July 30, 2015

Mr. Karel Detterman, P.G.
Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502
San Francisco, CA 94102

Re: Final Enhanced Bioremediation Pilot Study Report and Full Scale Implementation Plan, 3093 Broadway, Oakland, CA
Site Cleanup Program Case No. Ro0000199

Dear Ms. Detterman,

Please find attached, for your review and comment, Final Enhanced Bioremediation Pilot Study Report and Full Scale Implementation Plan, for the Former Connell Oldsmobile site, located at 3093 Broadway in Oakland, California. The report has been prepared by Langan Treadwell Rollo.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

OWNER:

3093 BROADWAY HOLDINGS, L.L.C.

By: _____

Name: J David Martin

Title: Chairman, Investment Committee - CityView

ENHANCED BIOREMEDIATION PILOT STUDY REPORT AND FULL SCALE IMPLEMENTATION PLAN
3093 Broadway
Oakland, California
ACEH Case No.: RO0000199

Prepared For:

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30 July 2015
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ENHANCED BIOREMEDIATION PILOT STUDY REPORT
AND FULL SCALE IMPLEMENTATION PLAN
3093 Broadway
Oakland, California
ACEH Case No.: RO0000199

On behalf of 3093 Broadway Holdings, L.L.C. ("Broadway Holdings"), Langan Treadwell Rollo (Langan) has prepared this *Enhanced Bioremediation Pilot Study Report* ("Report") for the Former Connell Oldsmobile site ("site"), located at 3093 Broadway in Oakland, California (Figure 1). The site investigation and pilot test implementation activities have been performed in general accordance with the *Feasibility Study and Corrective Action Plan* (FS/CAP) dated May 2015 and the *Groundwater Sampling and Enhanced Bioremediation Pilot Study Work Plan* (Work Plan) in Appendix A of the FS/CAP. The objectives of the site investigation and pilot study were, respectively: 1) to obtain additional remediation design parameters and 2) to demonstrate the implementability of the proposed groundwater corrective action. This Report presents a brief background of the site, summarizes the methods and results of the field investigation and monitoring well installation activities, reports on the pilot study implementation, and presents the full-scale groundwater corrective action plan.

1.0 BACKGROUND

The approximately 3.4-acre site is bounded by Hawthorne Street to the north, Broadway to the east, Webster Street to the west, and a surface parking lot to the south. The site is currently occupied by a vacant, two-story concrete structure that was formerly a car dealership. Currently, the parking areas west and south of the site structure are used to store automobiles for other nearby dealerships. The site is located in a mixed-use area, near commercial, medical, and residential properties.

Three underground storage tanks (USTs) that previously contained gasoline, diesel, and waste oil were removed from beneath the Hawthorne Avenue sidewalk, north of the service bay in December 1989. Soil and groundwater investigations have been ongoing since 1990. The chemicals of concern in groundwater at the site include benzene, toluene, ethylbenzene, and xylenes (BTEX), 1,2-dichloroethane, and naphthalene.

On behalf of Broadway Holdings, Langan is implementing an enhanced bioremediation pilot study at the site and, pending receipt of public comment and final approval by the Alameda

County Department of Environmental Health (ACEH), plans to implement the Corrective Action Plan concurrent with development of a multi-story mixed-use building that will occupy nearly the entire property. We understand the existing buildings will be demolished, with the exception of a portion of the showroom in the northeast corner of the site. The ground floor will consist of parking and commercial space. The upper levels will include residential units. Site excavation for the development is planned to reduce existing grade by approximately 3 to 18 feet; the ground floor of the proposed development will be roughly level with Broadway.

The FS/CAP evaluated several remedial alternatives and recommended using enhanced bioremediation to address petroleum impacts in groundwater. The biological degradation of petroleum hydrocarbons in site groundwater is limited by the availability of electron acceptors, so bioremediation can be accelerated by introducing an electron acceptor (e.g., sulfate) into the subsurface. The groundwater corrective action consists of drilling remediation borings and backfilling the saturated interval with a combination of sand and calcium sulfate (gypsum) powder to add sulfate to the site groundwater.

1.1 Site Geology and Hydrogeology

The site elevation ranges from approximately 52 to 68 feet above mean sea level (a-msl). The site slopes downward to the southeast, from Webster Street to Broadway. The site is underlain by unconsolidated sediments ranging from silty clays to sandy gravels. Based on geotechnical drilling conducted by Langan at the site, unconsolidated sediments extend to at least 50 feet below ground surface. The site surficial geology is mapped as the Temescal Formation, which consists of quaternary age alluvial fan deposits comprised of interbedded layers of silt, sand, clay, and gravel (Radbrush, 1957). Alluvial fan deposits are characterized by laterally discontinuous and heterogeneous layers of irregular thickness.

Langan reviewed groundwater investigation reports for the site prepared between 1990 and 2015. The depth to water in the groundwater monitoring wells at the site have ranged from 15.19 to 33.65 feet below the tops of the well casings (corresponding to elevations of approximately 23.41 to 41.84 feet a-msl, based on the 2014 BKF Engineers site survey). Historical site data indicates an annual water level fluctuation on the order of one to four feet.

The predominant site-scale groundwater flow direction is to the east-southeast. Since the UST release, groundwater flow directions have reportedly ranged from southeast to east. Based on literature values for the observed soil types, the groundwater seepage velocity at the site is low

to very low, with estimated groundwater seepage velocities ranging from approximately 0.2 to 20 feet per year.

2.0 FIELD INVESTIGATION

Field investigation activities were performed from 11 through 21 May 2015 and include monitoring well installation, groundwater monitoring well sampling, and soil logging and sample collection. Selected soil samples in the smear zone and saturated zone that pertain to the groundwater corrective action are discussed in this report. A summary of soil investigation activities and results are provided in the *Soil Investigation Report* submitted to the ACEH under separate cover (Langan, 2015).

2.1 Permitting, Utility Clearance, and Surveying

Prior to installing the monitoring wells and remediation borings, a permit was obtained from the Alameda County Public Works Agency, Water Resources Section (ACPWA). The ACPWA permit is provided in Appendix A.

A private utility locator was subcontracted to confirm the presence/absence of subsurface utilities at the monitoring well and remediation boring installation locations. Underground Services Alert, a regional subsurface utility notification center, was notified of the work on 6 May 2015.

2.2 Monitoring Well Installation and Development

Monitoring wells MW-18, MW-19, and MW-19S were installed on 13 and 14 May 2015 in general accordance with the Work Plan to provide additional information for plume extent to support the full-scale dosage and design. The boreholes were advanced with a Geoprobe 7720 rig fitted with 8-inch diameter hollow stem augers. Prior to drilling, the borings were hand-augered to approximately 5 feet below ground surface (bgs) to clear for possible underground utility conflicts.

Borings at MW-18 and MW-19 were initially advanced using dual-wall direct push technology producing 2.25-inch boreholes to depths of 35 feet bgs. Soil samples were continuously collected into 1.125-inch diameter acetate liners in approximately four foot intervals. The soil cores were examined and logged by a Langan geologist and screened in the field using a photoionization detector (PID). Soil samples for potential laboratory chemical analysis were cut

from the liners, sealed with Teflon tape and capped, and stored on ice pending submittal under chain-of-custody protocol to a State of California-certified analytical laboratory.

Following soil sampling activities from MW-18 and MW-19, these boreholes were overdrilled by advancing 8-inch diameter hollow stem augers to facilitate installation of the monitoring wells. MW-18 was augered to a depth of 24 feet bgs, while MW-19 was augered to a depth of 27 feet bgs. Slow groundwater recharge was observed following completion of the borehole at MW-19, which resulted in uncertainty regarding depth to groundwater at equilibrium. Based on field observations, an additional shallower well (MW-19S) was installed adjacent to well MW-19 to a depth of 23 feet bgs.. Soil cores were not logged and soil samples were not collected at well MW-19S due to its proximity to well MW-19 (approximately six feet to the east).

Each monitoring well was constructed by placing a 2-inch diameter, Schedule 40 casing with 10 feet of slotted 0.020-inch well screen through the augers. An annular sand pack consisting of #2/16 Monterey Sand was installed through the augers to approximately one foot above the screened interval. The monitoring well screened intervals are provided in Table 1. A one-foot hydrated bentonite seal was placed above the sand and the remainder of the borehole was sealed with neat cement grout. Expanding, locking caps and flush-mounted traffic rated well boxes were installed over each casing. The drilling and well installation work was performed under the oversight of an ACPWA inspector.

The newly installed monitoring wells were developed by surging, bailing, and purging the well to remove accumulated fines from the casings and stabilize the sand packs on 18 May 2015. Wells MW-18 and MW-19 were developed by removing approximately 10 well volumes, while well MW-19S was developed by removing approximately 8 well volumes before the well dewatered.

The locations of the newly installed wells are presented in Figure 2. Copies of the boring logs are presented in Appendix B.

2.3 Groundwater Monitoring Well Sampling

Pre-remediation groundwater sampling was performed at 12 monitoring wells on 18, 21 and 22 May 2015. Representative wells in the upper groundwater plume (MW-1, MW-14), lower groundwater plume (MW-4, MW-6, RW-3A, RW-3B), cross-gradient (MW-3), within the showroom (MW-18, MW-19), and downgradient (MW-5, MW-7, MW-8) were selected to collect data characterizing groundwater conditions before initiating enhanced bioremediation of

dissolved petroleum compounds. Monitoring well MW-19S, installed as a contingency monitoring point should the screen of well MW-19 be submerged, was not sampled because MW-19 is screened across the water table. Figure 2 shows the locations of the monitoring wells.

Groundwater sampling was performed using U.S. EPA low-flow sampling procedures. Water quality parameters (including temperature, pH, specific electrical conductance, oxidation-reduction potential [ORP], and dissolved oxygen [DO]) were measured using a flow-through cell during low-flow pumping. The groundwater sampling and analysis schedule summarizing the monitoring wells sampled, sample parameters, and analytical methods, is presented in Table 1. The groundwater sampling results are discussed in Section 3.2.

2.4 Soil Sampling

The soil results within the smear zone and saturated zone are discussed in this report to evaluate contaminant mass in the treatment zones, which includes soil samples collected at:

- Remediation borings RB-2 and RB-6 in the service bay;
- Soil borings B-29 and B-30 in the service bay; and
- Monitoring wells MW-18 and MW-19 in the showroom.

The boring logs for these soil borings are provided in Appendix B. The sampling methods and observations are discussed below and the analytical results are discussed in Section 3.3.

At remediation borings RB-2 and RB-6, direct push borings were advanced to 40 feet bgs for soil logging and sampling prior to drilling with hollow stem augers. The pilot study borings were located within the area of highest impacts, south of the former UST tanks. Moderate to strong odors were detected in the borings with PID readings above 1,000 parts per million (ppm) within the 20 to 30 feet bgs depth range. At RB-2, staining was observed from 25 to 26 feet bgs. Field observations related to odor, PID readings, and soil staining are consistent with the remediation target depth interval (pilot study remediation boring biostimulation media was installed from 18 to 35 feet bgs). Soil samples were collected every two feet from 22 to 40 feet bgs and analyzed for volatile organic compounds (VOCs) and total petroleum hydrocarbons in the gas, diesel and motor oil ranges (TPHg, TPHd, and TPHmo) to evaluate the vertical extent of impacts within the saturated zone. These borings were sealed with bentonite prior to overdrilling with hollow stem augers for installation of the remediation borings.

At soil borings B-29 and B-30, located along the southwestern portion of the service bay, direct push borings were advanced to 28 feet bgs for soil logging and sampling. No odors, PID readings above background, or soil staining were observed. Soil samples were collected at borings B-29 (12.5, 17.5, and 28 feet bgs) and B-30 (2.5, 7.5, 12.5, 17.5 and 27 feet bgs).

At MW-18 and MW-19 within the showroom, direct push borings were advanced to 35 feet bgs for soil logging and sampling prior to well installation. At MW-18, elevated PID readings over 1,000 ppm were observed between approximately 21 to 24 feet bgs and were associated with very strong petroleum odors. Soil samples were collected from the MW-18 boring at 7.5, 12.5, 17.5, 21.5, 26.5, and 31.5 feet bgs. Moderate petroleum odors were observed at MW-19, but no PID readings were detected above background levels. At MW-19, soil samples were collected at 7.5, 12.5, 17.5, 22, and 27.5 feet bgs.

3.0 INVESTIGATION RESULTS AND DISCUSSION

Soil and groundwater sampling activities were performed in May 2015 to provide additional data to characterize the existing soil impacts and groundwater conditions prior to remediation and site development. The water levels, pre-remediation groundwater sampling data, and saturated and smear zone soil sample data were reviewed to further delineate and characterize petroleum impacts and to refine the full-scale groundwater corrective action design.

3.1 Water Levels

The depth to water at the monitoring wells sampled ranged from 14.56 feet bgs at RW-3A to 26.68 feet bgs at MW-5 (25.02 to 40.12 feet a-msl). Based on depth to water measurements for recently installed wells MW-18, MW-19, and MW-19S, groundwater elevations were calculated to be 37.04, 34.19, and 34.41 feet above MSL, respectively. These water level results are consistent with the groundwater flow direction interpretation presented in the Conceptual Site Model (Langan, 2014). Based on these results, we infer that the water table elevation drops relatively sharply east of well MW-18.

3.2 Groundwater Sampling Results and Observations

Groundwater samples were analyzed to establish the pre-remediation groundwater conditions and verify that the conditions are favorable for enhanced bioremediation. The field water quality parameters and the groundwater analytical results are summarized in Tables 2 to 5. The groundwater laboratory analytical packages are provided in Appendix C.

3.2.1 Field Parameters

The field water quality parameters are summarized in Table 2 according to position relative to the groundwater plume (within, cross-gradient and downgradient). Of these parameters, pH, DO, and ORP are of particular importance in understanding the groundwater conditions for remediation.

The pH within the plume was close to neutral, ranging from 6.42 to 7.13, which is favorable for bioremediation.

Reducing conditions are present within the groundwater plume, where the DO is low (0.34 to 0.67 milligrams per liter [mg/L]) and ORP is negative (-93.3 to -163.8 millivolts). Because the wells outside of the plume have higher DO concentrations and positive ORP, there is likely sufficient electron donor on the fringes of the plume but the electron acceptor demand (*e.g.*, oxygen) is depleted where higher levels of petroleum are present.

3.2.2 Petroleum Concentrations in Groundwater

Groundwater samples were analyzed for petroleum compounds, including BTEX, methyl tert-butyl ether, TPHg, TPHd, 1,2-dichloroethane and naphthalene. Groundwater analytical results for petroleum compounds are provided in Table 3 and shown on Figure 3. This discussion focuses primarily on TPHg and benzene, which are used as representative compounds to evaluate remediation progress.

Within the upper plume area, concentrations at MW-1 and MW-14 were lower than what was detected in the previous sampling event (November 2014). At MW-1, near the former UST source area, TPHg and benzene were detected at 31,000 and 2,300 micrograms per liter (µg/L), respectively. At MW-14, farther downgradient, TPHg and benzene were detected at 5,700 and 250 µg/L, respectively. Although the benzene concentration at MW-14 is less than 1,000 µg/L, MW-14 is still included in the 1,000 µg/L benzene plume extents (Figure 4) because it is surrounded by other impacted wells.

Within the lower plume area, concentrations at MW-4 and MW-6 are consistent with previous sampling results, with TPHg concentrations of 66,000 and 18,000 µg/L and benzene concentrations of 1,400 and 2,400 µg/L, respectively. RW-3A and RW-3B were sampled to evaluate the vertical distribution of groundwater impacts in the lower plume area. Although RW-3A had a benzene concentration of 1,100 µg/L, no benzene was detected at RW-3B. RW-3A is screened from 16 to 26 feet bgs and RW-3B is screened from 32 to 37 feet bgs,

which confirms the previous conceptual site model that the majority of the groundwater impacts in the lower plume area are above a depth of 30 feet bgs.

Monitoring wells MW-18 and MW-19 were installed to assess petroleum concentrations beneath the showroom. TPHg and benzene were detected at MW-18 at 3,200 and 240 µg/L, respectively, but TPHg and benzene were not detected at MW-19 further downgradient.

Benzene was not detected at monitoring wells MW-3, MW-5, MW-7, MW-8, and MW-19, located cross-gradient and downgradient to the groundwater plume. These results are consistent with our conceptual site model and suggest that the extent of the benzene in groundwater is limited to the site.

3.2.3 Sulfate and Sulfate Reducing Bacteria

Groundwater analytical results for sulfate and sulfate reducing bacteria are provided in Table 4. The sulfate concentrations at the wells sampled ranged from 0.33 to 200 mg/L. The lowest concentrations of sulfate corresponded with the wells with the highest levels of petroleum, with the concentrations at MW-1, MW-4, MW-6, and RW-3A ranging from 0.33 to 1.6 mg/L. The highest sulfate concentration (200 mg/L) was detected at cross-gradient well MW-3, outside of the contaminant plume. No sulfite was detected in the samples collected and sulfide was detected at low levels ranging from non-detect (less than) 0.05 to 2.4 mg/L.

