associated
earth sciences
incorporated

April 4, 2014
Project No. TV130367E

Turnaround, Inc.
3415 A Street Northwest
Gig Harbor, Washington 98335

Attention: Mr. Miles Stover

Subject: Remedial Investigation and Feasibility Study
Clear Lake Industrial Park Property
12785 State Route 9 and 12827 South Front Street
12713 Sawyer Court
Clear Lake, Washington

Dear Mr. Stover:

Associated Earth Sciences, Inc. (AESI) is pleased to provide this letter-report presenting the results of our remedial investigation and feasibility study at the above-referenced site. The subject property includes five contiguous tax parcels (Skagit County Tax Parcel Numbers P74820, P74823, P74826, P74833, and P23293) totaling approximately 6.2 acres. The site is developed with eight commercial/light industrial buildings constructed between 1938 and 1976. AESI understands that you have been appointed the Receiver of, and intend to sell, the subject property. The location of the subject property is shown on Figure 1, "Vicinity Map," and the site and east-adjoining property layout is depicted on Figure 2, "Site Plan."

BACKGROUND

Previous subsurface investigations at the site by others identified releases of chlordane to the soil and ground water at the site. Several subsurface investigations and remedial excavations have historically been performed by others at the site. Although the adversely-affected soils have been successfully removed from the subject property, residual ground water impacts remain on the site and east-adjoining property. The subject property was formerly enrolled into Washington State Department of Ecology's (Ecology's) Voluntary Cleanup Program (VCP) and a No Further Action (NFA) determination from Ecology was obtained for the subject property in 2004 after the placement of a Restrictive Covenant on the site that restricted exposure to the affected ground water. No such covenant was placed on the east-adjoining property, which was not included in the

NFA. After a periodic review conducted by Ecology in 2011, the NFA was rescinded by Ecology since the institutional control in place (the Restrictive Covenant) was deemed ineffective in restricting exposure to the adversely-affected ground water on the east-adjoining property.

Subsequent subsurface characterization work was performed by others at the subject and east-adjoining properties in 2012 and 2013. The subject property has since been re-enrolled in the VCP program and the recent studies submitted to Ecology in an effort to reinstate the NFA by placing an additional Restrictive Covenant on the east-adjoining property. Based on Ecology's review of the previous investigations and on several communications between Ms. Elizabeth Rachman (AESI) and Mr. John Guenther (Ecology) in late 2013 and early 2014, it was determined that additional subsurface investigation activities would be necessary for Ecology to determine whether a Restrictive Covenant on the east-adjoining property will suffice in order to reinstate the NFA. Specifically, determination of the extent of the shallow, chlordane-affected ground water at monitoring wells MW-1 and MW-3 and characterization of deeper ground water within the aquifer beneath the site and east-adjoining properties would be necessary to determine: 1) whether chlordane concentrations extend beyond the boundaries of the subject and east-adjoining properties, and 2) to obtain a vertical profile of chlordane concentrations distributed throughout the aquifer in order to determine whether chlordane concentrations increase with depth. The scope of work performed in this subsurface investigation was based on negotiations between Ms. Rachman and Ecology, and was approved by Ecology via electronic mail.

SUBSURFACE INVESTIGATION

For this remedial investigation, AESI oversaw the advancement of seven shallow and two deep test probes at the subject and east-adjoining properties on February 3 and March 4, 2014. As discussed above, the purpose of the explorations was to determine the horizontal and vertical extents of the previously-identified chlordane release. Figure 3 is a "Remedial Investigation Site Plan" that indicates the approximate locations of the test probes. In addition to the test probe, nine of the existing ground water monitoring wells were accessed and sampled on February 3, 2014. Analytical laboratory results and sample chain-of-custody forms are included as Appendix A and exploration logs are included as Appendix B.

Soil Boring Explorations

AESI completed four shallow (B-12, B-13, B-18, and B-19) and one deep (B-20) test probes at the subject property and three shallow (B-14 through B-16) and one deep (B-17) test probes on the east-adjoining property. The shallow probes were placed around, and the deep probes in close proximity to MW-1 and MW-3 (see Figure 2). Explorations B-12 and B-13 were completed using a truck-mounted direct-push strataprobe, and the remaining probes were advanced with a skid

steer-mounted strataprobe. The shallow test probes were advanced to a maximum depth of 13 feet below ground surface (bgs) and the deep probes were drilled to a depth of 40 feet bgs.

Soil Sampling

Explorations were advanced using a plastic liner in 4-foot increments. After each 4-foot driving interval, the probe was removed from the exploration and the plastic sleeve, containing a sample of the subsurface materials encountered during that driving interval, was removed. The plastic liner was cut open to expose the soil sample and laboratory-prepared sample containers were filled with soil for possible analytical testing.

Due to the extremely low vapor pressure and reportedly unknown ionization potential of chlordane, field screening for the presence of organic vapors using a portable photoionization detector (PID) was not performed. However, the soils from the shallow probes were inspected for any chlorine-like odors, which can be indicative of chlordane. Odors were detected in three of the test probes advanced during the investigation, including test probes B-14, B-18, and B-19. Soil samples were collected in all locations where odors were detected. The soils exhibiting the strongest odor, from probe B-19 at a depth of 4 to 5 feet bgs, were submitted for chlordane analysis. No soil sampling was performed within the two deep test probes.

Ground Water Grab Sampling

A ground water grab sample was collected for analytical testing from each of the test probes advanced at the site. A temporary screen was placed within the borehole and a peristaltic pump was used to draw water from the desired depth. The pump was run for approximately 10 minutes to clear the majority of the turbidity from the water flow, and the ground water sample was collected into laboratory-prepared sample containers after the purging period. The tubing was then removed from the borehole. Dedicated tubing was used to collect each ground water grab sample.

Site Restoration

Both exploration locations were abandoned with bentonite seals in accordance with Ecology guidelines (*Washington Administrative Code* [WAC] 173-160). An increased level of care was used to ensure that the bentonite was sufficiently placed and hydrated throughout the borehole so as to create a seal that would be sufficient enough to prevent the downward migration of any chlordane present. No permanent wells were installed.

SUBSURFACE CONDITIONS

Subsurface conditions at the project site were inferred from the field explorations accomplished for this study and visual reconnaissance of the site. Soils encountered beneath the subject property were highly heterogeneous and generally consisted of silt and fine to coarse sand and silty sand with variable amounts of fine to coarse gravel to 20 feet bgs. Soil conditions encountered in the deep test probes were not logged. Conditions observed during this investigation were consistent with those observed in previous investigations at the site. Soil boring logs are provided in Appendix B.

Shallow ground water was encountered during drilling at depths ranging from 2 to 8 feet bgs, below which soils varied in moisture content from slightly to very moist. Ground water conditions should be expected to vary in response to changes in weather, season, on- and off-site land usage, and other factors. The observed depth to the water table corresponded to the measured depths to ground water in the permanent monitoring wells on-site, which ranged from 4.4 to 8.88 feet below the top of casing.

GROUND WATER MONITORING EVENT

The chlordane release to the ground water was identified at the site in November 1994 during a subsurface investigation. Fourteen ground water monitoring wells have been previously installed and sampled at the subject and east-adjoining properties during various subsurface investigations performed by others from 1995 through 2013 (The Riley Group, Inc., 2012a). Monitoring well MW-5 was subsequently decommissioned since its integrity was suspected to have been compromised. The monitoring wells are located in source, upgradient, downgradient, and crossgradient areas. The approximate locations of the monitoring wells are shown on the attached Figure 2, "Site Plan."

Ground Water Monitoring Program

The most recent ground water sampling event was performed in February 2014, and represents the 13th sampling event at the site since discovery of the release. Not all of the monitoring wells were sampled during each of the 13 events; monitoring wells MW-1 and MW-3 have been sampled the most often, likely due to the fact that the highest chlordane concentrations have historically been detected in those wells. Ground water condition and quality during both the wet and dry seasons have historically been represented.

Ground Water Elevation Monitoring

Monitoring of the ground water elevations has been performed on numerous occasions since 1995. All monitoring wells are screened within the shallow Quaternary alluvium aquifer. The reported flow direction has consistently been to the northwest or north-northwest, away from Clear Lake.

Ground Water Sample Collection Procedure

Ground water sampling activities were performed on 9 of the 13 existing ground water monitoring wells at the site, including MW-1, MW-3, MW-4, MW8, MW-9, MW-11, MW-12, MW-13, and MW-14. Each ground water monitoring well was accessed and allowed to equilibrate prior to measurement and sample collection activities. Depth to water measurements were collected using an audible, electronic water level meter, after which the sensor was allowed to descend to the bottom of the well. The length of the water column was used to determine the volume of water in the well for purging purposes. After the measurements were collected at each well, the water level meter was decontaminated using an Alconox® wash and rinsed with distilled water. Three well volumes of water were purged from each well prior to sampling. Ground water samples were obtained at each location using a peristaltic pump under low-flow conditions.

SAMPLE MANAGEMENT

The soil, ground water, and ground water grab samples collected for chemical analysis were placed in appropriate sample containers supplied by an Ecology-approved laboratory subcontracted to AESI. Each container was labeled with the site name, date, time, exploration number, sample number, and sampling personnel. Sample containers were placed in a chilled cooler immediately after sampling, and subsequently transported to the analytical laboratory (Friedman and Bruya, Inc. [F&BI] of Seattle, Washington) by AESI under strict chain-of-custody procedures.

WASTE MANAGEMENT

Soil cuttings, purge water, and equipment cleaning water generated during the field activities were placed in Department of Transportation (DOT)-approved, steel drums (one 55-gallon and one 35-gallon), closed, and appropriately labeled with project-specific information and initial accumulation date. The investigative waste was placed into two drums, including one 55-gallon drum that was already present at the site and an additional 35-gallon drum that was brought to the site as part of this investigation. No additional drums were used. Disposal of drummed material is not included in this scope of work.

GROUND WATER SAMPLE ANALYSIS

One soil sample and all ground water and ground water grab samples collected during this subsurface investigation were analyzed for chlordane using U.S. Environmental Protection Agency (EPA) Method 8081. F&BI subcontracted the analysis to Fremont Analytical (Fremont) of Seattle, Washington. Samples were transported from F&BI to Fremont in a chilled cooler under strict chain-of-custody procedures.

LABORATORY ANALYSIS RESULTS

The ground water results from the ground water grab sampling are summarized in Table 1, "Laboratory Analysis Results for Soil Samples;" the ground water grab sample results from the Remedial Investigation are summarized in Table 2, "Laboratory Analysis Results for Ground Water Grab Samples;" and the ground water results from the monitoring event are summarized in Table 3, "Laboratory Analytical Results for Ground Water Monitoring Wells," all of which are attached to this letter-report. The laboratory analytical report is included in Appendix A. A historical summary of laboratory analytical results from the monitoring well sampling events performed to-date is provided on Figure 4.

Chlordane concentrations were reported by the laboratory as alpha- and gamma-chlordane. The two concentrations were summed to determine the total chlordane concentration for each sample. Total chlordane was not detected in the soil sample submitted from the subject site (B-19, 4-5 feet). Total chlordane concentrations detected in the ground water and ground water grab samples collected at the subject and east-adjoining properties during the 2014 monitoring event and subsurface investigation ranged from non-detect to 0.988 micrograms per liter (μg/L). The highest total chlordane concentration detected during this investigation was in monitoring well MW-8, which is located on the northwest exterior corner of the greenhouse building.

Total chlordane was not detected in five of the nine monitoring wells sampled, including MW-4, MW-9, MW-12, MW-13, and MW-14. The total chlordane concentration detected in MW-1 was 0.106 μg/L, which was below both the Model Toxics Control Act (MTCA) Method B ground water cleanup level for chlordane (0.25 μg/L) and the Maximum Contaminant Level (MCL) of 2 μg/L. Total chlordane in three of the monitoring wells (MW-3, MW-8, and MW-11) was above the MTCA Method B cleanup level. All of the chlordane concentrations detected were below the state MCL.

REMEDIAL INVESTIGATION CONCLUSIONS

Based on the findings of the Remedial Investigation and the previous environmental investigations performed to date:

- The deeper ground water is not adversely affected by chlordane, indicating that chlordane has not migrated vertically through the aquifer beneath either the subject or the east-adjoining property.

- The horizontal extent of the chlordane-affected ground water has been successfully defined and was found to be confined to the subject and east-adjoining properties.

- The chlordane concentrations observed during this Remedial Investigation and ground water monitoring event were all below 2 μg/L, which is the state (and federal) MCL used to determine threshold contaminant values in drinking water.

- The chlordane detections are separated from each other by areas where chlordane was not detected, either in ground water or ground water grab samples. This distribution of chlordane concentrations in the ground water suggests that the compound is present in four isolated hot spots, rather than in a continuous plume.

DEVELOPMENT AND EVALUATION OF REMEDIATION ALTERNATIVES

Cleanup Levels

The contaminant of concern at the site is chlordane, which does not currently have an established Method A ground water cleanup level under MTCA. The current MTCA Method B ground water cleanup level has been established at 0.25 μg/L. The state and federal MCLs for chlordane are both currently 2 μg/L.

WAC 173-340-700(5)(b) indicates that it is acceptable to use Applicable or Relevant and Appropriate Requirements (ARARs) in lieu of MTCA Method A cleanup levels when no MTCA Method A cleanup level has been established for a given compound provided that the ARAR is sufficiently protective of human health and the environment and does not present a cancer risk in excess of one in one hundred thousand ($1x10^{-5}$).

