#           Workerter         Workerter           Propreter         Sample           Propreter         Sample           Propreter         Sample           Sooves         Sample           Sooves         Sample           Sooves         Sample           Sooves         Sample           Sooves         Sample           Sample         Matrix           Time         Gagetabl           Sample         Nater           X         X           Y         X           1226/17         Havelian           1	State, Zip CA, 95605	Г			1000	122				D - Nitric Acid E - NaHSO4			
WO#         WO#           Project #         22010538           22000538         32000538           Sample Bar         Antic Sample Vea or NO           Sommer         Sample Matrix           Sommer         Sample Garantia           Sommer         Sample Garantia           Sample Date         Time Garantia           Antic Sample Garantia         Sample Matrix           Sample Date         Time Garantia           Antic Sample Garantia         Sample Garantia           (1)         12/26/17         Heitefiltened Sample Vea or NO           (2)         12/26/17         Heitefiltened Sample Vea or NO           (1)         12/26/1		#Od			(	15 40				F - MeOH G - Amchlor H - Ascorbio Acid			
Project # 32010538           Solvwa: 32010538           Solvwa: 32010538           Solvwa: 32010538           Solvwa: 32010538           Solvwa: 32010538           Solvwa: 32010538           Solvwa: 32010538           Sample Matrix Type (wwwa: 2)         Sample Matrix Type (wwwa: 2)         Sample Matrix C=Comp.           Sample Date Time         Colspan="2">Colspan="2"           Colspan="2"         Colspan="2"         Colspan="2"           Colspan="2"         Colspan="2"           Colspan="2"         Colspan="2"           Colspan="2"         Colspan="2"           Colspan="2" <th <="" colspan="2" td="" th<=""><td></td><td># OM</td><td></td><td></td><td>OF NO</td><td>(0</td><td></td><td></td><td></td><td>1 - Ice J - DI Water</td><td></td></th>	<td></td> <td># OM</td> <td></td> <td></td> <td>OF NO</td> <td>(0</td> <td></td> <td></td> <td></td> <td>1 - Ice J - DI Water</td> <td></td>			# OM			OF NO	(0				1 - Ice J - DI Water	
SSOOVE:           SSOOVE:           Sample         Matrix         Sample         Matrix         Sample         Matrix         Sample         Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"           Sample         Matrix         Sample         Matrix         Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan= 2           Sample         Time         Sample         Matrix         Colspan="2">Colspan= 2         Colspan="2">Colspan= 2           Colspan=         Sample         Matrix         X	Project Name. Hawaiian Memorial Cemetery	Project #. 32010538			59X) 6		pilos p		tainers	K - EDTA L - EDA	W - pH 4-5 Z - other (specify)		
Ample         Matrix         Sample         Matrix         Type         Matrix         Stample         <	Site:	SSOW#:			Idms		əpuəda		_	Other:			
Nate       X       Preservation Code:       X       X       X       X       X       X       X       X       X       X       X       X       X       X       Y <td>Samole Identification - Client ID (Lab ID)</td> <td>Samole Date</td> <td>Sample</td> <td>Sample Type (C=comp, G=grab)</td> <td>-</td> <td></td> <td>eu2 letoT (00425</td> <td></td> <td>Total Number o</td> <td>Special Ir</td> <td>nstructions/Note-</td>	Samole Identification - Client ID (Lab ID)	Samole Date	Sample	Sample Type (C=comp, G=grab)	-		eu2 letoT (00425		Total Number o	Special Ir	nstructions/Note-		
99358-1)       12/26/17       12/26/17       12/26/17       12/26/17       12/26/17       12/26/17       12/26/17       13/40       Water       X       X       N       N       N         93358-2)       12/26/17       13/40       Water       X       X       N <td></td> <td>X</td> <td>X</td> <td>Preserva</td> <td></td> <td>-</td> <td></td> <td>「「「「「「「「」」」」</td> <td>X</td> <td>opena</td> <td></td>		X	X	Preserva		-		「「「「「「「「」」」」	X	opena			
99358-2)       12/26/17       Hawaiian       Water       X       X       N       N         8-3)       12/26/17 $14:15$ Water       X       X       N       N       N         8-3)       12/26/17 $14:05$ Water       X       X       N       N       N         8-3)       12/26/17 $14:05$ Water       X       X       N       N       N         3-4)       12/26/17 $14:05$ Water       X       X       N       N       N         3-4)       12/26/17 $13:50$ Water       X       X       N       N       N       N         12/26/17 $13:50$ Water       X       X       N	KAWA STREAM-12:00-1226 (440-199358-1)	٨	12:00		Water	×	×		2				
8-3) 12/26/17 11:40 Water X X 12/26/17 14:05 Water X X 12/26/17 14:05 Water X X 12/26/17 13:50 Water X X 12/26/17 Hawaiian 12/26/17 Hawaiian 13/26/17 13:50 Water X X 13/26/17 13:50 Water X X X X 13/26/17 13:50 Water X X X X 13/26/17 13:50 Water X X X X X 13/26/17 13:50 Water X X X X X X X X X X X X X X X X X X X	KAWA STREAM-14:15-1226 (440-199358-2)		14:15 Hawaiian		Water	×	×		2				
3.4)     12/26/17     14:05     Water     X     X     N       12/26/17     13:50     Water     X     X     N       12/26/17     13:50     Water     X     N	PARKWAY-11:40-1226 (440-199358-3)		11:40 Hawaiian		Water	×	×		2				
12/26/17     13:50     Water     X     X     Image: Contract of the second secon	PARKWAY-1405-1226 (440-199358-4)		14:05 Hawaijan		Water	×	×		2				
	LIPALU-1350-1226 (440-199358-5)		13:50 Hawaiian		Water	×	×		2				
						_							
	Possible Hazard Identification					Sample	Disposal ( A fee m	ay be assessed if	samples are retaine	d longer than 1	1 month)		
Sample Disposal ( A fee may be assessed if samples are retained longer than 1 mo	Decimination Deliverable Requested: I, II, III, IV, Other (specify)	Primary Delivera	ble Rank: 2			Special II	nstructions/QC Req	ursposar by uirements:		VE FOI	INDUIS		
V, Other (specify) Primary Deliverable Rank: 2	Empty kit Relinguishey by:	-	Date:		Tir	ie:	1	Method	of Shipment:				
Sample Disposal (A fee may be assessed if samples are retained longer than 1 mo       Primary Deliverable Rank: 2     Special Instructions/QC Requirements:       Date:     Time:	Million and the second s	A Data	1(0)1	8	MARA	Reper	- Ala		Date/Time Of	0/0	Compary Sur		
Sample Disposal (A fee may be assessed if samples are retained longer than 1       Primary Deliverable Rank: 2     Special Instructions/QC Requirements:       Date:     Date:       Date:     Time:	Reimquistled by	Date/Time:	5		Company	Recent	a Jing c		Date/Time:		Company		
Primary Deliverable Rank: 2     Sample Disposal (A fee may be assessed if samples are retained longer than 1       Primary Deliverable Rank: 2     Special Instructions/QC Requirements:       Date:     Image: Time:       Date:     Time:       Date:     Company       Reserved by Lab     Disposal By Lab       Archive For     Archive For       Date:     Disposal By Lab       Date:     Time:       Date:     Time:       Date:     Company	Reinquished by:	Date/Time:			Company	Receiv	ied by.		Date/Time:		Company		
Sample Disposal (A fee may be assessed if samples are retained longer than 1       Primary Deliverable Rank: 2     Secial Instructions/OC Requirements:       Date:     Disposal By Lab     Archive For       Date:     Date:     Method of Shipment:       Date:     Time:     Method of Shipment:       Date:     Company     Reserved by       Date:     Company     Reserved by       Date:     Company     Reserved by	Custody Seals Intact: Custody Seal No.:					Cooler	Cooler Temperature(s) °C and Other Remarks	Other Remarks	5.				

A Yes A No

12 13

Ver: 09/20/2016

#### Login Number: 199358 List Number: 1 Creator: Soderblom, Tim

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	The Field Sampler was not listed on the Chain of Custody.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	False	Limited volume received.
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	False	Sample splitting required for subcontract purposes.
Residual Chlorine Checked.	N/A	

Job Number: 440-199358-1

List Source: TestAmerica Irvine

#### Login Number: 199358 List Number: 2 Creator: Her, David A

List Source: TestAmerica Sacramento

List Creation: 12/30/17 11:10 AM

Creator: Her, David A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.1 C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



THE LEADER IN ENVIRONMENTAL TESTING

Samp	440-199358 Fiel		
Job:	440-100000-11		
Tracking	# 4176	273-	7 26 26

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:	Therm. ID: (AK-2 / AK-3 / HACCP /Other Ice Wet Dry Other	• *
	Cooler Custody Seal:	
n an	Sample Custody Seal:	A <sup>1</sup>
······································	Cooler ID:	×
	Temp: Observed	
· · · · · · · · · · · · · · · · · · ·	Corrected:	
	From: Temp Blank D Sample D NCM Filed: Yes D No D	
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	X X	
* .		
	Containers are not broken or leaking?	
	Containers are not broken or leaking? Sample date/times are provided.	
		ם
	Sample bottles are completely filled?	
		D Ø
	Multiphasic samples are not present?	
	Initials: DH Date: 12/3	317
	*Containers requiring zero headspace have no headspace, or bubble	< 6 mm (1/4")

Q:IDOCUMENT-MANAGEMENT\FORMS\QA-812 REV 1.4 SAMPLE RECEIVING NOTES 2017-10-09.DOC

QA-812 RKE 10/09/2017 ,



THE LEADER IN ENVIRONMENTAL TESTING

# **ANALYTICAL REPORT**

# TestAmerica Laboratories, Inc.

TestAmerica Sacramento 880 Riverside Parkway West Sacramento, CA 95605 Tel: (916)373-5600

# TestAmerica Job ID: 320-35552-1 Client Project/Site: Hawaiian Memorial Cemetery

For: Element Environmental, LLC 98-030 Hekaha Street, Unit 9 Aiea, Hawaii 96701

Attn: James Tsubone



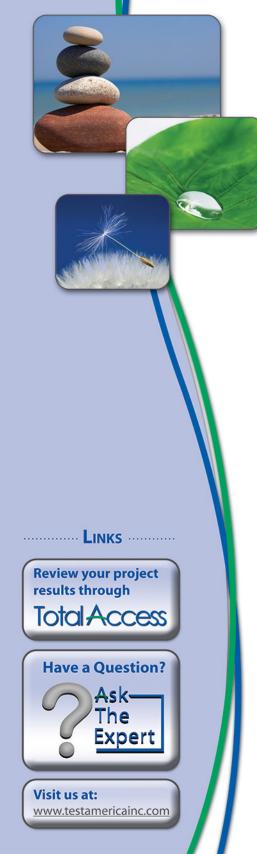
*Authorized for release by:* 2/14/2018 3:28:10 PM

David Alltucker, Project Manager I (916)374-4383 david.alltucker@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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QC Sample Results	8
QC Association Summary	10
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Method Summary	15
Sample Summary	16
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Receipt Checklists	19

# **Definitions/Glossary**

## Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

Glossary		3
Abbreviation	These commonly used abbreviations may or may not be present in this report.	Δ
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis	
%R	Percent Recovery	5
CFL	Contains Free Liquid	
CNF	Contains No Free Liquid	6
DER	Duplicate Error Ratio (normalized absolute difference)	<b>U</b>
Dil Fac	Dilution Factor	-/
DL	Detection Limit (DoD/DOE)	
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	0
DLC	Decision Level Concentration (Radiochemistry)	ð
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	9
LOQ	Limit of Quantitation (DoD/DOE)	
MDA	Minimum Detectable Activity (Radiochemistry)	
MDC	Minimum Detectable Concentration (Radiochemistry)	
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
NC	Not Calculated	
ND	Not Detected at the reporting limit (or MDL or EDL if shown)	
PQL	Practical Quantitation Limit	13
QC	Quality Control	
RER	Relative Error Ratio (Radiochemistry)	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	
TEQ	Toxicity Equivalent Quotient (Dioxin)	

Laboratory: TestAmerica Sacramento

Job ID: 320-35552-1

# \_\_\_\_\_

Narrative

Job Narrative 320-35552-1

#### Receipt

The samples were received on 1/31/2018 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

#### HPLC/IC

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### **General Chemistry**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### **Organic Prep**

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# **Detection Summary**

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

# Client Sample ID: KAWA Stream-1-27

# Lab Sample ID: 320-35552-1

Lab Sample ID: 320-35552-2

Lab Sample ID: 320-35552-3

Lab Sample ID: 320-35552-4

Lab Sample ID: 320-35552-5

5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Total Kjeldahl Nitrogen	2.8		0.20	0.10	mg/L	1	351.2	Total/NA
Nitrate Nitrite as N	0.38		0.050	0.0031	mg/L	1	353.2	Total/NA
Phosphorus, Total	0.73		0.25	0.13	mg/L	1	365.3	Total/NA
Total Suspended Solids	280		20	10	mg/L	1	SM 2540D	Total/NA
Nitrogen, Total	3.2		0.11	0.11	mg/L	1	Total Nitrogen	Total/NA

# Client Sample ID: Maintenance Culvert-1-27

Analyte	Result Q	Qualifier RL	MDL	Unit	Dil Fac D	Method	Prep Type
Total Kjeldahl Nitrogen	0.42	0.20	0.10	mg/L	1	351.2	Total/NA
Nitrate Nitrite as N	1.2	0.050	0.0031	mg/L	1	353.2	Total/NA
Phosphorus, Total	0.18	0.050	0.025	mg/L	1	365.3	Total/NA
Total Suspended Solids	18	2.5	1.3	mg/L	1	SM 2540D	Total/NA
Nitrogen, Total	1.6	0.11	0.11	mg/L	1	Total Nitrogen	Total/NA

# Client Sample ID: Park View-1-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	0.67		0.20	0.10	mg/L	1	_	351.2	Total/NA
Nitrate Nitrite as N	0.59		0.050	0.0031	mg/L	1		353.2	Total/NA
Phosphorus, Total	0.50		0.25	0.13	mg/L	1		365.3	Total/NA
Total Suspended Solids	110		6.7	3.3	mg/L	1		SM 2540D	Total/NA
Nitrogen, Total	1.3		0.11	0.11	mg/L	1		Total Nitrogen	Total/NA

# **Client Sample ID: Plantation Spring-1-29**

Analyte	Result Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrate Nitrite as N	0.36	0.050	0.0031	mg/L	1		353.2	Total/NA
Phosphorus, Total	0.11	0.050	0.025	mg/L	1		365.3	Total/NA
Total Suspended Solids	7.2	1.1	0.57	mg/L	1		SM 2540D	Total/NA
Nitrogen, Total	0.36	0.11	0.11	mg/L	1		Total Nitrogen	Total/NA