Groundwater was analyzed for sulfate reducing bacteria at wells MW-1, MW-3, MW-6, MW-8, and MW-18. There is a strong sulfate reducing bacteria population at the wells within the plume, with 2.84×10^5 and 1.05×10^6 cells per milliliter (cells/mL) at MW-1 and MW-6, respectively. The sulfate reducing bacteria concentration is moderate, on the order of 10^4 cells/mL, at MW-18 and MW-8 at the fringes of the groundwater plume. The lowest concentration was observed at MW-3, with a cell count on the order of 10^3 cells/mL, which is expected due to the higher oxygen concentrations outside of the plume and aerobic bacteria outcompeting the sulfate reducing bacteria.

The presence of sulfate reducing bacteria and low sulfate concentrations within the planned treatment area indicate that sulfate reduction is occurring naturally, but biological activity may be limited by the lack of sulfate. These results support using sulfate addition to sustain biodegradation processes at the site.

3.2.4 Metals

Groundwater analytical results for dissolved metals are provided in Table 5. The purpose of metals analysis was to evaluate the potential for metal sulfides precipitation in the treatment area. Note that groundwater samples for metals analyses were field-filtered using 0.45-micron filters to remove sediment and turbidity.

Concentrations of metals within groundwater treatment area indicate that metal sulfides precipitation could be a significant sulfide removal process that mitigates concerns about hydrogen sulfide generation. Within the treatment area, at MW-1 and MW-6, the concentrations of iron, manganese and barium are elevated in groundwater. At MW-1 in the upper plume, concentrations of iron, manganese and barium were 33,000 µg/L, 11,000 µg/L, and 810 µg/L, respectively. At MW-6 in the lower plume, concentrations of iron, manganese and barium were 11,000 µg/L, 6,700 µg/L, and 280 µg/L, respectively. The remainder of the metals analyzed were present at lower concentrations and will be compared to future metals analysis results, if needed. In addition to the metals in groundwater, metals within the soil in the saturated and unsaturated zones will also react with the sulfide produced as a part of this remediation process.

The abundance of naturally-occurring metals at the site, combined with the neutral groundwater pH at the site (6.42 to 7.13), supports the conclusion metal sulfides precipitation is expected to be the dominant sulfide removal process onsite and hydrogen sulfide generation will be minimal.

3.2.5 Additional Water Quality Parameters

In addition to the parameters discussed above, electron acceptors/reduced electron acceptors, nutrients, and other water quality parameters were analyzed at wells MW-1, MW-3, MW-6, MW-8, and MW-18 to characterize site conditions and provide a baseline for comparison with future post-remediation groundwater sampling events.

The data indicates that electron acceptors are depleted within the treatment area where petroleum impacts are present. Nitrate was only detected in one sample collected at cross-gradient well MW-3. Iron and manganese have been reduced to their more soluble form, which is why those metals concentrations are higher within the plume. As discussed in Section 3.2.3, sulfate concentrations are low and depleted at the most highly impacted wells. Methane is produced by methanogenesis, which occurs under strongly reducing conditions after other electron acceptors have been depleted. The highest concentrations of dissolved methane

corresponded with the wells with the highest levels of petroleum, with concentrations at MW-1 and MW-6 ranging from 560 to 5,700 µg/L. The lowest concentrations of dissolved methane corresponded with cross-gradient and downgradient wells MW-3, MW-8 and MW-18, ranging from 0.52 to 190 µg/L.

The total nitrogen concentrations ranged from non-detect (less than 0.7 mg/L) to 5.2 mg/L. Total phosphorus concentrations ranged from 0.13 to 1.1 mg/L. The highest concentrations for total nitrogen and total phosphorus were found in MW-1 located near the former source area.

Total organic carbon concentrations represent organic matter in the groundwater that may exert sulfate demand and ranged from 3.1 mg/L at cross-gradient well MW-3 to 53 mg/L at source area well MW-1. Total dissolved solids concentrations ranged from 517 to 817 mg/L and alkalinity ranged from 239 to 711 mg/L as calcium carbonate.

The groundwater results are consistent with our conceptual site model and indicate that addition of sulfate to the groundwater will likely stimulate bioremediation of petroleum compounds.

3.3 Soil Sampling Results and Observations

The discussion in this section focuses on the TPHg and benzene concentrations in smear zone and saturated zone soil samples, which are the drivers for the groundwater corrective action design. The soil sample results from RB-2, RB-6, B-29, B-30, MW-18, and MW-19 are summarized in Table 6. A summary of soil investigation activities and results are provided in the *Soil Investigation Report* submitted to the ACEH under separate cover (Langan, 2015).

The highest soil concentrations were observed at remediation borings RB-2 and RB-6, near the former UST source area. At RB-2, TPHg ranging from 3,100 to 22,000 milligrams per kilogram (mg/kg) was detected from 22 to 30 feet bgs, which is indicative of residual NAPL. The highest benzene concentrations in RB-2 soil were 120 and 100 mg/kg, which were detected at 24 and 26 feet bgs, respectively. At RB-6, the highest TPHg concentrations ranged from 1,500 to 7,200 mg/kg, and were detected from 26 to 30 feet bgs. The highest benzene concentration in RB-6 soil was 14 mg/kg at 28 feet bgs.

At soil borings B-29 and B-30, no TPH or BTEX concentrations were detected in the samples collected, indicating that there are negligible impacts (if any) along the southwestern portion of the service bay.

Soil results from MW-18 and MW-19 within the showroom are consistent with the groundwater results, indicating that petroleum impacts are present at MW-18 but do not extend as far as MW-19. At MW-18, TPHg was detected at a maximum concentration of 620 mg/kg at 21.5 feet bgs and benzene was detected at 0.16 mg/kg at 17.5 feet bgs. No TPHg or benzene was detected in the soil samples collected at MW-19.

Overall, field observations and soil data support the selected target interval for the pilot study remediation borings and have informed the proposed design for full scale implementation, as discussed in the next section.

4.0 PILOT STUDY IMPLEMENTATION

The groundwater corrective action pilot study was performed on 18, 19 and 21 May 2015 and included placement of seven remediation borings (RB-1 through RB-7) located in a row near the former USTs within the service bay (Figure 4). The objective of the pilot study was to demonstrate the implementability of the proposed groundwater corrective action by establishing the boring installation workflow within the service bay, including concrete coring, drilling, and mixing and emplacement of biostimulation media consisting of a mixture of gypsum and sand.

4.1 Remediation Boring Drilling

Prior to drilling the remediation borings, the water level was gauged at nearby monitoring wells MW-1 and RW-5 and was at approximately 22 feet bgs. In accordance with the Work Plan in Appendix A of the FS/CAP, the borings were drilled to 35 feet bgs, equivalent to 27 feet a-msl. Several remediation boring locations were offset a few feet from the proposed locations in the Work Plan due to the presence of underground utilities (RB-3, RB-4, and RB-5) and limitations in overhead clearance (RB-1). Prior to drilling, the approximately 6-inch thick concrete slab was cored and each boring was cleared using a hand auger to 5 feet bgs. Drilling was performed by Cascade Drilling, a California-licensed driller, using a limited access CME auger rig and a Geoprobe 7720 rig to advance 8-inch hollow stem augers. Waste generated during drilling was placed in a roll-off bin to be chemically tested and disposed of properly.

4.2 Mixing and Emplacement

After each borehole was drilled, a depth to water measurement was collected within the borehole. However, the depth of emplacement of materials was selected based on depth to

water at adjacent monitoring wells MW-1 and RW-5, as the water levels in the individual boreholes did not stabilize prior to emplacement of materials.

The remediation borings were backfilled with biostimulation media consisting of a mixture of USG Food and Pharmaceutical Grade Terra Alba Gypsum (powder calcium sulfate dihydrate) and Cemex Lapis Lustre #3 Sand (Appendix D). Materials were delivered to the site in 50-pound bags. Batches of the mixture were mixed aboveground in a wheelbarrow, with each batch consisting of 100 pounds of sand and 75 pounds of Terra Alba gypsum. The mixture is based on bulk densities of 70 and 95 pounds per cubic feet of the gypsum powder and sand, respectively. A summary of the batching and mass of remediation materials used is shown in Table 7.

After the borings were drilled to 35 feet bgs, one four-foot auger section was removed from the borehole. The biostimulation media was poured into the borehole through the hollow-stem auger until the mixture was level with the bottom of the deepest remaining auger section. A 2-inch plugged tremie pipe was used to compact the mixture within the borehole. Once the mixture was approximately level with the bottom of the auger, the next auger section was removed and another batch of the mixture was poured into the borehole. This process continued until the biostimulation media was located at a depth approximately four feet above the anticipated groundwater table (Figure 5). Complications with biostimulation media emplacement were encountered in the southern remediation borings (RB-4 through RB-7), where the formation was relatively more permeable and water was entering the boreholes. Due to the powdered nature of the Terra Alba gypsum, the mixture becomes more cohesive and sticky when wet and tended to bridge and clog up the augers. As a result, the augers were completely removed from the borehole and backfilling was completed down the open borehole. Strategies for emplacement in boreholes with water present are discussed in Section 5.3.

A total of approximately 1,800 pounds of gypsum and 2,500 pounds of sand were emplaced into the seven pilot remediation borings. These quantities are consistent with the amount of sand and gypsum we calculated to fill seven 8-inch boreholes over a 17 feet depth interval. Due to concern that the biostimulation media may further compact or settle following installation of the grout seal, an additional two feet of biostimulation media was added and backfilled to 18 feet bgs. This was completed so that the remediation boring will intersect the highly impacted groundwater smear zone even if some settling occurs. Two feet of hydrated bentonite was placed above the biostimulation media, from 16 to 18 feet bgs, and the borehole was finished with neat cement grout.

The pilot remediation boring construction detail for RB-1 through RB-6 is shown on Figure 5. At RB-7, the augers needed to be removed after pouring in approximately half a batch of the mixture, but the borehole collapsed to 22 feet bgs after auger removal. Therefore, the biostimulation media emplaced at RB-7 was predominantly at the bottom of the borehole (around 35 feet bgs) and from 17 to 22 feet bgs within the groundwater smear zone.

4.3 Field Modifications

Several borehole locations were shifted due to the presence of electrical utilities underneath the slab and overhead clearance for the CME auger rig, which required vertical clearance for lifting the mast in between the steel girders in the service bay.

Furthermore, a field decision was made to increase the thickness of the biostimulation media backfill from 15 feet to 17 feet (from 18 to 35 feet bgs), due to the potential for settling and compaction of the media within the borehole. This was completed so that the biostimulation media would intersect the groundwater smear zone and water table, where the highest impacts are present, even if there is some settling after grouting the borehole.

5.0 FULL-SCALE GROUNDWATER CORRECTIVE ACTION PLAN

As presented in the FS/CAP, the groundwater corrective action consists of stimulating bioremediation by introducing sulfate into the groundwater because the biological degradation of petroleum hydrocarbons at the site is limited by the availability of electron acceptors. This section presents the corrective action design and procedures for implementation based on the sampling results and experience gained from the pilot test.

5.1 Treatment Area

This groundwater corrective action is designed to expedite restoration of shallow groundwater at the site. Areas of benzene concentrations greater than 1,000 µg/L are targeted for active treatment with the goal of reducing the source area hydrocarbon mass and allowing the remainder of the plume to naturally attenuate. Benzene concentrations greater than 1,000 µg/L are present in two areas: under the service bay (upper plume) and south of the showroom (lower plume), as shown by the approximate benzene isoconcentration contours shown on Figure 4. Rows of remediation borings are placed along the upgradient portions of these plumes and dissolved sulfate will flow downgradient with the natural groundwater gradient.

- The upper plume is approximately 8,000 square feet in extent and treatment is targeted to the top 15 feet of the shallow groundwater aquifer. The treatment depth will be from approximately 20 to 35 feet below the ground surface at the service bay, or approximately 27 to 42 feet MSL.

- The lower plume is approximately 7,000 square feet in extent and treatment is targeted to the top 10 feet of the shallow groundwater aquifer. The vertical treatment zone is thinner here due to lower contaminant mass in soil and farther distance from the former source area. The water levels in this area ranged from 14.56 feet bgs (39.44 feet MSL) at RW-3A to 17.95 feet bgs (37.72 feet MSL) at MW-4, to 22.66 feet bgs (28.99 feet MSL) at MW-6. Variation in groundwater elevations may be up to ten feet. Therefore, the depths of the remediation borings in the lower plume area will depend on the water level of the nearest monitoring well, and installation is expected to vary from depths of 13 to 23 feet bgs (31 to 41 feet MSL) to 21 to 31 feet bgs (21 to 31 feet MSL).

Installation and sampling of monitoring wells MW-18 and MW-19 under the showroom indicate that benzene concentrations are below 1,000 µg/L in that area. The groundwater treatment area was revised to exclude the showroom, because the concentrations of petroleum compounds at MW-18 (240 µg/L of benzene) and field parameters (4.51 mg/L of DO) suggest that the groundwater impacts in this area will naturally attenuate within a shorter timeframe.

5.2 Sulfate Emplacement Mass and Remediation Boring Locations

The contaminant mass and remediation dosage calculations were updated based on the revised treatment area and the analytical data that was collected. The dosage calculations were updated to account for gypsum powder filling a portion of the porosity of the sand, which slightly increases the amount of gypsum emplaced into the borehole. The bioremediation dosing calculations are provided in Appendix E.

Consistent with the FS/CAP, enough gypsum will be emplaced to meet 25% of the calculated sulfate demand. Based on the sulfate demand calculations, 12-inch diameter remediation borings are selected to be installed for the full-scale implementation in the upper plume area to satisfy the contaminant demand, especially near the former USTs, where most of the residual petroleum mass is located. As shown on Figure 4, 29 remediation borings will be installed in the upper groundwater plume in addition to the seven already installed during the pilot phase. Remediation borings are placed in a grid configuration near the former USTs to address the larger contaminant mass indicated by the RB-2 soil samples. In the lower groundwater plume, 13 remediation borings will be installed. The borings will be 12 inches in diameter and spaced approximately 5 to 10 feet on center. A typical detail of the proposed full-scale remediation borings is shown on Figure 6. Including the pilot borings, a total of 49 remediation borings are

planned as a part of the groundwater corrective action. Overall, including the pilot study borings, a total of approximately 20,000 pounds of gypsum is proposed to be emplaced as part of the enhanced bioremediation groundwater corrective action.

As requested by the structural engineer, the remediation boring locations have been aligned to the structural grid and placed to maximize the distance to the nearest column footing. Langan has reviewed the proposed full-scale remediation boring locations with the structural team to verify these locations are acceptable for structural purposes. Because remediation borings installed close to the perimeter of the building present potential structural concerns, pilot study boring RB-1 will be overdrilled and sealed with neat cement grout prior to site development. Replacement of the gypsum removed during removal of RB-1 has been included in the proposed full-scale remediation borings discussed above.

5.3 Emplacement Procedures

Langan's experience during the pilot test was that a larger drill rig was more efficient, therefore we propose to utilize a limited access CME auger rig when possible, and a Geoprobe rig only when needed due to overhead clearance limitations. The two remediation borings proposed within the showroom, upgradient of MW-6, will need to be installed with the smaller Geoprobe rig due to doorway clearance limitations.

The pilot study implementation demonstrated that the biostimulation media can be effectively emplaced into borings, however it is more challenging if there is water in the borehole. To determine whether there is water in the borehole, the moisture of the drill cuttings will be observed and the water level within the boring will be measured after the wooden plug is knocked out. For boreholes where only small amounts of water enter the borehole, the mixing and backfilling procedures used during the pilot test is sufficient. For locations that are relatively more permeable, the following strategies and contingency plans may be used to reduce the likelihood that the biostimulation media will get stuck in the augers:

- Use a pump to dewater the borehole prior to pouring the biostimulation media;
- Fill filter socks with the biostimulation media and drop them through the augers, using a pipe or hammer to compact the socks at the bottom of the borehole; and
- Mixing potable water with the biostimulation media and pouring the slurry into the borehole.

The use of larger diameter (12-inch) augers for the full-scale implementation may also reduce the potential for bridging of the biostimulation media as there is a larger opening for the material to fall through.

6.0 REPORTING

A completion report will be prepared following the completion of the site corrective actions documenting the activities and results. Related to the groundwater corrective action, the completion report will:

- Document the final full-scale remediation boring locations and construction details;
- Summarize the lithologic and groundwater level observations; and
- Summarize field observations.

The completion report will also document construction details and sampling data for downgradient monitoring wells MW-25 to MW-27 as proposed by the Work Plan.

7.0 ANTICIPATED SCHEDULE

Full scale implementation of the groundwater corrective action is tentatively scheduled for August and September 2015. Post-corrective action verification groundwater sampling will be completed on a quarterly basis starting in the first quarter of 2016. On-site sampling will be dependent on installation of the replacement monitoring wells following site development. Implementation of the Corrective Action Plan and verification sampling are scheduled to be complete by October 2017.