The ground water screening level selected for the site is ARAR, which is the State Primary MCL as established under the EPA National Primary Drinking Water Regulations (NPDWRs). Therefore, the applicable ground water screening level for chlordane is the State Primary MCL of 2 µg/L. This screening level was evaluated by others in a previous environmental report ("Supplemental Phase II Subsurface Investigation" dated August 29, 2013) and does not exceed a cancer risk of $1x10^{-5}$ and is, therefore, in compliance with WAC 173-340-705(5). AESI concurs with this evaluation and also recommends that the MCL of 2 μg/L be applied to the site as the site-specific ground water cleanup level. AESI proposes that the points of compliance be the existing

monitoring wells that were samples as part of this monitoring event, including MW-1, MW-3, MW-4, MW8, MW-9, MW-11, MW-12, MW-13, and MW-14.

The chlordane concentrations detected in the monitoring wells sampled during the February 2014 sampling event were all below 2 μg/L. However, Ecology requires that four consecutive quarters of results exhibiting concentrations below the cleanup level are required prior to considering an unrestricted NFA determination for a particular site. Therefore, remedial action alternatives were evaluated as part of the feasibility study.

Evaluation of Remedial Alternatives

According to WAC 173-340-350(8)(c)(i), appropriate alternatives for evaluation may consist of one or more cleanup action components, including (but not limited to):

1. Components that reuse or recycle the hazardous substance(s).
2. Destroy or detoxify the hazardous substance(s).
3. Immobilize or solidify the hazardous substance(s).
4. Provide for on-site or off-site disposal of the hazardous substance(s) in an engineered, lined, and monitored facility.
5. On-site isolation or containment of the hazardous substances with attendant engineering controls.
6. Institutional controls and monitoring.

The adversely-affected soils have been successfully removed from the site, leaving only the adversely-affected ground water. The following conceptual cleanup methods were considered for this remediation project, in order of most to least permanent. The remedies are summarized by table and then discussed in detail below.

Proposed Alternative	Estimated Costs through 2014	Additional Costs beyond 2014
Institutional Controls and Monitoring	\$16,500	\$20,000+
Monitored Natural Attenuation	\$47,400	\$63,200+
Enhanced Bioremediation	\$222,400	\$63,200+
Pump and Treat	\$167,800	\$104,950+

Institutional Controls and Monitoring

An institutional control (i.e., Restrictive Covenant) was placed on the source property in 2004 and an NFA opinion was then provided by Ecology. The NFA was subsequently rescinded in April 2012 since no institutional control had been placed on the east-adjoining property, which also had ground water adversely affected by chlordane. Therefore, the remedy (institutional control) was regarded as not being protective of human health.

Under this proposed remedial alternative, an institutional control (Restrictive Covenant) will also be placed on the east-adjoining property with similar restrictions as the source-property covenant (disallows the withdrawal of ground water from the property for any reason). The placement of the covenant will restrict exposure to the affected ground water and is, therefore, protective of human health. Once the covenant has been recorded with the deed at the County, an NFA opinion letter can be provided by Ecology. The NFA will enable the sale of the source property, which will remove it from Receivership and from the court system. Subsequent to the NFA, regular ground water monitoring will be performed on an Ecology-approved schedule until such time as the chlordane has degraded to concentrations that are at or below the cleanup level for four consecutive quarters, at which time the institutional control will be removed from the properties.

Monitored natural attenuation is considered an appropriate alternative since WAC 173-340-370(7) indicates that natural attenuation may be appropriate at sites where:

- *Source control (including removal and/or treatment of hazardous substances) has been conducted to the maximum extent practicable.*

  Chlordane use at the site ceased many years ago. Several remedial excavations have since been performed at the site by others. The remedial excavations successfully removed all chlordane-contaminated soils from the site.

- *Leaving contaminants on-site during the restoration time frame does not pose an unacceptable threat to human health or the environment.*

  Current chlordane concentrations in the ground water are below the MCL of 2 μg/L, which is in compliance with the proposed cleanup level. The placement of a Restrictive Covenant on the site that restricts the use of site ground water for the duration of the monitored natural attenuation will ensure the protection of human health. Furthermore, drinking water is supplied to the area by municipal utilities, and not from private domestic wells. The Restrictive Covenant will not be removed until an NFA is issued for the site, which would be after four consecutive quarters of compliant chlordane concentrations are demonstrated.

- *There is evidence that natural biodegradation or chemical degradation is occurring and will continue to occur at a reasonable rate at the site.*

  Ground water data collected at this site, dating back to 1996, show a clear downward trend of chlordane concentrations (see Figure 4). For example, in April 1996, the chlordane concentration in well MW-3 was 17 μg/L. Chlordane concentrations have steadily decreased over time to the level detected in February 2014, which was 0.326 μg/L. No active remediation of the ground water has occurred, indicating that the concentrations are decreasing due to natural degradation.

- *Appropriate monitoring requirements are conducted to ensure that the natural attenuation process is taking place and that human health and the environment are protected.*

  A monitoring network of 13 wells is currently in place at the site. Three of the wells (MW-3, MW-6, and MW-7) are on the east-adjoining property and the remaining wells are on the source property. The wells are situated in source area, upgradient, downgradient and crossgradient locations. A well network that is adequate for compliance monitoring can be designed using a select number of the existing wells. The wells will be sampled on a regular basis until four consecutive quarters of compliant chlordane concentrations are attained. The results from the most recent event (February 2014) indicated that chlordane concentrations were below the proposed cleanup level of 2 μg/L (the MCL) in all nine of the wells sampled. AESI proposes to perform ground water monitoring in May, August, and November of 2014. If necessary, monitoring can continue on this schedule in subsequent years. The Restrictive Covenants will ensure that human health is protected while the monitoring is being performed.

Estimated costs incurred under this alternative include:

- Preparation and recording of the institutional control $500
- Consultant communications with Ecology $1,000
- On-going ground water monitoring events $5,000 per event

The most recent ground water monitoring event indicated that chlordane concentrations in the nine wells sampled were below 2 μg/L. If the chlordane concentrations remain at or below 2 μg/L for the next three events, the total cost would be approximately $16,500.

However, historical ground water monitoring data indicate that chlordane concentrations do fluctuate at the site. Therefore, it is possible that chlordane concentrations could exceed 2 μg/L in one of the next three events. If an exceedance is detected, a minimum of four additional monitoring events would be necessary. Each time an exceedance is detected (if any), an increase of $20,000 would be added to the estimated costs.

Monitored Natural Attenuation

Under this proposed remedial alternative, regular ground water monitoring will be performed on an Ecology-approved schedule until such time as the chlordane has degraded to concentrations that are at or below the cleanup level, at which time an NFA would be issued by Ecology.

This alternative is essentially the same as that outlined above, except that no institutional control would be placed on the east-adjoining property. Therefore, the NFA would not be issued until such time as the chlordane concentrations are found to be below 2 μg/L for four consecutive

ground water monitoring events. Under this scenario, the property would not be able to be sold until the ground water is in compliance with MTCA for four consecutive quarters. The current buyer would abandon the transaction due to the lengthy and open-ended timeframe needed to obtain the NFA (a minimum of 9 months), since the NFA would be needed for this (or any other) buyer to secure financing. This would involve significant additional expenses trying to identify a buyer, which would likely be challenging since it took several months to find the current buyer and no other potential buyers came forward.

Currently, the property is leased to a tenant, which provides rental income ($2,100 per month) to offset the Receivership legal expenses (approximately $3,600 per month). However, the rental income is lower than that of the legal fees, which results in an approximate net loss of $1,500 per month. The more time that passes without a sale, the greater the losses become and the lower the value of the estate and return to the creditors. In addition, based on discussions with the court-appointed Receiver for the source property, the Court would reportedly not be inclined to approve a lease for this extended period as it would have no benefit to the estate. In this case, the Receiver would be likely to abandon the property back to its original owner (since the receivership case would then create no benefit for the creditors) who does not have the financial resources to perform any remedial action or ground water monitoring. The progress on this site would then cease.

Estimated costs incurred under this alternative include:

- On-going ground water monitoring events $5,000 per event
- Receivership legal fees without tenant (if not abandoned) $3,600 per month

If the chlordane concentrations remain at or below 2 μg/L for the next three events, the total cost would be approximately $47,400. As discussed above, it is possible that more than three additional events will be required at the site. Each time an exceedance is detected (if any), an increase of $63,200 would be added to the estimated costs, provided the Receiver did not abandon the property back to its original owner. If the property is abandoned back to its original owner, the VCP agreement would be terminated and it is unlikely that any further work would be done to address the chlordane-affected ground water at the site. With the property essentially abandoned, the bank possessing the current loan (Columbia Bank) would incur the following losses:

- Loan amount $460,000
- Interest per year (based on 5%/annum cost of funds) $23,000

In addition, the County would lose tax revenue by way of unpaid property taxes. The delinquent taxes through 2013 are $19,000 (which would be paid at closing in the event of a sale). According to the Skagit County website, the total taxes for 2014 are an additional $7,400.

Enhanced Bioremediation

This proposed alternative includes the injection of Regensis' 3-D Microemulsion® (factory emulsified) to the shallow water-bearing zone at the source and east-adjoining properties. 3-D Microemulsion is an engineered electron donor material that offers a three-stage electron donor release profile, pH neutral chemistry, and is delivered on-site as a factory-emulsified product. The product provides a hydrophile-lipophile balance (HLB) which enables maximum subsurface distribution.

The injections would be performed directly through a strataprobe borehole. One injection event with 44 injection points is anticipated, with injection points configured in grids around wells MW-1, MW-3, MW-8, and MW-11. A pilot test would be performed prior to the injections to determine the optimal rate of injection for the remedial product, and the amount of dilution desired, if any. After the injections have been completed, compliance monitoring would be performed to evaluate the effectiveness of the remedial product. At least four quarters of ground water monitoring showing compliance with MTCA would be required prior to issuance of an NFA. Therefore, the Receivership scenario described above would apply to this alternative as well.

Estimated costs incurred under this alternative include:

• Pilot test	$5,000
• 3-D Microemulsion, including shipping	$108,000
• Product injection, including driller	$62,000
Total one-time costs:	$175,000
• Compliance monitoring	$5,000 per event
• Receivership legal fees without tenant (if not abandoned)	$3,600 per month

If the chlordane concentrations remain at or below 2 μg/L for the next three events, the total cost would be approximately $222,400. As discussed above, it is possible that more than three additional events will be required at the site. Each time an exceedance is detected (if any), an increase of $63,200 would be added to the estimated costs, provided the Receiver did not abandon the property back to its original owner. If the property is abandoned back to its original owner, the VCP agreement would be terminated and it is unlikely that any further work would be done to address the chlordane-affected ground water at the site. With the property essentially abandoned, the bank possessing the current loan (Columbia Bank) would incur the following losses:

- Loan amount $460,000
- Interest per year (based on 5%/annum cost of funds) $23,000

In addition, the County would lose tax revenue by way of unpaid property taxes. The delinquent taxes through 2013 are $19,000 (which would be paid at closing in the event of a sale). According to the Skagit County website, the total taxes for 2014 are an additional $7,400.

Pump and Treat

This scenario involves the installation of a ground water treatment system at the site, which would use down-well pumps to evacuate ground water from three of the existing ground water monitoring wells (MW-1, MW-3, and MW-8) and convey it into a 1,000-pound liquid-phase carbon vessel for treatment. The treated water would then be discharged by permit into the local publicly-owned treatment works (POTW, or sanitary sewer system). The carbon would be replaced within the vessel as needed, with the spent carbon being disposed of at an appropriately licensed facility. A pilot test would be performed initially to determine the optimal pump rate and radius of influence from each withdrawal well.

Estimated costs incurred under this alternative include (assumes system will operate for one year):

- Pilot test $5,000
- Installation of the treatment system $44,500
- Profiling of the spent carbon $1,150
- System demobilization $8,000

Total one-time costs: $58,650

- Monthly system maintenance ($2,000/mo) $27,000
- Down-well pump rental ($650/mo) $1,950
- Spent carbon disposal ($1,150/event) $4,300
- Sampling of influent and effluent media, reporting ($1,500/event) $8,500

Total recurring fees, over first year of operation: $41,750

- Compliance monitoring $5,000 per event
- Receivership legal fees without tenant (if not abandoned) $3,600 per month

If the chlordane concentrations remain at or below 2 μg/L for the next three events, the total cost would be approximately $167,800. As discussed above, it is possible that more than three additional events will be required at the site. Each time an exceedance is detected (if any), an increase of $104,950 would be added to the estimated costs, provided the Receiver did not

abandon the property back to its original owner. If the property is abandoned back to its original owner, the VCP agreement would be terminated and it is unlikely that any further work would be done to address the chlordane-affected ground water at the site. With the property essentially abandoned, the bank possessing the current loan (Columbia Bank) would incur the following losses:

- Loan amount $460,000
- Interest per year (based on 5%/annum cost of funds) $23,000

In addition, the County would lose tax revenue by way of unpaid property taxes. The delinquent taxes through 2013 are $19,000 (which would be paid at closing in the event of a sale). According to the Skagit County website, the total taxes for 2014 are an additional $7,400.

Disproportionate Cost Analysis

As indicated in WAC 173-340-350(8)(c)(ii)(B), at least one permanent cleanup action alternative shall be included to serve as a baseline to evaluate against which other alternatives shall be evaluated unless:

- A model remedy is the selected cleanup action.