# Client Sample ID: Cascade Spring-1-29

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D Method	Prep Type
Total Kjeldahl Nitrogen	1.7		0.20	0.10	mg/L	1	351.2	Total/NA
Nitrate Nitrite as N	1.1		0.050	0.0031	mg/L	1	353.2	Total/NA
Phosphorus, Total	0.095		0.050	0.025	mg/L	1	365.3	Total/NA
Total Suspended Solids	11		3.3	1.7	mg/L	1	SM 2540D	Total/NA
Nitrogen, Total	2.8		0.11	0.11	mg/L	1	Total Nitroger	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: KAWA Date Collected: 01/27/18 14:4 Date Received: 01/31/18 09:30	0	27				L	ab Sample.	e ID: 320-35 Matrix	
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	2.8		0.20	0.10	mg/L		02/09/18 11:00	02/09/18 17:53	1
Nitrate Nitrite as N	0.38		0.050	0.0031	mg/L			02/02/18 10:22	
Phosphorus, Total	0.73		0.25	0.13	mg/L		02/13/18 15:55	02/13/18 17:33	
Total Suspended Solids	280		20	10	mg/L			02/02/18 17:09	
Nitrogen, Total	3.2		0.11	0.11	mg/L			02/14/18 15:03	
Client Sample ID: Mainte Date Collected: 01/27/18 15:0 Date Received: 01/31/18 09:3	5	/ert-1-27				L	ab Sample	e ID: 320-35 Matrix	
General Chemistry	Decult	Qualifier	ы	MDI	11:4	<b>_</b>	Drepered	Analyzad	
Analyte		Qualifier	RL 0.20	MDL		D	Prepared 02/09/18 11:00	Analyzed 02/09/18 17:53	Dil Fa
Total Kjeldahl Nitrogen	0.42				mg/L		02/09/18 11:00		
Nitrate Nitrite as N	1.2		0.050	0.0031	-		00/10/10 10:10	02/02/18 10:24	
Phosphorus, Total	0.18		0.050	0.025			02/12/18 12:40	02/12/18 14:43	
Total Suspended Solids	18 1.6		2.5 0.11		mg/L mg/L			02/02/18 17:09 02/14/18 15:03	
Client Sample ID: Park V Date Collected: 01/27/18 14:5	/iew-1-27 0					L	ab Sample.	e ID: 320-35 Matrix	
Date Collected: 01/27/18 14:5	/iew-1-27 0					L	ab Sample.		
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30	/iew-1-27 0 0	Qualifier	RL	MDL	Unit	L	ab Sample.		: Wate
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte	/iew-1-27 0 0	Qualifier	<b>RL</b> 0.20		Unit mg/L			Matrix Analyzed	: Wate
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte	/iew-1-27 0 0 Result	Qualifier			mg/L		Prepared	Matrix Analyzed	: Wate Dil Fa
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N	/iew-1-27 0 0 <u></u>	Qualifier	0.20	0.10 0.0031	mg/L		Prepared	Matrix Analyzed 02/09/18 17:53 02/02/18 10:32	: Wate
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total	/iew-1-27 0 0 	Qualifier	0.20 0.050	0.10 0.0031 0.13	mg/L mg/L		Prepared 02/09/18 11:00	Matrix Analyzed 02/09/18 17:53 02/02/18 10:32	Dil Fa
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total	/iew-1-27 0 0 	Qualifier	0.20 0.050 0.25	0.10 0.0031 0.13 3.3	mg/L mg/L mg/L		Prepared 02/09/18 11:00	Matrix Analyzed 02/09/18 17:53 02/02/18 10:32 02/12/18 14:44	Dil Fa
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids Nitrogen, Total Client Sample ID: Planta Date Collected: 01/29/18 11:0	/iew-1-27 0 0 		0.20 0.050 0.25 6.7	0.10 0.0031 0.13 3.3	mg/L mg/L mg/L mg/L	D	<b>Prepared</b> 02/09/18 11:00 02/12/18 12:40	Matrix Analyzed 02/09/18 17:53 02/02/18 10:32 02/12/18 14:44 02/02/18 17:09	Dil Fa
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids Nitrogen, Total Client Sample ID: Planta Date Collected: 01/29/18 11:0 Date Received: 01/31/18 09:30 Method: 8315A - Carbonyl C	/iew-1-27 0 0 	-1-29 IPLC)	0.20 0.050 0.25 6.7 0.11	0.10 0.0031 0.13 3.3 0.11	mg/L mg/L mg/L mg/L	D 	Prepared 02/09/18 11:00 02/12/18 12:40 .ab Sample	Matrix <u>Analyzed</u> 02/09/18 17:53 02/02/18 10:32 02/12/18 14:44 02/02/18 17:09 02/14/18 15:03 <b>D: 320-35</b> Matrix	Dil Fac
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids Nitrogen, Total Client Sample ID: Planta Date Collected: 01/29/18 11:0 Date Received: 01/31/18 09:30	/iew-1-27 0 0 	-1-29	0.20 0.050 0.25 6.7	0.10 0.0031 0.13 3.3	mg/L mg/L mg/L mg/L Mg/L	D	<b>Prepared</b> 02/09/18 11:00 02/12/18 12:40	Matrix Analyzed 02/09/18 17:53 02/02/18 10:32 02/12/18 14:44 02/02/18 17:09 02/14/18 15:03 DID: 320-35 Matrix Analyzed	Dil Fa
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids Nitrogen, Total Client Sample ID: Planta Date Collected: 01/29/18 11:0 Date Received: 01/31/18 09:30 Method: 8315A - Carbonyl C Analyte Formaldehyde General Chemistry	View-1-27 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1-29 IPLC)	0.20 0.050 0.25 6.7 0.11	0.10 0.0031 0.13 3.3 0.11 <b>MDL</b> 0.0050	mg/L mg/L mg/L mg/L Mg/L	D 	Prepared 02/09/18 11:00 02/12/18 12:40 .ab Sample Prepared	Matrix <u>Analyzed</u> 02/09/18 17:53 02/02/18 10:32 02/12/18 14:44 02/02/18 17:09 02/14/18 15:03 <b>DI: 320-35</b> Matrix Analyzed	Dil Fa
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids Nitrogen, Total Client Sample ID: Planta Date Collected: 01/29/18 11:0 Date Received: 01/31/18 09:30 Method: 8315A - Carbonyl C Analyte Formaldehyde General Chemistry	View-1-27 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1-29 IPLC) Qualifier	0.20 0.050 0.25 6.7 0.11 <b>RL</b> 0.010	0.10 0.0031 0.13 3.3 0.11 <b>MDL</b> 0.0050 <b>MDL</b>	mg/L mg/L mg/L mg/L Unit mg/L	D	Prepared 02/09/18 11:00 02/12/18 12:40 .ab Sample Prepared 02/01/18 05:53	Matrix <u>Analyzed</u> 02/09/18 17:53 02/02/18 10:32 02/12/18 14:44 02/02/18 17:09 02/14/18 15:03 <b>DI: 320-35</b> Matrix <u>Analyzed</u> 02/01/18 16:00 <u>Analyzed</u>	Dil Fa
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids Nitrogen, Total Client Sample ID: Planta Date Collected: 01/29/18 11:0 Date Received: 01/31/18 09:30 Method: 8315A - Carbonyl C Analyte Formaldehyde General Chemistry Analyte	View-1-27 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1-29 IPLC) Qualifier	0.20 0.050 0.25 6.7 0.11 <b>RL</b> 0.010	0.10 0.0031 0.13 3.3 0.11 <b>MDL</b> 0.0050 <b>MDL</b>	mg/L mg/L mg/L mg/L Unit mg/L	D	Prepared 02/09/18 11:00 02/12/18 12:40 .ab Sample Prepared 02/01/18 05:53 Prepared	Matrix <u>Analyzed</u> 02/09/18 17:53 02/02/18 10:32 02/12/18 14:44 02/02/18 17:09 02/14/18 15:03 <b>DI: 320-35</b> Matrix <u>Analyzed</u> 02/01/18 16:00 <u>Analyzed</u>	Dil Fa
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids Nitrogen, Total Client Sample ID: Planta Date Collected: 01/29/18 11:0 Date Received: 01/31/18 09:30 Method: 8315A - Carbonyl C Analyte Formaldehyde General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N	View-1-27 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1-29 IPLC) Qualifier	0.20 0.050 0.25 6.7 0.11 <b>RL</b> 0.010	0.10 0.0031 0.13 3.3 0.11 MDL 0.0050 MDL 0.10	mg/L mg/L mg/L mg/L mg/L Unit mg/L mg/L	D	Prepared 02/09/18 11:00 02/12/18 12:40 .ab Sample Prepared 02/01/18 05:53 Prepared	Matrix Analyzed 02/09/18 17:53 02/02/18 10:32 02/12/18 14:44 02/02/18 17:09 02/14/18 15:03 DID: 320-35 Matrix Analyzed 02/01/18 16:00 Analyzed 02/09/18 17:53 02/02/18 10:34	: Wate Dil Fa 5552-4 : Wate Dil Fa
Client Sample ID: Park V Date Collected: 01/27/18 14:5 Date Received: 01/31/18 09:30 General Chemistry Analyte Total Kjeldahl Nitrogen Nitrate Nitrite as N Phosphorus, Total Total Suspended Solids Nitrogen, Total Client Sample ID: Planta Date Collected: 01/29/18 11:0 Date Received: 01/31/18 09:30 Method: 8315A - Carbonyl C Analyte Formaldehyde General Chemistry Analyte Total Kjeldahl Nitrogen	View-1-27 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1-29 IPLC) Qualifier	0.20 0.050 0.25 6.7 0.11 <b>RL</b> 0.010 <b>RL</b> 0.20 0.050	0.10 0.0031 0.13 3.3 0.11 MDL 0.0050 MDL 0.0050 MDL 0.10 0.0031 0.025	mg/L mg/L mg/L mg/L mg/L Unit mg/L mg/L	D	Prepared 02/09/18 11:00 02/12/18 12:40 .ab Sample 02/01/18 05:53 Prepared 02/09/18 11:00	Matrix Analyzed 02/09/18 17:53 02/02/18 10:32 02/12/18 14:44 02/02/18 17:09 02/14/18 15:03 DID: 320-35 Matrix Analyzed 02/01/18 16:00 Analyzed 02/09/18 17:53 02/02/18 10:34	Dil Fa

TestAmerica Sacramento

Date Collected: 01/29/18 13:06

Date Received: 01/31/18 09:30

Client Sample ID: Cascade Spring-1-29

# Lab Sample ID: 320-35552-5

Matrix: Water

5

6 7

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Formaldehyde	ND		0.010	0.0050	mg/L		02/01/18 05:53	02/01/18 16:19	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	1.7		0.20	0.10	mg/L		02/09/18 11:00	02/09/18 17:53	1
Nitrate Nitrite as N	1.1		0.050	0.0031	mg/L			02/02/18 10:36	1
Phosphorus, Total	0.095		0.050	0.025	mg/L		02/12/18 12:40	02/12/18 14:44	1
Total Suspended Solids	11		3.3	1.7	mg/L			02/02/18 17:09	1
Nitrogen, Total	2.8		0.11	0.11	mg/L			02/14/18 15:03	1

TestAmerica Sacramento

#### Method: 8315A - Carbonyl Compounds (HPLC) Lab Sample ID: MB 440-455001/1-A **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA Analysis Batch: 455103 Prep Batch: 455001 MB MB Analyte **Result Qualifier** RL MDL Unit Prepared Analyzed Dil Fac D 0.010 02/01/18 05:53 02/01/18 14:08 Formaldehyde ND 0.0050 mg/L Lab Sample ID: LCS 440-455001/2-A **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA** Analysis Batch: 455103 **Prep Batch: 455001** Spike LCS LCS %Rec. Added Analyte **Result Qualifier** Limits Unit D %Rec Formaldehyde 0.0500 0.0424 mg/L 85 70 - 129 Method: 351.2 - Nitrogen, Total Kjeldahl Lab Sample ID: MB 440-456621/3-A **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA Analysis Batch: 456705 Prep Batch: 456621 MB MB Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed Dil Fac Total Kjeldahl Nitrogen 0.20 0.10 mg/L 02/09/18 11:00 02/09/18 17:48 ND Lab Sample ID: LCS 440-456621/4-A **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA Analysis Batch: 456705 Prep Batch: 456621 LCS LCS Spike %Rec. Added **Result Qualifier** Limits Analyte Unit D %Rec Total Kjeldahl Nitrogen 5.00 4.78 96 90 - 110 ma/L Lab Sample ID: LCSD 440-456621/5-A Client Sample ID: Lab Control Sample Dup **Matrix: Water** Prep Type: Total/NA Analysis Batch: 456705 Prep Batch: 456621 LCSD LCSD Spike %Rec. RPD Analvte Added Result Qualifier Unit %Rec Limits RPD Limit D Total Kjeldahl Nitrogen 5.00 4 77 95 90 - 110 0 20 mg/L Method: 353.2 - Nitrogen, Nitrate-Nitrite Lab Sample ID: MB 320-206693/15 **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA Analysis Batch: 206693 MB MB RL Analyte **Result Qualifier** MDL Unit D Prepared Analyzed Dil Fac 0.050 0.0031 mg/L Nitrate Nitrite as N ND 02/02/18 10:06 1 **Client Sample ID: Lab Control Sample** Lab Sample ID: LCS 320-206693/16 **Matrix: Water** Prep Type: Total/NA Analysis Batch: 206693

Analysis Baton. 200000								
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Nitrate Nitrite as N	1.00	0.985		mg/L		99	90 - 110	 _

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

Lab Sample ID: MB 440-456933/1-A Matrix: Water	•								C	Clie		ole ID: Metho	
												Prep Type: T	
Analysis Batch: 456971	МВ	мв										Prep Batch:	400900
Analyte		Qualifier		RL		/IDL	Unit		D	Pr	epared	Analyzed	Dil Fac
Phosphorus, Total	ND			0.050	0	.025	mg/L		- 7		•	02/12/18 14:42	1
- Lab Sample ID: LCS 440-456933/2-/	Α							Clie	ent \$	San	nple ID:	Lab Control	Sample
Matrix: Water												Prep Type: T	
Analysis Batch: 456971												Prep Batch:	
			Spike		LCS	LCS						%Rec.	
Analyte			Added		Result	Qua	lifier	Unit		D	%Rec	Limits	
Phosphorus, Total			0.501		0.500			mg/L		_	100	80 - 120	
- Lab Sample ID: MB 440-457244/1-A									C	Clie	nt Samp	ole ID: Metho	d Blank
Matrix: Water												Prep Type: T	
												гтер туре. т	otal/NA
	МВ	МВ										Prep Batch:	
Analysis Batch: 457288		MB Qualifier		RL	Γ	//DL	Unit		D	Pr	epared		
Analysis Batch: 457288				<b>RL</b> 0.050			Unit mg/L				epared	Prep Batch:	457244 Dil Fac
Analysis Batch: 457288 Analyte Phosphorus, Total	Result ND							Clie	- (	)2/13	<b>epared</b> 3/18 15:55	Prep Batch: Analyzed 02/13/18 17:32	<b>457244</b> Dil Fac
Analysis Batch: 457288 Analyte Phosphorus, Total	Result ND							Clie	- (	)2/13	epared 3/18 15:55 nple ID:	Prep Batch: Analyzed 02/13/18 17:32 Lab Control	457244 Dil Fac
Analysis Batch: 457288 Analyte Phosphorus, Total Lab Sample ID: LCS 440-457244/2-, Matrix: Water	Result ND							Clie	- (	)2/13	epared 3/18 15:55 nple ID:	Prep Batch: Analyzed 02/13/18 17:32 Lab Control Prep Type: T	457244 Dil Fac 1 Sample otal/NA
Analysis Batch: 457288 Analyte Phosphorus, Total Lab Sample ID: LCS 440-457244/2-, Matrix: Water	Result ND					025	mg/L	Clie	- (	)2/13	epared 3/18 15:55 nple ID:	Prep Batch: Analyzed 02/13/18 17:32 Lab Control	457244 Dil Fac 1 Sample otal/NA
Analysis Batch: 457288 Analyte Phosphorus, Total Lab Sample ID: LCS 440-457244/2-	Result ND		Spike Added		0	025 LCS	mg/L	Clic	- (	)2/13	epared 3/18 15:55 nple ID:	Prep Batch: Analyzed 02/13/18 17:32 Lab Control Prep Type: T Prep Batch:	457244 Dil Fac 1 Sample otal/NA

### Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 440-455361/1 Matrix: Water Analysis Batch: 455361									Clie	ent Sam	nple ID: Meth Prep Type:		
Analysis Baten. 400001	ME	B MB											
Analyte	Resul	t Qualifier		RL		MDL	Unit		D P	repared	Analyzed	D	il Fac
Total Suspended Solids	NE			1.0		0.50	mg/L				02/02/18 17:	09	1
Lab Sample ID: LCS 440-455361/2 Matrix: Water Analysis Batch: 455361								Clie	ent Sai	mple ID	: Lab Contro Prep Type:		
····· <b>,</b> ········			Spike		LCS	LCS					%Rec.		
Analyte			Added		Result	Qua	lifier	Unit	D	%Rec	Limits		
Total Suspended Solids			1000		1010			mg/L		101	85 - 115		
Lab Sample ID: 320-35552-1 DU Matrix: Water Analysis Batch: 455361								Cli	ent Sa	mple II	D: KAWA Str Prep Type:		
	nple Sa	mple			DU	DU							RPD
Analyte Re	sult Qu	alifier			Result	Qua	lifier	Unit	D		I	RPD	Limit
Total Suspended Solids	280				286			mg/L				1	10

### **QC Association Summary**

TestAmerica Job ID: 320-35552-1

# 8 9 10 11 12 13

### HPLC/IC

### Prep Batch: 455001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35552-4	Plantation Spring-1-29	Total/NA	Water	8315_W_Prep	
320-35552-5	Cascade Spring-1-29	Total/NA	Water	8315_W_Prep	
MB 440-455001/1-A	Method Blank	Total/NA	Water	8315_W_Prep	
LCS 440-455001/2-A	Lab Control Sample	Total/NA	Water	8315_W_Prep	
nalysis Batch: 455	103				_
Analysis Batch: 455	103				_
Analysis Batch: 455 Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
Lab Sample ID		Prep Type Total/NA	Matrix Water	Method 8315A	Prep Batch 455001
Analysis Batch: 455 Lab Sample ID 320-35552-4 320-35552-5	Client Sample ID	· · · ·			
Lab Sample ID 320-35552-4	Client Sample ID Plantation Spring-1-29	Total/NA	Water	8315A	455001

### **General Chemistry**

### Analysis Batch: 206693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35552-1	KAWA Stream-1-27	Total/NA	Water	353.2	
320-35552-2	Maintenance Culvert-1-27	Total/NA	Water	353.2	
320-35552-3	Park View-1-27	Total/NA	Water	353.2	
320-35552-4	Plantation Spring-1-29	Total/NA	Water	353.2	
320-35552-5	Cascade Spring-1-29	Total/NA	Water	353.2	
MB 320-206693/15	Method Blank	Total/NA	Water	353.2	
LCS 320-206693/16	Lab Control Sample	Total/NA	Water	353.2	

### Analysis Batch: 455361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35552-1	KAWA Stream-1-27	Total/NA	Water	SM 2540D	
320-35552-2	Maintenance Culvert-1-27	Total/NA	Water	SM 2540D	
320-35552-3	Park View-1-27	Total/NA	Water	SM 2540D	
320-35552-4	Plantation Spring-1-29	Total/NA	Water	SM 2540D	
320-35552-5	Cascade Spring-1-29	Total/NA	Water	SM 2540D	
MB 440-455361/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 440-455361/2	Lab Control Sample	Total/NA	Water	SM 2540D	
320-35552-1 DU	KAWA Stream-1-27	Total/NA	Water	SM 2540D	

### Prep Batch: 456621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35552-1	KAWA Stream-1-27	Total/NA	Water	351.2	
320-35552-2	Maintenance Culvert-1-27	Total/NA	Water	351.2	
320-35552-3	Park View-1-27	Total/NA	Water	351.2	
320-35552-4	Plantation Spring-1-29	Total/NA	Water	351.2	
320-35552-5	Cascade Spring-1-29	Total/NA	Water	351.2	
MB 440-456621/3-A	Method Blank	Total/NA	Water	351.2	
LCS 440-456621/4-A	Lab Control Sample	Total/NA	Water	351.2	
LCSD 440-456621/5-A	Lab Control Sample Dup	Total/NA	Water	351.2	

### Analysis Batch: 456705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35552-1	KAWA Stream-1-27	Total/NA	Water	351.2	456621
320-35552-2	Maintenance Culvert-1-27	Total/NA	Water	351.2	456621

### **QC Association Summary**

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Matrix

Water

Water

Water

Water

Water

Water

Matrix

Water

Water

Water

Water

Water

Water

### Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

**Client Sample ID** 

Plantation Spring-1-29

Cascade Spring-1-29

Lab Control Sample

**Client Sample ID** 

Park View-1-27

Method Blank

Lab Control Sample Dup

Maintenance Culvert-1-27

Plantation Spring-1-29

Cascade Spring-1-29

Lab Control Sample

Park View-1-27

Method Blank

General Chemistry (Continued) Analysis Batch: 456705 (Continued)

Method

351.2

351.2

351.2

351.2

351.2

351.2

Method

365.2/365.3/365

365.2/365.3/365

365.2/365.3/365

365.2/365.3/365

365.2/365.3/365

365.2/365.3/365

Prep Batch

456621

456621

456621

456621

456621

456621

Prep Batch

# 8 9 10 11

Analysis Batch: 456971

MB 440-456933/1-A

LCS 440-456933/2-A

Lab Sample ID

320-35552-3

320-35552-4

320-35552-5

MB 440-456621/3-A LCS 440-456621/4-A

LCSD 440-456621/5-A

Prep Batch: 456933

Lab Sample ID

320-35552-2

320-35552-3

320-35552-4

320-35552-5

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35552-2	Maintenance Culvert-1-27	Total/NA	Water	365.3	456933
320-35552-3	Park View-1-27	Total/NA	Water	365.3	456933
320-35552-4	Plantation Spring-1-29	Total/NA	Water	365.3	456933
320-35552-5	Cascade Spring-1-29	Total/NA	Water	365.3	456933
MB 440-456933/1-A	Method Blank	Total/NA	Water	365.3	456933
LCS 440-456933/2-A	Lab Control Sample	Total/NA	Water	365.3	456933

### Prep Batch: 457244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35552-1	KAWA Stream-1-27	Total/NA	Water	365.2/365.3/365	
MB 440-457244/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	
LCS 440-457244/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	

### Analysis Batch: 457288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35552-1	KAWA Stream-1-27	Total/NA	Water	365.3	457244
MB 440-457244/1-A	Method Blank	Total/NA	Water	365.3	457244
LCS 440-457244/2-A	Lab Control Sample	Total/NA	Water	365.3	457244

### Analysis Batch: 457519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35552-1	KAWA Stream-1-27	Total/NA	Water	Total Nitrogen	·
320-35552-2	Maintenance Culvert-1-27	Total/NA	Water	Total Nitrogen	
320-35552-3	Park View-1-27	Total/NA	Water	Total Nitrogen	
320-35552-4	Plantation Spring-1-29	Total/NA	Water	Total Nitrogen	
320-35552-5	Cascade Spring-1-29	Total/NA	Water	Total Nitrogen	

Initial

Amount

25 mL

10 mL

50 mL

Dil

1

1

1

1

1

Factor

Run

Batch

Туре

Prep

Prep

Analysis

Analysis

Analysis

Analysis

Analysis

Date Collected: 01/27/18 14:40

Date Received: 01/31/18 09:30

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Client Sample ID: KAWA Stream-1-27