TABLES

Table 1
Groundwater Sampling and Analysis Schedule
3093 Broadway
Oakland, California

Sampling Location	Location	TOC Elevation	Casing Diameter	Screened Interval	Depth to Groundwater (May 2015)	Depth to Ground Water (May 2015)	Contaminants				Electron Acceptors/Reduced Electron Acceptors					Nutrients		Metals	Water Quality Parameters			Microbial
							BTEX/ MTBE	TPH-Gasoline and Diesel	1,2-DCA	Naphthalene	Nitrate/ Nitrite	Total Manganese	Total Iron/ Ferrous Iron	Sulfate/ Sulfite/ Sulfide	Dissolved Methane	Total Nitrogen	Total Phosphorus	CAM17 Metals	Total Organic Carbon (TOC)	Total Dissolved Solids (TDS)	Alkalinity	Sulfate Reducing Bacteria
Analytical Methods							**8260B**	**8015B**	**8260B**	**8260B**	**E300.1**	**E200.8**	**E200.8 SM 3500Fe**	**E300.1**	**RSK175**	**SM4500-N**	**SM4500-P**	**E200.8**	**E415.3**	**SM2540C**	**SM2320B**	**CENSUS APS**
		feet a-msl	inches	feet bgs	feet bgs	feet a-msl	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L $CaCO_3$	cells/mL
Pre-Construction Sampling - pre-remediation event (2015)																						
MW-1	In plume	60.57	2	19 to 35	21.14	39.43	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-3	Cross-gradient	56.87	2	20 to 35	18.98	37.89	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW-4	In plume	55.67	2	15 to 30	17.95	37.72	X	X	X	X				X								
MW-5	Downgradient	51.7	2	15 to 35	26.68	25.02	X	X	X	X				X								
MW-6	In plume	51.65	2	15 to 35	22.66	28.99	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-7	Downgradient	52.25	2	13.5 to 33.5	17.68	34.57	X	X	X	X				X								
MW-8	Downgradient	52.30	6	19.5 to 40	25.44	26.86	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
MW-14	In plume	61.5[a]	--	10 to 40	21.38	40.12	X	X	X	X				X								
MW-18	Cross-gradient	52.51	2	14 to 24	15.47	37.04	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-19	Cross-gradient	52.35	2	17 to 27	18.16	34.19	X	X	X	X				X								
MW-19S	Cross-gradient	52.38	2	13 to 23	17.97	34.41																
RW-3A	In plume	54[a]	4	16 to 26	14.56	39.44	X	X	X	X				X								
RW-3B	In plume	54[a]	4	32 to 37	23.83	30.17	X	X	X	X				X								

Notes:
[a] Estimated value based on topographic contour
a-msl = above mean sea level
bgs = below ground surface
BTEX/MTBE = benzene, toluene, ethylbenzene, xylenes, methyl tertiary butyl ether
cells/mL = cells per milliliter
1,2-DCA = 1,2-dichloroethane
mg/L = milligrams per liter
TPH = total petroleum hydrocarbons
µg/L = micrograms per liter
-- not applicable

Table 2
Groundwater Analytical Results – Field Parameters
3093 Broadway
Oakland, California

Monitoring Well ID	Date	Temperature (°C)	pH	Conductivity (µS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Observations
In Plume								
MW-1	05/18/15	18.5	7.13	1486	110	--	-119	
MW-14	05/22/15	19.7	6.65	973	226	0.34	-107.4	
MW-4	05/22/15	20.6	6.59	666	9	0.37	-131	Odor
MW-6	05/21/15	21.8	6.42	1041	17	0.35	-127.6	
RW-3A	05/22/15	20.2	6.56	1245	5	0.68	-93.3	Odor
RW-3B	05/22/15	21.1	6.98	596	11	0.43	-163.8	
Cross-gradient								
MW-3	05/21/15	20.8	6.13	817	152	2.48	169	
MW-18	05/21/15	20.6	6.61	1171	270	4.51	88.6	
MW-19	05/21/15	20.7	6.53	792	737	3.47	86	
Downgradient								
MW-5	05/22/15	19.6	6.51	823	127	0.6	78.7	
MW-7	05/22/15	20.3	6.56	6625	82	1.95	96.8	
MW-8	05/21/15	20	6.38	946	6	0.36	50.7	

Notes:
°C = degrees Celsius
DO = dissolved oxygen
mg/L = milligrams per liter
mV = millivolts
ORP = oxidation reduction potential
NTU = nephelometric turbidity units
µS = microsiemens

Table 3
Groundwater Analytical Results – Petroleum Compounds
3093 Broadway
Oakland, California

Well ID	Date Sampled[1]	TPHg	TPHd	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	1,2-DCA	Naphthalene	TBA
		µg/L									
AS-1B	05/22/14	**170**	--	**4.9**	4.0	< 2.5	6.5	< 2.5	< 2.5	< 2.5	460
MW-1	06/21/13	**51,000**	--	**2,300**	3,500	340	8,100	<120	--	--	--
MW-1	05/21/14	**60,000**	--	**4,300**	6,400	660	10,000	< 250	< 250	780	< 1,000
MW-1[a]	11/19/14	**68,000**	**9900**	**5,700**	4,100	680	13,000	< 250	-	--	--
MW-1	05/18/15	**31,000**	**10,000**	**2,300**	650	260	5,400	<50	<50	430	--
MW-2	05/22/14	< 50	--	< 0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
MW-3	05/22/14	< 50	--	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
MW-3[a]	11/19/14	< 50	52	0.63	< 0.50	< 0.50	1.0	< 5.0	--	--	--
MW-3	05/21/15	<50	**380**	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	--
MW-4	06/21/13	**110,000**	--	**4,400**	15,000	1,700	13,000	<1,200	--	--	--
MW-4	05/20/14	**72,000**	--	**1,900**	7,300	1,400	9,400	< 250	< 250	1,100	< 1,000
MW-4	05/22/15	**66,000**	**14,000**	**1,400**	5,300	1,200	7,100	<250	<250	780	--
MW-5	05/22/14	< 50	--	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 2.0
MW-5	05/22/15	<50	<50	<0.5	0.5	<0.5	1.4	<0.5	<0.5	<0.5	--
MW-6	06/21/13	**15,000**	--	**2,400**	300	370	680	<250	--	--	--
MW-6	05/20/14	**17,000**	--	**3,700**	530	830	840	< 50	< 50	200	490
MW-6[a]	11/19/14	**20,000**	**3,200**	**3,500**	400	900	970	< 250	--	--	--
MW-6	05/21/15	**18,000**	**4,100**	**2,400**	220	320	520	<100	<100	120	--
MW-7	05/20/14	< 50	--	< 0.50	< 0.50	< 0.50	0.64	< 0.50	< 0.50	< 0.50	< 2.0
MW-7	05/22/15	<50	<50	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	--
MW-8	05/21/14	70	--	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	9.7	< 2.5	310
MW-8	05/21/15	91	**130**	<0.5	<0.5	<0.5	<0.5	<0.5	10	<0.5	--
MW-9	05/20/14	< 50	--	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	100	< 2.5	640
MW-9[a]	11/19/14	**240**	83	**4.5**	2.2	< 0.5	6.2	< 5.0	--	--	--
MW-10	05/20/14	**88,000**	--	**5,600**	18,000	1,700	9,900	< 500	< 500	770	< 2,000
MW-13	05/22/14	< 50	--	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	6.2
MW-14	06/21/13	**36,000**	--	**1,100**	4,000	550	6,400	<250	--	--	--
MW-14	05/22/15	**5,700**	**1,500**	**250**	90	110	850	<5.0	<5.0	100	--
MW-15	06/21/13	**11,000**	--	**390**	710	120	2,200	<50	--	--	--
MW-15	05/21/14	**4,100**	--	**430**	19	220	250	< 17	< 17	--	< 67
MW-16A	05/21/14	**3,700**	--	**5.3**	3.7	7.4	31	< 2.5	< 2.5	11	27
MW-16B	06/21/13	**5,400**	--	**1,600**	350	56	170	<50	--	--	--
MW-16B	05/21/14	**15,000**	--	**11,000**	710	1,000	2,000	< 250	< 250	< 250	3,400
MW-17A	06/21/13	**20,000**	--	**1,300**	1,500	73	3,400	<250	--	--	--
MW-17A	05/21/14	**52,000**	--	**1,900**	3,500	970	10,000	< 50	< 50	830	< 200
MW-17B	05/21/14	< 50	--	< 0.50	< 0.50	< 0.50	1.1	< 0.50	< 0.50	< 0.50	< 2.0
MW-18	05/21/15	**3,200**	**2,000**	**240**	<5.0	42	26	<5.0	74	14	--
MW-19	05/22/15	<50	<50	<0.5	<0.5	<0.5	0.7	<5.0	1.9	<0.5	--
RW-2	05/20/14	**3,600**	--	**220**	330	140	780	< 10	< 10	38	49
RW-2	06/21/13	**4,000**	--	**180**	350	65	530	<50	--	-	--
RW-3A	05/22/15	**20,000**	**5,000**	**1,100**	190	170	2,700	<25	<25	260	--
RW-3B	05/22/15	**190**	**2,600**	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	--
RW-4	05/21/14	**11,000**	--	**200**	670	310	1,700	< 17	< 17	170	< 67
RW-5	05/21/14	**14,000**	--	**880**	440	520	2,200	< 50	< 50	250	< 200
Drinking Water ESLs[2]		100	100	1.0	150	300	1,800	5.0	0.5	6.1	12

Notes:
Bolded values exceed drinking water Environmental Screening Level (ESLs).
[1] Compilation of groundwater data collected for the site, June 2013 through May 2015.
[2] Drinking Water ESLs = Table F-3 - Summary of Drinking Water Screening Levels, as established by the San Francisco Regional Water Quality Control Board, December 2013.

< 50 - Analyte was not detected at or above the laboratory reporting limit (50 µg/L)

-- = Not analyzed

1,2-DCA = 1,2-dichloroethane

MTBE = methyl-t-butyl ether

TBA =t-butyl alcohol

TPHd = total petroleum hydrocarbons as diesel analyzed by EPA Method 8015B

TPHg = total petroleum hydrocarbons as gasoline analyzed by EPA Method 8015B unless otherwise indicated

All volative organic compounds were analyzed using EPA method 8260B

µg/L = micrograms per liter

[a] TPHg, benzene, toluene, ethylbenzene, xylenes, and MTBE analyzed using EPA Method 8021B/ 8015Bm

Table 4
Groundwater Analytical Results – Natural Attenuation Parameters
3093 Broadway
Oakland, California

Sample ID	Sample Date	Nitrate & Nitrite as N	Nitrate as N	Nitrate as $NO3^-$	TOC	Total Nitrogen	Total Dissolved Solids	Total Phosphorous as P	Sulfate	Sulfide	Sulfite	Bicarbonate	Total Iron	Ferrous Iron	Total Manganese	Methane	Sulfate Reducing Bacteria
		mg/L										mg $CaCO_3$/L	µg/L				cells/mL
MW-1	05/18/15	<0.2	<0.1	<0.45	53	5.2	728	1.1	0.33	0.094	< 10	711	33,000	27,000	11,000	5,700	284,000
MW-1	11/19/14	–	<0.1	<0.45	73	–	660	–	0.73	–	–	501	16,000	–	9,800	4,300	–
MW-3	05/21/15	1.1	1.1	5	3.1	1.4	476	0.25	200	0.067	< 10	239	5,700	<50	71	0.52	5,940
MW-3	11/19/14	–	1.3	5.6	3.0	–	535	–	140	–	–	220	3,000	–	59	0.37	–
MW-4	05/22/15	–	–	–	–	–	–	–	1	0.65	< 0.1	–	–	–	–	–	–
MW-5	05/22/15	–	–	–	–	–	–	–	100	<0.05	< 10	–	–	–	–	–	–
MW-6	05/21/15	<0.2	<0.1	<0.45	13	<0.7	817	0.54	1.6	1.1	< 0.1	510	11,000	10,000	6,700	560	1,050,000
MW-6	11/19/14	–	<0.1	<0.45	21	–	570	–	9.1	–	–	462	6,000	–	4,400	510	–
MW-7	05/22/15	–	–	–	–	–	–	–	80	<0.05	< 10	–	–	–	–	–	–
MW-8	05/21/15	<0.2	<0.1	<0.45	3.5	<0.7	517	0.13	27	<0.05	< 1.0	374	380	210	720	190	59,300
MW-9	11/19/14	–	<0.1	<0.45	6.0	–	497	–	110	–	–	234	1,300	–	580	47	–
MW-14	05/22/15	–	–	–	–	–	–	–	21	1.1	< 5.0	–	–	–	–	–	–
MW-18	05/21/15	<0.2	<0.1	<0.45	16	<0.7	694	0.14	140	0.14	< 10	500	11,000	520	1,100	2.5	30,300
MW-19	05/22/15	–	–	–	–	–	–	–	66	<0.05	< 10	–	–	–	–	–	–
RW-3A	05/22/15	–	–	–	–	–	–	–	0.59	0.14	< 0.1	–	–	–	–	–	–
RW-3B	05/22/15	–	–	–	–	–	–	–	69	2.4	< 10	–	–	–	–	–	–

Notes:
Additional information related to the November 2014 analytical results is provided in *Additional Investigation Results by Langan Treadwell Rollo, 2014.*
mg $CaCO_3$/L = miligrams per liter as Calcium Carbonate
mg/L = milligrams per liter
N = Nitrogen
TOC = Total Organic Carbon
µg/L = micrograms per liter
– = Not analyzed
< 50 - Analyte was not detected at or above the laboratory reporting limit (50 µg/L)
Bicarbonate by EPA method SM2320B
Ferrous Iron by EPA mehod SM3500-Fe B4c
Methane by EPA method RSK175
Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^-$, Sulfate & Sulfite by EPA method E300.1
Sulfide by EPA mehod SM4500 S-2 D
TOC and Total Nitrogen by EPA method E415.3
Total Dissolved Soilds by EPA method SM2540C
Total Iron and Maganese by EPA method E200.8
Total Phosphorous as P by EPA method E365.1

Table 5
Groundwater Analytical Results – Dissolved Metals
3093 Broadway
Oakland, California

Well ID	Date Sampled	Arsenic	Barium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Vanadium	All Other Metals[1]
		µg/L									
MW-1	05/18/15	76	810	<5.0	25	28	<5.0	7.9	<5.0	13	ND
MW-6	05/21/15	25	280	<0.5	<2.0	<0.5	0.65	1.5	0.91	1.4	ND
MW-18	05/21/15	4.0	33	2.9	<2.0	<0.5	1.1	16	<0.5	3.4	ND

Notes:

[1] See Table 5 for total and ferrous iron and total manganese.

Metals analyzed by EPA Method E200.8

ND = not detected at or above the laboratory reporting limit

µg/L = micrograms per liter

< 50 - Analyte was not detected at or above the laboratory reporting limit (50 µg/L)

Table 6
Select Soil Analytical Results
3093 Broadway
Oakland, California

Sample ID	Sample Date	Sample Depth	Sample Elevation	TPHd	TPHg	TPHmo	Benzene	Ethylbenzene	Toluene	Xylenes	MTBE	Naphthalene
		feet bgs	feet a-msl	mg/kg								
B-29-12.5	05/11/15	12.5	49.27	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	--	<0.01
B-29-17.5	05/11/15	17.5	44.27	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	--	<0.01
B-29-28	05/11/15	28	33.77	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	--	--
B-30-7.5	05/11/15	7.5	54.24	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	< 0.0087	<0.0087
B-30-12.5	05/11/15	12.5	49.24	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	--	<0.01
B-30-17.5	05/11/15	17.5	44.24	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	--	<0.01
B-30-27	05/11/15	27	34.74	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	--	--
MW-18-7.5	05/13/15	7.5	45.01	<1	<1	--	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
MW-18-12.5	05/13/15	12.5	40.01	<1	<1	--	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
MW-18-17.5	05/13/15	17.5	35.01	**2**	**13**	--	**0.16**	**0.11**	<0.010	**0.17**	<0.010	**0.16**
MW-18-21.5	05/13/15	21.5	31.05	**37**	**620**	--	<0.5	**2**	<0.5	**1.9**	< 0.5	**1.9**
MW-18-26.5	05/13/15	26.5	26.01	<1	<1	--	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
MW-18-31.5	05/13/15	31.5	21.01	<1	<1	--	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
MW-19-7.5	05/13/15	7.5	44.85	<1	<1	--	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
MW-19-12.5	05/13/15	12.5	39.85	<1	<1	--	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
MW-19-17.5	05/13/15	17.5	34.85	<1	<1	--	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
MW-19-22	05/13/15	22	30.35	<1	<1	--	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
MW-19-27.5	05/13/15	27.5	24.85	<1	<1	--	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
RB-2-22	05/15/15	22	39.78	**1,600**	**10,000**	**130**	<20	**160**	**250**	**940**	< 20	**55**
RB-2-24	05/15/15	24	37.78	**2,500**	**13,000**	**240**	**120**	**150**	**640**	**850**	< 50	**57**
RB-2-26	05/15/15	26	35.78	**7,700**	**22,000**	**560**	**100**	**140**	**640**	**770**	< 100	<100
RB-2-28	05/15/15	28	33.78	**630**	**5,100**	<50	**11**	**70**	**150**	**400**	< 10	**24**
RB-2-30	05/15/15	30	31.78	**160**	**3,100**	<50	<10	**28**	**74**	**160**	< 10	**11**
RB-2-32	05/15/15	32	29.78	**3.2**	**11**	<5	**0.24**	**0.051**	**0.06**	**0.37**	< 0.025	**0.085**
RB-2-34	05/15/15	34	27.78	**15**	**29**	<5	**0.1**	<0.1	<0.1	**0.48**	< 0.1	**0.26**
RB-2-36	05/15/15	36	25.78	**52**	**960**	<50	<2	**2.1**	<2	**14**	< 2	<2
RB-2-38	05/15/15	38	23.78	**1.7**	**16**	<5	**0.48**	**0.16**	**0.066**	**0.74**	< 0.025	**0.078**
RB-2-40	05/15/15	40	21.78	**2**	**7.7**	<5	**0.68**	**0.066**	**0.34**	**0.29**	< 0.05	<0.05
RB-6-22	05/15/15	22	39.71	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
RB-6-24	05/15/15	24	37.71	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
RB-6-26	05/15/15	26	35.71	**500**	**2,100**	<50	<5	<5	<5	**50**	< 5	**25**
RB-6-28	05/15/15	28	33.71	**1,200**	**7,200**	<25	**14**	**77**	**210**	**390**	< 10	**40**
RB-6-30	05/15/15	30	31.71	**480**	**1,500**	<50	<5	**13**	<5	**43**	< 5	**8.7**
RB-6-32	05/15/15	32	29.71	<1	<1	<5	**0.0055**	**0.009**	<0.005	<0.005	< 0.005	<0.005
RB-6-34	05/15/15	34	27.71	<1	1	<5	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
RB-6-36	05/15/15	36	25.71	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
RB-6-38	05/15/15	38	23.71	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005
RB-6-40	05/15/15	40	21.71	<1	<1	<5	<0.005	<0.005	<0.005	<0.005	< 0.005	<0.005

Notes:

Only select soil sample results collected within the smear zone and saturated zone are presented. Additional soil data and information related to the May 2015 soil sampling event are presented in the *Soil Characterization Technical Memorandum* (Langan, 2015).