- A permanent cleanup action alternative is not technically possible, or

- The cost of the most practicable permanent cleanup action alternative is so clearly disproportionate that a more detailed analysis is not necessary, as determined through the screening process outlined in WAC 173-340-350(8)(b)(i). Costs are disproportionate to benefits if the incremental costs of the alternative over that of a lower cost alternative exceed the incremental degree of benefits achieved by the alternative over that of the other lower cost alternative.

AESI recommends that the Institutional Controls and Monitoring alternative be employed at this site. Under this scenario, the NFA can be issued after the Restrictive Covenant is in place on the east-adjoining property, after which the monitoring will continue until at least four quarters of compliant results are attained. All of the other alternatives will result in the issuance of an NFA *after* four quarters of compliant results are attained. In two of the remaining alternatives, remedial action would be performed in addition to the quarterly monitoring. For the purposes of this disproportionate cost analysis, the costs and benefits of the Institutional Controls and Monitoring alternative are compared to that of the Monitored Natural Attenuation alternative. For comparison purposes, it is assumed that the chlordane concentrations will be compliant over the next three quarters.

As discussed above, the estimated cost of the Institutional Controls and Monitoring (ICM) alternative is $16,500, and the estimated cost of the Monitored Natural Attenuation (MNA) alternative is $47,400. Therefore, the incremental cost of MNA over ICM is $30,900. Only two differences exist between the two alternatives: 1) placement of a Restrictive Covenant on the east-adjoining property, and 2) the timing of the NFA. It is AESI's opinion that the degree of benefits achieved by ICM far outweighs that of MNA. To illustrate this, the benefits are discussed by alternative below.

Benefits of Institutional Controls and Monitoring (ICM)

The placement of a Restrictive Covenant on the east-adjoining property will result in the issuance of an NFA sooner than under the MNA scenario. This will allow the source property to be sold, since lender policies require an NFA in order to release funds. The current buyer intends to operate a business on the site that will create employment opportunities for the local community. The money earned by the employees will then go directly into the local economy, which then creates a benefit for the local municipalities, businesses, and residents. It is not possible at this time to quantitatively assess this benefit since we do not yet know how many employees would be hired and at what pay rate(s), but it is clear that the benefit exists and should be considered on a qualitative basis. If the NFA is not to be issued until at least November 2014, the current buyer will abandon the transaction, taking the investment and resulting increase in employment and tax revenue elsewhere and eliminating this benefit entirely.

Furthermore, only four properties in the Clear Lake vicinity are currently zoned for commercial/ industrial use, one of which is the source property (zoning maps have been provided in Appendix C). Two additional commercially-zoned parcels are located approximately 2 miles south of Clear Lake along State Highway 9. The inability to sell, and therefore occupy and use, the source property essentially eliminates approximately 16-25% of the properties in Clear Lake that can be used for commercial/industrial purposes. This has a severe negative impact on the local economy.

The current owner of the site is in bankruptcy. Property taxes have not been paid for some time, which represents a loss of revenue for Skagit County. As discussed above, the delinquent taxes through 2013 are $19,000. According to the Skagit County website, the total taxes for 2014 are an additional $7,400, which have also not been paid. These unpaid taxes therefore represent a net loss of $26,400 for Skagit County. In the event of a sale, these funds would be paid at closing by the bank holding the note. If the property is not sold, the taxes will not get paid. If the property continues to sit unoccupied and unsold into 2015, an additional $7,400 will be added to that loss, raising it to over $30,000 in lost revenue for the County.

In addition, the east-adjoining property owner purchased the property (single-family residence) after the 2004 NFA was issued but before it was rescinded in 2012, making them an innocent

purchaser/landowner. The presence of chlordane-affected ground water represents an encumbrance on their property, which cannot be exactly calculated at this time. The sale of the source property will enable the monitoring to continue, likely eliminating the encumbrance in a more reasonable timeframe. If the sale of the source property does not go through due to the lack of an NFA, then the monitoring will likely not continue, leaving the east-adjoining property owner with an encumbrance for a lengthy and indefinite period of time.

In summary, the sale of the source property at this time will provide a quantitative benefit of approximately $30,000 to Skagit County, and an immeasurable benefit to the local Clear Lake economy. The cost of delaying the sale will cost the Clear Lake community and Skagit County tens of thousands of dollars.

Several remedial excavations have been performed to-date, which have removed all adversely-affected soils from the source and east-adjoining properties. The ground water is currently in compliance with the proposed cleanup level, which is the state and federal MCL. As such, any form of active ground water cleanup is not necessary at this time. It is understood that three additional ground water monitoring events with results below the proposed cleanup level are still needed to establish a compliant trend at the source and east-adjoining properties. The use of an institutional control at the east-adjoining property and resulting NFA determination at this time will enable the property to be sold, which will help the local economy in many qualitative and quantitative ways. In addition, the sale of the property will enable the monitoring activities to continue without delays. Therefore, AESI recommends and requests that Ecology approve the use of an Institutional Control on the east-adjoining property so that an NFA can be issued at this time.

LIMITATIONS AND EXCEPTIONS

Subsurface explorations cannot eliminate all uncertainty regarding the current extent of chemical contamination or the potential for future migration to soil or ground water. Given budget and time limitations, sampling is limited to a finite number of discrete locations and chemical analysis is limited to chemical constituents typically associated with the known environmental conditions. It is possible that higher chemical concentrations may be found in locations where sampling was not conducted and chemical constituents may be present that were not included in the analysis.

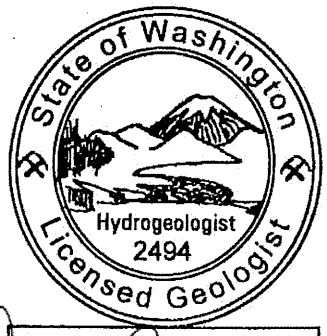
Judgments leading to the enclosed general conclusions are based on a reasonable amount of sampling and analysis and reflect site conditions as they existed at the time of our assessment. Other information on the subject property or adjacent surrounding properties may exist, and more extensive studies may reduce the uncertainties associated with this assessment.

CLOSURE

This letter-report was prepared for the exclusive use of Turnaround, Inc., and its agents, for specific application to the subject site. AESI personnel performed this assessment in accordance with generally accepted standards of care that existed in the State of Washington at the time of this study. Our findings and conclusions have been prepared in accordance with generally accepted professional practice in the area at this time. We make no other warranty, either express or implied.

We appreciate this opportunity to provide these services. Please do not hesitate to call if you have any questions.

Sincerely,
ASSOCIATED EARTH SCIENCES, INC.
Tacoma, Washington



Jon N. Sondergaard, L.G., L.E.G.
Senior Principal Geologist

Elizabeth Rachman, L.G., L.Hg.
Senior Hydrogeologist

Attachments:

	Figure 1:	Vicinity Map
	Figure 2:	Site Plan
	Figure 3:	Remedial Investigation Site Plan
	Figure 4:	Historical Ground Water Data
	Figure 5:	Historical Chlordane Charts, Proposed Point of Compliance Wells
	Table 1:	Laboratory Analysis Results for Soil Samples
	Table 2:	Laboratory Analysis Results for Ground Water Grab Samples
	Table 3:	Laboratory Analytical Results for Ground Water Monitoring Wells
	Appendix A:	Laboratory Analytical Reports and Sample Chain-of-Custody Forms
	Appendix B:	Exploration Logs
	Appendix C:	Zoning Maps

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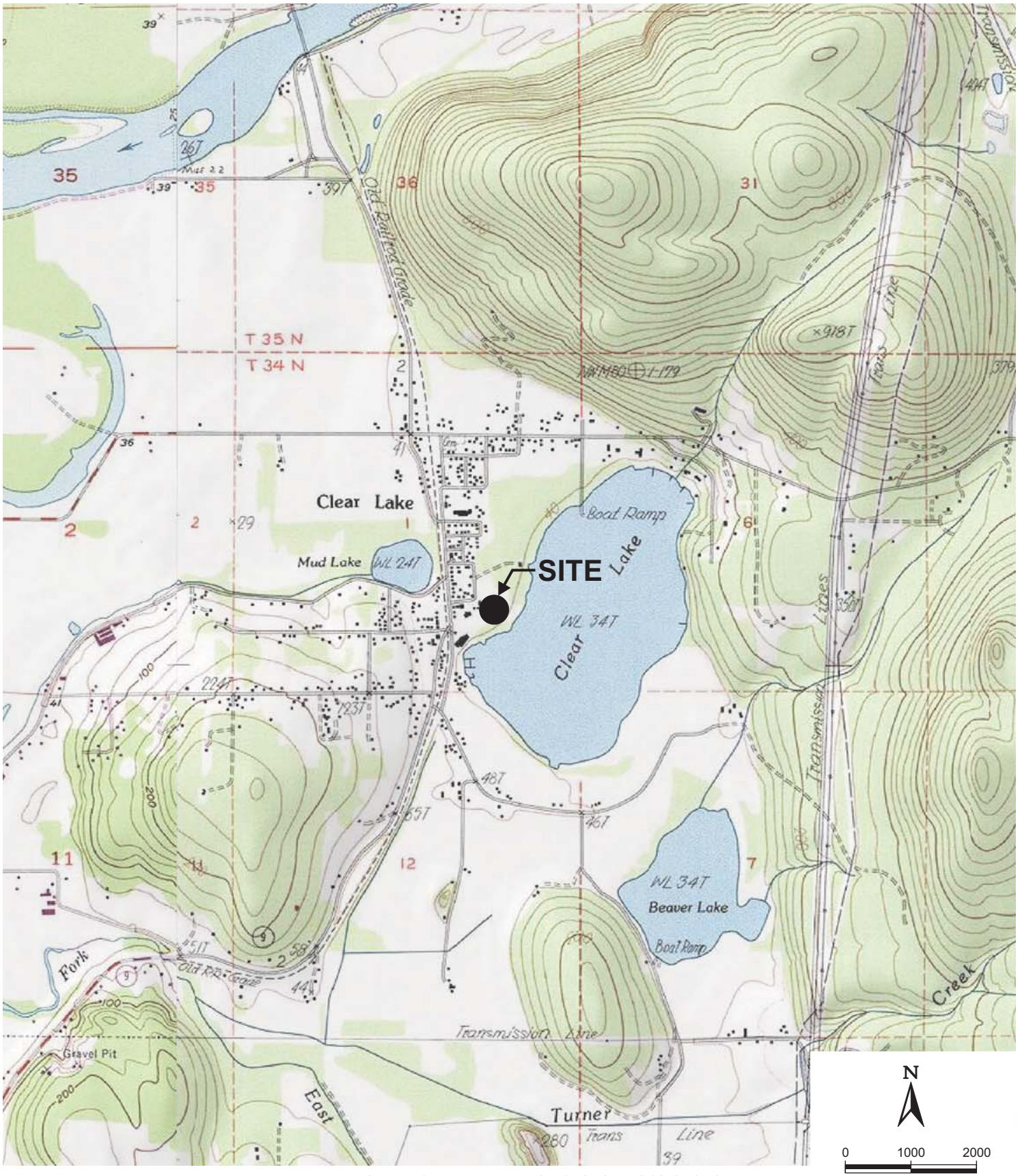
Washington State Department of Ecology, 2011, Periodic review: May 2011.

Washington State Department of Ecology, 2012, Ecology correspondence, Notice of Rescinding "No Further Action" status: April 12, 2012.

FIGURES



REFERENCE: USGS TOPO!

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

Associated Earth Sciences, Inc.