### Lab Sample ID: 320-35552-1 Matrix: Water

Lab

TAL IRV

TAL IRV

TAL SAC

TAL IRV

TAL IRV

TAL IRV

TAL IRV

Matrix: Water

Matrix: Water

Prepared

02/09/18 11:00 AN

02/09/18 17:53 AN

02/02/18 10:22 TCS

02/13/18 15:55 MMP

02/13/18 17:33 MMP

02/02/18 17:09 HTL

02/14/18 15:03 TLN

Lab Sample ID: 320-35552-2

Lab Sample ID: 320-35552-3

Lab Sample ID: 320-35552-4

or Analyzed Analyst

9

### Client Sample ID: Maintenance Culvert-1-27 Date Collected: 01/27/18 15:05 Date Received: 01/31/18 09:30

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	456621	02/09/18 11:00	AN	TAL IRV
Total/NA	Analysis	351.2		1			456705	02/09/18 17:53	AN	TAL IRV
Total/NA	Analysis	353.2		1			206693	02/02/18 10:24	TCS	TAL SAC
Total/NA	Prep	365.2/365.3/365			50 mL	50 mL	456933	02/12/18 12:40	MMP	TAL IRV
Total/NA	Analysis	365.3		1			456971	02/12/18 14:43	MMP	TAL IRV
Total/NA	Analysis	SM 2540D		1	400 mL	1000 mL	455361	02/02/18 17:09	HTL	TAL IRV
Total/NA	Analysis	Total Nitrogen		1			457519	02/14/18 15:03	TLN	TAL IRV

### Client Sample ID: Park View-1-27 Date Collected: 01/27/18 14:50 Date Received: 01/31/18 09:30

-	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	456621	02/09/18 11:00	AN	TAL IRV
Total/NA	Analysis	351.2		1			456705	02/09/18 17:53	AN	TAL IRV
Total/NA	Analysis	353.2		1			206693	02/02/18 10:32	TCS	TAL SAC
Total/NA	Prep	365.2/365.3/365			10 mL	50 mL	456933	02/12/18 12:40	MMP	TAL IRV
Total/NA	Analysis	365.3		1			456971	02/12/18 14:44	MMP	TAL IRV
Total/NA	Analysis	SM 2540D		1	150 mL	1000 mL	455361	02/02/18 17:09	HTL	TAL IRV
Total/NA	Analysis	Total Nitrogen		1			457519	02/14/18 15:03	TLN	TAL IRV

### **Client Sample ID: Plantation Spring-1-29** Date Collected: 01/29/18 11:00 Date Received: 01/31/18 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_W_Prep			100 mL	1 mL	455001	02/01/18 05:53	FTD	TAL IRV
Total/NA	Analysis	8315A		1			455103	02/01/18 16:00	D1D	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	456621	02/09/18 11:00	AN	TAL IRV

**TestAmerica Sacramento** 

Batch

Number

456621

456705

206693

457244

457288

455361

457519

Final

Amount

25 mL

50 mL

1000 mL

Batch

351.2

351.2

353.2

365.3

SM 2540D

Total Nitrogen

365.2/365.3/365

Method

Matrix: Water

Dil

1

1

1

1

Factor

Run

Batch

Туре

Analysis

Analysis

Analysis

Analysis

Analysis

Prep

Batch

351.2

353.2

365.3

SM 2540D

**Total Nitrogen** 

365.2/365.3/365

Method

# **Client Sample ID: Plantation Spring-1-29**

Initial

Amount

50 mL

880 mL

Final

Amount

50 mL

1000 mL

Batch

Number

456705

206693

456933

456971

455361

457519

### Date Collected: 01/29/18 11:00 Date Received: 01/31/18 09:30

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

or Analyzed	ed Analyst La	ab
02/09/18 17:53	7:53 AN T	AL IRV
02/02/18 10:34	):34 TCS T	AL SAC
02/12/18 12:40	2:40 MMP T	AL IRV
02/12/18 14:44	1:44 MMP T	AL IRV
02/02/18 17:09	7:09 HTL T	AL IRV
02/14/18 15:03	5:03 TLN TA	AL IRV
2/18 17:09 4/18 15:03	7:09 HTL T	AL IRV AL IRV

### Client Sample ID: Cascade Spring-1-29 Date Collected: 01/29/18 13:06 Date Received: 01/31/18 09:30

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8315_W_Prep			100 mL	1 mL	455001	02/01/18 05:53	FTD	TAL IRV
Total/NA	Analysis	8315A		1			455103	02/01/18 16:19	D1D	TAL IRV
Total/NA	Prep	351.2			25 mL	25 mL	456621	02/09/18 11:00	AN	TAL IRV
Total/NA	Analysis	351.2		1			456705	02/09/18 17:53	AN	TAL IRV
Total/NA	Analysis	353.2		1			206693	02/02/18 10:36	TCS	TAL SAC
Total/NA	Prep	365.2/365.3/365			50 mL	50 mL	456933	02/12/18 12:40	MMP	TAL IRV
Total/NA	Analysis	365.3		1			456971	02/12/18 14:44	MMP	TAL IRV
Total/NA	Analysis	SM 2540D		1	300 mL	1000 mL	455361	02/02/18 17:09	HTL	TAL IRV
Total/NA	Analysis	Total Nitrogen		1			457519	02/14/18 15:03	TLN	TAL IRV

### Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

### Accreditation/Certification Summary

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery TestAmerica Job ID: 320-35552-1

10

11 12 13

### Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-18
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-18
L-A-B	DoD ELAP		L2468	01-20-21
Louisiana	NELAP	6	30612	06-30-18
Maine	State Program	1	CA0004	04-14-18
Michigan	State Program	5	9947	01-31-18 *
Nevada	State Program	9	CA00044	07-31-18
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-18
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	07-31-18
USDA	Federal		P330-11-00436	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18
Virginia	NELAP	3	460278	03-14-18
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

### Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	CA01531	06-30-18
Arizona	State Program	9	AZ0671	10-14-18
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 17-003R	01-23-18 *
Hawaii	State Program	9	N/A	01-29-19
Kansas	NELAP	7	E-10420	07-31-18
Nevada	State Program	9	CA015312018-1	07-31-18
New Mexico	State Program	6	N/A	01-29-19
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-19
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-18

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

### Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

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SW846	
0110-10	TAL IRV
MCAWW	TAL IRV
MCAWW	TAL SAC
EPA	TAL IRV
SM	TAL IRV
EPA	TAL IRV
	MCAWW EPA SM

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions. SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022 TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

### **Sample Summary**

### Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

TestAmerica Job ID: 320-35552-1

Lab Sample ID	Client Sample ID	Matrix	Collected Received
320-35552-1	KAWA Stream-1-27	Water	01/27/18 14:40 01/31/18 09:3
320-35552-2	Maintenance Culvert-1-27	Water	01/27/18 15:05 01/31/18 09:3
320-35552-3	Park View-1-27	Water	01/27/18 14:50 01/31/18 09:3
320-35552-4	Plantation Spring-1-29	Water	01/29/18 11:00 01/31/18 09:3
320-35552-5	Cascade Spring-1-29	Water	01/29/18 13:06 01/31/18 09:3

TestAmerica	THE LEADER IN ENVIRONMENTAL TESTING TestAmerica Laboratories, Inc. TAL-8210 (0713)	COC No:	1 of 1 cocs	Sampler:	Malk in Climate	ab Sampling	2	Job / SDG No.:	Sample Specific Notes:								<sup>c</sup> Custody		ained longer than 1 month)	for Months	11.2	Therm ID No.: N	Date/Time.	i i		
ord 242127		Date: 1/29/18	Carrier:														320-35552 Chain of Custody		Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	Disposal by Lab	111 6.9-81	Temp. (°C): Obs'd: 1 Corr'd:	OUN COMPANY. HUN	Company:		-
Chain of Custody Record	□ NPDES □ RCRA □ Other:	Site Contact:	Lab Contact:	퀴막	T	( 1 И ЭТа			Commercial and the second seco		3 X X	3 X X	4 XXX h	4 XXX H						Return to Client	7.66/7.60 11	ooler	1/24/1 Energined by:	1039	e: Received in Laboratory by:	
Ch	Regulatory Program: DW	Project Manager: Steve. Sneng les	TellFax: YOB 864 3953	Turnar	CALENDAR DAYS UNORKING DAYS		1 week	2 days	mple ype comp, Matrix	8 1440 (2 Weber	15051	V 1450	1/29/18 1100	V 1306 / Y				 =NaOH; 6= Other	List any EPA Waste Codes for the sample in the	Poison B Unknown	eceived on ice 7	Custody Seal No.:	Company: Date/Tim Ebut Env 1/24/	7	Company: Date/fime:	_
TestAmerica Sacramento 880 Riverside Parkuay	West Sacramento, CA 95605 Phone: 916.373.5600 Fax:	Contact	Elevent Environmental LLC	7-030 H	ate/Zip: Aje AL	ASA 1	ct Name: H	Site: PO# i7nO<7	Sample Identification	-27	monce Culvert - 1-27	1-1-1-	Plante	Cascade Spring-1-	of 21			Preservation Used: 1= Ice, 2= HCI; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other	Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Cod Comments Section if the lab is to dispose of the sample.	Non-Hazard     Iammable     Skin Irritant	Special Instructions/QC Requirements & Comments: Re	Intact: Yes No	Relinquisherday:	the Ella	hed by:	1.8

TestAmerica Sacramento	980 Riverside Parkway	Viest Sacramento. CA 95605
Test	<b>880 F</b> IN	West 5

**Chain of Custody Record** 



Phone (916) 373-5600 Fax (916) 372-1059													τιγ:(ÈAMF∓	THE FARES OF FUNCTION KEN. TEETRO	Caracity Constantion
Citent Information (Sub Contract Lab)	Sampier			Lab PM Alltucke	Lab P.M Alltucker, David R	æ			Carri	Carrier Tracking No(5)	No(6)		COC No 320-110921	11	
	Phone			E-Mail david.a	E-Mail david.alitucker/@testamencainc.com	Dtestan	têncain	E.com	Siete Hav	State of Origin Hawaii			Page Page 1 of 1		
Company				V.	Accreditations Required (See note)	unbay s	d (See n	ole)					Job #		
l estAmenca Laboratories, inc						ł							320-35552-1		
watess 1748† Denan Ave, Suite 100.						i	×.	Analysis	Requested	ted			Preservation Codes	n Codes: Merson	
City I'MINB	TAT Requested (de	(dayh):			1777 g								D - NaOH C - Zn Azelato		
State, 2p CA, 92614-5817	1							pu			·		D - Nine Acid F - NaH604		
Phone 949-261-1022(Tel) 949-260-3297(Fax)	¥ Od				3.63.			taji ic	_				G - Ascorbic A	R - Nacourt S - H2304 Acd T - TSP Dodecahyultate	lrate
Ertak	#0M							юл (a						U - Acetone V - MCAA	
Project Name Hawaiian Memorial Cernetery	Project# 32010538					·		OW) di					K-E07A L-EDA	W - pH 4-5 Z - ather (speafy)	
Sile	SSOW			SE DRUDEL LA				הל_אים					Cliner		
Sample (dentification - Client (D (Lab ID)	Sample Date		Sample Type (C=comp, G=grab) er	Matrix forwaice: forwaice: S=solic: Conserving ByeTherin, Adard	ang_2,185\2,125	ІвіоТ,ікедочій	5249D 362/3/262 hub	1 M 9158/5158					Speci Speci	S <u>pecial</u> Instructions/Note:	
KaWA Stream-1-27 (320-35652-1)	1/27/18	3563°		Water	×	×	×						X		
Maintenance Culvert-1-27 (320-35552-2)	1/27/18	15:05 Hereation		Water	×	• • • • • •	• • •				_				Ţ
Park View-1-27 (320-35562-3)	1/27/18	14:50 Hawaiian		Water	×	×	×××								Ţ
Plantation Spring-1-29 (320-35552-4)	1/29/18	11 00 Hawaian		Water	×	×	××	×	-						Į
Cascade Spring-1-29 (320-35552-5)	1/25/18	13:06 Hawaiian		Water	×	×	××	×				(246)	697		Ī
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Uncontinued					]	Return To Client	o Clier	- -	1 09500 1	Disposal By Lab	-21	¥ [	Archive For	Manths	
Deliverable Requested. I, II, III, IV, Other (specify)	Primary Deliverable Rank	sbfe Rank 2			Specia	l Instruc	tions/Q	Special Instructions/OC Requirements		:		:		1	
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														Ver: 09/20/2016	l

Client: Element Environmental, LLC

### Login Number: 35552 List Number: 1 Creator: Nelson, Kym D

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

List Source: TestAmerica Sacramento

Client: Element Environmental, LLC

### Login Number: 35552 List Number: 2 Creator: Perez, Angel

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	N/A	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

List Source: TestAmerica Irvine

List Creation: 02/01/18 10:10 AM

### Login Number: 35552 List Number: 3 Creator: Ornelas, Olga

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 320-35552-1

List Source: TestAmerica Irvine

List Creation: 02/01/18 12:40 PM



THE LEADER IN ENVIRONMENTAL TESTING

# **ANALYTICAL REPORT**

### TestAmerica Laboratories, Inc.

TestAmerica Sacramento 880 Riverside Parkway West Sacramento, CA 95605 Tel: (916)373-5600

### TestAmerica Job ID: 320-35837-1 Client Project/Site: Hawaiian Memorial Cemetery

### For: Element

Element Environmental, LLC 98-030 Hekaha Street, Unit 9 Aiea, Hawaii 96701

Attn: James Tsubone



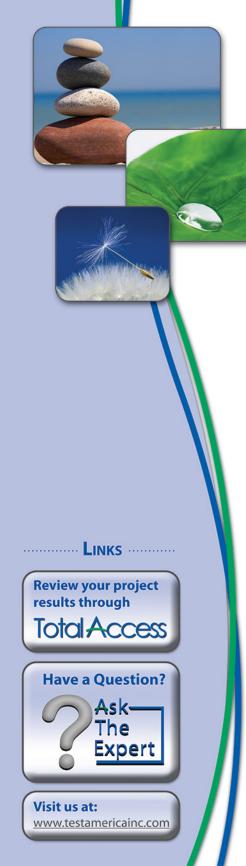
Authorized for release by: 2/22/2018 11:46:48 AM

David Alltucker, Project Manager I (916)374-4383 david.alltucker@testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

3

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### Qualifiers

### **General Chemistry**

Qualifier	Qualifier Description
В	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.	
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis	
%R	Percent Recovery	8
CFL	Contains Free Liquid	
CNF	Contains No Free Liquid	9
DER	Duplicate Error Ratio (normalized absolute difference)	
Dil Fac	Dilution Factor	
DL	Detection Limit (DoD/DOE)	
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision Level Concentration (Radiochemistry)	
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	
LOQ	Limit of Quantitation (DoD/DOE)	14
MDA	Minimum Detectable Activity (Radiochemistry)	13
MDC	Minimum Detectable Concentration (Radiochemistry)	
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
NC	Not Calculated	
ND	Not Detected at the reporting limit (or MDL or EDL if shown)	
PQL	Practical Quantitation Limit	
QC	Quality Control	
RER	Relative Error Ratio (Radiochemistry)	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	

TEQ Toxicity Equivalent Quotient (Dioxin)

### Job ID: 320-35837-1

### Laboratory: TestAmerica Sacramento

Narrative

Job Narrative 320-35837-1

### Receipt

The samples were received on 2/8/2018 8:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2° C.

### **General Chemistry**

Method(s) 353.2: For the following samples in batch: 320-208659, a matrix spike/matrix spike duplicate was analyzed on non-client samples but not reported with this sample set. The MS/MSD pair were in control. Lepolu25-15:30 (320-35837-1) and Lepolu2518-9:30 (320-35837-2)

Method(s) 365.3: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 440-458960 and analytical batch 440-459023 were outside control limits. Sample matrix interference is suspected.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

### **Detection Summary**

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

### Lab Sample ID: 320-35837-1

Lab Sample ID: 320-35837-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	DN	lethod	Prep Type
Total Kjeldahl Nitrogen	5.0		0.20	0.10	mg/L	1	3	51.2	Total/NA
Nitrate Nitrite as N	0.46	В	0.050	0.0031	mg/L	1	3	53.2	Total/NA
Phosphorus, Total	1.1		0.10	0.050	mg/L	1	3	65.3	Total/NA
Nitrogen, Total	5.5		0.11	0.11	mg/L	1	Ť	otal Nitrogen	Total/NA

### Client Sample ID: Lepolu2518-9:30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac D	Method	Prep Type
Total Kjeldahl Nitrogen	1.5		0.20	0.10	mg/L	1	351.2	Total/NA
Nitrate Nitrite as N	0.89	В	0.050	0.0031	mg/L	1	353.2	Total/NA
Phosphorus, Total	0.40		0.050	0.025	mg/L	1	365.3	Total/NA
Nitrogen, Total	2.4		0.11	0.11	mg/L	1	Total Nitrogen	Total/NA

This Detection Summary does not include radiochemical test results.