Bolded values are detected values greater than the laboratory reporting limit.
bgs = below ground surface
a-msl = above mean seal level
BTEX - Benzene, toluene, ethylbenzene and xylenes by EPA Method 8260B
mg/kg - milligrams per kilogram
MTBE = Methyl tertiary butyl ether by EPA Method 8260
MW - Monitoring well
TPHg - Total Petroleum Hydrocarbons as Gasoline, EPA Method 8015M
TPHd - Total Petroleum Hydrocarbons as Diesel Range, EPA Method 8015M
TPHmo - Total Petroleum Hydrocarbons as Motor Oil, EPA Method 8015M
RB - Remediation boring
< 1.0 - Analyte was not detected above the laboratory reporting limit (1.0 mg/kg)
-- not analyzed

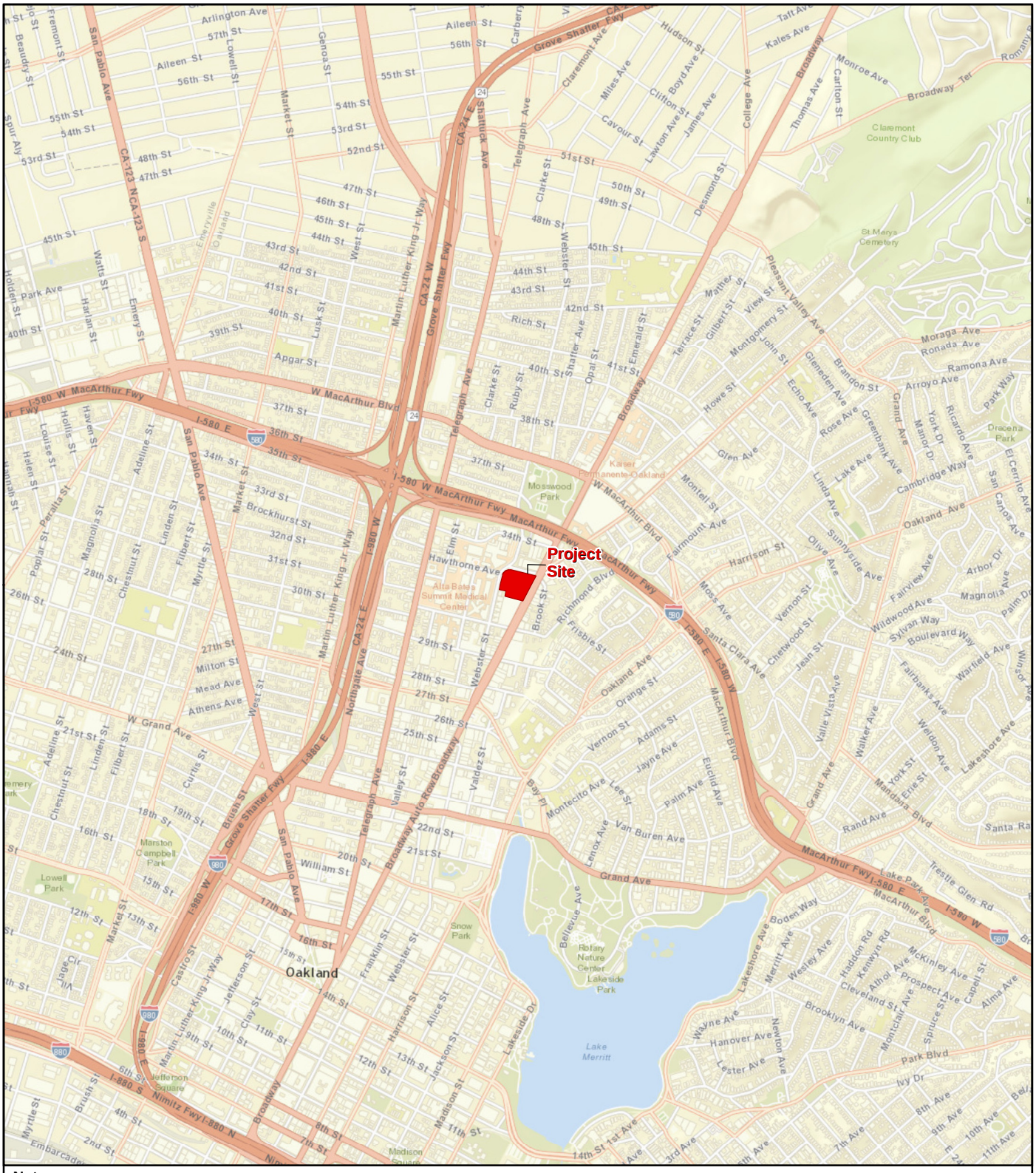
Table 7
Batching and Mass of Remediation Materials
Pilot Study Remediation Borings
3093 Broadway
Oakland, California

Materials Summary				
Boring ID	**Ground Elevation (feet a-msl)**	**Backfill Depth (feet bgs)**	**#3 Sand (lbs)**	**Terra Alba gypsum (lbs)**
RB-1	61.88	18 to 35	450	288
RB-2	61.78	18 to 35	400	300
RB-3	61.74	18 to 35	375	281
RB-4	61.75	18 to 35	425	319
RB-5	61.78	18 to 35	417	313
RB-6	61.71	18 to 35	275	206
RB-7	61.63	18 to 35	150	113
Total			**2,492**	**1,819**

Pilot Study Remediation Boring Backfill Log					
Date	**Time**	**Batch ID**	**#3 Sand (lbs)**	**Terra Alba gypsum (lbs)**	**Remediation Boring Backfilled**
05/18/15	1210	1	100	62.5	RB-1
05/18/15	1225	2	100	50	RB-1
05/18/15	1235	3	100	62.5	RB-1
05/18/15	1238	4	100	75	RB-1
05/18/15	1245	5	100	75	RB-1, RB-2
05/18/15	1450	6	100	75	RB-2
05/18/15	1503	7	100	75	RB-2
05/18/15	1513	8	100	75	RB-2
05/18/15	1525	9	100	75	RB-2, RB-3
05/19/15	915	10	100	75	RB-3
05/19/15	930	11	100	75	RB-3
05/19/15	940	12	100	75	RB-3
05/19/15	1010	13	100	75	RB-3, RB-4
05/19/15	1110	14	100	75	RB-4
05/19/15	1133	15	100	75	RB-4
05/19/15	1155	16	100	75	RB-4
05/19/15	1204	17	100	75	RB-4, RB-5
05/19/15	1345	18	100	75	RB-5
05/19/15	1405	19	100	75	RB-5
05/19/15	1428	20	100	75	RB-5
05/19/15	1437	21	67	50	RB-5
05/21/15	910	22	100	75	RB-6
05/21/15	1015	23	100	75	RB-6
05/21/15	1050	24	100	75	RB-6, RB-7
05/21/15	1530	25	100	75	RB-7
05/21/15	1550	26	25	19	RB-7

Notes:
bgs = below ground surface
lbs = pounds

FIGURES



Notes:

1. World street basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online. Credits: Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN.
2. Map displayed in California State Plane Coordinate System, Zone III, North American Datum of 1983 (NAD83), US Survey Feet.

0 1,000 2,000 4,000

Feet

N

3093 BROADWAY
Oakland, California

SITE LOCATION MAP

LANGAN TREADWELL ROLLO

Date 3/4/2015	Project 7316317001	Figure 1

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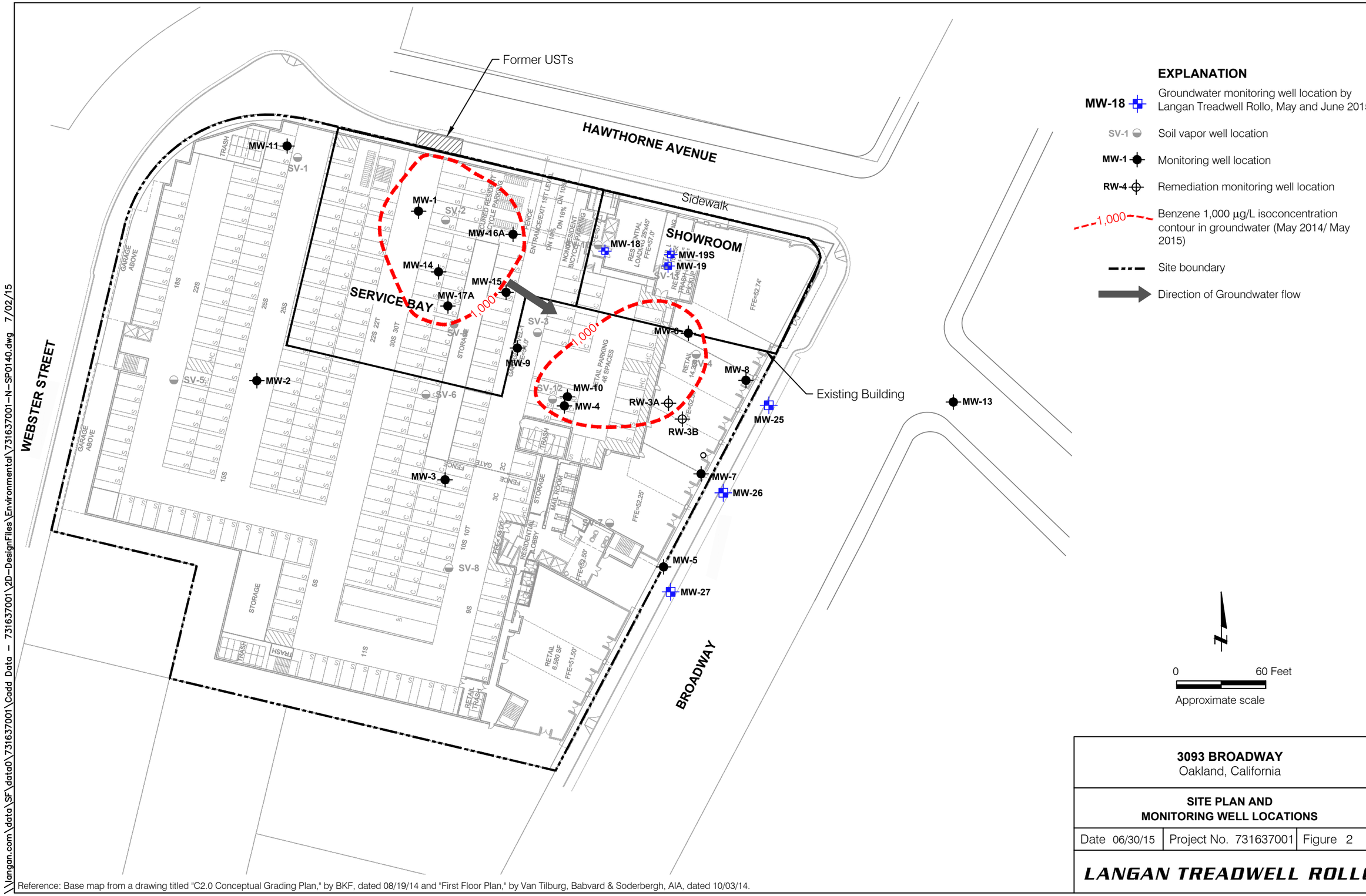

Reference: Base map from a drawing titled "C2.0 Conceptual Grading Plan," by BKF, dated 08/19/14 and "First Floor Plan," by Van Tilburg, Babvard & Soderbergh, AIA, dated 10/03/14.

3093 BROADWAY
Oakland, California

SITE PLAN AND MONITORING WELL LOCATIONS

Date 06/30/15	Project No. 731637001	Figure 2

LANGAN TREADWELL ROLLO

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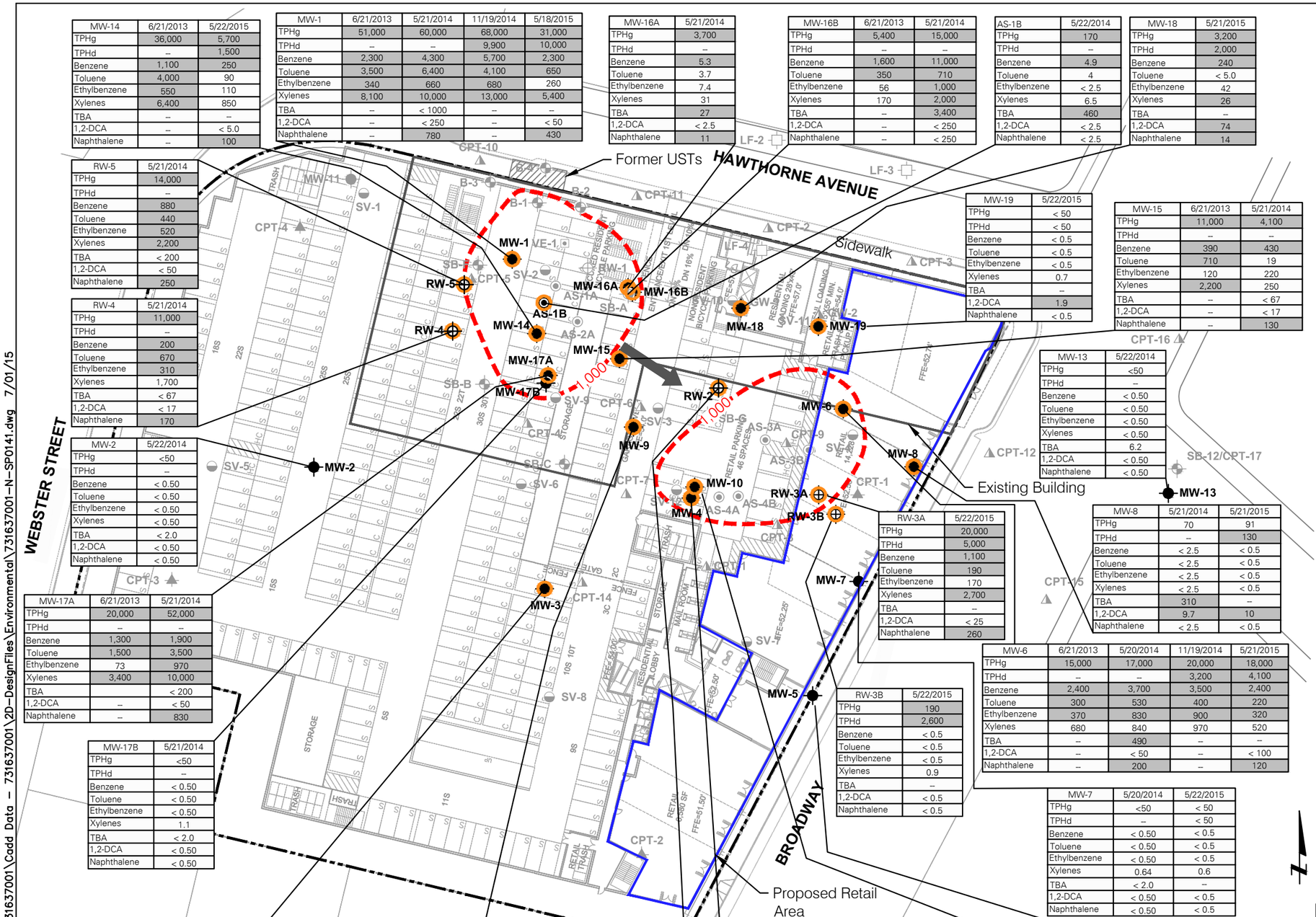

MW-14	6/21/2013	5/22/2015
TPHg	36,000	5,700
TPHd	–	1,500
Benzene	1,100	250
Toluene	4,000	90
Ethylbenzene	550	110
Xylenes	6,400	850
TBA	–	–
1,2-DCA	–	< 5.0
Naphthalene	–	100

MW-1	6/21/2013	5/21/2014	11/19/2014	5/18/2015
TPHg	51,000	60,000	68,000	31,000
TPHd	–	–	9,900	10,000
Benzene	2,300	4,300	5,700	2,300
Toluene	3,500	6,400	4,100	650
Ethylbenzene	340	660	680	260
Xylenes	8,100	10,000	13,000	5,400
TBA	–	< 1000	–	–
1,2-DCA	–	< 250	–	< 50
Naphthalene	–	780	–	430