VICINITY MAP

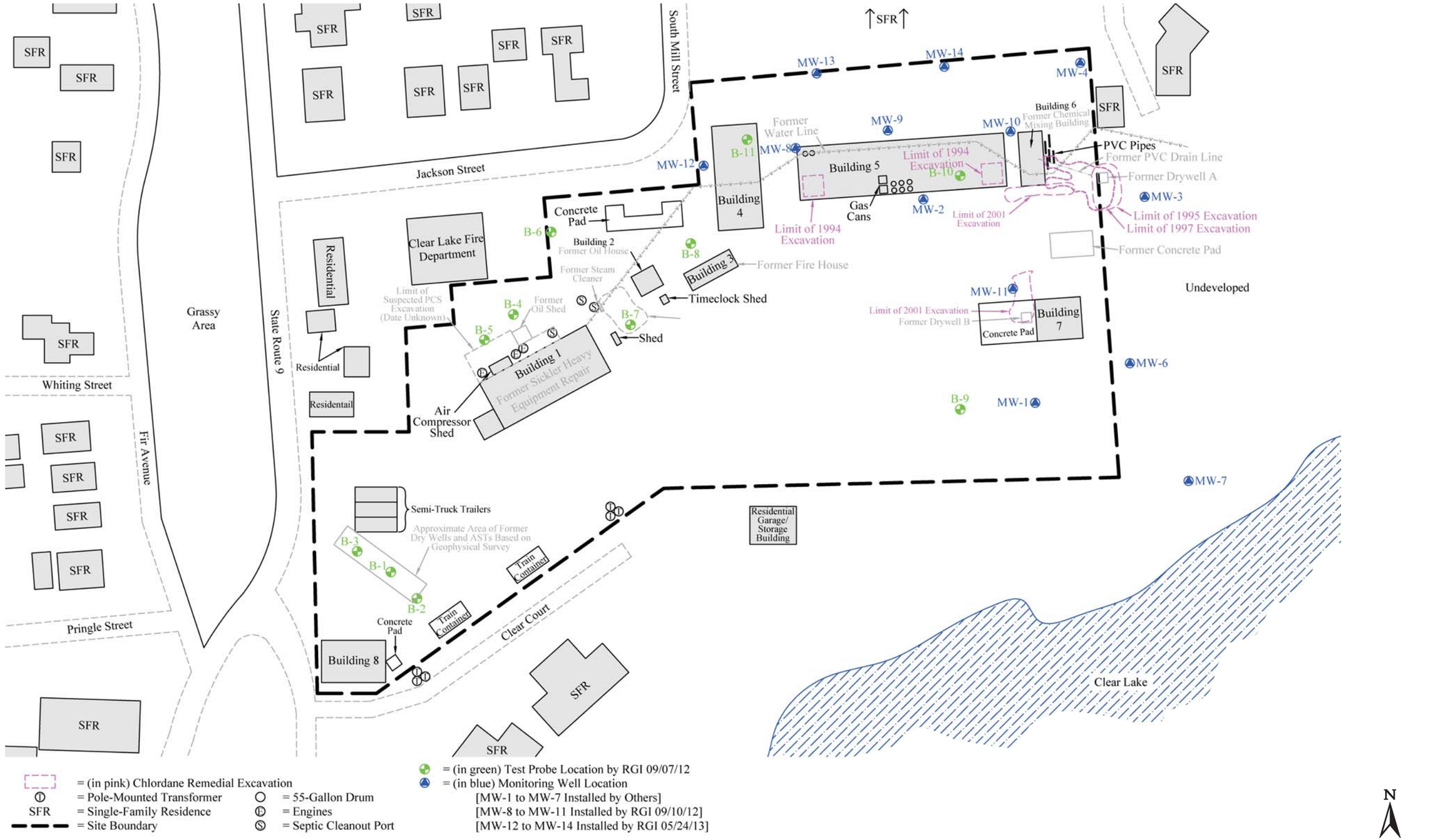
CLEAR LAKE INDUSTRIAL PARK
CLEAR LAKE, WASHINGTON

FIGURE 1

DATE 2/14

PROJ. NO. TV130367E

130367 Clear Lake Industrial Pk \ 130367 Vicinity.cdr



REFERENCE: THE RILEY GROUP

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

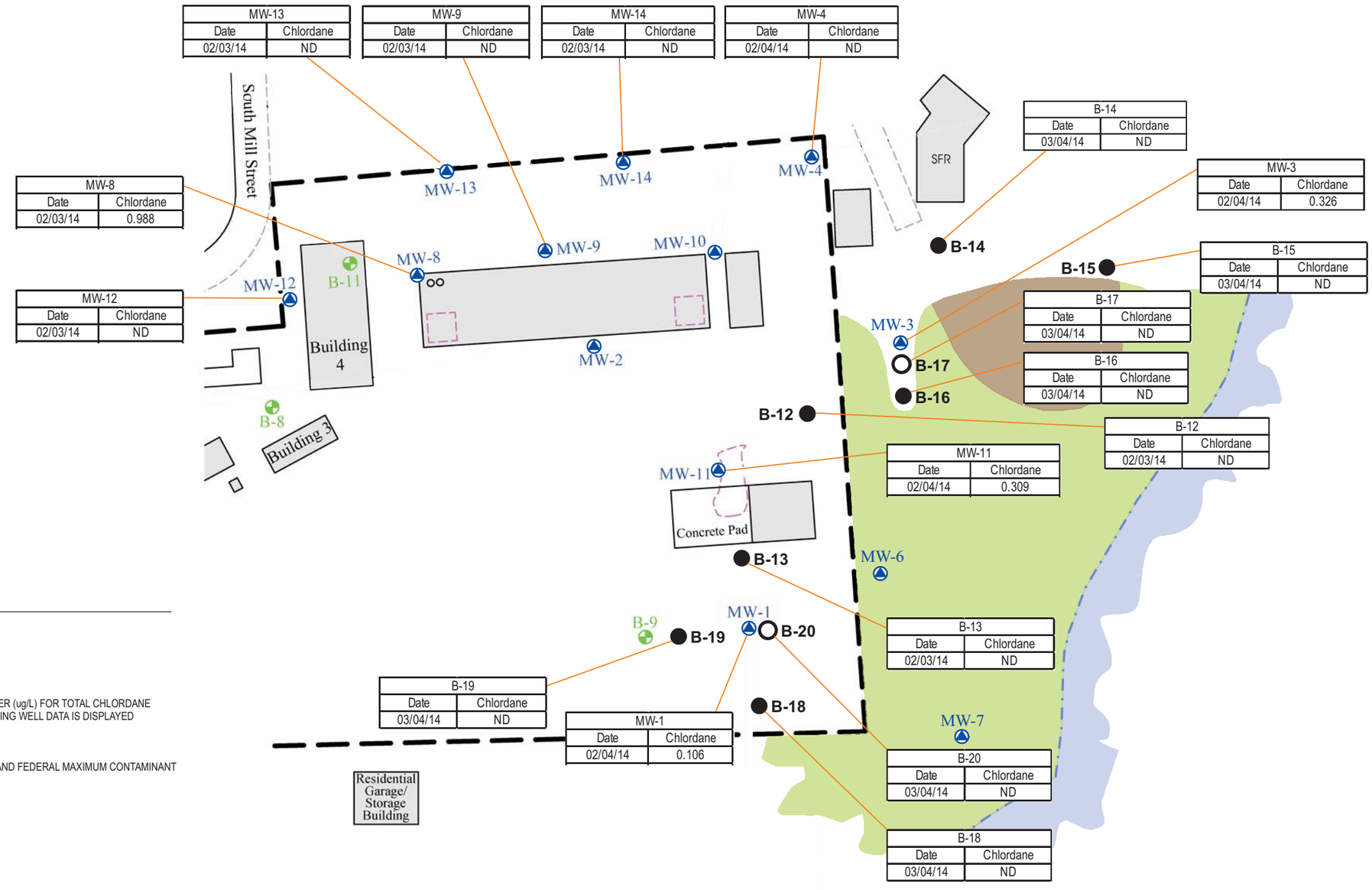
Associated Earth Sciences, Inc.

SITE PLAN

CLEAR LAKE INDUSTRIAL PARK
CLEAR LAKE, WASHINGTON

FIGURE 2
DATE 2/14
PROJ. NO. TV130367E

130367 Clear lake Industrial Pk \ 130367 Site.cdr



LEGEND:

- SITE BOUNDARY
- SFR — SINGLE-FAMILY RESIDENCE
- CHLORDANE REMEDIAL EXCAVATION
- GROUND WATER ANALYTICAL DATA IN MICROGRAMS PER LITER (ug/L) FOR TOTAL CHLORDANE NOT ALL HISTORICAL GROUND WATER MONITORING WELL DATA IS DISPLAYED
- CHLORDANE CONCENTRATION ABOVE WASHINGTON STATE AND FEDERAL MAXIMUM CONTAMINANT LEVEL (2ug/L) - HIGHLIGHTED IN YELLOW
- ND — NOT DETECTED
- MONITORING WELL LOCATION BY OTHERS
- TEST PROBE LOCATION BY OTHERS 9/7/12
- TEST PROBE LOCATION BY AESI FEBRUARY-MARCH 2014
- DEEP BORING LOCATION BY AESI FEBRUARY-MARCH 2014
- SHORELINE
- HEAVY VEGETATION
- AREA FILLED WITH LARGE PIECES OF CONCRETE COVERED BY A THIN LAYER OF SOIL AND GRASS

REFERENCE: THE RILEY GROUP

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

130367 Clear lake Industrial Pk \ 130367 Site -2 3-14.cdr PAGE 1: Remedial

Associated Earth Sciences, Inc.

REMEDIAL INVESTIGATION SITE PLAN

CLEAR LAKE INDUSTRIAL PARK
CLEAR LAKE, WASHINGTON

FIGURE 3
DATE 3/14
PROJ. NO. TV130367E

MW-13	
Date	Chlordane
02/03/14	ND
05/28/13	ND

MW-9	
Date	Chlordane
02/03/14	ND
05/28/13	ND
09/11/12	2.06

MW-14	
Date	Chlordane
02/03/14	ND
05/28/13	ND

MW-4	
Date	Chlordane
02/04/14	ND
05/28/13	0.1
09/11/12	1.75
08/25/10	0.11
07/23/08	0.08
07/12/06	0.08
07/22/04	0.22

MW-3	
Date	Chlordane
02/04/14	0.326
05/28/13	3.5
08/25/10	1.2
07/23/08	1
07/12/06	4.9
07/22/04	4.7
01/09/03	4.4
04/15/02	6.2
04/09/01	7.6
03/30/00	5.5
02/02/99	6.8
04/19/96	17

MW-10	
Date	Chlordane
05/28/13	ND
09/11/12	ND

MW-8	
Date	Chlordane
02/03/14	0.988
05/28/13	ND
09/11/12	7.7

MW-12	
Date	Chlordane
02/03/14	ND
05/28/13	ND

MW-2	
Date	Chlordane
05/28/13	0.71
09/11/12	ND
01/09/03	ND
04/15/02	ND
04/09/01	ND
03/30/00	0.48
02/02/99	ND

MW-11	
Date	Chlordane
02/04/14	0.309
05/28/13	1.7
09/11/12	5.19

MW-6	
Date	Chlordane
05/28/13	ND
01/09/03	ND
04/15/02	ND
04/09/01	ND
03/30/00	ND
02/02/99	ND
04/19/96	ND

MW-1	
Date	Chlordane
02/04/14	0.106
05/28/13	1.7
09/11/12	6.79
08/25/10	1.5
07/23/08	1.8
07/12/06	1.3
07/22/04	2.7
01/09/03	2.7
04/15/02	2.6
04/09/01	2.0
03/30/00	1.3
02/02/99	2.4
04/19/96	1.2

MW-7	
Date	Chlordane
05/28/13	ND
08/25/10	ND
07/23/08	ND
07/12/06	ND
07/22/04	ND
01/09/03	ND
04/15/02	ND
04/09/01	ND
03/30/00	ND
02/02/99	ND

LEGEND:

- SITE BOUNDARY
- SFR — SINGLE-FAMILY RESIDENCE
- CHLORDANE REMEDIAL EXCAVATION
- GROUND WATER ANALYTICAL DATA IN MICROGRAMS PER LITER (ug/L) FOR TOTAL CHLORDANE
  NOT ALL HISTORICAL GROUND WATER MONITORING WELL DATA IS DISPLAYED
  DATA DISPLAYED IS INTENDED TO BE REPRESENTATIVE OF HISTORICAL CHLORDANE-IMPACTED GROUND WATER CONCENTRATION TRENDS
- CHLORDANE CONCENTRATION ABOVE WASHINGTON STATE AND FEDERAL MAXIMUM CONTAMINANT LEVEL (2ug/L) - HIGHLIGHTED IN YELLOW
- ND — NOT DETECTED
- MONITORING WELL LOCATION BY OTHERS
- TEST PROBE LOCATION BY OTHERS 9/7/12
- TEST PROBE LOCATION BY AESI FEBRUARY-MARCH 2014
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- SHORELINE
- HEAVY VEGETATION
- AREA FILLED WITH LARGE PIECES OF CONCRETE COVERED BY A THIN LAYER OF SOIL AND GRASS

REFERENCE: THE RILEY GROUP

NOTE: BLACK AND WHITE REPRODUCTION OF THIS COLOR ORIGINAL MAY REDUCE ITS EFFECTIVENESS AND LEAD TO INCORRECT INTERPRETATION.

130367 Clear lake Industrial Pk \ 130367 Site -2 3-14.cdr PAGE 2: Historical

Associated Earth Sciences, Inc.