### **Client Sample Results**

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

Nitrogen, Total

02/22/18 11:35

Client: Element Environmental, Project/Site: Hawaiian Memoria							lestAmerica	Job ID: 320-3	35837-1
Client Sample ID: Lepolu Date Collected: 02/05/18 15:30 Date Received: 02/07/18 16:14	)					L	ab Sample.	e ID: 320-35 Matrix	5837-1 : Water
General Chemistry Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	5.0		0.20	0.10	mg/L		02/21/18 16:24	02/21/18 18:45	1
Nitrate Nitrite as N	0.46	В	0.050	0.0031	mg/L			02/15/18 14:41	1
Phosphorus, Total	1.1		0.10	0.050	mg/L		02/21/18 12:03	02/21/18 15:02	1
Nitrogen, Total	5.5		0.11	0.11	mg/L			02/22/18 11:35	1
Client Sample ID: Lepolu Date Collected: 02/05/18 09:30 Date Received: 02/07/18 16:14	)					L	ab Sample	e ID: 320-35 Matrix	5837-2 : Water
General Chemistry Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	1.5		0.20	0.10	mg/L		02/21/18 16:24	02/21/18 18:45	1
Nitrate Nitrite as N	0.89	В	0.050	0.0031	mg/L			02/15/18 14:43	1
Phosphorus, Total	0.40		0.050	0.025	mg/L		02/21/18 12:03	02/21/18 15:02	1

0.11

0.11 mg/L

2.4

# 

## Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 440-459047/3-A	4								Client Sa			
Matrix: Water										Prep Ty		
Analysis Batch: 459087	MB	мв								Prep B	atch: 4	45904
Analyte		Qualifier		RL	MDL U	Unit		D	Prepared	Analy	zed	Dil Fa
Total Kjeldahl Nitrogen	ND		C	0.20	0.10 r				•	24 02/21/18		
Lab Sample ID: LCS 440-459047/4-	^						Cliv	ont	Samplo I	D: Lab Co	ntrol S	Sampl
Matrix: Water	~						Cin	5111	Sample I	Prep Ty		
Analysis Batch: 459087										Prep B		
Analysis Daten. 400007			Spike	LC	S LCS					%Rec.	aton	10004
Analyte			Added	Resu	t Quali	ifier	Unit		D %Rec	Limits		
Total Kjeldahl Nitrogen			5.00	4.8	5		mg/L		97	90 - 110		
Lab Sample ID: LCSD 440-459047/	5-A					С	lient S	am	ple ID: La	b Control	Samp	le Du
Matrix: Water										Prep Ty		
Analysis Batch: 459087										Prep B	atch: 4	45904
-			Spike	LCSI	D LCSD	כ				%Rec.		RP
Analyte			Added		t Quali	ifier	Unit		D %Rec	Limits	RPD	) Lim
Total Kjeldahl Nitrogen			5.00	4.8	9		mg/L		98	90 - 110	1	ī <u>2</u>
lethod: 353.2 - Nitrogen, Nitr	ate-Ni	trite										
									Client Sa	mple ID: N		
· · · · · · · · · · · · · · · · · · ·												
Matrix: Water										Prep Ty	pe: To	otal/N
Matrix: Water		MR								Prep Ty	ре: То	otal/N
Matrix: Water Analysis Batch: 208659	МВ	MB Qualifier		RI	моі і	llnit		п	Prenared			
Matrix: Water Analysis Batch: 208659 Analyte	MB Result	Qualifier		RL 050 0	<b>MDL</b> U			<b>D</b>	Preparec	Analy	/zed	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte	МВ	Qualifier			<b>MDL</b> U			D .	Preparec		/zed	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N	MB Result 0.00400	Qualifier					Clie			Analy 02/15/18	<b>/zed</b> 3 14:29	Dil Fa
Lab Sample ID: MB 320-208659/15 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water	MB Result 0.00400	Qualifier					Clie			Analy	vzed 3 14:29 ntrol S	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10	MB Result 0.00400	Qualifier					Clic			Analy 02/15/18 D: Lab Co	vzed 3 14:29 ntrol S	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water	MB Result 0.00400	Qualifier		050 (			Clie			Analy 02/15/18 D: Lab Co	vzed 3 14:29 ntrol S	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659	MB Result 0.00400	Qualifier	0.	050 ( LC:	0.0031 r	mg/L	Clic			Analy 02/15/18 D: Lab Co Prep Ty	vzed 3 14:29 ntrol S	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte	MB Result 0.00400	Qualifier	0. Spike	050 ( LC:	0.0031 r S LCS	mg/L			Sample I	<u>Analy</u> 02/15/18 D: Lab Co Prep Ty %Rec.	vzed 3 14:29 ntrol S	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N	MB Result 0.00400 6	Qualifier	O. Spike Added	050 C LC: Resul	0.0031 r S LCS	mg/L	Unit		Sample I	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits	vzed 3 14:29 ntrol S	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Iethod: 365.3 - Phosphorus,	MB Result 0.00400 6 7	Qualifier	O. Spike Added	050 C LC: Resul	0.0031 r S LCS	mg/L	Unit	ent	Sample I	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110	rzed 3 14:29 ntrol S ype: To	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Method: 365.3 - Phosphorus, Lab Sample ID: MB 440-458960/1-4	MB Result 0.00400 6 7	Qualifier	O. Spike Added	050 C LC: Resul	0.0031 r S LCS	mg/L	Unit	ent	Sample I	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110 mple ID: N	ntrol S ppe: To	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Method: 365.3 - Phosphorus, Lab Sample ID: MB 440-458960/1-4 Matrix: Water	MB Result 0.00400 6 7	Qualifier	O. Spike Added	050 C LC: Resul	0.0031 r S LCS	mg/L	Unit	ent	Sample I	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110 mple ID: N Prep Ty	ntrol S ppe: To Method ppe: To	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Iethod: 365.3 - Phosphorus, Lab Sample ID: MB 440-458960/1-4 Matrix: Water	MB Result 0.00400 6 7 Total	Qualifier J	O. Spike Added	050 C LC: Resul	0.0031 r S LCS	mg/L	Unit	ent	Sample I	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110 mple ID: N	ntrol S ppe: To Method ppe: To	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: MB 440-458960/1-4 Matrix: Water Analysis Batch: 459023	MB Result 0.00400 6 7 Total	Qualifier J	O. Spike Added	050 ( LC: Resu 0.96	0.0031 r S LCS It <u>Quali</u> 6	ifier_	Unit	ent	Sample I <u>D</u> %Rec 97 Client Sa	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110 mple ID: N Prep Ty Prep B	vzed 3 14:29 ntrol S vpe: To Method vpe: To atch: 4	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N lethod: 365.3 - Phosphorus, Lab Sample ID: MB 440-458960/1-A Matrix: Water Analysis Batch: 459023 Analyte	MB Result 0.00400 6 7 7 7 7 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8	Qualifier J	Spike Added 1.00	050 ( LC: Resul 0.96	0.0031 r S LCS It Quali 6 MDL 1	ifier	Unit	D	Sample I D %Rec 97 Client Sa Preparec	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110 mple ID: M Prep Ty Prep B Analy	vzed 3 14:29 ntrol S vpe: To Method vpe: To atch: 4	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N lethod: 365.3 - Phosphorus, Lab Sample ID: MB 440-458960/1-A Matrix: Water Analysis Batch: 459023 Analyte	MB Result 0.00400 6 7 Total	Qualifier J	Spike Added 1.00	050 ( LC: Resu 0.96	0.0031 r S LCS It <u>Quali</u> 6	ifier	Unit	D	Sample I D %Rec 97 Client Sa Preparec	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110 mple ID: N Prep Ty Prep B	vzed 3 14:29 ntrol S vpe: To Method vpe: To atch: 4	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N lethod: 365.3 - Phosphorus, Lab Sample ID: MB 440-458960/1-A Matrix: Water Analysis Batch: 459023 Analyte Phosphorus, Total	MB Result 0.00400 6 7 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Qualifier J	Spike Added 1.00	050 ( LC: Resul 0.96	0.0031 r S LCS It Quali 6 MDL 1	ifier	Unit mg/L	D .	Sample I <u>D</u> %Rec 97 Client Sa Preparec 02/21/18 12	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110 mple ID: M Prep Ty Prep B Analy 03 02/21/18	/zed 3 14:29 ntrol S ype: To ype: To atch: 4 /zed 3 15:00	Dil Fa
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Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Method: 365.3 - Phosphorus, Lab Sample ID: MB 440-458960/1-A Matrix: Water Analysis Batch: 459023 Analyte Phosphorus, Total Lab Sample ID: LCS 440-458960/2- Matrix: Water	MB Result 0.00400 6 7 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Qualifier J	Spike Added 1.00	050 ( LC: Resul 0.96	0.0031 r S LCS It Quali 6 MDL 1	ifier	Unit mg/L	D .	Sample I <u>D</u> %Rec 97 Client Sa Preparec 02/21/18 12	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110 mple ID: N Prep Ty Prep B Analy 03 02/21/18 D: Lab Co Prep Ty	/zed 3 14:29 ntrol S /pe: To // // // // // // // // // /	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water	MB Result 0.00400 6 7 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Qualifier J	Spike Added 1.00	050 ( LC: Resul 0.96	0.0031 r S LCS It <u>Quali</u> 6 MDL 1	ifier	Unit mg/L	D .	Sample I <u>D</u> %Rec 97 Client Sa Preparec 02/21/18 12	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110 mple ID: N Prep Ty Prep B Analy 03 02/21/18 D: Lab Co	/zed 3 14:29 ntrol S /pe: To // // // // // // // // // /	Dil Fa
Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Lab Sample ID: LCS 320-208659/10 Matrix: Water Analysis Batch: 208659 Analyte Nitrate Nitrite as N Atthod: 365.3 - Phosphorus, Lab Sample ID: MB 440-458960/1-A Matrix: Water Analysis Batch: 459023 Analyte Phosphorus, Total Lab Sample ID: LCS 440-458960/2- Matrix: Water	MB Result 0.00400 6 7 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Qualifier J	<b>Spike</b> Added 1.00 0.	050 ( LC: Resul 0.96 	0.0031 r S LCS It Quali 6 MDL U 0.025 r	ifier Unit mg/L	Unit mg/L	D .	Sample I <u>D</u> %Rec 97 Client Sa Preparec 02/21/18 12	Analy 02/15/18 D: Lab Co Prep Ty %Rec. Limits 90 - 110 mple ID: N Prep Ty Prep B 03 02/21/18 D: Lab Co Prep Ty Prep B	/zed 3 14:29 ntrol S /pe: To // // // // // // // // // /	Dil Fa

# 8 9 10 11 12 13

### Analysis Batch: 208659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35837-1	Lepolu25-15:30	Total/NA	Water	353.2	
320-35837-2	Lepolu2518-9:30	Total/NA	Water	353.2	
MB 320-208659/15	Method Blank	Total/NA	Water	353.2	
LCS 320-208659/16	Lab Control Sample	Total/NA	Water	353.2	
Prep Batch: 458960					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35837-1	Lepolu25-15:30	Total/NA	Water	365.2/365.3/365	; ;
320-35837-2	Lepolu2518-9:30	Total/NA	Water	365.2/365.3/365	i
MB 440-458960/1-A	Method Blank	Total/NA	Water	365.2/365.3/365	i
LCS 440-458960/2-A	Lab Control Sample	Total/NA	Water	365.2/365.3/365	
Analysis Batch: 4590	23				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35837-1	Lepolu25-15:30	Total/NA	Water	365.3	458960
320-35837-2	Lepolu2518-9:30	Total/NA	Water	365.3	458960
MB 440-458960/1-A	Method Blank	Total/NA	Water	365.3	458960
LCS 440-458960/2-A	Lab Control Sample	Total/NA	Water	365.3	45896
Prep Batch: 459047					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35837-1	Lepolu25-15:30	Total/NA	Water	351.2	
320-35837-2	Lepolu2518-9:30	Total/NA	Water	351.2	
MB 440-459047/3-A	Method Blank	Total/NA	Water	351.2	
LCS 440-459047/4-A	Lab Control Sample	Total/NA	Water	351.2	
LCSD 440-459047/5-A	Lab Control Sample Dup	Total/NA	Water	351.2	
Analysis Batch: 4590	87				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
320-35837-1	Lepolu25-15:30	Total/NA	Water	351.2	459047
320-35837-2	Lepolu2518-9:30	Total/NA	Water	351.2	459047
MB 440-459047/3-A	Method Blank	Total/NA	Water	351.2	459047
LCS 440-459047/4-A	Lab Control Sample	Total/NA	Water	351.2	45904
LCSD 440-459047/5-A	Lab Control Sample Dup	Total/NA	Water	351.2	45904
analysis Batch: 4592	18				
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35837-1	Lepolu25-15:30	Total/NA	Water	Total Nitrogen	

Initial

Amount

25 mL

25 mL

Batch

Number

459047

459087

208659

458960

459023

459218

Final

Amount

25 mL

50 mL

Dil

1

1

1

1

Factor

Run

Client Sample ID: Lepolu25-15:30

Batch

Туре

Prep

Prep

Analysis

Analysis

Analysis

Analysis

Batch

Method

351.2

351.2

353.2

365.3

365.2/365.3/365

**Total Nitrogen** 

Date Collected: 02/05/18 15:30

Date Received: 02/07/18 16:14

Prep Type

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Lab Sample ID: 320-35837-1

Prepared

02/21/18 16:24 AN

02/21/18 18:45 AN

02/15/18 14:41 TCS

02/21/18 12:03 MMP

02/21/18 15:02 MMP

02/22/18 11:35 TLN

Lab Sample ID: 320-35837-2

or Analyzed Analyst

Matrix: Water

Lab

TAL IRV

TAL IRV

TAL SAC

TAL IRV

TAL IRV

TAL IRV

Matrix: Water

# 1 2 3 4 5 6 7 8 9

### Client Sample ID: Lepolu2518-9:30 Date Collected: 02/05/18 09:30 Date Received: 02/07/18 16:14

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			25 mL	25 mL	459047	02/21/18 16:24	AN	TAL IRV
Total/NA	Analysis	351.2		1			459087	02/21/18 18:45	AN	TAL IRV
Total/NA	Analysis	353.2		1			208659	02/15/18 14:43	TCS	TAL SAC
Total/NA	Prep	365.2/365.3/365			50 mL	50 mL	458960	02/21/18 12:03	MMP	TAL IRV
Total/NA	Analysis	365.3		1			459023	02/21/18 15:02	MMP	TAL IRV
Total/NA	Analysis	Total Nitrogen		1			459218	02/22/18 11:35	TLN	TAL IRV

### Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

### Accreditation/Certification Summary

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery TestAmerica Job ID: 320-35837-1

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11 12 13

### Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
laska (UST)	State Program	10	17-020	01-20-21
zona	State Program	9	9 AZ0708	
ansas DEQ	State Program	6	88-0691	06-17-18
lifornia	State Program	9	2897	01-31-19
lorado	State Program	8	CA00044	08-31-18
nnecticut	State Program	1	PH-0691	06-30-19
ida	NELAP	4	E87570	06-30-18
orgia	State Program	4	N/A	01-28-19
vaii	State Program	9	N/A	01-29-19
bis	NELAP	5	200060	03-17-18
nsas	NELAP	7	E-10375	10-31-18
-В	DoD ELAP		L2468	01-20-21
siana	NELAP	6	30612	06-30-18
ie	State Program	1	CA0004	04-14-18
nigan	State Program	5	9947	01-31-18 *
ada	State Program	9	CA00044	07-31-18
Hampshire	NELAP	1	2997	04-18-18
Jersey	NELAP	2	CA005	06-30-18
York	NELAP	2	11666	04-01-18
jon	NELAP	10	4040	01-29-19
nsylvania	NELAP	3	68-01272	03-31-18
as	NELAP	6	T104704399	05-31-18
Fish & Wildlife	Federal		LE148388-0	07-31-18
A	Federal		P330-11-00436	01-17-21
PA UCMR	Federal	1	CA00044	11-06-18
า	NELAP	8	CA00044	02-28-18 *
nia	NELAP	3	460278	03-14-18
shington	State Program	10	C581	05-05-18
t Virginia (DW)	State Program	3	9930C	12-31-18
oming	State Program	8	8TMS-L	01-28-19

### Laboratory: TestAmerica Irvine

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	CA01531	06-30-18
Arizona	State Program	9	AZ0671	10-14-18
California	LA Cty Sanitation Districts	9	10256	06-30-18
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 17-003R	01-23-18 *
Hawaii	State Program	9	N/A	01-29-19
Kansas	NELAP	7	E-10420	07-31-18
Nevada	State Program	9	CA015312018-1	07-31-18
New Mexico	State Program	6	N/A	01-29-19
Northern Mariana Islands	State Program	9	MP0002	01-29-17 *
Oregon	NELAP	10	4028	01-29-19
USDA	Federal		P330-15-00184	07-08-18
Washington	State Program	10	C900	09-03-18

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

### Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery

4
5
6
8
9
11
13

Method	Method Description	Protocol	Laborator
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL IRV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAC
365.3	Phosphorus, Total	EPA	TAL IRV
Total Nitrogen	Nitrogen, Total	EPA	TAL IRV

### Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

### Laboratory References:

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022 TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

### **Sample Summary**

Client: Element Environmental, LLC Project/Site: Hawaiian Memorial Cemetery TestAmerica Job ID: 320-35837-1

Lab Sample ID	Client Sample ID	Matrix	Collected Received
320-35837-1	Lepolu25-15:30	Water	02/05/18 15:30 02/07/18 16:14
320-35837-2	Lepolu2518-9:30	Water	02/05/18 09:30 02/07/18 16:14
020-00007-2	Lepola2010-0.00	Water	02/03/10 03:50 02/