MW-16A	5/21/2014
TPHg	3,700
TPHd	–
Benzene	5.3
Toluene	3.7
Ethylbenzene	7.4
Xylenes	31
TBA	27
1,2-DCA	< 2.5
Naphthalene	11

MW-16B	6/21/2013	5/21/2014
TPHg	5,400	15,000
TPHd	–	–
Benzene	1,600	11,000
Toluene	350	710
Ethylbenzene	56	1,000
Xylenes	170	2,000
TBA	–	3,400
1,2-DCA	–	< 250
Naphthalene	–	< 250

AS-1B	5/22/2014
TPHg	170
TPHd	–
Benzene	4.9
Toluene	4
Ethylbenzene	< 2.5
Xylenes	6.5
TBA	460
1,2-DCA	< 2.5
Naphthalene	< 2.5

MW-18	5/21/2015
TPHg	3,200
TPHd	2,000
Benzene	240
Toluene	< 5.0
Ethylbenzene	42
Xylenes	26
TBA	–
1,2-DCA	74
Naphthalene	14

RW-5	5/21/2014
TPHg	14,000
TPHd	–
Benzene	880
Toluene	440
Ethylbenzene	520
Xylenes	2,200
TBA	< 200
1,2-DCA	< 50
Naphthalene	250

MW-19	5/22/2015
TPHg	< 50
TPHd	< 50
Benzene	< 0.5
Toluene	< 0.5
Ethylbenzene	< 0.5
Xylenes	0.7
TBA	–
1,2-DCA	1.9
Naphthalene	< 0.5

MW-15	6/21/2013	5/21/2014
TPHg	11,000	4,100
TPHd	–	–
Benzene	390	430
Toluene	710	19
Ethylbenzene	120	220
Xylenes	2,200	250
TBA	–	< 67
1,2-DCA	–	< 17
Naphthalene	–	130

RW-4	5/21/2014
TPHg	11,000
TPHd	–
Benzene	200
Toluene	670
Ethylbenzene	310
Xylenes	1,700
TBA	< 67
1,2-DCA	< 17
Naphthalene	170

MW-13	5/22/2014
TPHg	<50
TPHd	–
Benzene	< 0.50
Toluene	< 0.50
Ethylbenzene	< 0.50
Xylenes	< 0.50
TBA	6.2
1,2-DCA	< 0.50
Naphthalene	< 0.50

MW-2	5/22/2014
TPHg	<50
TPHd	–
Benzene	< 0.50
Toluene	< 0.50
Ethylbenzene	< 0.50
Xylenes	< 0.50
TBA	< 2.0
1,2-DCA	< 0.50
Naphthalene	< 0.50

RW-3A	5/22/2015
TPHg	20,000
TPHd	5,000
Benzene	1,100
Toluene	190
Ethylbenzene	170
Xylenes	2,700
TBA	–
1,2-DCA	< 25
Naphthalene	260

MW-8	5/21/2014	5/21/2015
TPHg	70	91
TPHd	–	130
Benzene	< 2.5	< 0.5
Toluene	< 2.5	< 0.5
Ethylbenzene	< 2.5	< 0.5
Xylenes	< 2.5	< 0.5
TBA	310	–
1,2-DCA	9.7	10
Naphthalene	< 2.5	< 0.5

MW-17A	6/21/2013	5/21/2014
TPHg	20,000	52,000
TPHd	–	–
Benzene	1,300	1,900
Toluene	1,500	3,500
Ethylbenzene	73	970
Xylenes	3,400	10,000
TBA		< 200
1,2-DCA	–	< 50
Naphthalene	–	830

RW-3B	5/22/2015
TPHg	190
TPHd	2,600
Benzene	< 0.5
Toluene	< 0.5
Ethylbenzene	< 0.5
Xylenes	0.9
TBA	–
1,2-DCA	< 0.5
Naphthalene	< 0.5

MW-6	6/21/2013	5/20/2014	11/19/2014	5/21/2015
TPHg	15,000	17,000	20,000	18,000
TPHd	–	–	3,200	4,100
Benzene	2,400	3,700	3,500	2,400
Toluene	300	530	400	220
Ethylbenzene	370	830	900	320
Xylenes	680	840	970	520
TBA	–	490	–	–
1,2-DCA	–	< 50	–	< 100
Naphthalene	–	200	–	120

MW-7	5/20/2014	5/22/2015
TPHg	<50	< 50
TPHd	–	< 50
Benzene	< 0.50	< 0.5
Toluene	< 0.50	< 0.5
Ethylbenzene	< 0.50	< 0.5
Xylenes	0.64	0.6
TBA	< 2.0	–
1,2-DCA	< 0.50	< 0.5
Naphthalene	< 0.50	< 0.5

MW-17B	5/21/2014
TPHg	<50
TPHd	–
Benzene	< 0.50
Toluene	< 0.50
Ethylbenzene	< 0.50
Xylenes	1.1
TBA	< 2.0
1,2-DCA	< 0.50
Naphthalene	< 0.50

MW-3	5/22/2014	11/19/2014	5/21/2015
TPHg	<50	<50	<50
TPHd	–	52	380
Benzene	< 0.50	0.63	< 0.50
Toluene	< 0.50	< 0.50	< 0.50
Ethylbenzene	< 0.50	< 0.50	< 0.50
Xylenes	< 0.50	1	< 0.50
TBA	< 2.0	–	–
1,2-DCA	< 0.50	–	< 0.50
Naphthalene	< 0.50	–	< 0.50

MW-9	5/20/2014	11/19/2014
TPHg	<50	240
TPHd	–	83
Benzene	< 2.5	4.5
Toluene	< 2.5	2.2
Ethylbenzene	< 2.5	< 0.5
Xylenes	< 2.5	6.2
TBA	640	–
1,2-DCA	100	–
Naphthalene	< 2.5	–

RW-2	6/21/2013	5/20/2014
TPHg	4,000	3,600
TPHd	–	–
Benzene	180	220
Toluene	350	330
Ethylbenzene	65	140
Xylenes	530	780
TBA	–	49
1,2-DCA	–	< 10
Naphthalene	–	38

MW-4	6/21/2013	5/20/2014	5/22/2015
TPHg	110,000	72,000	66,000
TPHd	–	–	14,000
Benzene	4,400	1,900	1,400
Toluene	15,000	7,300	5,300
Ethylbenzene	1,700	1,400	1,200
Xylenes	13,000	9,400	7,100
TBA	–	< 1000	–
1,2-DCA	–	< 250	< 250
Naphthalene	–	1,100	780

MW-10	5/20/2014
TPHg	88,000
TPHd	–
Benzene	5,600
Toluene	18,000
Ethylbenzene	1,700
Xylenes	9,900
TBA	< 2000
1,2-DCA	< 500
Naphthalene	770

MW-5	5/22/2014	5/22/2015
TPHg	<50	< 50
TPHd	–	< 50
Benzene	< 0.50	< 0.5
Toluene	< 0.50	0.5
Ethylbenzene	< 0.50	< 0.5
Xylenes	< 0.50	1.4
TBA	< 2.0	–
1,2-DCA	< 0.50	< 0.5
Naphthalene	< 0.50	< 0.5

EXPLANATION

- SV-1 — Soil sample location
- MW-1 — Monitoring well location
- RW-4 — Remediation monitoring well location
- AS-1B — Air sparge well location
- VE-1 — Vapor extraction well location
- SB-A — Soil boring
- CPT-6 — Penetration test boring - 1992
- CPT-4 — Penetration test boring - 2014
- LF-2 — Abandoned monitoring well location
- 1,000 — Benzene 1,000 µg/L isoconcentration contour in groundwater (May 2014/ May 2015)
- Sample concentration exceeds drinking water ESL
- Site boundary
- Direction of groundwater flow

Notes:

1. All concentrations in micrograms per liter (µg/L).
2. Shaded values exceed drinking water ESLs.
3. 1,2-DCA = 1,2- Dichloroethane.
4. ESLs = environmental screening levels.
5. - - = Not analyzed.
6. TBA = t-Butyl alcohol.
7. TPHg = Total petroleum hydrocarbons as gasoline.
8. TPHd = Total petroleum hydrocarbons as diesel.
9. The drinking water ESLs are as follows: TPHg = 100, TPHd = 100, benzene = 1.0, toluene = 150, ethylbenzene = 300, xylenes = 1800, TBA = 12, 1,2-DCA = 0.5 and naphthalene = 6.1.
10. Drinking water ESLs provided by Table F-3 - Summary of Drinking Water Screening Levels, as established by the San Francisco Regional Water Quality Control Board, December 2013.
11. Groundwater data collected June 2013 through May 2015.

0 60 Feet

Approximate scale

3093 BROADWAY
Oakland, California

GROUNDWATER ANALYTICAL RESULTS

Date 06/22/15 | Project No. 731637001 | Figure 3

LANGAN TREADWELL ROLLO

Reference: Base map from a drawing titled "C2.0 Conceptual Grading Plan," by BKF, dated 08/19/14 and "First Floor Plan," by Van Tilburg, Babvard & Soderbergh, AIA, dated 10/03/14.

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EXPLANATION

- Proposed remediation boring location (12-inch diameter, gypsum - sand mixture)
- RB-1 — Pilot study remediation boring location installed, May 2015
- MW-18 — Groundwater monitoring well location by Langan Treadwell Rollo, May and June 2015
- MW-1 — Monitoring well location
- RW-4 — Remediation monitoring well location
- Site boundary
- Historical direction of groundwater flow
- To be removed
- Future column footing location
- 1,000 — Benzene 1,000 µg/L isoconcentration contour in groundwater (May 2014/ May 2015)

N

0 60 Feet

Approximate scale

Reference: Base map from a drawing titled "C2.0 Conceptual Grading Plan," by BKF, dated 08/19/14 and an electronic file titled "BKF-SC-20-24_033115-State Plane.dwg," by BKF, received 05/11/15.

3093 BROADWAY
Oakland, California

PILOT STUDY AND PROPOSED FULL-SCALE REMEDIATION BORING LOCATIONS

Date 06/10/15	Project No. 731637001	Figure 4

LANGAN TREADWELL ROLLO

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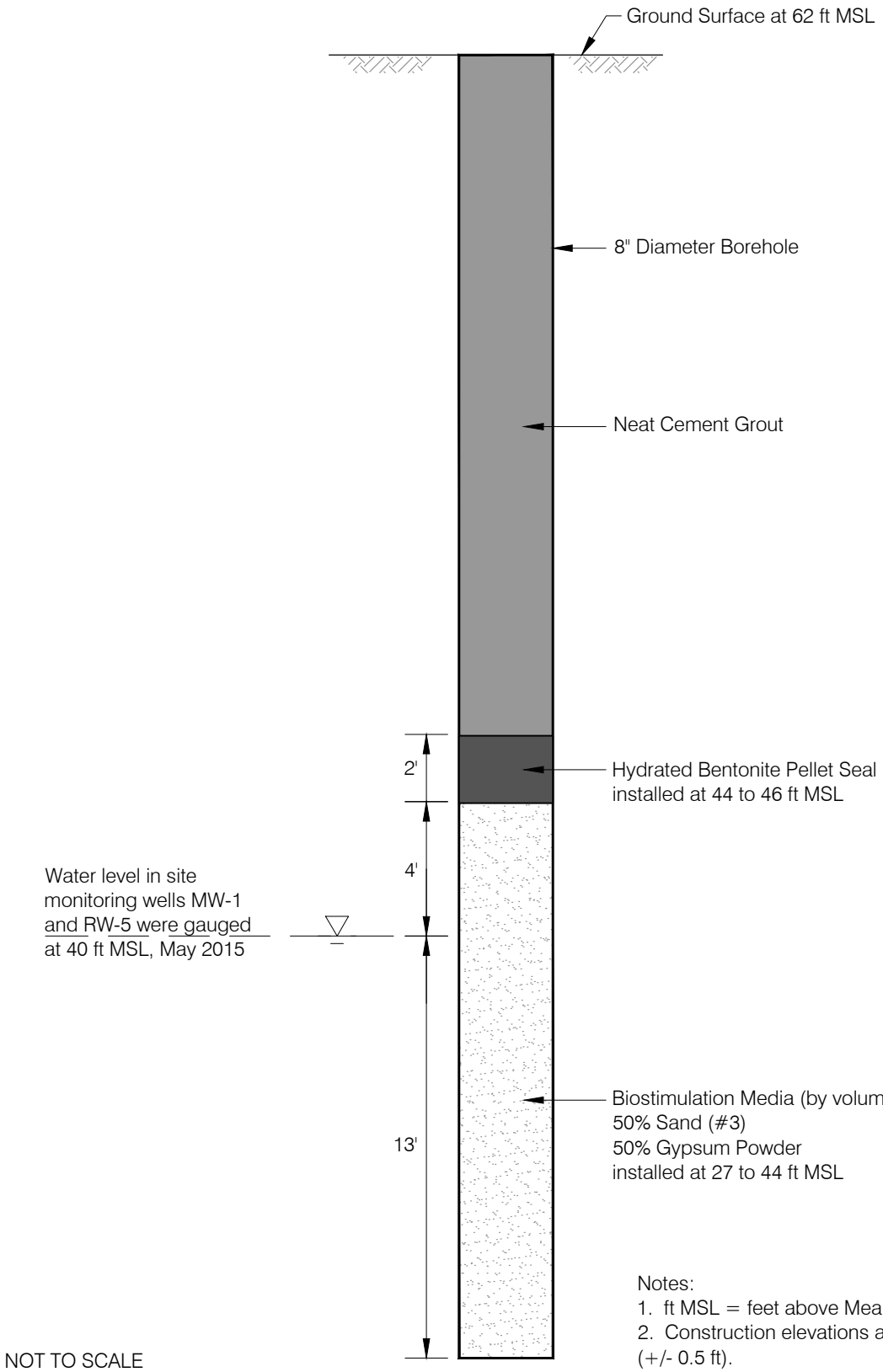


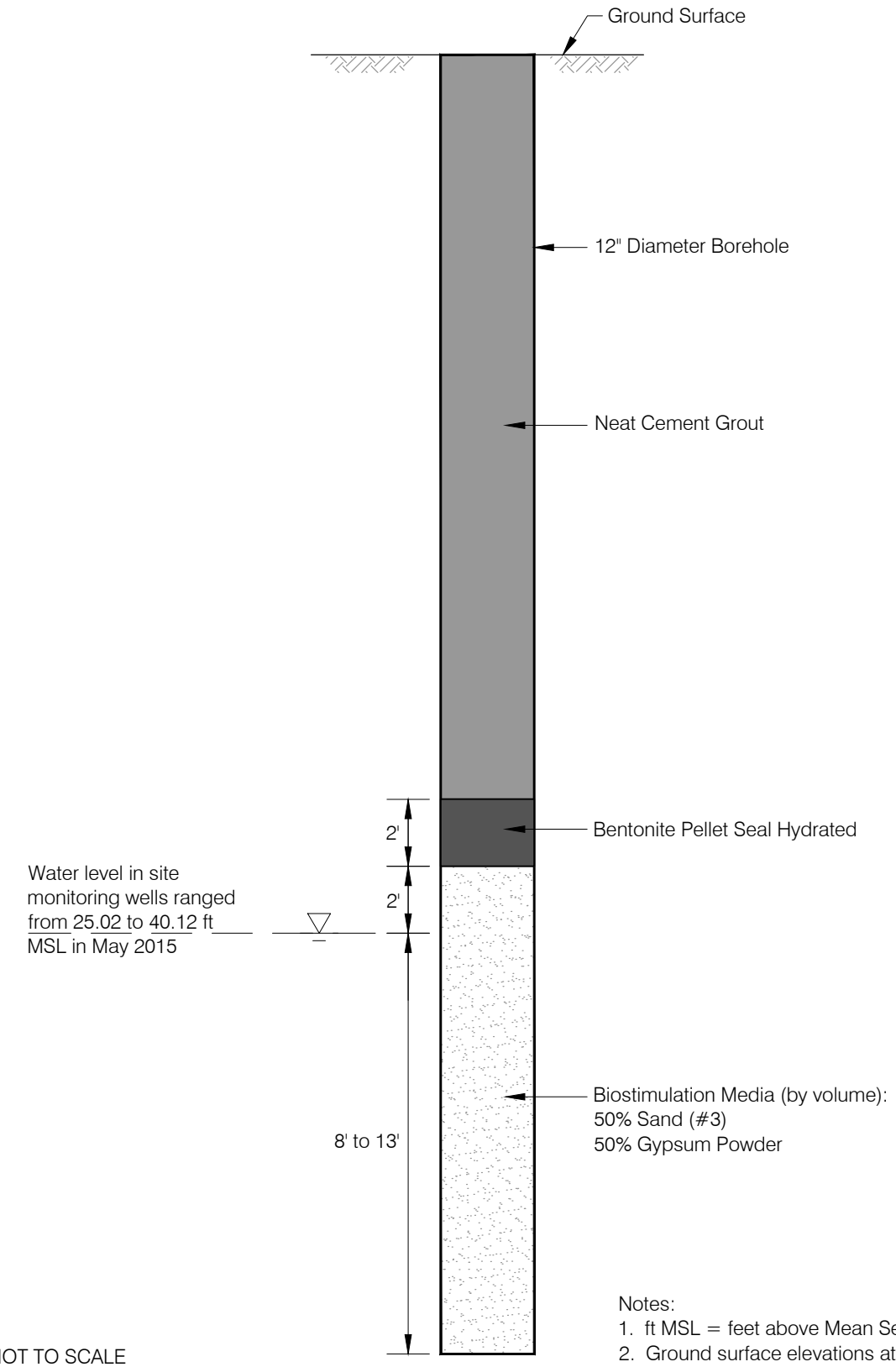
Notes:
1. ft MSL = feet above Mean Sea Level.
2. Construction elevations are approximate (+/- 0.5 ft).