HISTORICAL GROUND WATER DATA

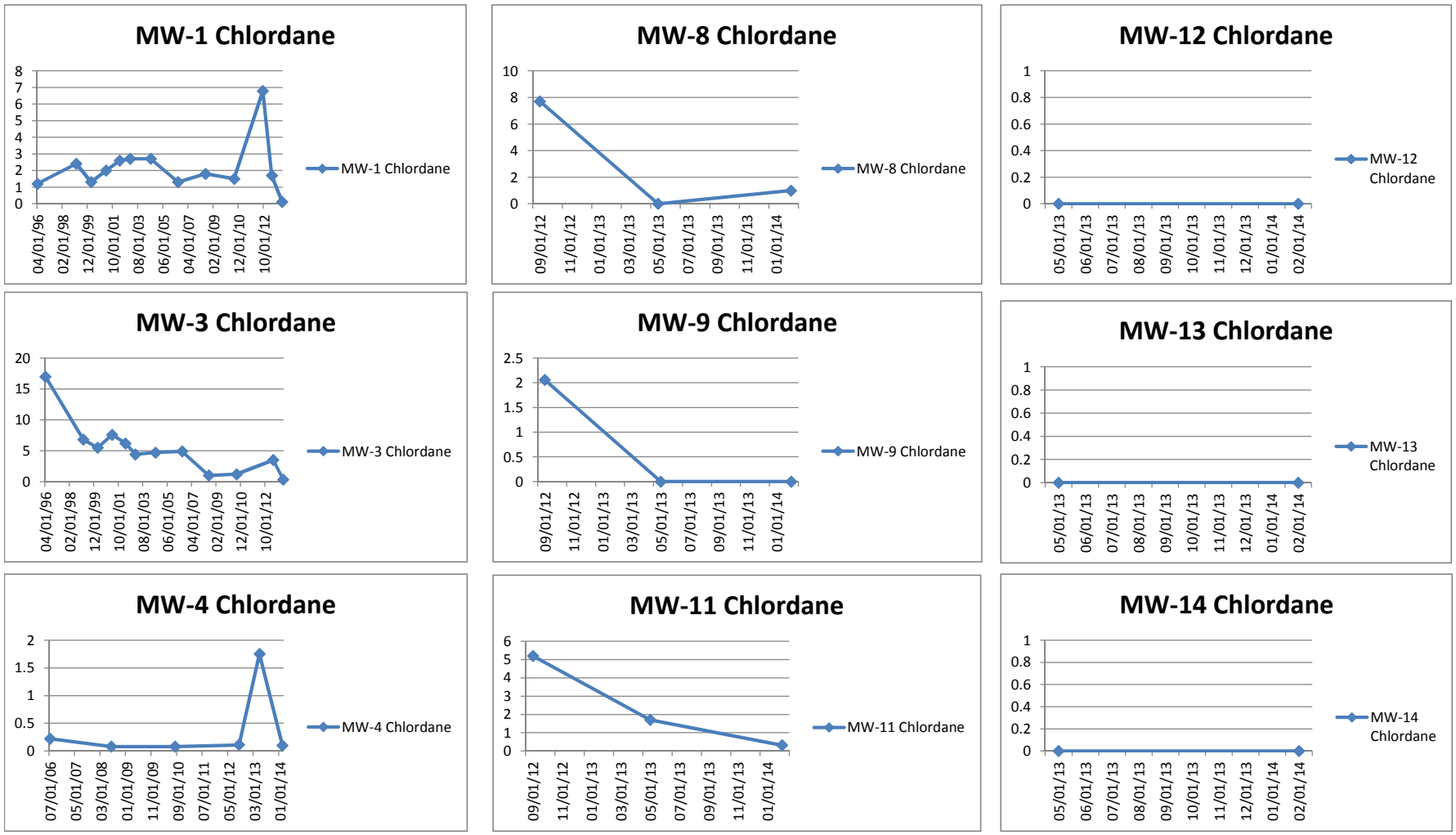
CLEAR LAKE INDUSTRIAL PARK
CLEAR LAKE, WASHINGTON

FIGURE 4

DATE 3/14

PROJ. NO. TV130367E

Figure 5: Historical Chlordane Charts
Proposed Point of Compliance Wells



TABLES

Sample ID	Sample Depth	gamma-Chlordane (mg/Kg)	alpha-Chlordane (mg/Kg)	Total Chlordane (mg/Kg)
B 19 4-5'	4-5'	ND	ND	ND
MTCA Method B Cleanup Levels		---	---	*2.9* [1]

Notes: Results above MTCA Method A Cleanup Levels, if any, are in **bold**.
mg/Kg = milligrams per kilogram (equivalent to parts per million).
ND = non detect

[1] The current Method B Carcinogen Standard Value was used in the table. No Method A value has been established for this parameter.

Table 2: Laboratory Analysis Results for Ground Water Grab Samples

Sample ID	Sample Location	gamma-Chlordane (ug/L)	alpha-Chlordane (ug/L)	Total Chlordane (ug/L)
B 12 GW	B 12	ND	ND	ND
B 13 GW	B 13	ND	ND	ND
B 14 GW	B 14	ND	ND	ND
B 15 GW	B 15	ND	ND	ND
B 16 GW	B 16	ND	ND	ND
B 17 GW	B 17	ND	ND	ND
B 18 GW	B 18	ND	ND	ND
B 19 GW	B 19	ND	ND	ND
B 20 GW	B 20	ND	ND	ND
MTCA Method B Cleanup Levels		---	---	*0.25* [1]
WA State and Federal MCL		---	---	*2*

Notes: Results above the State and Federal MCL level, if any, are in **bold**.
ug/L = micrograms per Liter (equivalent to parts per billion).
ND = non detect.
MCL = maximum contaminate level.

[1] The current Method B Carcinogen Standard Value was used in the table. No Method A value has been established for this parameter.

Sample ID	Sample Location	gamma-Chlordane (ug/L)	alpha-Chlordane (ug/L)	Total Chlordane (ug/L)
MW 1 GW	MW 1	ND	0.106	0.106
MW 3 GW	MW 3	0.134	0.192	0.326
MW 4 GW	MW 4	ND	ND	ND
MW 8 GW	MW 8	0.309	0.679	0.988
MW 9 GW	MW 9	ND	ND	ND
MW 11 GW	MW 11	0.125	0.184	0.309
MW 12 GW	MW 12	ND	ND	ND
MW 13 GW	MW 13	ND	ND	ND
MW 14 GW	MW 14	ND	ND	ND
MTCA Method B Cleanup Levels		---	---	*0.25* [1]
WA State and Federal MCL		---	---	*2*

Notes: Results above the State and Federal MCL level, if any, are in **bold**.
ug/L = micrograms per Liter (equivalent to parts per billion).
ND = non detect.
MCL = maximum contaminate level.
[1] The current Method B Carcinogen Standard Value was used in the table. No Method A value has been established for this parameter.

APPENDIX A

Laboratory Analytical Reports and Sample Chain-of-Custody Forms

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Kurt Johnson, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 18, 2014

Liz Rachman, Project Manager
Associated Earth Sciences, Inc.
1552 Commerce St., Suite 102
Tacoma, WA 98402

Dear Ms. Rachman:

Included are the results from the testing of material submitted on February 5, 2014 from the TV130367E, F&BI 402040 project. There is 1 page included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
AE10218R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 5, 2014 by Friedman & Bruya, Inc. from the Associated Earth Sciences TV130367E, F&BI 402040 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Associated Earth Sciences
402040-01	B-12 GW
402040-02	B-13 GW
402040-03	MW-12 GW
402040-04	MW-13 GW
402040-05	MW-14 GW
402040-06	MW-9 GW
402040-07	MW-8 GW
402040-08	MW-4 GW
402040-09	MW-11 GW
402040-10	MW-1 GW
402040-11	MW-3 GW

The samples were sent to Fremont for chlordane analysis. The report is enclosed.

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 402040
Lab ID: 1402029

February 13, 2014

Attention Michael Erdahl:

Fremont Analytical, Inc. received 11 sample(s) on 2/5/2014 for the analyses presented in the following report.

Organochlorine Pesticides by EPA Method 8081

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *02/13/2014*

CLIENT: Friedman & Bruya
Project: 402040
Lab Order: 1402029

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1402029-001	B-12 GW	02/03/2014 10:10 AM	02/05/2014 3:31 PM
1402029-002	B-13 GW	02/03/2014 10:40 AM	02/05/2014 3:31 PM
1402029-003	MW-12 GW	02/03/2014 2:30 PM	02/05/2014 3:31 PM
1402029-004	MW-13 GW	02/03/2014 3:15 PM	02/05/2014 3:31 PM
1402029-005	MW-14 GW	02/03/2014 4:10 PM	02/05/2014 3:31 PM
1402029-006	MW-9 GW	02/03/2014 10:30 AM	02/05/2014 3:31 PM
1402029-007	MW-8 GW	02/03/2014 10:45 AM	02/05/2014 3:31 PM
1402029-008	MW-4 GW	02/04/2014 11:10 AM	02/05/2014 3:31 PM
1402029-009	MW-11 GW	02/04/2014 12:00 PM	02/05/2014 3:31 PM
1402029-010	MW-1 GW	02/04/2014 12:35 PM	02/05/2014 3:31 PM
1402029-011	MW-3 GW	02/04/2014 1:35 PM	02/05/2014 3:31 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1402029**
Date: **2/13/2014**

CLIENT: Friedman & Bruya
Project: 402040

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1402029**
Date Reported: **2/13/2014**

CLIENT: Friedman & Bruya
Project: 402040

Lab ID: 1402029-001 **Collection Date:** 2/3/2014 10:10:00 AM
Client Sample ID: **B-12 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	2/12/2014 4:37:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	2/12/2014 4:37:00 PM
Surr: Decachlorobiphenyl	85.6	64.3-142		%REC	1	2/12/2014 4:37:00 PM
Surr: Tetrachloro-m-xylene	57.9	39.7-136		%REC	1	2/12/2014 4:37:00 PM

Lab ID: 1402029-002 **Collection Date:** 2/3/2014 10:40:00 AM
Client Sample ID: **B-13 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	2/12/2014 4:50:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	2/12/2014 4:50:00 PM
Surr: Decachlorobiphenyl	86.7	64.3-142		%REC	1	2/12/2014 4:50:00 PM
Surr: Tetrachloro-m-xylene	57.9	39.7-136		%REC	1	2/12/2014 4:50:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1402029**
Date Reported: **2/13/2014**

CLIENT: Friedman & Bruya
Project: 402040

Lab ID: 1402029-003 **Collection Date:** 2/3/2014 2:30:00 PM
Client Sample ID: **MW-12 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	2/12/2014 5:03:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	2/12/2014 5:03:00 PM
Surr: Decachlorobiphenyl	68.1	64.3-142		%REC	1	2/12/2014 5:03:00 PM
Surr: Tetrachloro-m-xylene	42.6	39.7-136		%REC	1	2/12/2014 5:03:00 PM

Lab ID: 1402029-004 **Collection Date:** 2/3/2014 3:15:00 PM
Client Sample ID: **MW-13 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	2/12/2014 5:16:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	2/12/2014 5:16:00 PM
Surr: Decachlorobiphenyl	96.5	64.3-142		%REC	1	2/12/2014 5:16:00 PM
Surr: Tetrachloro-m-xylene	53.3	39.7-136		%REC	1	2/12/2014 5:16:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1402029**
Date Reported: **2/13/2014**

CLIENT: Friedman & Bruya
Project: 402040

Lab ID: 1402029-005 **Collection Date:** 2/3/2014 4:10:00 PM
Client Sample ID: **MW-14 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	2/12/2014 5:29:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	2/12/2014 5:29:00 PM
Surr: Decachlorobiphenyl	85.5	64.3-142		%REC	1	2/12/2014 5:29:00 PM
Surr: Tetrachloro-m-xylene	60.4	39.7-136		%REC	1	2/12/2014 5:29:00 PM

Lab ID: 1402029-006 **Collection Date:** 2/3/2014 10:30:00 AM
Client Sample ID: **MW-9 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	2/12/2014 5:43:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	2/12/2014 5:43:00 PM
Surr: Decachlorobiphenyl	86.1	64.3-142		%REC	1	2/12/2014 5:43:00 PM
Surr: Tetrachloro-m-xylene	59.7	39.7-136		%REC	1	2/12/2014 5:43:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1402029**
Date Reported: **2/13/2014**

CLIENT: Friedman & Bruya
Project: 402040

Lab ID: 1402029-007 **Collection Date:** 2/3/2014 10:45:00 AM
Client Sample ID: **MW-8 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	0.309	0.100		µg/L	1	2/12/2014 5:56:00 PM
alpha-Chlordane	0.679	0.100		µg/L	1	2/12/2014 5:56:00 PM
Surr: Decachlorobiphenyl	86.2	64.3-142		%REC	1	2/12/2014 5:56:00 PM
Surr: Tetrachloro-m-xylene	65.4	39.7-136		%REC	1	2/12/2014 5:56:00 PM

Lab ID: 1402029-008 **Collection Date:** 2/4/2014 11:10:00 AM
Client Sample ID: **MW-4 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	2/12/2014 6:09:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	2/12/2014 6:09:00 PM
Surr: Decachlorobiphenyl	82.4	64.3-142		%REC	1	2/12/2014 6:09:00 PM
Surr: Tetrachloro-m-xylene	51.5	39.7-136		%REC	1	2/12/2014 6:09:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1402029**
Date Reported: **2/13/2014**

CLIENT: Friedman & Bruya
Project: 402040

Lab ID: 1402029-009 **Collection Date:** 2/4/2014 12:00:00 PM
Client Sample ID: **MW-11 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	0.125	0.100		µg/L	1	2/12/2014 6:22:00 PM
alpha-Chlordane	0.184	0.100		µg/L	1	2/12/2014 6:22:00 PM
Surr: Decachlorobiphenyl	94.1	64.3-142		%REC	1	2/12/2014 6:22:00 PM
Surr: Tetrachloro-m-xylene	83.8	39.7-136		%REC	1	2/12/2014 6:22:00 PM

Lab ID: 1402029-010 **Collection Date:** 2/4/2014 12:35:00 PM
Client Sample ID: **MW-1 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	2/12/2014 6:35:00 PM
alpha-Chlordane	0.106	0.100		µg/L	1	2/12/2014 6:35:00 PM
Surr: Decachlorobiphenyl	83.8	64.3-142		%REC	1	2/12/2014 6:35:00 PM
Surr: Tetrachloro-m-xylene	79.9	39.7-136		%REC	1	2/12/2014 6:35:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1402029**
Date Reported: **2/13/2014**

CLIENT: Friedman & Bruya
Project: 402040

Lab ID: 1402029-011 **Collection Date:** 2/4/2014 1:35:00 PM
Client Sample ID: **MW-3 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6549		Analyst: PH
gamma-Chlordane	0.134	0.100		µg/L	1	2/12/2014 7:02:00 PM
alpha-Chlordane	0.192	0.100		µg/L	1	2/12/2014 7:02:00 PM
Surr: Decachlorobiphenyl	87.8	64.3-142		%REC	1	2/12/2014 7:02:00 PM
Surr: Tetrachloro-m-xylene	72.5	39.7-136		%REC	1	2/12/2014 7:02:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1402029
CLIENT: Friedman & Bruya
Project: 402040