Of WardSoff 2028         Regulatory Program         Date         Date         Date         Date           Client Contact         Explored Manages         Explored Man	Diversitie     Regulatory Program:     Diversitie     Direct     Direct       Charactering     Project Hanger Strengtor     Sile     Sile     Charactering       Until U.C.     Fortier Hanger Strengtor     Sile     Sile     Sile       Until U.C.     Fortier Hanger Strengtor     Sile     Sile     Sile       Until U.C.     Fortier Hanger Strengtor     Sile     Sile     Sile       Until Sile     Contract:     Direct     Direct     Direct       Internet     Sample Hanttreation     Sample Sile     Sile     Sile       Sample Hanttreation     Sample Sile     Sile     Sile     Sile       Lepolutization     Sample Sile     Sile     Sile     Sile     Sile       Lepolutization     Sample Manttreation     Sile     Sile     Sile     Sile       Lepolutization     Sample Manttreation     Sile     Sile     Sile     Sile       Lepolutization     Sample Manttreation     Sile     Sile     Sile     Sile       Lepolutization     Sile     Sile     Sile     Sile     Sile       Lepolutization     Sile     Sile     Sile     Sile     Sile       Lepolutization     Sile     Sile     Sile     Sile     Sile	Office Statistication         Regulatory Program:         Dent         Data         Data         Data           Other Statistication         Enternation         Enternation         Enternation         Enternation         Enternation         Enternation           Until         Enternation	1 estAmerica Sacramento 880 Riverside Parkway	2	Chain of Custody Record		IESTAMERICO
Client Contect:     Project Manager: States Senglider     Date Senglider     Date: 26/16     Date: 26/16 <thd< th=""><th>Client Contact:     Project Manager: Stevel Spengler     Site Contact:     Date: 2013       Unit LC     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Date: 2013       Unit LC     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Date: 2013       Unit LC     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Date: 2013       Infer: (Robit Barry Pager)       Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)       Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)       Information     Information     Information     Information     Information     Information       Information     Information</th><th>Clint Contact     Project Manager: Stendard:     Site Contact:     Date: 2013       until     LLC     Autorstation:     - current Manager: Stendard:     Date: 2013       until     - Control (LC     Autorstation:     - current Manager: Stendard:     Date: 2013       Phone     - Current Manager: Stendard:     - current Manager: Stendard:     Date: 2013       Barnoli (LC     - current Manager:     - current Manager:     - current Manager:     - current Manager:       Sample     - current Manager:     - current Manager:     - current     - current       Sample     - current Manager:     - current     - current     - current       Sample     - current Manager:     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current   <th>vest Sacramento, CA, 95605-1500 phone 916.373.5600 fax 303.467.7248</th><th></th><th>DRCRA</th><th></th><th>TestAmerica Laboratories, Inc.</th></th></thd<>	Client Contact:     Project Manager: Stevel Spengler     Site Contact:     Date: 2013       Unit LC     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Date: 2013       Unit LC     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Date: 2013       Unit LC     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Date: 2013       Infer: (Robit Barry Pager)       Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)       Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)     Infer: (Robit Barry Pager)       Information     Information     Information     Information     Information     Information       Information     Information	Clint Contact     Project Manager: Stendard:     Site Contact:     Date: 2013       until     LLC     Autorstation:     - current Manager: Stendard:     Date: 2013       until     - Control (LC     Autorstation:     - current Manager: Stendard:     Date: 2013       Phone     - Current Manager: Stendard:     - current Manager: Stendard:     Date: 2013       Barnoli (LC     - current Manager:     - current Manager:     - current Manager:     - current Manager:       Sample     - current Manager:     - current Manager:     - current     - current       Sample     - current Manager:     - current     - current     - current       Sample     - current Manager:     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current       Sample     - current     - current     - current     - current <th>vest Sacramento, CA, 95605-1500 phone 916.373.5600 fax 303.467.7248</th> <th></th> <th>DRCRA</th> <th></th> <th>TestAmerica Laboratories, Inc.</th>	vest Sacramento, CA, 95605-1500 phone 916.373.5600 fax 303.467.7248		DRCRA		TestAmerica Laboratories, Inc.
Endlit         Lut Contect:         Carrier:	India     Turker:     Turker:     Contact:     Carrier:       Unit     From     India     Lab Contact:     Carrier:       Unit     From     India     Carrier:     Advisit     India       From     From     India     Carrier:     Advisit     India       From     From     India     India     India     India       From     From     India     India     India     India       Sample Identification     Sample Equily From     India     India     India       Sample Identification     Sample Equily From     India     India     India       Lepolut2r(E)     25/518     9.30     Q     W     2     X     X       Lepolut2r(E)     25/518     9.30     Q     W     2     X     X     X       Lepolut2r(E)     25/518     9.30     Q     W     2     X     X     X     X       Lepolut2r(E)     25/518     9.30     Q     W     2     X     X     X     X     X       Lepolut2r(E)     25/518     9.30     Q     W     2     X     X     X     X     X       Lepolut2r(E)     25/518     9.30     Q     W	India     Tartier:     Carrier:     Carrier:     Carrier:       Units     From     Instruction     Instruction     Instruction     Carrier:       Units     From     Instruction     Instruction     Instruction     Carrier:       Instruction     Instruction     Instruction     Instruction     Instruction     Carrier:       Instruction     Instruction     Instruction     Instruction     Instruction     Instruction       Instruction     Instruction     Instruction     Instruction     Instruction     In	Client Contact	Project Manager: Steve Spengler	Site Contact:		
Unit         Comparision         Comparision <thcomparision< th=""> <thco< td=""><td>Units     Constraint functional filme     Constraint functional filme       Phone     Filme     Constraint functional filme       Phone     Filme     Constraint filme       Phone     Filme     Constraint filme       Phone     Filme     Constraint filme       Sample familities     Sample filme     Filme       Liepolut25153:00     25718     9:30     G     W       Liepolut25153:01     25718     9:30     G     W     Filme       Liepolut25153:03     25718     9:30     G     W     Filme     Filme       Liepolut25153:03     25718     9:30     G     W     Filme     Filme       Liepolut25153:03     25718     9:30     G     W     Filme     Filme       Liepolut25153:03     25718     5:30     G     W     Filme     Filme       <td< td=""><td>Unit     Control     Construction     Construction       Plane     Trit if ditret than Blane     Trit if ditret than Blane       Plane     Trit if ditret than Blane     Trit if ditret than Blane       Example termitteration     Sample     Trit if ditret than Blane       Example termitteration     Sample     Trit if ditret than Blane       Example termitteration     Sample     Sample     Y M       Sample termitteration     Sample     Sample     Y X       Sample termitteration     Sample     Sample termitteration     Sample termitteration       Sample termitteration     Sample     Sample     Y X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510</td><td>Element Environmental, LLC</td><td>Tel/Fax: (808) 864-3953</td><td>Lab Contact:</td><td></td><td>of</td></td<></td></thco<></thcomparision<>	Units     Constraint functional filme     Constraint functional filme       Phone     Filme     Constraint functional filme       Phone     Filme     Constraint filme       Phone     Filme     Constraint filme       Phone     Filme     Constraint filme       Sample familities     Sample filme     Filme       Liepolut25153:00     25718     9:30     G     W       Liepolut25153:01     25718     9:30     G     W     Filme       Liepolut25153:03     25718     9:30     G     W     Filme     Filme       Liepolut25153:03     25718     9:30     G     W     Filme     Filme       Liepolut25153:03     25718     9:30     G     W     Filme     Filme       Liepolut25153:03     25718     5:30     G     W     Filme     Filme <td< td=""><td>Unit     Control     Construction     Construction       Plane     Trit if ditret than Blane     Trit if ditret than Blane       Plane     Trit if ditret than Blane     Trit if ditret than Blane       Example termitteration     Sample     Trit if ditret than Blane       Example termitteration     Sample     Trit if ditret than Blane       Example termitteration     Sample     Sample     Y M       Sample termitteration     Sample     Sample     Y X       Sample termitteration     Sample     Sample termitteration     Sample termitteration       Sample termitteration     Sample     Sample     Y X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510</td><td>Element Environmental, LLC</td><td>Tel/Fax: (808) 864-3953</td><td>Lab Contact:</td><td></td><td>of</td></td<>	Unit     Control     Construction     Construction       Plane     Trit if ditret than Blane     Trit if ditret than Blane       Plane     Trit if ditret than Blane     Trit if ditret than Blane       Example termitteration     Sample     Trit if ditret than Blane       Example termitteration     Sample     Trit if ditret than Blane       Example termitteration     Sample     Sample     Y M       Sample termitteration     Sample     Sample     Y X       Sample termitteration     Sample     Sample termitteration     Sample termitteration       Sample termitteration     Sample     Sample     Y X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510     15.30     G     W     Z     X X     X X       Lepolu2516.0.30     25/510	Element Environmental, LLC	Tel/Fax: (808) 864-3953	Lab Contact:		of
Phone         Contraction         Contraction         N         N         N         N         N         N         Nonemeters         None         None<	Phone     Cuencing constraint     Cuencing constraint     N is it and contractions       Phone     FAX     FAX     In a rest     N is it and contraction base       FAX     FAX     FAX     FAX     In a rest       FAX     FAX     FAX     FAX     In a rest       FAX     FAX     FAX     FAX     In a rest       FAX     FAX     FAX     FAX     FAX       Sample identification     Date     FAX     FAX     FX       Conclustric rest     Date     FAX     FAX     FX     FX       Conclustric rest     Date     FAX     FX     FX     FX     FX       Conclustric rest     Date     FX     FX     FX     FX     FX       Conclustric rest     Date     FX     FX     FX <td>Phone     Cuelone and Fixed     Cuelone and service     Mixed Fixed     Mixed Fixed     Mixed Fixed     Mixed Fixed       Sample Identification     Barget Fixed     Barget Fixed     Barget Fixed     Barget Fixed     Fixed Fixed     Mixed Fixed     Mixed Fixed     Mixed Fixed       Sample Identification     Barget Fixed     Barget Fixed     Barget Fixed     Fixed Fixed     Fixed Fixed<td>98-030 Hekaha St. Unit 9</td><td>s Turn</td><td></td><td></td><td>Sampler:</td></td>	Phone     Cuelone and Fixed     Cuelone and service     Mixed Fixed     Mixed Fixed     Mixed Fixed     Mixed Fixed       Sample Identification     Barget Fixed     Barget Fixed     Barget Fixed     Barget Fixed     Fixed Fixed     Mixed Fixed     Mixed Fixed     Mixed Fixed       Sample Identification     Barget Fixed     Barget Fixed     Barget Fixed     Fixed Fixed     Fixed Fixed <td>98-030 Hekaha St. Unit 9</td> <td>s Turn</td> <td></td> <td></td> <td>Sampler:</td>	98-030 Hekaha St. Unit 9	s Turn			Sampler:
Phone         Triangle         Triangle <t< td=""><td>Phone     Tri reference       Example identification     ansist       anim Cernetery Project     a voist       annole identification     a voist       annole identification     a voist       annole identification     a voist       annole identification     a voist       a voist     a voist</td><td>Fluide     Fluide       Fluide     Fluide       Fluide     Fluide       Fluide     1 avests       attain Clenterly Project     2 avests       attain Clenterly avest     2 avest       attain Blok Clevel avest<td>Aiea/ HI/ 96701</td><td></td><td></td><td></td><td>For Lab Use Only:</td></td></t<>	Phone     Tri reference       Example identification     ansist       anim Cernetery Project     a voist       annole identification     a voist       annole identification     a voist       annole identification     a voist       annole identification     a voist       a voist     a voist	Fluide     Fluide       Fluide     Fluide       Fluide     Fluide       Fluide     1 avests       attain Clenterly Project     2 avests       attain Clenterly avest     2 avest       attain Blok Clevel avest <td>Aiea/ HI/ 96701</td> <td></td> <td></td> <td></td> <td>For Lab Use Only:</td>	Aiea/ HI/ 96701				For Lab Use Only:
Text         Text <th< td=""><td>The second state of the secon</td><td>Oldential Contrelion     EAX       Hausaian Contrelion     I with the second match of the</td><td>(808) 488-1200 Phone</td><td>TAT if different from Below</td><td>( N</td><td>5</td><td>Walk-in Client:</td></th<>	The second state of the secon	Oldential Contrelion     EAX       Hausaian Contrelion     I with the second match of the	(808) 488-1200 Phone	TAT if different from Below	( N	5	Walk-in Client:
Indication         Indicat	nation Centretry Project     1 work     1 work       Sample Identification     2 with     1 work       Sample Identification     2 with     1 work       Sample Identification     2 with     1 work       Lepolu2516.6.30     2 5670016     1 530     0     W       Lepolu2516.6.30     2 5670016     1 530     0     W     2       Lepolu2516.6.30     2 567016     1 530     0     W     2     X × X       Lepolu2516.6.30     2 567016     1 530     0     W     2     X × X       Lepolu2516.6.30     2 567016     1 530     0     W     2     X × X       Lepolu2516.6.30     2 567016     1 530     0     W     2     X × X       Lepolu2516.6.30     2 567016     1 530     0     W     2     X × X       Lepolu2516.6.30     2 567016     1 530     0     W     2     X × X       Lepolu2516.6.30     2 567016     1 530     0     W     2     X × X       Lepolu2516.6.30     2 567016     1 530     0     W     2     X × X       Lepolu2516.6.30     2 567016     1 530     0     W     2     X × X       Lepolu2516.6.30     2 567016     1 50     W	Indial Cerretery Project     1 ook     1 ook       Sample Identification     2 and     1 ook       Sample Identification     Sample Sample Time     1 ook       Image Identification     Image	808) 488-1300 FAX		1/2		Lab Sampling:
Image: Sample interference         Image: Sample interference <th< td=""><td>Sample literation     2.00     2.00     2.00       Sample literation     Sample literation     Sample literation     Sample literation       Lepol02516-030     2.05/018     15:20     0     W     2     K     K     K       Lepol02516-030     2.05/018     15:20     0     W     2     K     K     K     K       Lepol02516-030     2.05/018     15:20     0     W     2     K     K     K     K       Lepol02516-030     2.05/018     15:200     0     W     Z     K     K     K     K       Lepol02516-030     2.05/018     15:200     0     W     Z     K     K     K       Lepol02516-030     2.05/018     15:200     0     W     Z     K     K     K       Lepol02516-030     2.05/018     15:200     0     W     Z     K     K     K       Lepol02516-030     2.05/01     0     W     Z     K     K     K     K       Lepol02516-030     2.05/01     0     W     Z     K     K     K     K       Lepol02516-030     2.05/01     K     K     K     K     K     K     K       Line     <t< td=""><td>Sample formitierien     2.00%       Sample formitierien     2.00%       Sample formitierien     Sample formitierien       Lepoluziste.is.30     2.5/61/8     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     2.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     2.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     2.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     3.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.316.8     3.6/16     8.30     6     W     2     K × ×       Lepoluziste.is.30     3.6/16     M     2     K × ×     &lt;</td><td>Project Name: Hawaiian Cemetery Project</td><td></td><td>50. 51</td><td></td><td></td></t<></td></th<>	Sample literation     2.00     2.00     2.00       Sample literation     Sample literation     Sample literation     Sample literation       Lepol02516-030     2.05/018     15:20     0     W     2     K     K     K       Lepol02516-030     2.05/018     15:20     0     W     2     K     K     K     K       Lepol02516-030     2.05/018     15:20     0     W     2     K     K     K     K       Lepol02516-030     2.05/018     15:200     0     W     Z     K     K     K     K       Lepol02516-030     2.05/018     15:200     0     W     Z     K     K     K       Lepol02516-030     2.05/018     15:200     0     W     Z     K     K     K       Lepol02516-030     2.05/018     15:200     0     W     Z     K     K     K       Lepol02516-030     2.05/01     0     W     Z     K     K     K     K       Lepol02516-030     2.05/01     0     W     Z     K     K     K     K       Lepol02516-030     2.05/01     K     K     K     K     K     K     K       Line <t< td=""><td>Sample formitierien     2.00%       Sample formitierien     2.00%       Sample formitierien     Sample formitierien       Lepoluziste.is.30     2.5/61/8     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     2.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     2.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     2.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     3.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.316.8     3.6/16     8.30     6     W     2     K × ×       Lepoluziste.is.30     3.6/16     M     2     K × ×     &lt;</td><td>Project Name: Hawaiian Cemetery Project</td><td></td><td>50. 51</td><td></td><td></td></t<>	Sample formitierien     2.00%       Sample formitierien     2.00%       Sample formitierien     Sample formitierien       Lepoluziste.is.30     2.5/61/8     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     2.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     2.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     2.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.30     3.6/16     9.30     6     W     2     K × ×     K × ×       Lepoluziste.is.316.8     3.6/16     8.30     6     W     2     K × ×       Lepoluziste.is.30     3.6/16     M     2     K × ×     <	Project Name: Hawaiian Cemetery Project		50. 51		
Sample Identification         I con- base         I con- Time         Constrained constrained         Early and base         Constrained Time         Constrained constrained         Constrained         Constrained <thconstrained< th=""> <thconstrained< td=""><td>Sample     Sample     Sample<td>Sample Identification     Interest Sample     Interest Sample</td><td>Site:</td><td></td><td>N!F</td><td></td><td>Job / SDG No.:</td></td></thconstrained<></thconstrained<>	Sample     Sample <td>Sample Identification     Interest Sample     Interest Sample</td> <td>Site:</td> <td></td> <td>N!F</td> <td></td> <td>Job / SDG No.:</td>	Sample Identification     Interest Sample	Site:		N!F		Job / SDG No.:
Sample Identification         Sample	Sample Identification     Sample Sample     Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Sample Sample     Sample Sample     Sample       Imple Identification     Bample Sample     Sample Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Sample Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Sample Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Sample Sample     Sample Sample     Sample Sample       Imple Identification     Bample Sample     Bample Sample     Sample Sample     Sample Sample </td <td>Sample Identification     Sample Sample     Sample Sample Sample Vectors, Matrix Cerri Biologia Nicologia       Lepolu2515630     Sample Vectors, Matrix Cerri Biologia Nicologia     Vectors, Matrix Cerri Biologia       Lepolu2515630     25/5718     530     6     W     2     K     K     K       Lepolu2515630     25/5718     530     6     W     2     K     K     K     K       Lepolu2515630     25/5718     530     6     W     2     K     K     K     K       Lepolu2515630     25/518     530     6     W     2     K     K     K     K       Lepolu2515630     25/518     530     6     W     2     K     K     K     K       Lepolu2515630     25/518     530     6     W     2     K     K     K       Lepolu2515630     25/518     530     6     W     2     K     K     K       Lepolu2515630     25/518     530     6     W     2     K     K     K       Lepolu2515640     1     1     1     1     1     1     1     1       Lepolu2515640     1     1     1     1     1     1     1       Lepol</td> <td>#O e</td> <td>1 da</td> <td>ldel oden uegen l</td> <td></td> <td></td>	Sample Identification     Sample Sample     Sample Sample Sample Vectors, Matrix Cerri Biologia Nicologia       Lepolu2515630     Sample Vectors, Matrix Cerri Biologia Nicologia     Vectors, Matrix Cerri Biologia       Lepolu2515630     25/5718     530     6     W     2     K     K     K       Lepolu2515630     25/5718     530     6     W     2     K     K     K     K       Lepolu2515630     25/5718     530     6     W     2     K     K     K     K       Lepolu2515630     25/518     530     6     W     2     K     K     K     K       Lepolu2515630     25/518     530     6     W     2     K     K     K     K       Lepolu2515630     25/518     530     6     W     2     K     K     K       Lepolu2515630     25/518     530     6     W     2     K     K     K       Lepolu2515630     25/518     530     6     W     2     K     K     K       Lepolu2515640     1     1     1     1     1     1     1     1       Lepolu2515640     1     1     1     1     1     1     1       Lepol	#O e	1 da	ldel oden uegen l		
Lepolu2516-530         29/2018         15:30         G         W         Z         X <thx< th="">         X         <thx< th="">         X</thx<></thx<>	Lepolu2518-9:30         2/5/2016         15:30         G         W         2         I         X </td <td><math display="block">\begin{tabular}{ c c c c c c c c c c c c c c c c c c c</math></td> <td>Sample Identification</td> <td>Sample Type (c=comp, G=comp, G=Grab) Matrix</td> <td>Filtered Sa Perform M Total Nitro Total Phos Total Phos</td> <td></td> <td>Sample Specific Notes:</td>	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Sample Identification	Sample Type (c=comp, G=comp, G=Grab) Matrix	Filtered Sa Perform M Total Nitro Total Phos Total Phos		Sample Specific Notes:
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Lepolu23(16-9:30     25/1/8     9:30     6     W     2     X     X     X       Image: Second S	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Lepolu25-15:30	15:30 G	× × ×		
Alternative     Alternative     Alternative     Alternative       Alternative     Alternative     Alternative <td< td=""><td>d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: '3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: '3= H2SO4, 4=HNO3; 5=NaOH; 6= Other The lable is lo for the sample d: 'I= lee, '2= HCl: '3= H2SO4, 4=HNO3; 5=NaOH; 6= Other The lable is lo for the sample d: 'I= lee, '2= HCl: '3= H2SO4, 4=HNO3; 5=NaOH; 6= Other The lable is lo for the sample The lable is lo for the lable is lo for the sample the lable is lo for the lable is lo for the sample the lable is lo for the lable is lable is lo for the lable is lable is</td><td>if i = leb, 2= HOI, 3= HSOA, 4=HOO3, 5=HOH, 6= Other     I</td><td>Lepolu2518-9:30</td><td>9:30 G</td><td>x x x</td><td></td><td></td></td<>	d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: 3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: '3= H2SO4, 4=HNO3; 5=NaOH; 6= Other d: 'I= lee, '2= HCl: '3= H2SO4, 4=HNO3; 5=NaOH; 6= Other The lable is lo for the sample d: 'I= lee, '2= HCl: '3= H2SO4, 4=HNO3; 5=NaOH; 6= Other The lable is lo for the sample d: 'I= lee, '2= HCl: '3= H2SO4, 4=HNO3; 5=NaOH; 6= Other The lable is lo for the sample The lable is lo for the lable is lo for the sample the lable is lo for the lable is lo for the sample the lable is lo for the lable is lable is lo for the lable is	if i = leb, 2= HOI, 3= HSOA, 4=HOO3, 5=HOH, 6= Other     I	Lepolu2518-9:30	9:30 G	x x x		
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4: 1= Les. 2= HCI: 2=	it: 1= Lee, 2= HCI: 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other     it: 1= Lee, 2= HCI: 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other       Identification:     it: 1= Lee, 2= H2SO4; 4=HNO3; 5=NaOH; 6= Other       Identification:     it: 1= Lee, 2= H2SO4; 4=HNO3; 5=NaOH; 6= Other       Identification:     it: 1= Lee, 2= H2SO4; 4=HNO3; 5=NaOH; 6= Other       Identification:     it: 1= Lee, 2= H2SO4; 4=HNO3; 5=NaOH; 6= Other       Identification:     it: 1= Lee, 2= H2SO4; 4=HNO3; 5=NaOH; 6= Other       Identification:     it: 1= Lee, 2= H2SO4; 4=HNO3; 5=NaOH; 6= Other       Identification:     it: 1= Lee, 2= H2SO4; 4=HNO3; 5=NaOH; 6= Other       Identification:     it: 2= Compary       Interact:     Itematic       Interact:     Itematic <t< td=""><td>a: 1= Let, 2= HCI: 3= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     a: 1= Let, 2= HCI: 3= H2SO4; 4=H1NO3; 5=NLOH; 6= Other       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2     B       a: 1     D       a: 2     D</td><td>P</td><td></td><td></td><td></td><td></td></t<>	a: 1= Let, 2= HCI: 3= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     a: 1= Let, 2= HCI: 3= H2SO4; 4=H1NO3; 5=NLOH; 6= Other       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2SO4; 4=H1NO3; 5=NLOH; 6= Other     B       a: 1= Let, 2= H2     B       a: 1     D       a: 2     D	P				
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Image     Skin intant     Poison B     Unknown     Imace     Disposal by Lab     Active for     Months       ons/QC Requirements & Comments:     Receved     UN     B/U     U     232     8.32     8.33     12-67     Active for     Months       Antact:     Imact:     ves     No     Custody Seal No:     Cooler Temp (°C): Obs/d:     Them ID No:     M       Jane:     Imact:     ves     No     Contact:     Bate/Time:     IN     Received by:     K     Company:     M       Jane:     Date/Time:     Date/Time:     Date/Time:     Received by:     K     Company:     M     Date/Time:     IN       Lo     Company:     Company:     Date/Time:     Received by:     K     Company:     M     Date/Time:     IN       Lo     Company:     Company:     Date/Time:     Received by:     K     Company:     Date/Time:     IN       Lo     Company:     Date/Time:     Received by:     K     Company:     Date/Time:     IN       Lo     Company:     Date/Time:     Received by:     K     Company:     Date/Time:     IN	Elammable     Skin Intant     Polson B     Unknown     Return to Client     Discosal by Lab     L       ons/GC Requirements & Comments:     R Co	Elements     Skin Intent     Polson B     Unknown     Return to Client     Disposal by Lab     Lab       ons/OC Requirements & Comments:     R C	Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please Comments Section if the lab is to dispose of the sample.	List any EPA Waste Codes for the sample ir		y be assessed if samples are retained I	longer than 1 month)
And Requirements & Comments: Receved UN Blue Ice 8.32 (83°C iP-67 Intact: a ves a no custody Seal No.: James Tuxbore Company: Lo Cooler Temp (°C): Obs'd: Corrd: Them ID No.: AN James Tuxbore Company: Lo Company: Company: Lo Company: Lo Company: Lo Company: Lo Company: Lo Company: Com	Das/OC Requirements & Comments: Receved on Blue Ice 8.3% 83% 12-67 Tract: a ves a No Control Ver Ice 8.3% 83% 12-67 To the Control Date/Time: I/D Received by: Xorter Control 10-17 Les Company: Company: Les Company: Company: Company: Company: Les Company: Company: Date/Time: Received by: Xorter Company: Company: Les Company: Company: Date/Time: Received in Laboratory by: Company:	Intact: a ves a no Receved on Blue lee 8.3% 83% 12-67 Tract: a ves a no Coustady Seal No.: James Turbare A Coustady Seal No.: James Turbare A Company: Lon Company: Company: Leo Card Company: Date/Time: IN Received by: Karle CM Company: Leo Card Company: Date/Time: Received by: Karle CM Company: Leo Card Company: Date/Time: Received in Laboratory by: Company: Company: Company: Company: Company: Company: Company: Company: Leo Card Company: Com	Non-Hazard      Intribute     Intribute				Months
Intact: D Yes D No Custody Seal No.: Them ID No.: UN Cooler Temp, (°C): Obs/d: Corrd: Therm ID No.: UN Jan Taylore Company: I Date/Time: I/0 Received by: Xor Company: I Date/Time: I/1 Received by: Xor Company: I Date/Time: I/2 I/13 I/2 Company: I Date/Time: I/2 I/13 I/2 Company: I Date/Time: I Date/Time: Received by: Xor Company: Company: A Date/Time: Beceived in Laboratory by: Company: Company: Date/Time: Date/Time: Beceived in Laboratory by: Company: Company: Date/Time: Date/Time: A Date/Time: Beceived in Laboratory by: Company: Company: Date/Time: Date/Time: A Date/	Intact: Diversion of Custody Seal No.: Contract: Cooler Temp, (°C): Obs/d: Contract: C	Intact: Diversion of Custody Seal No.: Contracting Cooler Temp, (°C): Obsid: Contracting C	Special Instructions/QC Requirements & Comments: Rele	un Blue Ice	3°c/83°C	67	dV.U
James Tubber Learner Louismerted Date Time: 10 Received by: Kerles Company: 11 Date Time: 113 Les Za Les Za Company: Hand 21/113 1100 Received by: MUM Company: A Date Time: 13 Pate Time: Beceived in Laboratory by: Company: Date Time: Beceived in Laboratory by: Company: Date Time: Date Time:	James Tubber of Company: Company: Les Tay Date/Time: IIA Received by: Xarbo Clin Company: Les Tay Date/Time: IIA Received by: U.M. Company: Company: Les Tay Date/Time: Received by: U.M. Company: Company: Company: Date/Time: Received in Laboratory by: Company: Company:	James Turbere A Company: Low Company: Date/Time: IN Received by: Karles CM Company: Les Za Company: Les Za Han Date/Time: Received by: Narles CM Company: Company: Date/Time: Received in Laboratory by: Company:	Intact: 🗆 Yes	Custody Seal No.:	Cooler Temp, (°C):	Corr'd:	Therm ID No.: VI
Les Za I Company: How Date/Time: Received by: U. W. Company: Date/Time: Bate/Time: Received in Laboratory by: Company: Date/Time: Date/Time: Bate/Time: Bate/Time: Date/Time: Da	Les Za I Company: HIN Date/Time: Received by: NUNUN Company: 2013 1100 Date/Time: Received in Laboratory by: Company:	Les Za I Company: Tage Hand Bate/Time: Received by NUMUN Company: Company: Date/Time: Received in Laboratory by: Company:	mes 7	Environmental	INO Received by:	Had	113
Company: Date/Lime: Received in Laboratory by: Company:	Company: Date/Time: Recerved in Laboratory by: Company:	Company: Late/Lime: Recerved in Laboratory by: Company;	Selfinguished by	In No	100	SEAC	8
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860 Riverside Parkway West Sacramento. CA 95605