3093 BROADWAY
Oakland, California

PILOT STUDY REMEDIATION BORING CONSTRUCTION DETAIL

LANGAN TREADWELL ROLLO

Date 06/10/15 | Project No. 731637001 | Figure 5



Notes:
1. ft MSL = feet above Mean Sea Level.
2. Ground surface elevations at the site range from 52 to 66 ft MSL.

3093 BROADWAY
Oakland, California

PROPOSED FULL-SCALE REMEDIATION BORING CONSTRUCTION DETAIL

LANGAN TREADWELL ROLLO

Date 06/10/15 | Project No. 731637001 | Figure 6

APPENDIX A
PERMITS

Alameda County Public Works Agency - Water Resources Well Permit

Public Works Agency
Alameda County

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 05/08/2015 By jamesy

Permit Numbers: W2015-0389 to W2015-0392
Permits Valid from 05/11/2015 to 06/03/2015

Application Id: 1430776246973 **City of Project Site:** Oakland
Site Location: 3093 Broadway, Oakland, CA 94611
Project Start Date: 05/11/2015 **Completion Date:** 06/03/2015
Assigned Inspector: Contact Sam Brathwaite at (925) 570-7609 or sbrathwaite@groundzonees.com

Applicant: Langan Treadwell Rollo - Elizabeth Kimbrel **Phone:** 510-874-7018
501 14th St, 3rd Flr., Oakland, CA 94612
Property Owner: 3093 Broadway Holdings LLC - Stephen Siri **Phone:** 415-262-5156
555 California St, 10th Flr., San Francisco, CA 94014
Client: ** same as Property Owner **

Total Due: $1324.00
Receipt Number: WR2015-0230 **Total Amount Paid:** $1324.00
Payer Name : Langan Treadwell Rollo Paid By: CHECK **PAID IN FULL**

Works Requesting Permits:

Well Construction-Monitoring-Monitoring - 2 Wells
Driller: Cascade - Lic #: 938110 - Method: other **Work Total: $794.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2015-0389	05/08/2015	08/09/2015	MW18	8.00 in.	2.00 in.	19.00 ft	40.00 ft
W2015-0390	05/08/2015	08/09/2015	MW19	8.00 in.	2.00 in.	19.00 ft	40.00 ft

Specific Work Permit Conditions

1. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

2. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

3. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

4. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well construction or destruction (Sections 13750 through 13755

(Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Include permit number and site map.

5. Applicant shall submit the copies of the approved encroachment permit to this office within 10 days.

6. Applicant shall contact assigned inspector listed on the top of the permit at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

7. Wells shall have a Christy box or similar structure with a locking cap or cover. Well(s) shall be kept locked at all times. Well(s) that become damaged by traffic or construction shall be repaired in a timely manner or destroyed immediately (through permit process). No well(s) shall be left in a manner to act as a conduit at any time.

8. Minimum surface seal thickness is two inches of cement grout placed by tremie.

9. Minimum seal (Neat Cement seal) depth for monitoring wells is 5 feet below ground surface(BGS) or the maximum depth practicable or 20 feet.

10. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

Remediation Well Construction-Injection - 7 Wells
Driller: Cascade - Lic #: 938110 - Method: other **Work Total: $265.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2015-0391	05/08/2015	08/09/2015	RB1	8.00 in.	0.00 in.	25.00 ft	40.00 ft
W2015-0391	05/08/2015	08/09/2015	RB2	8.00 in.	0.00 in.	25.00 ft	40.00 ft
W2015-0391	05/08/2015	08/09/2015	RB3	8.00 in.	0.00 in.	25.00 ft	40.00 ft
W2015-0391	05/08/2015	08/09/2015	RB4	8.00 in.	0.00 in.	25.00 ft	40.00 ft
W2015-0391	05/08/2015	08/09/2015	RB5	8.00 in.	0.00 in.	25.00 ft	40.00 ft
W2015-0391	05/08/2015	08/09/2015	RB6	8.00 in.	0.00 in.	25.00 ft	40.00 ft
W2015-0391	05/08/2015	08/09/2015	RB7	8.00 in.	0.00 in.	25.00 ft	40.00 ft

Specific Work Permit Conditions

1. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

2. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or

waterways or be allowed to move off the property where work is being completed.

3. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well construction or destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Include permit number and site map.

4. Applicant shall submit the copies of the approved encroachment permit to this office within 10 days.

5. Applicant shall contact assigned inspector listed on the top of the permit at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

6. Wells shall have a Christy box or similar structure with a locking cap or cover. Well(s) shall be kept locked at all times. Well(s) that become damaged by traffic or construction shall be repaired in a timely manner or destroyed immediately (through permit process). No well(s) shall be left in a manner to act as a conduit at any time.

7. Minimum seal depth (Neat Cement Seal) is 2 feet below ground surface (BGS).

8. Minimum surface seal thickness is two inches of cement grout placed by tremie.

9. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

10. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

Borehole(s) for Investigation-Environmental/Monitorinig Study - 43 Boreholes
Driller: Cascade - Lic #: 938110 - Method: other **Work Total: $265.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2015-0392	05/08/2015	08/09/2015	43	2.00 in.	22.50 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.

3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend

and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Applicant shall contact assigned inspector listed on the top of the permit at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

5. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

6. NOTE:
Under California laws, the owner/operator are responsible for reporting the contamination to the governmental regulatory agencies under Section 25295(a). The owner/operator is liable for civil penalties under Section 25299(a)(4) and criminal penalties under Section 25299(d) for failure to report a leak. The owner/operator is liable for civil penalties under Section 25299(b)(4) for knowing failure to ensure compliance with the law by the operator. These penalty provisions do not apply to a potential buyer.

7. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

8. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

APPENDIX B
BORING LOGS

PROJECT: **3093 BROADWAY**
Oakland, California

Log of Boring B-29

Boring location: See Site Plan, Figure 2 | Logged by: E. Kimbrel

Date started: 5/11/15 | Date finished: 5/11/15

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Dual Tube

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
0							6 inches concrete
1–2						CL	SANDY CLAY with GRAVEL (CL) dark brown to light brown, medium stiff, dry, subangular gravel up to 1/4 inch in diameter, plastic, no odor
3–5						CL	SILTY CLAY (CL) yellow to light brown, soft, dry, slightly plastic, no odor
6–8				36/36		CL	
9–11				48/48		CL	
12	B-29-12.5					CL	
13–15				36/48		CL	
16						CL	CLAY (CL) light brown, medium stiff, dry, plastic, no odor
17	B-29-17.5					CL	
18–21				48/48		CL	
22–25				48/48		CL	
26				48/48		CL	▽ (05/11/15)
27–28	B-29-28					CL	moist
29–30							

Boring terminated at a depth of 28 feet.
Boring backfilled with cement grout.
Groundwater encountered at 26.5 feet below ground surface during drilling.
Expansive clays.

LANGAN TREADWELL ROLLO

Project No.: 731637001 | Figure: A-29

TEST ENVIRONMENTAL INCHES 731637001.GPJ T&R.GDT 6/5/15

PROJECT: **3093 BROADWAY**
Oakland, California

Log of Boring B-30

Boring location: See Site Plan, Figure 2 | Logged by: E. Kimbrel

Date started: 5/11/15 | Date finished: 5/11/15

Drilling method: Direct Push

Hammer weight/drop: NA | Hammer type: NA

Sampler: Dual Tube

DEPTH (feet)	SAMPLES: Sampler Type	SAMPLES: Sample	SAMPLES: Blows/ 6"	SAMPLES: SPT N-Value[1]	LITHOLOGY	MATERIAL DESCRIPTION	LABORATORY TEST DATA: Type of Strength Test	Confining Pressure Lbs/Sq Ft	Shear Strength Lbs/Sq Ft	Fines %	Natural Moisture Content, %	Dry Density Lbs/Cu Ft
0						6 inches concrete						
1–2					CL	SANDY CLAY with GRAVEL (CL) dark brown, soft, dry, subangualr gravel up to 1/2 inch in diameter, slightly plastic, brick debris, no odor						
3	HA											
3–4					CL	SILTY CLAY with GRAVEL (CL) light brown, soft, brick debris						
5–7	DP				CL	SILTY CLAY (CL) light brown, medium stiff, dry, slightly plastic, no odor						
8–11	DP											
12					CL	SANDY CLAY (CL) yellow-brown, medium stiff, moist, slightly plastic, no odor						
13–14	DP					CLAY (CL) light brown, stiff, moist, plastic, no odor						
15–16												
17	DP											
18–19	DP											
20–21	DP				CL							
22–23	DP											
24–25	DP											
26–27	DP											
28–30												

Boring terminated at a depth of 28 feet.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Expansive clays.

LANGAN TREADWELL ROLLO

Project No.: 731637001 | Figure: A-30

TEST GEOTECH LOG 731637001.GPJ TR.GDT 6/11/15

PROJECT:	**3093 BROADWAY** Oakland, California	**Log of Boring MW-18** PAGE 1 OF 2
Boring location: See Site Plan, Figure 2		Logged by: Z. Trabzada
Date started: 5/13/15	Date finished: 5/13/15	
Drilling method: Direct Push		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: Dual Tube		

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
0							5 inches concrete
1–5	MW-18-2.5					CL	SILTY CLAY with SAND (CL) light brown to brown, soft, dense, fine gravel, no odor
5–20	MW-18-7.5			36/36		CL	SILTY CLAY (CL) brown, soft, moist, slightly plastic, gravel and rock fragments, moist
9				36/36			
12	MW-18-12.5			36/36	48.6		
14	MW-18-14				37.4		
15				36/36			
16					68.9		
18				24/24	202		
19					452		
20				24/24			
20–24	MW-18-21.5				1,451	CL	SILTY CLAY with SAND (CL) dark gray and gray, soft, moderate to strong petroleum odor
22				24/24	1,300		
23					1,295		
24				24/24	230		
25–30	MW-18-26.5				25	CL	SILTY CLAY (CL) gray, soft, moist, slightly plastic, no to weak odor
26				24/24	18		
27					2.8		
28				24/24	3.7		
29							
30				24/24	2.1		

LANGAN TREADWELL ROLLO

Project No.:	Figure:
731637001	A-44a

TEST ENVIRONMENTAL INCHES 731637001.GPJ T&R.GDT 6/5/15

PROJECT: **3093 BROADWAY**
Oakland, California

Log of Boring MW-18

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
31	MW-18-31.5			24/24	1.6	CL	SILTY CLAY (CL) (continued)
32				24/24	0.7		
33					0.4		
34				24/24			
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							

Boring terminated at a depth of 35 feet.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Expansive clays.

LANGAN TREADWELL ROLLO

Project No.: 731637001

Figure: A-44b

PROJECT:	**3093 BROADWAY** Oakland, California	**Log of Boring MW-19** PAGE 1 OF 2
Boring location: See Site Plan, Figure 2		Logged by: Z. Trabzada
Date started: 5/13/15	Date finished: 5/13/15	
Drilling method: Direct Push		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: Dual Tube		

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (Inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
0							5 inches concrete
1–5	MW-19-2.5					SM	SILTY SAND with CLAY (SM) brown, medium dense, dry, slightly plastic, some gravel, no odor
5–6						SC	CLAYEY SAND with GRAVEL (SC) red-brown, dry, slightly plastic, weathered gravel, no odor
6–7	MW-19-7.5			36/36		CL	CLAY (CL) dark gray, soft, dry, slightly plastic to plastic, no odor
7–9						CL	SILTY CLAY (CL) light brown, soft, dry, moderate odor
9–10				36/36		CL	
10–12	MW-19-12.5			36/36		CL	
12–15				36/36		CL	
15–17	MW-19-17.5			24/24		CL	
17–20				24/24		CL	
20–22	MW-19-22			24/24		SC	CLAYEY SAND with SILT (SC) brown, moist to wet, slightly plastic, no odor
22–24				24/24		CL	SILTY CLAY (CL) light gray, soft, moist to wet, slightly plastic, some sand, no odor
24–27	MW-19-27.5			24/24		CL	
27–30				24/24		CL	

LANGAN TREADWELL ROLLO

Project No.:	Figure:
731637001	A-45a

TEST ENVIRONMENTAL INCHES 731637001.GPJ T&R.GDT 6/5/15

PROJECT: **3093 BROADWAY**
Oakland, California

Log of Boring MW-19

DEPTH (feet)	SAMPLES: Sample Number	SAMPLES: Sample	SAMPLES: Blow Count	SAMPLES: Recovery (Inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
31				24/24			SILTY CLAY (CL) (continued)
32	MW-19-32.5			24/24		CL	
33							
34				24/24			
35							
36–60							

Boring terminated at a depth of 35 feet.
Boring backfilled with cement grout.
Groundwater not encountered during drilling.
Expansive clays.

LANGAN TREADWELL ROLLO

Project No.: 731637001

Figure: A-45b

PROJECT:	**3093 BROADWAY** Oakland, California	**Log of Boring RB-2** PAGE 1 OF 2
Boring location: See Site Plan, Figure 2		Logged by: E. Kimbrel/Z. Trabzada
Date started: 5/15/15	Date finished: 5/15/15	
Drilling method: Direct Push		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: Dual Tube		

DEPTH (feet)	Sample Number	Sample	Blow Count	Recovery (Inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							5 inches concrete
1–5						CL	SANDY CLAY with SILT (CL) black, soft, dry, slightly plastic, no odor brown and light brown
5–10				36/36	0.2	CL	SILTY CLAY (CL) light brown, soft, dry, slightly plastic, no odor
10–11				36/36	0.1		
11–13				36/36	0.3	SC	SILTY SAND with CLAY (SC) brown, medium dense, dry, slightly plastic, no odor
13–14						CL	SILTY CLAY with GRAVEL (CL) brown, soft, dry, slightly plastic, no odor
14					4		
15–16				36/36	7.2	CL	SANDY CLAY with GRAVEL (CL) yellow-brown, soft, dry, slightly plastic, strong odor
17					4.2	CL	GRAVELLY CLAY with SAND (CL) olive-brown, moist, subrounded gravel up to 1/4 inch in diameter, brick debris, slightly plastic, moderate odor
18					47.5		
19				36/36		CL	SILTY CLAY (CL) yellow-brown to dark brown, medium stiff, moist, plastic, moderate odor
20	RB-2-20				159		
21					314		
22	RB-2-22			36/36			
23					1,498		
24	RB-2-24				1,304		wet
25				36/36	1,583		staining
26	RB-2-26				1,283		
27				24/24	1,648		
28	RB-2-28				937		
29				24/24	758		
30	RB-2-30						

LANGAN TREADWELL ROLLO

Project No.:	Figure:
731637001	A-46a

TEST ENVIRONMENTAL INCHES 731637001.GPJ T&R.GDT 6/5/15

PROJECT: **3093 BROADWAY**
Oakland, California

Log of Boring RB-2

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
					1,572		SILTY CLAY (CL) (continued)
31				24/24	994		
32	RB-2-32				597		
33				24/24	251		
34	RB-2-34				119		
35				24/24	251	CL	
36	RB-2-36				10.2		
37				24/24			
38	RB-2-38				9.0		
39				24/24	9.4		
40	RB-2-40				9.8		▽ (5/15/15)
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							

Boring terminated at a depth of 40 feet.
Boring backfilled with cement grout.
Groundwater encountered 39.9 feet below ground surface during drilling.
Expansive clays.