QC SUMMARY REPORT

Organochlorine Pesticides by EPA Method 8081

Sample ID: **MB-6549**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **2/10/2014**	RunNo: **12498**
Client ID: **MBLKW**	Batch ID: **6549**		Analysis Date: **2/12/2014**	SeqNo: **249629**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	ND	0.100									
alpha-Chlordane	ND	0.100									
Surr: Decachlorobiphenyl	0.160		0.2000		80.2	64.3	142				
Surr: Tetrachloro-m-xylene	0.117		0.2000		58.3	39.7	136				

Sample ID: **1402029-011AMS**	SampType: **MS**	Units: **µg/L**	Prep Date: **2/10/2014**	RunNo: **12498**
Client ID: **MW-3 GW**	Batch ID: **6549**		Analysis Date: **2/12/2014**	SeqNo: **249642**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	0.810	0.100	1.000	0.1341	67.5	34.7	126				
alpha-Chlordane	0.887	0.100	1.000	0.1925	69.5	38.2	125				
Surr: Decachlorobiphenyl	0.176		0.2000		87.8	64.3	142				
Surr: Tetrachloro-m-xylene	0.136		0.2000		67.9	39.7	136				

Sample ID: **1402029-010ADUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **2/10/2014**	RunNo: **12498**
Client ID: **MW-1 GW**	Batch ID: **6549**		Analysis Date: **2/12/2014**	SeqNo: **249643**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	ND	0.100						0		30	
alpha-Chlordane	0.110	0.100						0.1058	3.72	30	
Surr: Decachlorobiphenyl	0.178		0.2000		89.1	64.3	142		0		
Surr: Tetrachloro-m-xylene	0.127		0.2000		63.7	39.7	136		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Fremont Analytical

Date: *2/13/2014*

Work Order: 1402029
CLIENT: Friedman & Bruya
Project: 402040

QC SUMMARY REPORT

Organochlorine Pesticides by EPA Method 8081

Sample ID: **LCS-6549** SampType: **LCS** Units: **µg/L** Prep Date: **2/10/2014** RunNo: **12498**
Client ID: **LCSW** Batch ID: **6549** Analysis Date: **2/12/2014** SeqNo: **249645**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	0.608	0.100	1.000	0	60.8	38	129				
alpha-Chlordane	0.640	0.100	1.000	0	64.0	41.6	127				
Surr: Decachlorobiphenyl	0.155		0.2000		77.6	64.3	142				
Surr: Tetrachloro-m-xylene	0.0988		0.2000		49.4	39.7	136				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**1402029**
Logged by:	**Chelsea Ward**	Date Received:	**2/5/2014 3:31:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Courier		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all coolers received at a temperature of >0°C to 10.0°C	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is the headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

Item #	Temp ºC	Condition
Cooler	3.5	Good
Sample	3.3	Good

SUBCONTRACT SAMPLE CHAIN OF CUSTODY 1402029

Send Report To Michael Erdahl
Company Friedman and Bruya, Inc.
Address 3012 16th Ave W
City, State, ZIP Seattle, WA 98119
Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Fremont Anc.
PROJECT NAME/NO. 402040
PO # C-796
REMARKS Please Email Results

Page # 1 of 1

TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH 1-week
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins and Furans by 8290	EPH	VPH	Nitrate	Sulfate	Alkalinity	8081 Chlordane				Notes
B-12 GW		2/3/14	1010	water	1							X				
B-13 GW			1040		1							X				
MW-12 GW			1430		1							X				
MW-13 GW			1515		1							X				
MW-14 GW			1610		1							X				
MW-9 GW			1630		1							X				
MW-8 GW		↓	1645		1							X				
MW-4 GW		2/4/14	1110		1							X				
MW-11 GW			1200		1							X				
MW-1 GW			1235		1							X				
MW-3 GW		↓	1335	↓	1							X				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	2/5/14	1500
Received by:	Kari Scott	Kari Scott		2/5/14	15:31
Relinquished by:					
Received by:					

402040

SAMPLE CHAIN OF CUSTODY

ME 02/05/14

BOS

Page # 1 of 2

Send Report To Liz Rachman

Company AESI

Address 1552 Commerce St. Suite 102

City, State, ZIP Tacoma WA 98402

Phone # (253) 722-2992 Fax # (253) 722-2993

SAMPLERS (Signature) Emily Cressman

PROJECT NAME/NO. TVB03267E

PO#

REMARKS

TURNAROUND TIME
- [x] Standard ~~(2 Weeks)~~ 5 day
- [ ] RUSH
- Rush charges authorized by

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	Chlordane						Notes
B-12 GW	01	2/3/14	1010	water	1							X						
B-13 GW	02	"	1040	water	1							X						
MW-12 GW	03		1430	water	1							X						
MW-13 GW	04		1515	water	1							X						
MW-14 GW	05		1610	water	1							X						
MW-9 GW	06		1630	water	1							X						
MW-8 GW	07	↓	1645	water	1							X						
MW 4 GW	08	2/4/14	1110	water	1							X						
MW 11 GW	09	↓	1200	water	1							X						
MW 1 GW	10	↓	1235	water	1							X						Samples received at 3 °C

ANALYSES REQUESTED

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Emily Cressman	Emily Cressman	AESI	2/5/14	0925
Received by: [signature]	JAMES E. KOCHER	POSTAL EXPRESS	2/5/14	9:24
Relinquished by:				
Received by: [signature]	DOUG	FOB	2-5-14	18:20

FORMS\COC\COC.DOC

402040

SAMPLE CHAIN OF CUSTODY

IME 02/05/14

Page # 2 of 3 BOS

Send Report To Liz Rachman

Company AESI

Address

City, State, ZIP Tacoma WA 98402

Phone # Fax #

SAMPLERS (signature) Emily Cressman

PROJECT NAME/NO. TV130367E

PO#

REMARKS

TURNAROUND TIME
☒ Standard ~~(2 Weeks)~~ 5 day
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	Chlordane						Notes
MW 3 GW	11	2/4/14	1335	water	1							X						
													Samples received at 3 °C					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Emily Cressman	Emily Cressman	AESI	2/5/14	0925
Received by:	JAMES E. KOCHER	POSTAL EXPRESS	2/5/14	9:24
Relinquished by:				
Received by: Dan	DO VO	FED EX	11	12:20

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Kurt Johnson, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 17, 2014

Liz Rachman, Project Manager
Associated Earth Sciences, Inc.
1552 Jefferson Ave, Suite 102
Tacoma, WA 98402

Dear Ms. Rachman:

Included are the results from the testing of material submitted on March 5, 2014 from the TV130367E, F&BI 403050 project. There is 1 page included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
AE10317R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 5, 2014 by Friedman & Bruya, Inc. from the Associated Earth Sciences TV130367E, F&BI 403050 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Associated Earth Sciences
403050-01	B14 GW
403050-02	B14 1-1.5'
403050-03	B14 3-4'
403050-04	B15 GW
403050-05	B16 GW
403050-06	B17 GW
403050-07	B18 3.5-3.75'
403050-08	B18 GW
403050-09	B19 GW
403050-10	B19 4-5'
403050-11	B20 GW

The samples were sent to Fremont for chlordane analysis. Review of the enclosed report indicates that all quality assurance were acceptable.

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 403050
Lab ID: 1403038

March 12, 2014

Attention Michael Erdahl:

Fremont Analytical, Inc. received 11 sample(s) on 3/5/2014 for the analyses presented in the following report.

Organochlorine Pesticides by EPA Method 8081
Sample Moisture (Percent Moisture)

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Michael Dee
Sr. Chemist / Principal

Date: *03/12/2014*

CLIENT: Friedman & Bruya
Project: 403050
Lab Order: 1403038

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1403038-001	B14 GW	03/04/2014 10:10 AM	03/05/2014 2:55 PM
1403038-002	B14 1-1.5'	03/04/2014 10:20 AM	03/05/2014 2:55 PM
1403038-003	B14 3-4'	03/04/2014 10:25 AM	03/05/2014 2:55 PM
1403038-004	B15 GW	03/04/2014 11:00 AM	03/05/2014 2:55 PM
1403038-005	B16 GW	03/04/2014 11:50 AM	03/05/2014 2:55 PM
1403038-006	B17 GW	03/04/2014 12:10 PM	03/05/2014 2:55 PM
1403038-007	B18 3.5-3.75'	03/04/2014 1:40 PM	03/05/2014 2:55 PM
1403038-008	B18 GW	03/04/2014 1:50 PM	03/05/2014 2:55 PM
1403038-009	B19 GW	03/04/2014 2:20 PM	03/05/2014 2:55 PM
1403038-010	B19 4-5'	03/04/2014 2:25 PM	03/05/2014 2:55 PM
1403038-011	B20 GW	03/04/2014 2:50 PM	03/05/2014 2:55 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Case Narrative

WO#: **1403038**
Date: **3/12/2014**

CLIENT: Friedman & Bruya
Project: 403050

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Analytical Report

WO#: **1403038**
Date Reported: **3/12/2014**

CLIENT: Friedman & Bruya
Project: 403050

Lab ID: 1403038-001 **Collection Date:** 3/4/2014 10:10:00 AM
Client Sample ID: **B14 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6816		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	3/11/2014 10:33:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	3/11/2014 10:33:00 PM
Surr: Decachlorobiphenyl	91.8	53.2-135		%REC	1	3/11/2014 10:33:00 PM
Surr: Tetrachloro-m-xylene	75.1	27.7-104		%REC	1	3/11/2014 10:33:00 PM

Lab ID: 1403038-004 **Collection Date:** 3/4/2014 11:00:00 AM
Client Sample ID: **B15 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6816		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	3/11/2014 10:46:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	3/11/2014 10:46:00 PM
Surr: Decachlorobiphenyl	100	53.2-135		%REC	1	3/11/2014 10:46:00 PM
Surr: Tetrachloro-m-xylene	81.7	27.7-104		%REC	1	3/11/2014 10:46:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1403038**
Date Reported: **3/12/2014**

CLIENT: Friedman & Bruya
Project: 403050

Lab ID: 1403038-005 **Collection Date:** 3/4/2014 11:50:00 AM
Client Sample ID: **B16 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6816		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	3/11/2014 10:59:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	3/11/2014 10:59:00 PM
Surr: Decachlorobiphenyl	97.0	53.2-135		%REC	1	3/11/2014 10:59:00 PM
Surr: Tetrachloro-m-xylene	78.6	27.7-104		%REC	1	3/11/2014 10:59:00 PM

Lab ID: 1403038-006 **Collection Date:** 3/4/2014 12:10:00 PM
Client Sample ID: **B17 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6816		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	3/11/2014 11:12:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	3/11/2014 11:12:00 PM
Surr: Decachlorobiphenyl	92.1	53.2-135		%REC	1	3/11/2014 11:12:00 PM
Surr: Tetrachloro-m-xylene	76.6	27.7-104		%REC	1	3/11/2014 11:12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1403038**
Date Reported: **3/12/2014**

CLIENT: Friedman & Bruya
Project: 403050

Lab ID: 1403038-008 **Collection Date:** 3/4/2014 1:50:00 PM
Client Sample ID: **B18 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6816		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	3/11/2014 11:26:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	3/11/2014 11:26:00 PM
Surr: Decachlorobiphenyl	121	53.2-135		%REC	1	3/11/2014 11:26:00 PM
Surr: Tetrachloro-m-xylene	82.1	27.7-104		%REC	1	3/11/2014 11:26:00 PM

Lab ID: 1403038-009 **Collection Date:** 3/4/2014 2:20:00 PM
Client Sample ID: **B19 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6816		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	3/11/2014 11:39:00 PM
alpha-Chlordane	ND	0.100		µg/L	1	3/11/2014 11:39:00 PM
Surr: Decachlorobiphenyl	96.2	53.2-135		%REC	1	3/11/2014 11:39:00 PM
Surr: Tetrachloro-m-xylene	70.1	27.7-104		%REC	1	3/11/2014 11:39:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Analytical Report

WO#: **1403038**
Date Reported: **3/12/2014**

CLIENT: Friedman & Bruya
Project: 403050

Lab ID: 1403038-010 **Collection Date:** 3/4/2014 2:25:00 PM
Client Sample ID: **B19 4-5'** **Matrix:** Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6826		Analyst: PH
gamma-Chlordane	ND	0.0124		mg/Kg-dry	1	3/12/2014 1:50:00 AM
alpha-Chlordane	ND	0.0124		mg/Kg-dry	1	3/12/2014 1:50:00 AM
Surr: Decachlorobiphenyl	111	54.6-157		%REC	1	3/12/2014 1:50:00 AM
Surr: Tetrachloro-m-xylene	97.8	59.3-135		%REC	1	3/12/2014 1:50:00 AM
Sample Moisture (Percent Moisture)				Batch ID: R12988		Analyst: KZ
Percent Moisture	29.3			wt%	1	3/12/2014 11:30:12 AM

Lab ID: 1403038-011 **Collection Date:** 3/4/2014 2:50:00 PM
Client Sample ID: **B20 GW** **Matrix:** Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Organochlorine Pesticides by EPA Method 8081				Batch ID: 6816		Analyst: PH
gamma-Chlordane	ND	0.100		µg/L	1	3/12/2014 12:05:00 AM
alpha-Chlordane	ND	0.100		µg/L	1	3/12/2014 12:05:00 AM
Surr: Decachlorobiphenyl	100	53.2-135		%REC	1	3/12/2014 12:05:00 AM
Surr: Tetrachloro-m-xylene	82.9	27.7-104		%REC	1	3/12/2014 12:05:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1403038
CLIENT: Friedman & Bruya
Project: 403050