**Chain of Custody Record** 



Phone (916) 373-5600 Fax (916) 372-1059												Tria LEXOER 1	THE LEADER IN CHARGERIA IN SAME NEWS	\$194C
Client Information (Sub Contract Lab)	(Sempler		Lab PM Alltucker, David R	avrid R			Ŭ.	arter Tra	Carser Tracking No(s)	(8)		COCNo 320-111410.1	-	
Ckent Contact	Phone		E-Mail Zorra albus	ates Start			5	State of Origin	uith			Page Doco 1 of 1		
shippingikecewing			OBVID.AIRUCKER(UJESCATIERICAIRC.COM MARTINGRADIAE RANIFER (SAP 1016)	Lanuckerwiestamencano.c	mericain red (See n				ļ					T
Compary TestAmenca Laboratories, Inc						/exa						320-35837-1		
Address 17461 Denan Ave, Suite 100,	Due Date Requested: 2/20/2018				Ā	Analysis	Requested	ested				Preservation Codes		
Gry Irvite	TAT Requested (days).							 				B - NaOH C - Zn Acetate	M - None N - None O - AGNEO2	
Skie. Zp CA, 92614-5817												1 - Nithe Acid E - NaHSO4	P - Na2045 Q - Na2503 e - Locreos	
Phone 949-261-1022(Tel) 949-260-3297(Fax)	PO#			· · · · · · · · · · · · · · · · · · ·								G - Ascorbic Acid		vdrate
Email	*0*										3.99.0 	i - ite - Di Water		
Proper Name Havailan Merroriat Cernetery	Project # 32010538										44 - 44 -	1 K - EOTA 1 L - EDA	W + pH 4-5 Z - other (specify)	-
	#MOSS											Other		
Sample Identification - Client ID (Lab ID)		Sample Type (Cecemp, G≓grab)	5	9351,21351,2_Prej	dørg_285\t.885							Specia	Special Instructions/Note	
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Lepolu2518-9:30 (320-35837-2)	2/5/18 09:30		Water	×	×	-		- 	<u> </u>	. <b>.</b>				Ţ
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Note. Since 85/2014/097 accretionance and angle. Test/unnets inc. places the ownership of method: analyte & accretionance uson out subcounted faborationes. This sample affect to ander channel custody. If the laboratory of method: analyte & accretionance uson out subcounted faboratories. This sample affect to affect to affect the laboratory of method: analyte & accretionance uson out subcounted faboratories. This sample affect to affect the laboratory of method: analyte & accretionance uson out subcounted faboratories. The sample affect to affect the laboratory of the laboratory of other instrumentance of the laboratory of the laboratory of other instruments is any dampeted faboratory of the laboratory of other instrumentance of the laboratory of the laboratory of the laboratory of other instrumentance in affect the laboratory of the laboratory of the laboratory of other instrumentance of the laboratory of the laborat	alones, inc. places the ownership of i sistmatine being analyzed, the semple ini to date, return the signed Chain o	method, analyte & accu les must be shipped tra of Custody attesting to s	reditation complia ick to the TestArr said complicance	ince upon out ence laborati lo TestAmen	t subcontra bry or other Ka Labora	ici faborato r insinjelior taries, finc	res Tras s will be ;	samole	shipmen Any chi	t is forwa anges to	rdeo und accredita	er chain-cf-cus(ody tion status should b	If the laboratory does brought to TestAmen	12 53
Possible Hazard Identification			Sa	mpla Disp	Hosal ( A	fee may	Pe 255	essed	if sam	oles ar	e retai	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	n 1 month)	
Uncontermed				Return	Return To Client		] S	Disposal By Lab	y Lab		¥	Archive For	Months	
Deliverable Requested: I, II, IV, Other (specify)	Primary Deliverable Rank: 2	2	ЧS.	Special Instructions/QC Requirements	ictuons/Q	C Requir	ements							
Empty Kit Relinquished by:	Date:		Time:					Meth	Method of Shipment	pmerk				
Retinquisition by BAR HA	Day The Start Mo	THE OS	ANS AL	Raceived Py			ł		ē	Date/Time			Company	
Reinquisition by UPU & Y	Date/Time	Company		Received by					ő 	Date/Trme			Company	
	Date/Time	Company		Received by	20	C.He.			ö	OaterTime 9 40		2/00/18	Campany (C.U.	5
Custody Seals intect: Custody Seal No.: A Yes A No				Docker Temperature(s) <sup>9</sup> C and Other Remarks:	(s)enatione(s)	20000	ler Rema		469	ι Γ	5-108	5156	, c\5	
												{	Ver 09/20/2016	]

Client: Element Environmental, LLC

### Login Number: 35837 List Number: 1 Creator: Nelson, Kym D

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 320-35837-1

List Source: TestAmerica Sacramento

### Login Number: 35837 List Number: 2 Creator: Ornelas, Olga

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	Not Present
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 320-35837-1

List Source: TestAmerica Irvine

List Creation: 02/09/18 01:46 PM



CLIENT: Element Environmental LLC 98-030 Hokaha Street, #9 Aiea HI 96701 ATTENTION: Steve Spengler 808-864-3953 SSpengler@c2hi.com

 FILE No.:
 2018-MI

 REPORT DATE:
 02/13/18

 PAGE:
 1 of 1

### AECOS REPORT OF ANALYTICAL RESULTS

SAMPLE TYPE: DATE SAMPLED:

Stormwater 02/04/18, 02/05/18 *AECOS* LOG No.: 35688 DATE RECEIVED: 02/06/18

ANALYTE (UNITS)	Total Suspended Solids			· ·		<u>.                                    </u>
	(mg/L)			 		
Analysis Date∕ 1D ⇔	02/08/18 ml					
Method / Reporting Limit=>	SM2540D / 0.1	1		 		
SAMPLE ID U						
Kawa 24-1400	6.0					
Parkway 24-1430	5.7		1			
Kawa 25-640	35.3					
Kawa 25-650	83.0					
Kawa 2318-910	424					
Parkway 2518-923	91					
Lepolu 2518-930	380					
Lepólu 25-1530	2940					
Parkway 25-1515	116					
Bridge 25-1545	3060				-	
Kawa 25-1605	860					
Kawa 2618-950	25					
			•			
			•			

J. Mello, Laboratory Director

CHAIN OF CUSTODY FORM PROJECT FILE No. OG NUMBER [ 035688 ]	<ul> <li>RUSH</li> <li>SEE REVERSE</li> </ul>		PRESERVATION										F PERSON COLLECTING THE	TORY: DATE-216	2018	DATE	20		REFURN SAMFLE TO CLIENT 📋
CHAIN OF PROJECT FILE No. LOG NUMBER	2025 (er		KEQUESTED ANALYSES	4	*	4	//	11	ž	11	*	1	CUENTE PAOV_IND SAMEDES TO THE LABORATORY SHOULD COMPLETE AS MUCH OF THE ABOVE FORM AS POSSIELE. NOTE: NAME AND DATED SIGNATURE OF PERSON COLLECTING THE SAVEDE MUST REBUTED BELOW 4. INFORMATION REQUESTED IN STADED BOXES ABOVE TO BE FILLED IN BY THE LABORATORY.	RECEIVED FOR LABORATORY:	- SIGNATURE AV	RELINQUISHED:	SIGNATURE CR INITIALS	DISPOSAL:	RB
104	CONTACT: Spere Spere ler PHONE No.: 2 BO3 364-35	╞	Lieguitettion	/			<b>_</b>	~			~	7	HE ABOVE FORM AS POSSIBLE. BOVE TO BE FILLED IN BY THE	DATE	20_ TIME	DATE	20		
<b>AECOS, Inc.</b> 45-939 Kamehameha Highway Suite 104 Kaneohe, Oahu, HI 96744 Tel: (808) 234-7770 Fax: 234-7775	CONTACT: PHONE No.: Purchase Order				۲ <u>ه</u>	. 0.				2	<u>41</u>	<b>₹</b>	COMPLETE AS MUCH OF T STED IN SHADED BOXES <u>A</u>	RECEIVED BY:	SIGNATURE	RELINQUISHED:	SIGNATURE OR INITIALS	PRECAUTIONS:	F:11
<b>AECOS, Inc</b> 45-939 Kamehameha Highwa Kaneohe, Oahu, HI 96744 Tel: (808) 234-7770 Fax: 234-77	Znurred	SAMPLED SAMPLED	2/4	1 2/ Y 14:30	2/2	* 2/5 6:50	3/2	512	272	Z15 15:30	2/5 15:47	\$ 2/2 12:A	E LABORATORY SHCULD	DATE 215			$Z/b$ $\frac{20.7}{\text{TIME}}$	7.054	* goetial
it X ti Y	CLIENT: Element ADDRESS:	M LAMPLEID	+	>	V KALA25-640		<u>}</u>	>	<u> </u>	<u>&gt;</u>	Parking?	" ~ Brite 25-1545	CURENTE PAGY JUN SAMELES TO TH SAVELE MUST BE ENTERED BELOW 4	SAMPLED BY:	PRINT NAME STRUE SPRINGLY	RELINQUESHED:	)	COMMENTS:	USE (BLACK) INK

CHAIN OF CUSTODY FORM PROJECT FILE No. OG NUMBER [ 3568 ]	RUSH SEE REVERSE	PRESERVATION PRESE	TIME
CHAIN C PROJECT FILE No. LOG NUMBER	57542 SPANLLER 503 364-3953	ER(S)       REQUESTED ANALYSES         Po <sup>1</sup> T       TSS         Po <sup>1</sup> T       TSS         Main       TAB         Main       TAB         Main       Table	
AECOS, Inc. 45-939 Kamehameha Highway Suite 104 Kaneohe, Oahu, HI 96744 Tel: (808) 234-7770 Fax: 234-7775	LONTACT: PHONE No.: 2 Purchase Order No.	TIME SAMPLE TYPE CONTAINER(S) (6:65 STRUML ( 11, 2014) 7:5 2, 2, 2, 1, 1, 2014) 7:5 2, 2, 2, 1, 2, 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,	, Iļ
AECOS, In 45-939 Kamehameha Highw Kaneohe, Oahu, HI 96744 Tel: (808) 234-7770 Fax: 234-	CLIENT: Elevet Environment ADDRESS:	Electronic     SAMPLE ID     DATE     ThAGE     SAMPLE ID     DATE     ThAGE     SAMPLE ID     MALYSES     PRESENT       1     V     KALA-25-1605     2/5     1/5     1/5     1/1     1/5     Providence     1/5       3     V     KALA-25/1605     2/6     7:5     1/5     1/1     1/5     Providence     1/5       5     P     KALA-26/16-5     2/6     7:5     1     1/5     Providence     1/5       5     P     KALA-26/16-5     2/6     7:5     1     1/5     Providence     1/5       5     P     KALA-26/16-5     2/6     7:5     1     1/5     Providence     1/5       6     P     P     P     P     P     P     P     P       6     P     P     P     P     P     P     P       8     P     P     P     P     P     P     P       8     P     P     P     P     P     P     P       8     P     P     P     P     P     P     P       8     P     P     P     P     P     P     P       8     P     P     P	COMMENTS: 7-9.0

USE (BLACK) INK

RETURN SAMPLE TO CLIENT L



CLIENT: Element Environmental LLC 98-030 Hekaha Street. #9 Aica HJ 96701 ATTENTION: Steve Spengler 808-864-3953 SSpengler@e2hi.com

FILE No.: REPORT DATE: PAGE:

2018-MI 02/13/18 l of 1

### **AECOS REPORT OF ANALYTICAL RESULTS**

SAMPLE TYPE: DATE SAMPLED:

Streamwater 02/07/18

AECOS LOG No.: 35703 DATE RECEIVED: 02/08/18

			<u> </u>	
ANALY	FE   Total Suspended			
(UNIT				
	(mg/L)		-	
Analysis Datc∕ ID ⇔	02/09/18 ml		······································	
		· · .		
Method / Reporting Limit⇔	SM2540D / 0,1			
SAMPLE ID 3				
		•••	·······	
Kowa 2718:1410	90			
Parkway 2718-1352	86			
Kawa 2718-1253	18			,
Lipalu 2718-1400	1310			
Kawa 2718-1335	109			
Parkway 2718-1346	96			
Mokulele Bridge 2718-1340	29			
Mokuleie Bridge 2710-1540	28	•		
· ·				· .