LANGAN TREADWELL ROLLO

Project No.:	Figure:
731637001	A-46b

PROJECT:	**3093 BROADWAY** Oakland, California	**Log of Boring RB-6** PAGE 1 OF 2
Boring location: See Site Plan, Figure 2		Logged by: E. Kimbrel
Date started: 5/15/15	Date finished: 5/15/15	
Drilling method: Direct Push		
Hammer weight/drop: NA	Hammer type: NA	
Sampler: Dual Tube		

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
							5 inches concrete
1	RB-6-1.0				125	CL	SANDY CLAY with SILT (CL) dark brown and black, soft, moist, slightly plastic, moderate odor
2					61.8		SILTY CLAY (CL) yellow-brown, medium stiff, dry, plastic, weak odor
3	RB-6-3				277		
4							
5					101 23.4		
6					0.6		moist
7				36/36	0.7	CL	
8					0.1		
9					0.1		
10				36/36			
11					0.5		
12					0.2	CL	SANDY CLAY with GRAVEL (CL) yellow-brown, medium stiff, dry, subangular gravel up to 1/4 inch in diameter, slightly plastic, orange and black mottling, brick and rock fragments, no odor
13				36/36		CL	
14					0.1	CL	SILTY CLAY (CL) yellow-brown, medium stiff, dry, plastic, no odor
15							SANDY CLAY with GRAVEL (CL) yellow-brown to red-brown, soft, dry, subangular gravel up to 1/2 inch in diameter, slightly plastic, large white gravel fragments and brick, no odor
16				36/36		CL	
17							CLAY (CL) yellow to light brown, very stiff, dry, plastic, no odor
18						SC	SILTY SAND with GRAVEL (SC) yellow-brown, loose, dry, subrounded gravel up to 1/8 inch in diameter, no odor
19				36/36			
20	RB-6-20						SANDY CLAY with GRAVEL (CL) dark brown, soft, moist, slightly plastic, no odor
21							
22	RB-6-22			36/36			
23					0.1		▽ (05/15/15)
24	RB-6-24			24/24		CL	
25					0.1		wet, staining
26	RB-6-26				1,870		strong odor
27				36/36	1,459		
28	RB-6-28						CLAYEY SAND (SC) olive-brown and green, medium dense, wet, strong odor
29				36/36		SC	
30	RB-6-30						

LANGAN TREADWELL ROLLO

Project No.:	Figure:
731637001	A-47a

TEST ENVIRONMENTAL INCHES 731637001.GPJ T&R.GDT 6/5/15

PROJECT: **3093 BROADWAY**
Oakland, California

Log of Boring RB-6

DEPTH (feet)	SAMPLES: Sample Number	Sample	Blow Count	Recovery (Inches)	OVM (ppm)	LITHOLOGY	MATERIAL DESCRIPTION
31				36/36	1,659	SC	CLAYEY SAND (SC) (continued)
32	RB-6-32			24/24	230		
33						CL	SANDY CLAY with GRAVEL (CL) olive-green, soft, moist, slightly plastic, moderate to strong odor
34	RB-6-34				110		
35				36/36			
36	RB-6-36				130	SC	CLAYEY SAND with GRAVEL (SC) olive-green, medium dense, moist, moderate to strong odor
37				24/24	95	CL	SILTY CLAY with SAND (CL) yellow-brown, medium stiff, moist, plastic, moderate odor
38	RB-6-38				38		
39				24/24			
40	RB-6-40				49	CL	CLAY (CL) light brown, soft, moist, plastic, weak odor
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							

Boring terminated at a depth of 40 feet.
Boring backfilled with cement grout and tremie PVC pipe.
Groundwater encountered at 23.3 feet below ground surface during drilling.
Expansive clays.

LANGAN TREADWELL ROLLO

Project No.: 731637001
Figure: A-47b

APPENDIX C
GROUNDWATER ANALYTICAL LABORATORY REPORTS

McCampbell Analytical, Inc.
"When Quality Counts"

Analytical Report

WorkOrder: 1505685

Report Created for: Treadwell & Rollo

555 Montgomery St., Suite 1300
San Francisco, CA 94111

Project Contact: Annie Lee
Project P.O.:
Project Name: #731637001; Connell Auto

Project Received: 05/18/2015

Analytical Report reviewed & approved for release on 05/26/2015 by:

Angela Rydelius,
Laboratory Manager

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: Treadwell & Rollo
Project: #731637001; Connell Auto
WorkOrder: 1505685

Glossary Abbreviation

95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

a1	sample diluted due to matrix interference
b6	lighter than water immiscible sheen/product is present
d1	weakly modified or unmodified gasoline is significant
e4	gasoline range compounds are significant.

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/18/15 15:24	**Analytical Method:**	E300.1
Date Prepared:	5/19/15	**Unit:**	mg/L

Sulfite by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001I**	**Water**	**05/18/2015 09:05**	**IC1**	**105063**

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	10	100	05/19/2015 21:37

Analyst(s): TD

Analytical Comments: a1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/18/15 15:24	**Analytical Method:**	E300.1
Date Prepared:	5/18/15	**Unit:**	mg/L

Inorganic Anions by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001G**	**Water**	**05/18/2015 09:05**	**IC3**	**104993**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	0.10	1	05/18/2015 22:53
Nitrate as $NO3^{-}$	ND	0.45	1	05/18/2015 22:53
Nitrite as N	ND	0.10	1	05/18/2015 22:53
Nitrite as $NO2^{-}$	ND	0.33	1	05/18/2015 22:53
Nitrate & Nitrite as N	ND	0.20	1	05/18/2015 22:53
Sulfate	**0.33**	0.10	1	05/18/2015 22:53

Surrogates	REC (%)	Limits	
Formate	93	90-115	05/18/2015 22:53

Analyst(s): TD

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/18/15 15:24	**Analytical Method:**	SW8260B
Date Prepared:	5/21/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001F**	**Water**	**05/18/2015 09:05**	**GC28**	**105184**

Analytes	Result	RL	DF	Date Analyzed
Benzene	**2300**	50	100	05/21/2015 05:01
1,2-Dichloroethane (1,2-DCA)	ND	50	100	05/21/2015 05:01
Ethylbenzene	**260**	50	100	05/21/2015 05:01
Methyl-t-butyl ether (MTBE)	ND	50	100	05/21/2015 05:01
Naphthalene	**430**	50	100	05/21/2015 05:01
Toluene	**650**	50	100	05/21/2015 05:01
Xylenes, Total	**5400**	50	100	05/21/2015 05:01
Surrogates	**REC (%)**	**Limits**		
Dibromofluoromethane	110	73-131		05/21/2015 05:01
Toluene-d8	110	72-117		05/21/2015 05:01
4-BFB	98	74-116		05/21/2015 05:01

Analyst(s): KBO Analytical Comments: b6

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	SM2320B
Date Received:	5/18/15 15:24	**Analytical Method:**	SM2320B
Date Prepared:	5/18/15	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001M**	**Water**	**05/18/2015 09:05**	**Titrino**	**104991**

Analytes	Result	RL	DF	Date Analyzed
Total	**711**	1.00	1	05/18/2015 16:28
Carbonate	ND	1.00	1	05/18/2015 16:28
Bicarbonate	**711**	1.00	1	05/18/2015 16:28
Hydroxide	ND	1.00	1	05/18/2015 16:28

Analyst(s): HN

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	E200.8
Date Received:	5/18/15 15:24	**Analytical Method:**	E200.8
Date Prepared:	5/18/15	**Unit:**	µg/L

CAM / CCR 17 Metals + Misc. Elements

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001J**	**Water**	**05/18/2015 09:05**	**ICP-MS1**	**104984**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	5.0	10	05/19/2015 21:12
Arsenic	**76**	5.0	10	05/19/2015 21:12
Barium	**810**	50	10	05/19/2015 21:12
Beryllium	ND	5.0	10	05/19/2015 21:12
Cadmium	ND	2.5	10	05/19/2015 21:12
Chromium	ND	5.0	10	05/19/2015 21:12
Cobalt	ND	5.0	10	05/19/2015 21:12
Copper	**25**	20	10	05/19/2015 21:12
Iron	**33,000**	200	10	05/19/2015 21:12
Lead	**28**	5.0	10	05/19/2015 21:12
Manganese	**11,000**	200	10	05/19/2015 21:12
Mercury	ND	0.25	10	05/19/2015 21:12
Molybdenum	ND	5.0	10	05/19/2015 21:12
Nickel	**7.9**	5.0	10	05/19/2015 21:12
Selenium	ND	5.0	10	05/19/2015 21:12
Silver	ND	1.9	10	05/19/2015 21:12
Thallium	ND	5.0	10	05/19/2015 21:12
Vanadium	**13**	5.0	10	05/19/2015 21:12
Zinc	ND	150	10	05/19/2015 21:12

Surrogates	REC (%)	Limits	
Terbium	96	70-130	05/19/2015 21:12

Analyst(s): BBO

Analytical Comments: a1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	SM3500-Fe B4c
Date Received:	5/18/15 15:24	**Analytical Method:**	SM3500-Fe B4c
Date Prepared:	5/19/15	**Unit:**	µg/L

Ferrous Iron

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001D**	**Water**	**05/18/2015 09:05**	**SPECTROPHOTOMETER**	**105092**

Analytes	Result	RL	DF	Date Analyzed
Ferrous Iron	**27,000**	2500	50	05/19/2015 18:30

Analyst(s): RB

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/18/15 15:24	**Analytical Method:**	SW8021B/8015Bm
Date Prepared:	5/19/15	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001A**	**Water**	**05/18/2015 09:05**	**GC3**	**105127**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	**31,000**	500	10	05/19/2015 18:23
MTBE	**---**	50	10	05/19/2015 18:23
Benzene	**---**	5.0	10	05/19/2015 18:23
Toluene	**---**	5.0	10	05/19/2015 18:23
Ethylbenzene	**---**	5.0	10	05/19/2015 18:23
Xylenes	**---**	5.0	10	05/19/2015 18:23

Surrogates	REC (%)	Limits	
aaa-TFT	109	70-130	05/19/2015 18:23

Analyst(s): SS Analytical Comments: d1,b6

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	RSK175
Date Received:	5/18/15 15:24	**Analytical Method:**	RSK175
Date Prepared:	5/19/15	**Unit:**	µg/L

Light Gases

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001E**	**Water/DISS.**	**05/18/2015 09:05**	**GC26**	**105148**

Analytes	Result	RL	DF	Date Analyzed
Methane	**5700**	10	100	05/19/2015 14:10

Analyst(s): KBO

Analytical Comments: b6

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	SM4500 S-2 D
Date Received:	5/18/15 15:24	**Analytical Method:**	SM4500 S-2 D
Date Prepared:	5/22/15	**Unit:**	mg/L

Sulfide

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001H**	**Water**	**05/18/2015 09:05**	**SPECTROPHOTOMETER**	**105311**

Analytes	Result	RL	DF	Date Analyzed
Sulfide	**0.094**	0.050	1	05/22/2015 15:15

Analyst(s): RB

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	SM2540C
Date Received:	5/18/15 15:24	**Analytical Method:**	SM2540C
Date Prepared:	5/19/15	**Unit:**	mg/L

Total Dissolved Solids

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001L**	**Water**	**05/18/2015 09:05**	**WetChem**	**105183**

Analytes	Result	RL	DF	Date Analyzed
Total Dissolved Solids	**728**	10.0	1	05/19/2015 19:40

Analyst(s): AL

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	E415.3
Date Received:	5/18/15 15:24	**Analytical Method:**	E415.3
Date Prepared:	5/19/15	**Unit:**	mg/L

Total Nitrogen

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001C**	**Water**	**05/18/2015 09:05**	**TOC_SHIMADZU**	**104999**

Analytes	Result	RL	DF	Date Analyzed
Total Nitrogen	**5.2**	0.70	1	05/19/2015 21:00

Analyst(s): AV

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	E415.3
Date Received:	5/18/15 15:24	**Analytical Method:**	E415.3
Date Prepared:	5/19/15	**Unit:**	mg/L

Total Organic Carbon (TOC) reported as NPOC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001B**	**Water**	**05/18/2015 09:05**	**TOC_SHIMADZU**	**104999**

Analytes	Result	RL	DF	Date Analyzed
TOC	**53**	0.30	1	05/19/2015 21:00

Analyst(s): AV

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	SW3510C
Date Received:	5/18/15 15:24	**Analytical Method:**	SW8015B
Date Prepared:	5/18/15	**Unit:**	µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001A**	**Water**	**05/18/2015 09:05**	**GC2B**	**105013**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**10,000**	2500	50	05/21/2015 21:00
TPH-Motor Oil (C18-C36)	ND	12,000	50	05/21/2015 21:00

Surrogates	REC (%)	Limits	
C9	128	70-130	05/21/2015 21:00

Analyst(s): HD Analytical Comments: e4,b6

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Project:	#731637001; Connell Auto	**Extraction Method:**	E365.1
Date Received:	5/18/15 15:24	**Analytical Method:**	E365.1
Date Prepared:	5/20/15	**Unit:**	mg/L

Total Phosphorous as P

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-1	**1505685-001K**	**Water/TOTAL**	**05/18/2015 09:05**	**SKALAR**	**105212**

Analytes	Result	RL	DF	Date Analyzed
Total Phosphorous as P	**1.1**	0.040	1	05/21/2015 16:54

Analyst(s): LP

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/19/15	**BatchID:**	105063
Date Analyzed:	5/19/15	**Extraction Method:**	E300.1
Instrument:	IC1	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105063 1505685-001IMS/MSD

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Sulfite	ND	0.908	0.10	1	-	91	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Sulfite	NR	NR		ND<10	NR	NR	-	NR	

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/18/15	**BatchID:**	104993
Date Analyzed:	5/18/15	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-104993 1505666-001KMS/MSD

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Nitrate as N	ND	0.969	0.10	1	-	97	85-115
Nitrate as $NO3^{-}$	ND	4.29	0.45	4.4	-	97	85-115
Nitrite as N	ND	1.01	0.10	1	-	101	85-115
Nitrite as $NO2^{-}$	ND	3.34	0.33	3.3	-	101	85-115
Sulfate	ND	1.01	0.10	1	-	101	85-115
Surrogate Recovery							
Formate	0.0964	0.0920		0.10	96	92	90-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Nitrate as N	0.869	0.868	1	ND	87	87	85-115	0	15
Nitrate as $NO3^{-}$	3.85	3.84	4.4	ND	87	87	85-115	0	15
Nitrite as N	0.885	0.896	1	ND	89	90	85-115	1.22	15
Nitrite as $NO2^{-}$	2.92	2.96	3.3	ND	89	90	85-115	1.22	15
Sulfate	1.66	1.63	1	0.7424	92	89	85-115	1.79	15
Surrogate Recovery									
Formate	0.0953	0.0956	0.10		95	96	90-115	0.225	10

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/20/15	**BatchID:**	105184
Date Analyzed:	5/20/15	**Extraction Method:**	SW5030B
Instrument:	GC28	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105184 1505687-001DMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	9.97	0.50	10	-	100	54-140
Benzene	ND	10.4	0.50	10	-	104	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	38.4	2.0	40	-	96	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	9.96	0.50	10	-	100	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	9.77	0.50	10	-	98	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	10.2	0.50	10	-	102	66-125
1,1-Dichloroethene	ND	10.7	0.50	10	-	107	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-

(Cont.)

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/20/15	**BatchID:**	105184
Date Analyzed:	5/20/15	**Extraction Method:**	SW5030B
Instrument:	GC28	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105184 1505687-001DMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Diisopropyl ether (DIPE)	ND	10.1	0.50	10	-	101	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	9.64	0.50	10	-	96	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	9.79	0.50	10	-	98	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	10.1	0.50	10	-	101	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	10.4	0.50	10	-	104	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-
Surrogate Recovery							
Dibromofluoromethane	27.9	27.3		25	112	109	65-135
Toluene-d8	26.5	27.0		25	106	108	64-127
4-BFB	2.50	2.55		2.5	100	102	59-139

(Cont.)

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/20/15	**BatchID:**	105184
Date Analyzed:	5/20/15	**Extraction Method:**	SW5030B
Instrument:	GC28	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105184 1505687-001DMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	10.8	11.4	10	ND	108	114	69-139	5.68	20
Benzene	10.0	10.5	10	ND	100	105	69-141	4.59	20
t-Butyl alcohol (TBA)	46.0	47.9	40	ND	115	120	41-152	4.18	20
Chlorobenzene	9.13	9.53	10	ND	91	95	77-120	4.33	20
1,2-Dibromoethane (EDB)	10.0	10.5	10	ND	100	105	76-135	4.24	20
1,2-Dichloroethane (1,2-DCA)	10.5	11.0	10	ND	105	110	73-139	4.90	20
1,1-Dichloroethene	10.0	10.3	10	ND	100	103	59-140	3.08	20
Diisopropyl ether (DIPE)	9.97	10.5	10	ND	100	105	72-140	5.46	20
Ethyl tert-butyl ether (ETBE)	10.0	10.6	10	ND	100	106	71-140	5.28	20
Methyl-t-butyl ether (MTBE)	10.9	11.4	10	ND	109	114	73-139	4.65	20
Toluene	9.26	9.65	10	ND	92	96	71-128	4.18	20
Trichloroethene	9.64	10.0	10	ND	96	100	64-132	4.15	20
Surrogate Recovery									
Dibromofluoromethane	28.0	28.2	25		112	113	73-131	0.633	20
Toluene-d8	26.4	26.7	25		106	107	72-117	0.912	20
4-BFB	2.40	2.48	2.5		96	99	74-116	3.01	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/18/15	**BatchID:**	104991
Date Analyzed:	5/18/15	**Extraction Method:**	SM2320B
Instrument:	Titrino	**Analytical Method:**	SM2320B
Matrix:	Water	**Test Method:**	SM2320B (Alkalinity)
Project:	#731637001; Connell Auto		

QC Summary Report for Alkalinity

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1505685-001M	Total	mg $CaCO_3$/L	711	1	714	1	0.351	<20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/18/15	**BatchID:**	104984
Date Analyzed:	5/19/15	**Extraction Method:**	E200.8
Instrument:	ICP-MS2	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-104984 1505676-001AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Antimony	ND	47.2	0.50	50	-	94	85-115
Arsenic	ND	47.3	0.50	50	-	95	85-115
Barium	ND	454	5.0	500	-	91	85-115
Beryllium	ND	48.8	0.50	50	-	98	85-115
Cadmium	ND	46.8	0.25	50	-	94	85-115
Chromium	ND	49.7	0.50	50	-	99	85-115
Cobalt	ND	48.8	0.50	50	-	98	85-115
Copper	ND	52.3	2.0	50	-	105	85-115
Iron	ND	536	20	500	-	107	85-115
Lead	ND	48.1	0.50	50	-	96	85-115
Manganese	ND	484	20	500	-	97	85-115
Mercury	ND	1.13	0.025	1.25	-	90	85-115
Molybdenum	ND	46.7	0.50	50	-	93	85-115
Nickel	ND	50.4	0.50	50	-	101	85-115
Selenium	ND	48.2	0.50	50	-	96	85-115
Silver	ND	47.3	0.19	50	-	95	85-115
Thallium	ND	45.9	0.50	50	-	92	85-115
Vanadium	ND	48.7	0.50	50	-	97	85-115
Zinc	ND	509	15	500	-	100	85-115
Surrogate Recovery							
Terbium	696	696		750	93	93	70-130