QC SUMMARY REPORT

Organochlorine Pesticides by EPA Method 8081

Sample ID: **MB-6826**	SampType: **MBLK**	Units: **mg/Kg**	Prep Date: **3/10/2014**	RunNo: **12986**
Client ID: **MBLKS**	Batch ID: **6826**		Analysis Date: **3/12/2014**	SeqNo: **259979**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	ND	0.0100									
alpha-Chlordane	ND	0.0100									
Surr: Decachlorobiphenyl	0.0527		0.05000		105	54.6	157				
Surr: Tetrachloro-m-xylene	0.0509		0.05000		102	59.3	135				

Sample ID: **1403038-010ADUP**	SampType: **DUP**	Units: **mg/Kg-dry**	Prep Date: **3/10/2014**	RunNo: **12986**
Client ID: **B19 4-5'**	Batch ID: **6826**		Analysis Date: **3/12/2014**	SeqNo: **259982**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	ND	0.0128						0		30	
alpha-Chlordane	ND	0.0128						0		30	
Surr: Decachlorobiphenyl	0.0636		0.06383		99.6	54.6	157		0		
Surr: Tetrachloro-m-xylene	0.0621		0.06383		97.2	59.3	135		0		

Sample ID: **1403038-010AMS**	SampType: **MS**	Units: **mg/Kg-dry**	Prep Date: **3/10/2014**	RunNo: **12986**
Client ID: **B19 4-5'**	Batch ID: **6826**		Analysis Date: **3/12/2014**	SeqNo: **259983**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	0.678	0.0127	0.6338	0.0006943	107	57.7	150				
alpha-Chlordane	0.666	0.0127	0.6338	0.001827	105	67.6	149				
Surr: Decachlorobiphenyl	0.0720		0.06338		114	54.6	157				
Surr: Tetrachloro-m-xylene	0.0629		0.06338		99.2	59.3	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Fremont Analytical

Date: *3/12/2014*

Work Order: 1403038
CLIENT: Friedman & Bruya
Project: 403050

QC SUMMARY REPORT

Organochlorine Pesticides by EPA Method 8081

Sample ID: **LCS-6826** SampType: **LCS** Units: **mg/Kg** Prep Date: **3/10/2014** RunNo: **12986**
Client ID: **LCSS** Batch ID: **6826** Analysis Date: **3/12/2014** SeqNo: **259985**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	0.520	0.0100	0.5000	0	104	67	132				
alpha-Chlordane	0.510	0.0100	0.5000	0	102	72.4	138				
Surr: Decachlorobiphenyl	0.0509		0.05000		102	54.6	157				
Surr: Tetrachloro-m-xylene	0.0499		0.05000		99.8	59.3	135				

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Fremont Analytical

Date: *3/12/2014*

Work Order: 1403038
CLIENT: Friedman & Bruya
Project: 403050

QC SUMMARY REPORT

Organochlorine Pesticides by EPA Method 8081

Sample ID: **MB-6816**	SampType: **MBLK**	Units: **µg/L**	Prep Date: **3/7/2014**	RunNo: **12987**
Client ID: **MBLKW**	Batch ID: **6816**		Analysis Date: **3/11/2014**	SeqNo: **259988**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	ND	0.100									
alpha-Chlordane	ND	0.100									
Surr: Decachlorobiphenyl	0.189		0.2000		94.4	53.2	135				
Surr: Tetrachloro-m-xylene	0.170		0.2000		85.0	27.7	104				

Sample ID: **LCS-6816**	SampType: **LCS**	Units: **µg/L**	Prep Date: **3/7/2014**	RunNo: **12987**
Client ID: **LCSW**	Batch ID: **6816**		Analysis Date: **3/11/2014**	SeqNo: **259989**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	0.796	0.100	1.000	0	79.6	38	129				
alpha-Chlordane	0.794	0.100	1.000	0	79.4	41.6	127				
Surr: Decachlorobiphenyl	0.203		0.2000		101	53.2	135				
Surr: Tetrachloro-m-xylene	0.183		0.2000		91.6	27.7	104				

Sample ID: **1403038-009ADUP**	SampType: **DUP**	Units: **µg/L**	Prep Date: **3/7/2014**	RunNo: **12987**
Client ID: **B19 GW**	Batch ID: **6816**		Analysis Date: **3/11/2014**	SeqNo: **259996**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	ND	0.100						0		30	
alpha-Chlordane	ND	0.100						0		30	
Surr: Decachlorobiphenyl	0.188		0.2000		94.2	53.2	135		0		
Surr: Tetrachloro-m-xylene	0.146		0.2000		72.8	27.7	104		0		

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Work Order: 1403038
CLIENT: Friedman & Bruya
Project: 403050

QC SUMMARY REPORT

Organochlorine Pesticides by EPA Method 8081

Sample ID: **1403038-011AMS** SampType: **MS** Units: **µg/L** Prep Date: **3/7/2014** RunNo: **12987**
Client ID: **B20 GW** Batch ID: **6816** Analysis Date: **3/12/2014** SeqNo: **259998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
gamma-Chlordane	0.220	0.100	1.000	0.001392	21.9	34.7	126				S
alpha-Chlordane	0.243	0.100	1.000	0.003052	23.9	38.2	125				S
Surr: Decachlorobiphenyl	0.163		0.2000		81.7	53.2	135				
Surr: Tetrachloro-m-xylene	0.144		0.2000		72.2	27.7	104				

NOTES:
S - Outlying spike recoveries were observed. The method is in control as indicated by the LCS.

Qualifiers:

B	Analyte detected in the associated Method Blank	D	Dilution was required	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**1403038**
Logged by:	**Clare Griggs**	Date Received:	**3/5/2014 2:55:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
2.	How was the sample delivered?	Client		

Log In

3.	Coolers are present?	Yes ☑	No ☐	NA ☐
4.	Shipping container/cooler in good condition?	Yes ☑	No ☐	
5.	Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Required ☑
6.	Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
7.	Were all coolers received at a temperature of >0°C to 10.0°C	Yes ☑	No ☐	NA ☐
8.	Sample(s) in proper container(s)?	Yes ☑	No ☐	
9.	Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
10.	Are samples properly preserved?	Yes ☑	No ☐	
11.	Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
12.	Is the headspace in the VOA vials?	Yes ☐	No ☐	NA ☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes ☑	No ☐	
14.	Does paperwork match bottle labels?	Yes ☑	No ☐	
15.	Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
16.	Is it clear what analyses were requested?	Yes ☑	No ☐	
17.	Were all holding times able to be met?	Yes ☑	No ☐	

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes ☐	No ☐	NA ☑

Person Notified:		Date:	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

Item #	Temp ºC	Condition
Cooler	7.1	Good
Sample	9.4	Good

SUBCONTRACT SAMPLE CHAIN OF CUSTODY 403038

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Fremont

PROJECT NAME/NO. 403050

PO # C-832

REMARKS

Please Email Results water RL no higher than 0.25 ug/L

TURNAROUND TIME

☐ Standard (2 Weeks)

☒ RUSH 1 week.

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	Dioxins and Furans by 8290	EPH	VPH	Nitrate	Sulfate	Alkalinity	Chlordane				Notes
B14 GW		3/4/14	1010		1							X				
B14 1-1.5'			1020		1											
B14 3-4'			1025		1											
B15 GW			1100		1							X				
B16 GW			1150		1							X				
B17 GW			1210		1							X				
B18 3.5-3.75'			1340		1											
B18 GW			1350		1							X				
B19 GW			1420		1							X				
B19 4-5'			1425		1							X				
B20 GW			1450		1							X				
					1											

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Michael Erdahl	Friedman & Bruya	3/5/14	14:30
Received by:		FB	3/5/14	1430
Relinquished by:		FB	3/5/14	1430
Received by:	Clare Griggs	PAT	3/5/14	14:55

403050

SAMPLE CHAIN OF CUSTODY

ME 03-05-14 D03

Page # 1 of 2

Send Report To Liz Rachman
Company AESI
Address 1552 Commerce St, Suite 102
City, State, ZIP Tacoma, WA 98402
Phone # (253) 722-2992 Fax # (253) 722-2993

SAMPLERS (signature) Emily Crossman
PROJECT NAME/NO. TV1309.07E
PO #
REMARKS water detection limit needs to be, at the highest, 0.25 ppb

TURNAROUND TIME
☐ Standard (2 Weeks)
☑ RUSH 1 week
Rush charges authorized by:

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Chlordane					Notes
B14 GW	01	3/4/14	1010	water	1							X					
B14 1-1.5'	02		1020	soil	1												
B14 3-4'	03		1025	soil	1												
B15 GW	04		1100	water	1							X					
B16 GW	05		1150	water	1							X					
B17 GW	06		1210	water	1							X					
B18 3.5-3.75'	07		1340	soil	1												
B18 GW	08		1350	water	1							X					
B19 GW	09		1420	water	1							X					
B19 4-5'	10	↓	1425	soil	1							X					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Emily Crossman	Emily Crossman	AESI	3/5/14	1800
Received by:		JOHN DAVY	POSTAL EXPRESS	3/5/14	10:00
Relinquished by:					
Received by:	Nhan Phan	Nhan Phan	FedEx	3/5/14	11:15

Samples received at 12 °C

403050

SAMPLE CHAIN OF CUSTODY

ME 03-05-14 D03

Page # 2 of 2

Send Report To Liz Rachman
Company AESI
Address 1552 Commerce St, Suite 102
City, State, ZIP Tacoma, WA 98402
Phone # (253) 722-2992 Fax # (253) 722-2993
Email Address lrachman@aesgeo.com

SAMPLERS (signature) Emily Cressman
PROJECT NAME/NO. TV130367E
PO #
PROJECT ADDRESS water detection limit needs to be at the highest 0.25 ppb
• ELECTRONIC DATA REQUESTED

TURNAROUND TIME
~~• Standard Turnaround~~
~~• RUSH~~ 1 Week
Rush charges authorized by:

SAMPLE DISPOSAL
• Dispose after 30 days
• Return samples
• Will call with instructions
Samples Received at ___ °C

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Chlordane					Notes
B20 GW	11	3/4/14	1450	water	1							X					

ANALYSES REQUESTED

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Emily Cressman	Emily Cressman	AESI	3/5/14	1000
Received by:	John Davy	JOHN DAVY	POSTAL EXPRESS	3/5/14	10:00
Relinquished by:					
Received by:	Nhan Phan	Nhan Phan	FEBI	3/5/14	11:15

Samples received at 2 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COC\COC.DOC

APPENDIX B

Exploration Logs

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-12	1 of 1

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	2/3/14,2/3/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Quaternary Alluvium Slightly moist, light brown and gray, fine to coarse silty SAND, with fine to coarse gravel; no odor (SM).					
				Slightly moist, gray, fine SILT; no odor (ML).					
5				3 inch layer: Slightly moist, gray, fine SAND; no odor (SW).		▼			
				Moist, gray, fine SAND; no odor (SW).					
				Moist, gray, fine SILT; no odor (ML).					
				Moist, gray, fine SAND; no odor (SW).					
				Moist, gray, fine to medium SAND; no odor (SW).					
				Moist, gray, fine SILT; sewer odor (ML).					
10				Bottom of exploration boring at 10 feet Backfilled with bentonite.					
15									
20									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-13	1 of 1

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	2/3/14,2/3/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Quaternary Alluvium					
				Slightly moist, brown, fine to coarse SAND, with fine gravel; no odor (SM).					
5						▼			
				Slightly moist, brown, fine to coarse silty SAND, few fine to coarse gravel; sewer odor (SM).					
10				Very moist, gray, fine SILT, few fine gravel; no odor (ML).					
				Moist, brown, fine SAND; sewer odor (SW).					
				Bottom of exploration boring at 13 feet Slight chlorine odor in ground water. Backfilled with bentonite.					
15									
20									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-14	1 of 1

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	3/4/14,3/4/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Quaternary Alluvium					
				Slighty moist, brown, fine silty SAND; no odor (SM).					
				Slightly moist, brown and gray, fine silty SAND, little fine to coarse gravel; chlorine odor (SM). **B14-1-1.5** No odor.					
				Slightly moist, gray and dark brown, fine silty SAND; slight chlorine odor (SM). **B14-3-4**		▼			
				Very moist, gray, fine sandy SILT; no odor (ML).					
5				Very moist, gray, fine silty SAND; no odor (SM).					
				Moist, gray, fine to medium SAND, few silt; no odor (SP).					
				Bottom of exploration boring at 8 feet Backfilled with bentonite.					
10									
15									
20									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-15	1 of 1

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	3/4/14,3/4/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Quaternary Alluvium					
				Brick and crushed rock (GP).					
				Slightly moist, dark brown, fine to coarse silty SAND, with crushed brick; no odor (SM).					
				Slightly moist, dark brown, fine to medium silty SAND, few coarse gravel; organic odor (SM).					
				Slightly moist, gray, fine silty SAND; organic odor (SM).					
				Very moist, gray, fine silty SAND, organic odor (SM).					
5				Very moist, gray, fine to medium silty SAND, organic odor (SM).					
				Moist, gray, fine to coarse silty SAND, organic odor (SM).					
				Bottom of exploration boring at 8 feet Backfilled with bentonite.					
10									
15									
20									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-16	1 of 1

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	3/4/14,3/4/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Quaternary Alluvium					
				Slightly moist, brown, fine sandy SILT (ML).					
				Slightly moist, gray, fine sandy SILT; organic odor (ML).					
				Moist, light brown, fine silty SAND; no odor (SM).		▼			
				Moist, light brown, fine to medium silty SAND; no odor (SM).					
				Very moist, gray, fine to coarse SAND, few silt (SP).					
5									
				Very moist, gray, fine sandy SILT; organic odor (ML).					
				Moist, gray, fine SAND, little silt; organic odor (SP).					
				Bottom of exploration boring at 8 feet Backfilled with bentonite.					
10									
15									
20									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-17	1 of 2