J. Mello, Laboratory Director

CHAIN OF CUSTODY FORM PROJECT FILE No. OG NUMBER [ 035703 ]	RUSH SEE REVERSE	Inference	RETURN SAMPLE TO GLIENT
CHAIN OF CU PROJECT FILE No. LOG NUMBER	1e, 3952	REQUESTED ANALYSES 755 755 755 755 755 755 755 75	RETURN
e 104	CONTACT: Serve Sperier PHONE No.: 18 808 864-3. Purchase Order No.:	CONTAINER(S) REQUES CONTAINER(S) REQUES CONTAINER	
<b>AECOS, Inc.</b> 45-939 Kamehameha Highway Suite 104 Kaneohe, Oahu, HI 96744 Tel: (808) 234-7770 Fax: 234-7775		TIME SAMPLE TYPE TIME SAMPLE SAMPLE TYPE TIME SAMPLE TYPE TIME	T-12.60
AE 45-939 Ka Kaneohe, Tel: (808)	CLIENT: Elevent Environmental ADDRESS:	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	USE (BLACK) INK



CLIENT:	Element Environmental LLC	
	98-030 Hekaha Street, #9	
	Aiea HI 96701	
ATTENTION:	Steve Spengler 808-864-3953	
	SSpengler@e2hi.com	

2018-MI
02/19/18
1 of 1

### AECOS REPORT OF ANALYTICAL RESULTS

SAMPLE TYPE: DATE SAMPLED: Streamwater 02/09/18, 02/12/18

*AECOS* LOG No.: 35715 DATE RECEIVED: 02/13/18

ANALYTE (UNITS)	Total Suspended Solids (mg/L)		
Analysis Date∕ ID ⇔	02/14/18 ml		
Method / Reporting Limit⇔	SM2540D / 0.1		
SAMPLE ID &			
Kawa 2918-8:50	7.8		
Parkway 2918-9:10	5.4		
Cascade 2918-1452	1.4		
Plantation Spring-2918	1.8		
Maintenance Culvert – 2918	3.6		
Mokuelele – 21218 14:02	3.6		
Parkway-21218 14:20	4.2		
Main Kawa – 21218 14:25	3.2		
Namoku – 21218 14:55	4.2		
Kawa – 21218 15:55	9.6		

J. Mello, Laboratory Director

CHAIN OF CUSTODY FORM	PROJECT FILE No. LOG NUMBER [ 0357]5 ]	C RUSH SEE REVERSE	SPECIAL DUAL OF THE SECTION STRUCTURE	S											NOTE: NAME AND DATED SIGNATURE OF PERSON COLLECTING THE LABORATORY.	RECEIVED FOR LABORATORY: DATE 2113	UX 20 10/		TIME	L:	BETTIEN SAMPLE TO CLIENT
CHA	PRO. FILE LOG NU	Ster Spendler B 864-5953		CONTAINER(S) REQUESTED ANALYSES	755	**	~	~		*	٢	<b>a</b>	//	<b>V</b>	TORM AS POSSIBLE, NOTE: NAME AND DATED FILLED IN BY THE LABORATORY.	DATE RECEIVED 1	TIME 20 SIGNATURE		TIME 20 SIGNATURE OR INITIALS	DISPOSAL	
	Highway Suite 104 96744 1x: 234-7775	CONTACT: PHONE No.: . co. Pujchase Order N		SAMPLE TYPE	WATER 1	•	-	1 1	1 1	1 1/ 1			( 4	•	MULETE AS MUCH OF THE ABOVE I SO IN SHADED ROYES AROVE TO BE	RECEIVED BY:	SIGNATURE	RELINQUISHED:	SIGNATURE OR INITIALS	PRECAUTIONS:	
VECOC	ALCUJ, IIIC. 45-939 Kamehameha Highway Suite 104 Kaneohe, Oahu, HI 96744 Tel: (808) 234-7770 Fax: 234-7775	CLIENT: Elever Envonuende ADDRESS: Steve. Spercher Conien	1	Ø SAMPLE ID DATE TIME	1 1/4/42919-3;50 2/9/10 8:52	<sup>2</sup> PARKWAY2918-9:10 2/5/13 9:10		4 MAINTRAKE CULURY-2918 2/4/12 15:00	5 Philon Some 24 2 2/9/13 2/9/13		2 PARKAT-21713:14:20 2/12/13 14:20	8 NAMKANA.21218:14:20 2/2/16 14:25	9 NAMOKU-ZIZIB: N:55 2/12/18 19:55	10 KAWA-21213: 15:55 2/12/13 15:55	LABORATORY SE	SAMPLE MUST BE ENTERED BELOW V. INFORMATION AD COLOR	5124-55 Spender 2/13/1820		stan arture 20	COMMENTS:	T=2.82

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USE (BLACK) INK

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CLIENT:	Element Environmental LLC	
	98-030 Hekaha Street, #9	
	Aiea HI 96701	
ATTENTION:	Steve Spengler 808-864-3953	
	Steve.Spengler@gmail.com	

3	FILE No.:	2018-MI
REP	ORT DATE:	02/20/18
	PAGE:	1 of 1

### AECOS REPORT OF ANALYTICAL RESULTS

SAMPLE TYPE: DATE SAMPLED: Streamwater 02/14/18

AECOS LOG No.: 35723 DATE RECEIVED: 02/14/18

ANALYTE (UNITS)	Total Suspended Solids (mg/L)		
Analysis Date∕ ID ⇔	02/15/18 ml		4.
Method / Reporting Limit⇒	SM2540D / 0.1		
SAMPLE ID &		14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

Kawa 214 8:00

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J. Mello, Laboratory Director

CHAIN OF CUSTODY FORM         PROJECT         PROJECT         FILE No.         LOG NUMBER         Image: Common and Common an	<ul> <li>RUSH</li> <li>SEE REVERSE</li> <li>SPECIAL INSTRUCTIONS</li> </ul>	PERSERVATION PRESERVATION CONTRACTION FRANCING THE FRANCING THE DATE 21 14 DATE 20 TIME (0() DATE 20 TIME 20 TIME
CHAIN O PROJECT FILE No. LOG NUMBER	3 664-3953	REQUESTED ANALYSES
AECOS, Inc. 45-939 Kamehameha Highway Suite 104 Kaneohe, Oahu, HI 96744 Tel: (808) 234-7770 Fax: 234-7775 حماليا	PHONE No.: # 803	TIME SAMPLE TYPE CONTAINER(S) 5. w GAAA 1 1L Poly 6. AA 1 1L Poly 1. L Pol
AECOS, Inc.           45-939 Kamehameha Highway S           Kaneohe, Oahu, HI 96744           Tel: (808) 234-7770 Fax: 234-7775	CLIENT: Element Environmente ADDRESS: Steve: Spendler Community	E     SAMPLE ID     DATE     TIME     SAMPLE TO     Statestice     Requirestice     Requirestice     Requirestice     Requirestice     Requirestice     Reserve       2     2     2     1     1     2     1     1     2     1     1     2       3     4     1

USE (BLACK) INK



Test Information

Request: 2/20/2018 1:40:17 PM Date: 2/20/2018

Name/ID	Assay	Absorbance	Concentration	Interpretation	Reference
Std1	Glyphosate	1.296 Abs	< 0.000 ng/mL		0.000
Std1	Glyphosate	1.273 Abs	0.000 ng/mL		0.000
Std2	Glyphosate	1.031 Abs	0.087 ng/mL	•	0.075
Std2	Glyphosate	1.076 Abs	0.064 ng/mL		0.075
Std3	Glyphosate	0.847 Abs	0.228 ng/mL		0.200
Std3	Glyphosate	0.879 Abs	0.197 ng/mL		0.200
Std4	Glyphosate	0.644 Abs	0.521 ng/mL		0.500
Std4	Glyphosate	0.728 Abs	0.375 ng/mL		0.500
Std5	Glyphosate	0.525 Abs	0.824 ng/mL		1.000
Std5	Glyphosate	0.379 Abs	1.483 ng/mL		1.000
Std6	Glyphosate	0.185 Abs	3.832 ng/mL	<u>.</u>	4.000
Std6	Glyphosate	0.178 Abs	3.996 ng/mL		4.000
control negative	Glyphosate	0.501 Abs	0.905 ng/mL		
control negative	Glyphosate	0.607 Abs	0.601 ng/mL		
control positive	Glyphosate	1.322 Abs	< 0.000 ng/mL	Out(LR)	· · · ·
control positive	Glyphosate	1.263 Abs	0.000 ng/mL	<u> </u>	<u> </u>
R-1	Glyphosate	1.472 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-2	Glyphosate	1.308 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-3	Glyphosate	1.253 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-4	Glyphosate	1.436 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-5	Glyphosate	1.806 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-6	Giyphosate	0.588 Abs	0.646 ng/mL		0.075 - 4.000
R-7	Glyphosate	1.314 Abs	< 0.000 ng/mL	Out/LB)	0.075 - 4.000
R-8	Glyphosate	1.153 Abs		Out(LR)	
		· · · · · · · · · · · · · · · · · · ·	0.000 ng/mL 0.000 ng/mL	Low	0.075 - 4.000
R-9	Glyphosate	1.176 Abs 0.542 Abs	······································	Low	0.075 - 4.000
R-10	Glyphosate		0.772 ng/mL	· •	0.075 - 4.000
	Glyphosate	0.330 Abs	1.836 ng/mL	<u> </u>	0.075 - 4.000
R-12	Glyphosate	0.240 Abs	2.831 ng/mL	į	0.075 - 4.000
R-13	Glyphosate	1.223 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-14	Glyphosate	1.160 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-15	Glyphosate	0.458 Abs	1.072 ng/mL		0.075 - 4.000
R-16	Glyphosate	0.976 Abs	0.121 ng/mL		0.075 - 4.000
R-17	Glyphosate	1.278 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-18	Glyphosate	1.244 Abs	0.000 ng/mL	_ Low	0.075 - 4.000
R-19	Glyphosate	1.174 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-20	Glyphosate	1.294 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-21	Glyphosate	1.207 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-22	Glyphosate	0.977 Abs	0.120 ng/mL		0.075 - 4.000
R-23	Glyphosate	0.856 Abs	0.219 ng/mL		0.075 - 4.000
R-24	Glyphosate	0.452 Abs	1.098 ng/mL		0.075 - 4.000
R-25	Glyphosate	0.928 Abs	0.156 ng/mL		0.075 - 4.000
R-26	Glyphosate	1.300 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-27	Glyphosate	1.360 Abs	< 0.000_ng/mL	Out(LR)	0.075 - 4.000
R-28	Glyphosate	0.750 Abs	0.343 ng/mL	· · · · · · · · · · · · · · · · · · ·	0.075 - 4.000
R-29	Glyphosate	1.301 Abs	< 0.000_ng/mL	Out(LR)	0.075 - 4.000
R-30	Glyphosate	1.025 Abs	0.090 ng/mL		0.075 - 4.000
R-31	Glyphosate	1.191 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-32	Glyphosate	1.222 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-33	Glyphosate	1.322 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-34	Glyphosate	0.393 Abs	1.398 ng/mL		0.075 - 4.000

\* Generated by Plate Reader version (6.3.1.220/02582/AE:20 /) 2/20/2018 1:44:38 PM



Name/ID	Assay	Absorbance	Concentration	Interpretation	Reference
R-35	Glyphosate	1.208 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-36	Glyphosate	1.237 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-37	Glyphosate	1.240 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-38	Glyphosate	0.710 Abs	0.403 ng/mL		0.075 - 4.000
R-39	Glyphosate	1.329 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-40	Glyphosate	1.390 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-41	Glyphosate	1.646 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-42	Glyphosate	1.521 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-43	Glyphosate	1.432 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-44	Glyphosate	1.525 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-45	Glyphosate	1.299 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-46	Glyphosate	1.312 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-47	Glyphosate	1.418 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-48	Glyphosate	1.189 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-49	Glyphosate	0.431 Abs	1.195 ng/mL	;	0.075 - 4.000
R-50	Glyphosate	1.413 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-51	Glyphosate	1.234 Abs	0.000 ng/mL	Low	0.075 - 4.000
R-52	Glyphosate	1.359 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-53	Glyphosate	0.927 Abs	0.156 ng/mL		0.075 - 4.000
R-54	Glyphosate	1.436 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-55	Glyphosate	1.351 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-56	Glyphosate	0.634 Abs	0.542 ng/mL	1	0.075 - 4.000
R-67	Glyphosate	0.363 Abs	1.588 ng/mi.	<u> </u>	0.075 - 4.000
R-58	Glyphosate	1,581 Abs	< 0.000 ng/mL	Out(LR)	0.075 - 4.000
R-59	Glyphosate	0.943 Abs	0.144 ng/mL		0.075 - 4.000
R-60	Glyphosate	1.084 Abs	0.060 ng/mL	Low	0.075 - 4.000
R-61	Glyphosate	1.122 Abs	0.043 ng/mL	Low	0.075 - 4.000
R-62	Glyphosate	0.334 Abs	1.804 ng/mL		0.075 - 4.000



Assay Mode: 4-Parameter Logistic

Assay Information

Assay Name: Glyphosate Normal: 0.075 - 4.000 # of decimals: 3 Assay Substances: C

Units: ng/mL Assay Description: Controls: control negative control positive Standards: Std1, Concentration = 0.000, Minimum number to use: 2 Std2, Concentration = 0.075, Minimum number to use: 2 Std3, Concentration = 0.200, Minimum number to use: 2 Std4, Concentration = 0.500, Minimum number to use: 2 Std5, Concentration = 1.000, Minimum number to use: 2 Std6, Concentration = 1.000, Minimum number to use: 2 Std6, Concentration = 4.000, Minimum number to use: 2 Curve valid interval: 7 days 0 hours

Axis Mode: Y = Abs, X = Log(Conc)

Assay Calibration Current Calibration Status: " Name Absorbance Concentration Interpretation Position 2/20/2018 1:40:17 PM Std1 < 0.000 ng/mL 1.296 Abs A01 Std1 0.000 ng/mL 1.273 Abs 801 Std2 1.031 Abs 0.087 ng/mL C01 Std2 1.076 Abs 0.064 ng/mL D01 Std3 0.847 Abs 0.228 ng/mL E01 0.197 ng/mL Std3 0.879 Abs F01 Std4 0.644 Abs 0.521 ng/mL G01 0.375 ng/mL Std4 0.728 Abs H01 Std5 0.525 Abs 0.824 ng/mL A02 Std5 0.379 Abs 1.483 ng/mL B02 Std6 0.185 Abs 3.832 ng/mL C02 Std6 0.178 Abs 3.996 ng/mL D02 \*\*\*\*\*\* \*\*+ \*\*\*\* 2/20/2018 1:40:17 PM control negative 0.501 Abs 0.905 ng/mL E02 control positive 1.263 Abs 0.000 ng/mL H02 1.322 Abs < 0.000 ng/mL control positive Out(LR) G02 \*\*\*\*\*\* \*\*\*\*\* \*\*\*\*\* \*\*\*\*\*\* Statistic Std1 [MEAN] 1.285 Std1 [SD] 0.016 Std1 [%CV] 1.27 Std2 [MEAN] 1.053 0.075 Std2 [SD] 0.032 0.016 Std2 [%CV] 3.02 21.54 Std2 [%DIFF] -0.00 Std3 [MEAN] 0.863 0.213 Std3 [SD] 0.023 0.022 Std3 [%CV] 2.62 10.32 Std3 [%DIFF] 6.50 Std4 [MEAN] 0.686 0.448 Std4 [SD] 0.059 0.103 23.04 Std4 [%CV] 8.66 Std4 [%DIFF] -10.40 Std5 [MEAN] 0.452 1.154 Std5 [SD] 0.103 0.466 Std5 [%CV] 22.84 40.40

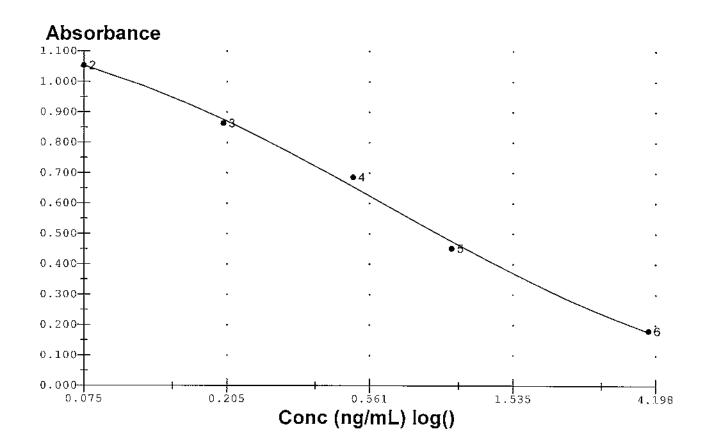


### **Glyphosate - Assay Calibration Report**

Name	Absorbance	Concentration	Interpretation	Position
Std5 [%DIFF]		15.40		
Std6 [MEAN]	0.182	3.914		
Std6 [SD]	0.005	0.116	· · · · · · · · · · · · · · · · · · ·	
Std6 [%CV]	2.73	2.96		
Std6 [%DIFF]		-2.15		
control negative [MEAN]	0.501	0.905	· · · · · · · · · · · · · · · · · · ·	
control positive [MEAN]	1.293		····	
control positive [SD]	0.042		· · · · · · · · · · · · · · · · · · ·	·······
control positive [%CV]	,3.23		<u></u>	·

### Assay Curve

y = (A-D)/(1+(x/C)^B) + D A = -0.098355 B = -0.75372 C = 0.63481 D = 1.2837 R2 coef = 0.99787