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	3/4/14,3/4/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				No soil sampling performed. Ground water sample collected.					
5									
10									
15									
20									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-17	2 of 2

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	3/4/14,3/4/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
25									
30									
35									
40				Bottom of exploration boring at 40 feet Backfilled with bentonite.					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-18	1 of 1

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	3/4/14,3/4/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Quaternary Alluvium		▼			
				Moist, brown, fine to coarse silty SAND, few fine gravel (SM).					
				4 inches: Moist, brownish gray, fine sandy SILT; chlorine odor (ML).					
				B18-3.5-3.75					
				2 inches: Moist, gray, fine to coarse silty SAND, with crushed brick; chlorine odor (SM).					
5				Very moist, gray, fine to coarse silty SAND, with fine to coarse gravel (SM).					
				Very moist, black, fine to medium silty SAND, organic debris; organic odor (SM).					
				Very moist, gray, fine SILT; organic odor (ML).					
				Very moist, gray, fine SAND; organic odor (SW).					
				Bottom of exploration boring at 8 feet Backfilled with bentonite.					
10									
15									
20									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-19	1 of 1

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	3/4/14,3/4/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				Quaternary Alluvium					
				Slightly moist, brown, fine to coarse silty SAND, with fine to coarse gravel (SM).		▼			
				Slightly moist, black, fine to coarse silty SAND, few fine gravel; slight chlorine odor (SM).					
				Slightly moist, black, fine to medium silty SAND, chlorine odor (SM). **B19-4-5**					
5				Slightly moist, gray, fine SILT; organic odor (ML).					
				Moist, gray, fine to medium SAND; organic odor (SP).					
				Bottom of exploration boring at 8 feet Backfilled with bentonite.					
10									
15									
20									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-20	1 of 2

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	3/4/14,3/4/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	ST	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot (10 20 30 40)	Other Tests
				No soil sampling performed. Ground water sample collected.					
5									
10									
15									
20									

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

Associated Earth Sciences, Inc.

Exploration Log

Project Number	Exploration Number	Sheet
TV130367E	B-20	2 of 2

Project Name	Clear Lake Industrial Park	Ground Surface Elevation (ft)	
Location	Clear Lake, WA	Datum	N/A
Driller/Equipment	ESN Northwest / Direct Push (Geoprobe)	Date Start/Finish	3/4/14,3/4/14
Hammer Weight/Drop	N/A	Hole Diameter (in)	2 inches

Depth (ft)	S T	Samples	Graphic Symbol	DESCRIPTION	Well Completion	Water Level	Blows/6"	Blows/Foot 10 20 30 40	Other Tests
25									
30									
35									
40				Bottom of exploration boring at 40 feet Backfilled with bentonite.					

Sampler Type (ST):

- 2" OD Split Spoon Sampler (SPT)
- 3" OD Split Spoon Sampler (D & M)
- Grab Sample
- No Recovery
- Ring Sample
- Shelby Tube Sample

M - Moisture

- Water Level ()
- Water Level at time of drilling (ATD)

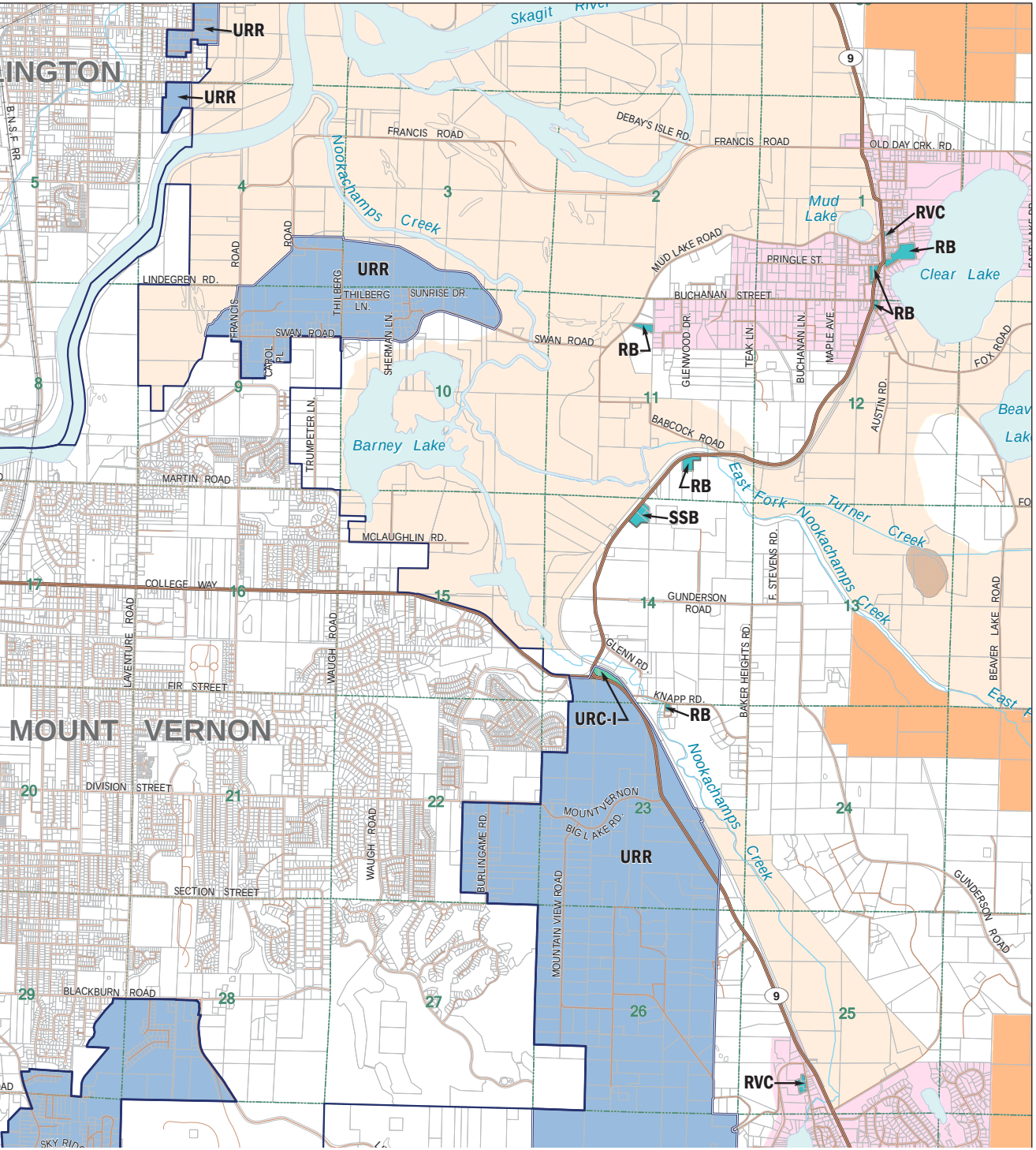
Logged by: ESC

Approved by:

AESIBOR 130367.GPJ March 11, 2014

APPENDIX C

Zoning Maps



SKAGIT COUNTY

Comprehensive Plan Designations and Zoning Districts

December 23, 2008*

URBAN

- Incorporated Areas

UGA ZONING

- [UGA] Urban Growth Area
- [AVR] Aviation Related
- [BR-CC] Bayview Ridge Community Center
- [BR-HI] Bayview Ridge Heavy Industrial
- [BR-LI] Bayview Ridge Light Industrial
- [BR-R] Bayview Ridge Residential
- [A-UD] Anacortes UGA Development District
- [LC-UD] LaConner UGA Urban Development District
- [MV-UD] Mount Vernon UGA Urban Development District
- [URC-I] Urban Reserve Commercial Industrial
- [URP-OS] Urban Reserve Public Open Space
- [R] Residential (Swinomish UGA)
- [C] Commercial (Swinomish UGA)
- [H-I] Hamilton Industrial
- [H-R] Hamilton Residential
- [H-URv] Hamilton Urban Reserve
- [URR] Urban Reserve Residential

RURAL ZONING

- [RRv] Rural Reserve
- [RI] Rural Intermediate
- [RVR] Rural Village Residential
- [BR-URv] Bayview Ridge Urban Reserve

NATURAL RESOURCE LANDS

- [Ag-NRL] Agricultural - NRL
- [RRc-NRL] Rural Resource - NRL
- [SF-NRL] Secondary Forest - NRL
- [IF-NRL] Industrial Forest - NRL

COMMERCIAL / INDUSTRIAL

- [RB] Rural Business
- [RC] Rural Center
- [RVC] Rural Village Commercial
- [RFS] Rural Freeway Service
- [NRI] Natural Resource Industrial
- [SRT] Small-Scale Recreation & Tourism
- [SSB] Small-Scale Business
- [RMI] Rural Marine Industrial
- [MID] Major Industrial Development (No properties currently designated)
- [MPR] Master Planned Resort

OPEN SPACE

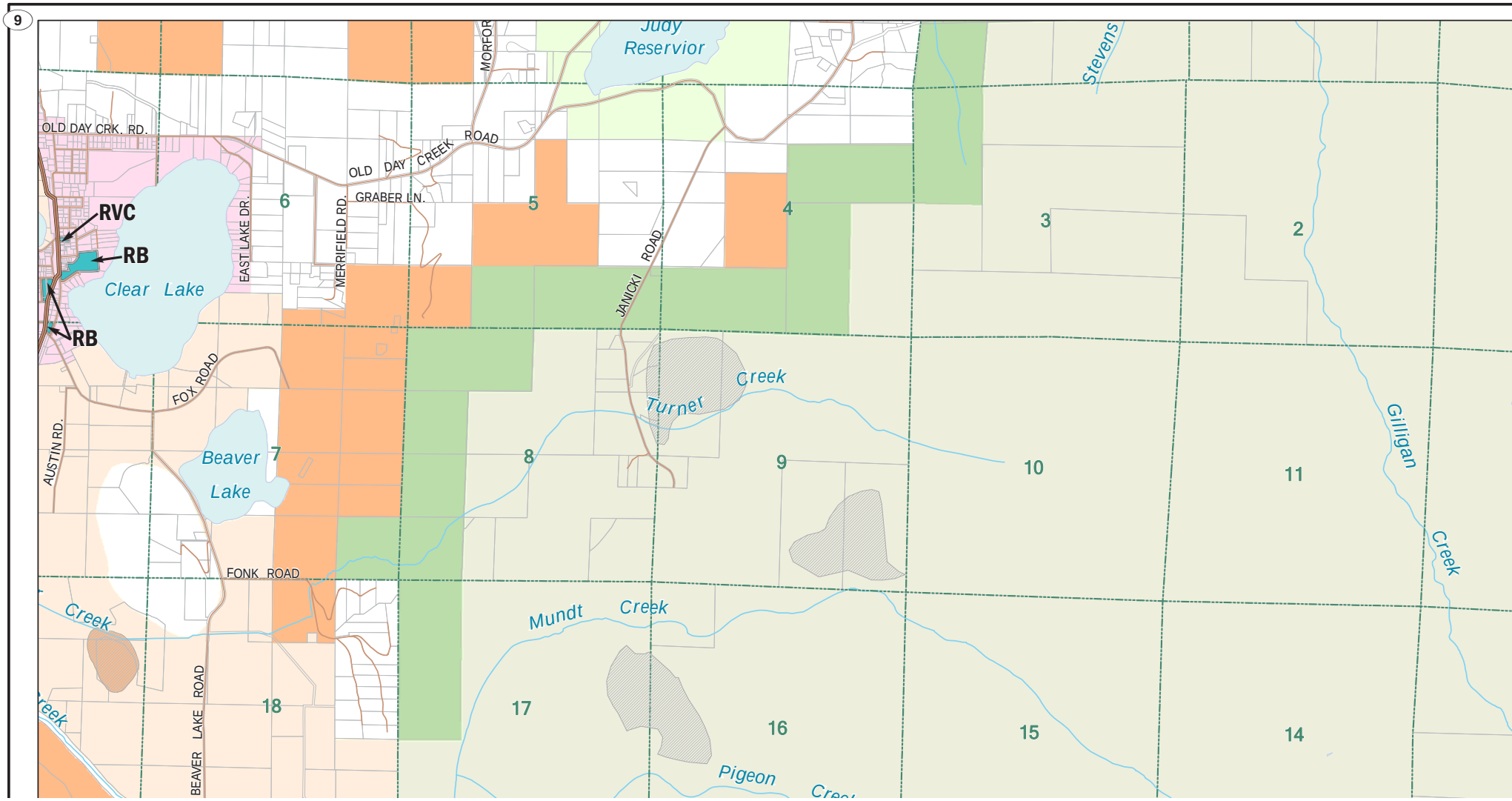
- [OSRSI] Public Open Space of Regional/Statewide Importance

MINERAL

- [MRO] Mineral Resource Overlay

OTHER

- Airport Environs Overlay


9
Judy
Reservior
Stevens
OLD DAY CRK. RD.
OLD DAY CREEK ROAD
GRABER LN.
MERRIFIELD RD.
JANICKI ROAD
EAST LAKE DR.
RVC
RB
Clear Lake
RB
FOX ROAD
AUSTIN RD.
Beaver
Lake
FONK ROAD
Turner Creek
Gilligan Creek
Mundt Creek
BEAVER LAKE ROAD
Pigeon
6
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