Test Information

### Request: 2/19/2018 4:09:40 PM Date: 2/19/2018

Name/ID	Assay	Absorbance	Concentration	Interpretation	Reference
Std1	2,4-D	0.736 Abs	< 0.000 ng/mL		0.000
Std1	2,4-D	0.704 Abs	0.106 ng/mL	•	0.000
Std2	2,4-D	0.429 Abs	2.323 ng/mL		2.000
Std2	2,4-D	0.448 Abs	2.099 ng/mL	i	2.000
Std3	2,4-D	0.351 Abs	3.499 ng/mL		5.000
Std3	2,4-D	0.330 Abs	3.915 ng/mL		5.000
Std4	2,4-D	0.137 Abs	16.800 ng/mL		10.000
Std4	2,4-D	0.127 Abs	19.360 ng/mL	•	10.000
	2,4-D	0.122 Abs	20.960 ng/mL		40.000
Std5	2,4-D	0.099 Abs	33.680 ng/mL	1	40.000
Std6	2,4-D	0.082 Abs	62.400 ng/mL		80.000
Std6	2,4-D	0.072 Abs	> 80.000 ng/mL		80.000
control positive	2,4-D	0.640 Abs	0.514 ng/mL		
control negative	2,4-D	0.061 Abs	> 80.000 ng/mL	Out(LR)	
R-1	2,4-D	0.647 Abs	0.469 ng/mL	Low	: :2.000 - 80.000
₹-2	2,4-D	0.532 Abs	1.290 ng/mL	Low	2.000 - 80.000
R-3	2,4-D	0.742 Abs	< 0.000 ng/mL	Out(LR)	2.000 - 80.000
۲-4	2,4-D	0.662 Abs	0.374 ng/mL	Low	2.000 - 80.000
₹-5	2,4-D	0.545 Abs	1.185 ng/mL	Low	2.000 - 80.000
₹-6	2,4-D	0.551 Abs	1.137 ng/mL	Low	2.000 - 80.000
<u>₹</u> .7	2,4-D	0.546 Abs	1.177 ng/mL	Low	2.000 - 80.000
<u>₹</u>	2,4-D	0.513 Abs	1.452 ng/mL	Low	2.000 - 80.000
λ-9	2,4-D	0.593 Abs	0.827 ng/mL	Low	2.000 - 80.000
₹-10	2,4-D	0.513 Abs	1.452 ng/mL	Low	2.000 - 80.000
	2,4-D	0.699 Abs	0.139 ng/mL	Low	2.000 - 80.000
<u>-11</u> R-12	2,4-D	0.589 Abs	0.856 ng/mL	Low	2.000 - 80.000
<u>-12</u> 	2,4-D	0.583 Abs	0.898 ng/mL	Low	2.000 - 80.000
R-14	2,4-D	0.513 Abs	1.452 ng/mL	Low	2.000 - 80.000
<u>₹-14</u> ₹-15	2,4-D	0.523 Abs	1.366 ng/mL	Low	2.000 - 80.000
R-16	2,4-D	0.514 Abs	1.443 ng/mL	Low	2.000 - 80.000
		0.520 Abs	1.392 ng/mL	Low	2.000 - 80.000
R-17	2,4-D	0.558 Abs	1.083 ng/mL	Low	12.000 - 80.000
R-18	2,4-D	0.558 Abs		a second a second s	2.000 - 80.000
<u>₹-19</u>	2,4-D	0.631 Abs	< 0.000 ng/mL	Out(LR)	2.000 - 80.000
2-20	2,4-D	· · · · · · · · · · · · · · · · ·	0.571 ng/mL		. 4
R-21	2,4-D	0.556 Abs	1.098 ng/mL	Low	2,000 - 80,000
R-22	2,4-D	0.654 Abs	0.425 ng/mL	Low	2.000 - 80.000
₹-23	2,4-D	0.651 Abs	0.443 ng/mL	Low	2.000 - 80.000
R-24	2,4-D	0.533 Abs	1.282 ng/mL	Low	2.000 - 80.000
R-25	2,4-D	0.624 Abs	0.618 ng/mL	Low	2.000 - 80.000
R-26	2,4-D	0.584 Abs	0.890 ng/mL	Low	2.000 - 80.000
R-27	2,4-D	0.384 Abs	2.944 ng/mL	·	2.000 - 80.000
2-28	2,4-D	0.380 Abs	3.004 ng/mL		2.000 - 80.000
R-29	2,4-D	0.243 Abs	6.536 ng/mL		2.000 - 80.000
<del></del>	2,4-D	0.251 Abs	6.208 ng/mL		2.000 - 80.000
R-31	2,4-D	0.286 Abs	5.009 ng/mL		2.000 - 80.000
<u>-32</u>	2,4-D	0.351 Abs	3.499 ng/mL	!	2.000 - 80.000
R-33	2,4-D	0.278 Abs	5.256 ng/mL		2.000 - 80.000
R-34	2,4-D	0.246 Abs	6.408 ng/mL		2.000 - 80,000
R-35	2,4-D	0.632 Abs	0.565 ng/mL	Low	2.000 - 80.000
R-36	2,4-D	0.659 Abs	0.393 ng/mL	Low	2.000 - 80.000

\* Generated by Plate Reader version (6.3.1.220/02582/AE:20 /) 2/19/2018 4:31:10 PM



Name/ID	Assay	Absorbance	Concentration	Interpretation	
R-37	'2,4-D	0.497 Abs	1.597 ng/mL	<u> </u>	Reference
R-38	2,4-D	0.624 Abs	0.618 ng/mL		2.000 - 80.00
R-39	2,4-D	0.640 Abs		Low	2.000 - 80.000
R-40	2,4-D	0.574 Abs	0.514 ng/mL	Low	2.000 - 80.00
R-41	2,4-D	0.620 Abs	0.963 ng/mL	Low	2.000 - 80.000
R-42	2,4-D		0.644_ng/mL	Low	2.000 - 80.000
R-43		0.613 Abs	0.926 ng/mL	Low	2.000 - 80.000
R-44		0.602 Abs	0.690 ng/mL	Low	2.000 - 80.000
R-45	<u>2,4-D</u>		0.765 ng/mL	Low	2.000 - 80.000
R-46		0.700 Abs	0.133 ng/mL	Low	2.000 - 80.000
		$\frac{0.710}{0.720}$ Abs	0.064 ng/mL	Low	2.000 - 80,000
		0.636 Abs	0.539 ng/mL	Low	2.000 - 80.000
	<u>2,4-0</u>	0.536 Abs	1.257_ng/mL	Low	2.000 - 80.000
8-50	- 12,4-D	0.377 Abs	3.051 ng/mL	тт	2.000 - 80.000
k-51	<u>2,4-0</u>	0.497 Abs	1.597 ng/mL	Low	2.000 - 80,000
-52		0.066 Abs	> 80.000 ng/mL	 Out(LR)	2.000 - 80.000
-53	2,4-D	0.689 Abs	0.204 ng/mL		2.000 - 80.000
-54	_ <u> 2,4-D</u>	0.555 Abs	1.106 ng/mL	-	2.000 - 80.000
	2,4-D	0.715 Abs	0.024 ng/mL		2.000 - 80.000
-55	<u> 2,4-D</u>	0.788 Abs	< 0.000 ng/mL	Out(LR)	2.000 - 80.000
-36 -57	2,4-D	0.498 Abs	1.588 ng/mL		+· -· -·
· · · · · · · · · · · · · · · · · · ·	2,4-D	0.528 Abs	1.323 ng/mL		2.000 - 80.000
-58	2,4-D	0.648 Abs	0.462 ng/mL	Low	2.000 - 80.000
-59	2,4-D	0.735 Abs	< 0.000 ng/mL		2.000 - 80.000
-60	2,4-D	0.743 Abs	< 0.000_ng/mL		2.000 - 80.000
61	2,4-D	0.583 Abs	0.898 ng/mL	Out(LR)	2.000 - 80.000
62		0.676 Abs	0.286 ng/mL	1Low	2.000 - 80.000
			10.200 ng/mL	Low	2.000 - 80.000



### 2,4-D - Assay Calibration Report

Assay Mode: 4-Parameter Logistic

Assay Description: ELISA

Units: ng/mL

Assay Information

Assay Name: 2,4-D Normal: 2.000 - 80.000 # of decimals: 3 Assay Substances:

Controis: control positive control negative Standards: Std1, Concentration = 0.000, Minimum number to use: 1 Std2, Concentration = 2.000, Minimum number to use: 1 Std3, Concentration = 5.000, Minimum number to use: 1 Std4, Concentration = 10.000, Minimum number to use: 1 Std5, Concentration = 40.000, Minimum number to use: 1 Std6, Concentration = 80.000, Minimum number to use: 1 Curve valid interval: 7 days 0 hours

Axis Mode: Y = Abs, X = Log(Conc)

Current Calibration Status: " Assay Calibration

Name	Absorbance	Concentration	Interpretation	Position
2/19/2018 4:09:40 PM			<b></b>	
Std1	0.736 Abs	< 0.000 ng/mL	·	A01
Std1	0.704 Abs	0.106 ng/mL		B01
Std2	0.429 Abs	2.323 ng/mL		C01
Std2	0.448 Abs	2.099 ng/mL		D01
Std3	0.351 Abs	3.499 ng/mL	<b></b>	E01
Std3	0.330 Abs	3.915 ng/mL	······	F01
Std4	0.137 Abs	16.800 ng/mL	· · · · · ·	G01
Std4	0.127 Abs	19.360 ng/mL	······································	H01
Std5	0.122 Abs	20.960 ng/mL		A02
Std5	0.099 Abs	33.680 ng/mL		B02
Std6	0.082 Abs	62,400 ng/mL		C02
Std6	0.072 Abs	> 80.000 ng/mL	<u> </u>	D02
**************************************	******	****	\ \_ <del></del>	• <b>*******</b> **********
2/19/2018 4:09:40 PM			<b>_</b>	
control positive	0.640 Abs	0.514 ng/mL	· · · · · · · · · · · · · · · · · · ·	E02
control negative	0.061 Abs	> 80.000 ng/mL	Out(LR)	F02
*****	********	**** *********	***************************************	**********
Statistic				·····
Std1 [MEAN]	0.720		· · · · · · · · · · · · · · · · · · ·	
Std1 [SD]	0.023		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
Std1 [%CV]	3.14			
Std2 [MEAN]	0.438	2.211		· · · · · · · · · · · · · · · · · · ·
Std2 [SD]	0.013	0.158		
Std2 [%CV]	3.06	7.16		
Std2 [%DIFF]		10.55		· · · · · · · · · · · · · · · · · · ·
Std3 [MEAN]	0.340	3.707		
Std3 [SD]	0.015	0.294	·	· · · · · · · · · · · · · · · · · · ·
Std3 [%CV]	4.36	7.94		
Std3 [%DIFF]	······································	-25.86		
Std4 [MEAN]	0.132	18.080		
Std4 [SD]	0.007	1.810		
Std4 [%CV]	5.36	10.01	·····	
Std4 [%DIFF]		80.80	· · ·	· · · · · · · · · · · · · · · · · · ·
Std5 [MEAN]	0.111	27.320		· · · · · · · · · · · · · · · · · · ·
Std5 [SD]	0.016	8.994		· · · · ·
Std5 [%CV]	14.72	32.92	· · · · · · · · · · · · · · · · ·	
Std5 [%DIFF]		-31.70		

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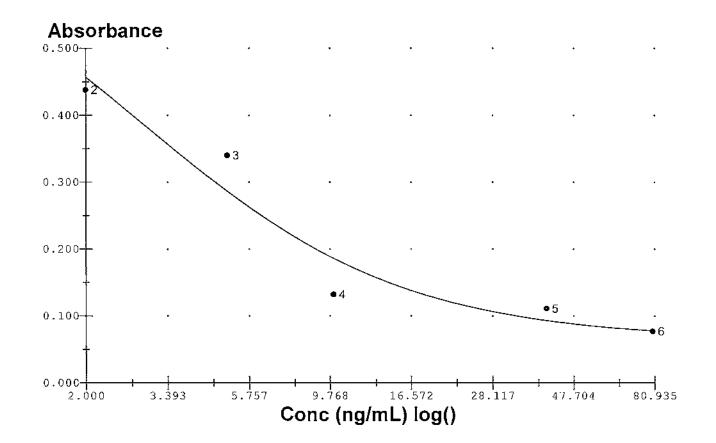


## 2,4-D - Assay Calibration Report

Name	Absorbance	Concentration	Interpretation	Position
Std6 [MEAN]	0.077			
Std6 [SD]	0.007		r . <u> </u>	
Std6 [%CV]	9.18			
Std6 [%DIFF]		-100.00		
control positive [MEAN]	0.640	0.514	····	
control negative [MEAN]	0.061			

Assay Curve

y = (A-D)/(1+(x/C)^B) + D A = 0.065242 B = -1.1740 C = 2.8320 D = 0.71747 R2 coef = 0.97912





Test Information

#### Request: 2/16/2018 3:01:09 PM Date: 2/16/2018

Name/iD	Assay	Absorbance	Concentration	Interpretation	Reference
Std1	Diuron	1.022 Abs	0.000 ng/mL		0.000
Std1	Diuron	1.026 Abs	< 0.000 ng/mL		0.000
Std2	Diuron	0.566 Abs	0.019 ng/mL	•	0.030
Std2	Diuron	0.473 Abs	0.057 ng/mL		0.030
Std3	Diuron	0.366 Abs	0.185 ng/mL		0.100
Std3	Diuron	0.516 Abs	0.035 ng/mL	· · · · · · · · ·	0.100
Std4	Diuron	0.302 Abs	0.366 ng/mL	•	0.300
Std4	Diuron	0.333 Abs	0.263 ng/mL		0.300
Std5	Diuron	0.187 Abs	1.251 ng/mL		1.000
Std5	Diuron	0.207 Abs	1.008 ng/mL		1.000
Std6	Diuron	0.115 Abs	2.778 ng/mL		3.000
Std6	Diuron	0.113 Abs	2.841 ng/mL	·	3.000
control positive	Diuron	0.271 Abs	0.509 ng/mL		3.000
control positive	Diuron	0.352 Abs	0.215 ng/mL	. <u></u>	
control negative	Diuron	1.015 Abs	0.000 ng/mL		
control negative		0.880 Abs	0.000 ng/mL		
R-1		1.062 Abs	< 0.000 ng/mL		0.020 0.000
R-2	Diuron			Out(LR)	0.030 - 3.000
	Diuron	1.253 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-3	Diuron	1.266 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-4	Diuron	1.095 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-5	Diuron	0.184 Abs	1.293 ng/mL	·	0.030 - 3.000
R-6	Diuron	0.676 Abs	0.004 ng/mL	Low	0.030 - 3.000
R-7	Diuron	0.592 Abs	0.014 ng/mL	Low	0.030 - 3.000
R-8	Diuron	0.938 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-9	Diuron	0.923 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-10	Diuron	0.955 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-11	Diuron	0.814 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-12	Diuron	0.767 Abs	0.001 ng/mL	Low	0.030 - 3.000
R-13	Diuron	1.017 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-14	Diuron	0.960 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-15	Diuron	0.869 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-16	Diuron	0.754 Abs 🖌	0.001 ng/mL	Low	0.030 - 3.000
R-17	Diuron	1.149 Abs	< 0.000_ng/mL	Out(LR)	0.030 - 3.000
R-18	Diuron	1.137 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-19	Díuron	1.217 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-20	Diuron	1.141 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-21	Diuron	1.268 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-22	Diuron	1.091 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-23	Diuron	1.042 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-24	Diuron	0.919 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-25	Diuron	1.139 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-26	Diuron	1.232 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-27	Diuron	1.035 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-28	Diuron	1.082 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-29	Diuron	1.148 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-30	Diuron	1.015 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-31	Diuron	1.075 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-32	Diuron	1.159 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-33	Diuron	1.059 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-34	Diuron	0.918 Abs	0.000 ng/mL	Low	0.030 - 3.000



Name/ID	Assay	Absorbance	Concentration	Interpretation	Reference
R-35	Diuron	0.915 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-36	Diuron	0.962 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-37	Diuron	0.561 Abs 🧉	0.021 ng/mL	Low	0.030 - 3.000
R-38	Diuron	0.657 Abs	0.006 ng/mL	Low	0.030 - 3.000
R-39	Diuron	0.806 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-40	Diuron	1.147 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-41	Diuron	1.217 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-42	Diuron	0.994 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-43	Diuron	1.144 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-44	Diuron	1.216 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-45	Diuron	1.120 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-46	Diuron	1.300 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-47	Diuron	1.105 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-48	Diuron	0.983 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-49	Diuron	0.977 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-50	Diuron	1.167 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-51	Diuron	1.200 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-52	Diuron	1.068 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-53	Diuron	0.952 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-54	Diuron	1.134 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-55	Diuron	1.079 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-56	Diuron	0.817 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-57	Diuron	0.884 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-58	Diuron	1.214 Abs	< 0.000 лg/mL	Out(LR)	0.030 - 3.000
R-59	Diuron	0.968 Abs	0.000 ng/mL	Low	0.030 - 3.000
R-60	Diuron	1.117 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-61	Diuron	1.179 Abs	< 0.000 ng/mL	Out(LR)	0.030 - 3.000
R-62	Diuron	0.878 Abs	0.000 ng/mL	Low	0.030 - 3.000



Assay Mode: 4-Parameter Logistic

Assay Information

Assay Name: Diuron Normal: 0.030 - 3.000 # of decimals: 3 Assay Substances:

Units: ng/mL Assay Description: ELISA Controls: control positive control negative Standards: Std1, Concentration = 0.000, Minimum number to use: 1 Std2, Concentration = 0.030, Minimum number to use: 1 Std3, Concentration = 0.100, Minimum number to use: 1 Std4, Concentration = 0.300, Minimum number to use: 1 Std5, Concentration = 1.000, Minimum number to use: 1 Std6, Concentration = 3.000, Minimum number to use: 1 Std6, Concentration = 3.000, Minimum number to use: 1 Curve valid interval: 7 days 0 hours Axis Mode: Y = Abs, X = Conc

Assay Calibration Current Calibration Status: "

Name	Absorbance	Concentration	Interpretation	Position
2/16/2018 3:01:09 PM				
Std1	1.022 Abs	0.000 ng/mL	AC	1
Std1	1.026 Abs	< 0.000 ng/mL	BC	
Std2	0.566 Abs	0.019 ng/mL	CC	n
Std2	0.473 Abs	0.057 ng/mL	D	
Std3	0.366 Abs	0.185 ng/mL	E	
Std3	0.516 Abs	0.035 ng/mL	FC	1
Std4	0.302 Abs	0.366 ng/mL	G(	)1
Std4	0.333 Abs	0.263 ng/mL	H	91
Std5	0.187 Abs	1.251 ng/mL	AC	2
Std5	0.207 Abs	1.008 ng/mL	BC	2
Std6	0.115 Abs	2.778 ng/mL	C	2
Std6	0.113 Abs	2.841 ng/mL	D	2
****	******	++++ ++++++++++++++++++++++++++++++++++	<b>***</b> *****	++++++++++++++++++++++++++++++++++++++
2/16/2018 3:01:09 PM			· · · · · · · · · · · · · · · · · · ·	
control positive	0.352 Abs	0.215 ng/mL	FC	2
control positive	0.271 Abs	0.509 ng/mL	EC	2
control negative	0.880 Abs	0.000 ng/mL	Н	)2
control negative	1.015 Abs	0.000 ng/mL	G	)2
*****	***********	****	******	*******
Statistic			· · · · · · · · · · · · · · · · · · ·	
Std1 [MEAN]	1.024			
Std1 [SD]	0.003			
Std1 [%CV]	0.28			
Std2 [MEAN]	0.520	0.038		
Std2 [SD]	0.066	0.027	······································	
Std2 [%CV]	12.66	70.71		
Std2 [%DIFF]		26.67		
Std3 [MEAN]	0.441	0.110	· · · · · ·	
Std3 [SD]	0.106	0.106		
Std3 [%CV]	24.05	96.42	· · · ·	
Std3 [%DIFF]		10.00		
Std4 [MEAN]	0.317	0.315		
Std4 [SD]	0.022	0.073		
Std4 [%CV]	6.90	23.16		
Std4 [%DIFF]		5.00		
Std5 [MEAN]	0.197	1.130		
Std5 [SD]	0.014	0.172		

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## **Diuron - Assay Calibration Report**

Name	Absorbance	Concentration	Interpretation	Position
std5 [%CV]	7.18	15.21		
td5 [%DIFF]	· · · · · · · · · · · · · · · · · · ·	13.00	·	
td6 [MEAN]	0.114	2.810	-	
td6 [SD]	0.001 👘	0.045		
td6 [%CV]	1.24	1.59		
d6 [%DIFF]	· · · · · · · · · · · · · · · · · · ·	-6.33		
ntrol positive [MEAN]	0.312	0.362	· · · · · · · · · · · · · · · · · · ·	
ntrol positive [SD]	0.057	0.208	·	<u> </u>
entrol positive [%CV]	18.39	57.43		. <b>e</b> <b>e</b>
ontrol negative [MEAN]	0.947	0.000		
ontrol negative [SD]	0.095	0.000		· · · · · · · · · · · · · · · · · · ·
ontrol negative [%CV]	10.07	0.00	4	
Assay Curve = (A-D)/(1+(x/C)^B) + D = -0.42745 = -0.25979 = 0.38120 = 1.0238 2 coef = 0.99891				
<b>Absorbance</b>	-			· · ·
0.900-				
0.800				
0.700				
0.500				
0.400+3				
0.300				
0.200				
0.100	. t		1 ,	
0.000	1.012		2.024	3.036