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/18/15	**BatchID:**	104984
Date Analyzed:	5/19/15	**Extraction Method:**	E200.8
Instrument:	ICP-MS2	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-104984 1505676-001AMS/MSD

QC Summary Report for Metals

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	49.3	48.4	50	ND	98	96	70-130	1.76	20
Arsenic	52.7	50.1	50	2.1	101	96	70-130	5.12	20
Barium	491	480	500	23	94	91	70-130	2.35	20
Beryllium	48.9	48.3	50	ND	98	97	70-130	1.36	20
Cadmium	46.7	45.9	50	ND	93	92	70-130	1.88	20
Chromium	49.9	48.8	50	0.54	99	97	70-130	2.21	20
Cobalt	47.2	46.6	50	ND	94	92	70-130	1.28	20
Copper	54.2	52.6	50	4.880	99	95	70-130	2.90	20
Iron	640	613	500	100	107	102	70-130	4.30	20
Lead	52.5	51.2	50	ND	105	102	70-130	2.35	20
Manganese	713	702	500	240	94	91	70-130	1.64	20
Mercury	1.23	1.19	1.25	ND	98	95	70-130	3.30	20
Molybdenum	51.3	50.7	50	2.2	98	97	70-130	1.24	20
Nickel	52.5	51.0	50	2.8	99	96	70-130	2.90	20
Selenium	49.4	48.5	50	ND	98	96	70-130	1.74	20
Silver	45.8	45.1	50	ND	92	90	70-130	1.45	20
Thallium	50.6	49.5	50	ND	101	99	70-130	2.20	20
Vanadium	51.2	50.3	50	1.4	100	98	70-130	1.77	20
Zinc	519	511	500	36	97	95	70-130	1.55	20
Surrogate Recovery									
Terbium	714	696	750		95	93	70-130	2.48	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/19/15	**BatchID:**	105092
Date Analyzed:	5/19/15	**Extraction Method:**	SM3500-Fe B4c
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM3500-Fe B4c
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105092 1505685-001DMS/MSD

QC Summary Report for SM3500 Fe B4c

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ferrous Iron	ND	188	50	200	-	94	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Ferrous Iron	NR	NR		27000	NR	NR	-	NR	

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/19/15	**BatchID:**	105127
Date Analyzed:	5/19/15	**Extraction Method:**	SW5030B
Instrument:	GC3	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105127 1505680-003AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	64.0	40	60	-	107	70-130
MTBE	ND	11.0	5.0	10	-	110	70-130
Benzene	ND	11.4	0.50	10	-	114	70-130
Toluene	ND	11.3	0.50	10	-	113	70-130
Ethylbenzene	ND	11.4	0.50	10	-	114	70-130
Xylenes	ND	34.0	0.50	30	-	113	70-130
Surrogate Recovery							
aaa-TFT	10.3	10.4		10	103	104	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	65.4	65.3	60	ND	109	109	70-130	0	20
MTBE	10.4	10.2	10	ND	104	102	70-130	1.45	20
Benzene	11.3	10.4	10	ND	113	104	70-130	8.40	20
Toluene	11.3	10.4	10	ND	113	104	70-130	7.73	20
Ethylbenzene	11.5	10.6	10	ND	115	106	70-130	8.29	20
Xylenes	33.9	32.0	30	ND	113	107	70-130	5.58	20
Surrogate Recovery									
aaa-TFT	10.3	9.66	10		103	97	70-130	6.68	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/19/15	**BatchID:**	105148
Date Analyzed:	5/19/15	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Air	**Unit:**	µL/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105148

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ethane	ND	10.3	0.50	10	-	103	70-130
Ethylene	ND	7.14	0.50	10	-	71	70-130
Methane	ND	11.5	0.50	10	-	115	70-130

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/22/15	**BatchID:**	105311
Date Analyzed:	5/22/15	**Extraction Method:**	SM4500 S-2 D
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105311 1505875-003IMS/MSD

QC Summary Report For SM4500S2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Sulfide	ND	2.71	0.050	2.5	-	108	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Sulfide	2.51	2.44	2.5	ND	100	98	75-125	2.71	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/19/15	**BatchID:**	105183
Date Analyzed:	5/19/15	**Extraction Method:**	SM2540C
Instrument:	WetChem	**Analytical Method:**	SM2540C
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto		

QC Summary Report for Total Dissolved Solids

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1505546-001J	331	1	306	2	7.85	<20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/18/15	**BatchID:**	104999
Date Analyzed:	5/18/15	**Extraction Method:**	E415.3
Instrument:	TOC_SHIMADZU	**Analytical Method:**	E415.3
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-104999 1505600-002AMS/MSD

QC Summary Report for E415.3

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Nitrogen	ND	50.4	0.70	50	-	101	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Nitrogen	49.3	50.2	50	4.4	90	92	70-130	1.97	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/18/15	**BatchID:**	104999
Date Analyzed:	5/18/15	**Extraction Method:**	E415.3
Instrument:	TOC_SHIMADZU	**Analytical Method:**	E415.3
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-104999 1505600-002AMS/MSD

QC Summary Report for E415.3

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TOC	ND	47.2	0.30	50	-	94	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TOC	132	131	50	82.87	98	96	70-130	0.913	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/18/15	**BatchID:**	105013
Date Analyzed:	5/18/15 - 5/19/15	**Extraction Method:**	SW3510C
Instrument:	GC2B	**Analytical Method:**	SW8015B
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105013

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	1010	50	1000	-	101	61-157
TPH-Motor Oil (C18-C36)	ND	-	250	-	-	-	-
Surrogate Recovery							
C9	719	714		625	115	114	70-134

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505685
Date Prepared:	5/21/15	**BatchID:**	105212
Date Analyzed:	5/21/15	**Extraction Method:**	E365.1
Instrument:	SKALAR	**Analytical Method:**	E365.1
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105212 1505601-002AMS/MSD

QC Summary Report for E365.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Phosphorous as P	ND	0.832	0.040	0.80	-	104	90-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Phosphorous as P	NR	NR	0.80	6.014	NR	NR	80-120	NR	20

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1505685 **ClientCode: TWRF**

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Report to:
Annie Lee
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5200 FAX: (415) 955-9041

Email: alee@langan.com
cc/3rd Party:
PO:
ProjectNo: #731637001; Connell Auto

Bill to:
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

Requested TAT: 5 days

Date Received: 05/18/2015
Date Printed: 05/18/2015

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1505685-001	MW-1	Water	5/18/2015 9:05	☐	I	G	F	M	J	D	A	B	E	H	L	C

Test Legend:

1	300_1_Sulfite_W	2	300_1_W	3	8260VOC_W	4	Alka(spe)_W	5	CAMMETMS_W
6	FE2_W	7	G-MBTEX_W	8	PREDF REPORT	9	RSK175_W	10	SULFIDE_W
11	TDS_W	12	TN_W						

The following SampID: 001A contains testgroup.

Prepared by: Jena Alfaro

Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1505685 **ClientCode: TWRF**

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Report to:
Annie Lee
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5200 FAX: (415) 955-9041

Email: alee@langan.com
cc/3rd Party:
PO:
ProjectNo: #731637001; Connell Auto

Bill to:
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

Requested TAT: 5 days

Date Received: **05/18/2015**
Date Printed: **05/18/2015**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					13	14	15	16	17	18	19	20	21	22	23	24
1505685-001	MW-1	Water	5/18/2015 9:05	☐	B	K	A									

Test Legend:

13	TOC_W	14	TotalP_W	15	TPH(DMO)_W	16		17	
18		19		20		21		22	
23		24							

The following SampID: 001A contains testgroup.

Prepared by: Jena Alfaro

Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
Project: #731637001; Connell Auto
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

QC Level: LEVEL 2
Client Contact: Annie Lee
Contact's Email: alee@langan.com

Work Order: 1505685
Date Received: 5/18/2015

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505685-001A	MW-1	Water	Multi-Range TPH(g,d,mo)	4	VOA w/ HCl & 2-aVOA	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001B	MW-1	Water	E415.3 (TOC)	2	VOA w/ HCl	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001C	MW-1	Water	E415.3 (Total Nitrogen)	2	VOA w/ HCl	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001D	MW-1	Water	SM3500 Fe B4c (Ferrous Iron)	2	aVOA w/ Concentrated HCl	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001E	MW-1	Water	RSK175 <Methane_4>	2	aVOA w/ H2SO4	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001F	MW-1	Water	SW8260B (VOCs) <1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001G	MW-1	Water	E300.1 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$, Nitrite as N, Nitrite as $NO2^{-}$, Sulfate>	2	125mL HDPE, unprsv.	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001H	MW-1	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001I	MW-1	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/18/2015 9:05	5 days	Present	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

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WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
QC Level: LEVEL 2
Work Order: 1505685
Project: #731637001; Connell Auto
Client Contact: Annie Lee
Date Received: 5/18/2015
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14
Contact's Email: alee@langan.com

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505685-001J	MW-1	Water	E200.8 (Metals) <Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc>	1	250mL HDPE w/ HNO3	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001K	MW-1	Water	E365.1 (Total Phosphorous as P)	1	500mL aG w/ H2SO4	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001L	MW-1	Water	SM2540C (TDS)	1	500mL HDPE, unprsv.	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-001M	MW-1	Water	SM2320B (Alkalinity)	1	500mL HDPE, unprsv.	☐	5/18/2015 9:05	5 days	Present	☐	
1505685-002A	TB	Water		1	VOA w/ HCl	☐	5/18/2015 7:00		None	☑	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

150 5685

1 of 2

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTS # 150518-MM1

CLIENT Treadwell & Rollo

SITE Connell Auto
3093 Broadway
Oakland, CA

LAB McCampbell

DHS #

MUST MEET SPECIFICATIONS
☐ EPA ☐ RWQCB REGION _____
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

Invoice and Report to: Annie Lee

Treadwell & Rollo - San Francisco Office

415.955.5285 Project No: 731637001

alee@langan.com EDF Required

CONDUCT ANALYSIS TO DETECT

SAMPLE I.D.	DATE	TIME	MATRIX S = Soil W = H2O	CONTAINERS TOTAL		TPH-g, TPH-d (8015)	BTEX, MTBE, 1,2-DCA, Naphthalene (8260B)	Nitrate, Nitrite, Sulfate (300.1)	Total Manganese, Total Iron, CAM 17 Metals ((E200.8)	Ferrous Iron (SM 3500Fe)	Dissolved Methane (RSK 175)	Sulfite (SM4500 SQ3-2) / Sulfide (SA4500S-2D)	Total Nitrogen (E415.3)	Total Phosphorus (E365.1)	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-1	5/18/2015	0905	W	19	Various	X	X	X	X	X	X	X	X	X				
TB	↓	0700	W	2														

SAMPLING COMPLETED DATE 5/18/15 TIME 0905

SAMPLING PERFORMED BY Nicholas Drachenberg

RESULTS NEEDED NO LATER THAN Standard

	DATE	TIME		DATE	TIME
RELEASED BY	5/18/15	1030	RECEIVED BY	5/18/15	1030
RELEASED BY	5/18/15	1115	RECEIVED BY	5-18-15	1115
RELEASED BY	5-18-15	1350	RECEIVED BY	5/18/15	1350

SHIPPED VIA

DATE SENT

TIME SENT

COOLER #

ICE /t° 32
GOOD CONDITION ____ APPROPRIATE
HEAD SPACE ABSENT ____ CONTAINERS ____
DECHLORINATED IN LAB ____ PRESERVED IN LAB ____

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTS # 150518-MM1

CLIENT: Treadwell & Rollo

SITE: Connell Auto
3093 Broadway
Oakland, CA

CONDUCT ANALYSIS TO DETECT

LAB: McCampbell

DHS #

MUST MEET SPECIFICATIONS
☐ EPA
☐ LIA
☐ OTHER
☐ RWQCB REGION _____

SPECIAL INSTRUCTIONS

Invoice and Report to: Annie Lee

Treadwell & Rollo - San Francisco Office

415.955.5285 Project No: 731637001

alee@langan.com EDF Required

SAMPLE I.D.	DATE	TIME	MATRIX S = Soil W = H2O	CONTAINERS TOTAL		TOC (E415.3)	TDS (SM2540C)	Alkalinity (SM2320B)						ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-1	5/18/2015	0905	W	4	Various	X	X	X									

SAMPLING COMPLETED DATE 5/18/15 TIME 0905

SAMPLING PERFORMED BY Nicholas Drachenberg

RESULTS NEEDED NO LATER THAN Standard

RELEASED BY		DATE 5/18/15	TIME 1030	RECEIVED BY		DATE 5/18/15	TIME 1030
RELEASED BY		DATE 5/18/15	TIME 1115	RECEIVED BY		DATE 5-18-15	TIME 1115
RELEASED BY		DATE 5-18-15	TIME 1350	RECEIVED BY		DATE 5/18/15	TIME 1350
SHIPPED VIA		DATE SENT	TIME SENT	COOLER #			

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Sample Receipt Checklist

Client Name: **Treadwell & Rollo**
Date and Time Received: **5/18/2015 3:24:20 PM**

Project Name: **#731637001; Connell Auto**
LogIn Reviewed by: Jena Alfaro

WorkOrder №: **1505685** Matrix: Water
Carrier: Bernie Cummins (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Sample/Temp Blank temperature	Temp: 3°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	NA ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☑	No ☐	NA ☐
Samples Received on Ice?	Yes ☑	No ☐	

(Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

** NOTE: If the "No" box is checked, see comments below.*

Comments:

McCampbell Analytical, Inc.
"When Quality Counts"

Analytical Report

WorkOrder: 1505875 **Amended:** 06/02/2015

Report Created for: Treadwell & Rollo

555 Montgomery St., Suite 1300
San Francisco, CA 94111

Project Contact: Annie Lee
Project P.O.:
Project Name: #731637001; Connell Auto

Project Received: 05/21/2015

Analytical Report reviewed & approved for release on 06/02/2015 by:

Angela Rydelius,
Laboratory Manager

McCampbell Analytical, Inc.
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Glossary of Terms & Qualifier Definitions

Client: Treadwell & Rollo
Project: #731637001; Connell Auto
WorkOrder: 1505875

Glossary Abbreviation

95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

a1	sample diluted due to matrix interference
b6	lighter than water immiscible sheen/product is present
d1	weakly modified or unmodified gasoline is significant
e2	diesel range compounds are significant; no recognizable pattern
e4	gasoline range compounds are significant.
e7	oil range compounds are significant

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/21/15 19:34	**Analytical Method:**	E300.1
Date Prepared:	5/26/15	**Unit:**	mg/L

Sulfite by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	1505875-001H	Water	05/21/2015 12:10	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	10	100	05/26/2015 20:28

Analyst(s): TD Analytical Comments: a1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	1505875-002H	Water	05/21/2015 13:15	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	0.10	1	05/26/2015 17:18

Analyst(s): TD

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	1505875-003H	Water	05/21/2015 10:05	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	1.0	10	05/26/2015 08:55

Analyst(s): TD Analytical Comments: a1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	1505875-004H	Water	05/21/2015 14:20	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	10	100	05/26/2015 21:23

Analyst(s): TD Analytical Comments: a1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/21/15 19:34	**Analytical Method:**	E300.1
Date Prepared:	5/21/15-5/27/15	**Unit:**	mg/L

Inorganic Anions by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	**1505875-001G**	**Water**	**05/21/2015 12:10**	**IC3**	**105178**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	**1.1**	0.10	1	05/21/2015 22:38
Nitrate as $NO3^{-}$	**5.0**	0.45	1	05/21/2015 22:38
Nitrite as N	ND	0.10	1	05/21/2015 22:38
Nitrite as $NO2^{-}$	ND	0.33	1	05/21/2015 22:38
Nitrate & Nitrite as N	**1.1**	0.20	1	05/21/2015 22:38
Sulfate	**200**	10	100	05/27/2015 16:35

Surrogates	REC (%)	Limits	
Formate	94	90-115	05/21/2015 22:38

Analyst(s): TD

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	**1505875-002G**	**Water**	**05/21/2015 13:15**	**IC3**	**105178**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	0.10	1	05/21/2015 23:19
Nitrate as $NO3^{-}$	ND	0.45	1	05/21/2015 23:19
Nitrite as N	ND	0.10	1	05/21/2015 23:19
Nitrite as $NO2^{-}$	ND	0.33	1	05/21/2015 23:19
Nitrate & Nitrite as N	ND	0.20	1	05/21/2015 23:19
Sulfate	**1.6**	0.10	1	05/21/2015 23:19

Surrogates	REC (%)	Limits	
Formate	95	90-115	05/21/2015 23:19

Analyst(s): TD

(Cont.)

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/21/15 19:34	**Analytical Method:**	E300.1
Date Prepared:	5/21/15-5/27/15	**Unit:**	mg/L

Inorganic Anions by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	**1505875-003G**	**Water**	**05/21/2015 10:05**	**IC3**	**105178**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	0.10	1	05/22/2015 00:00
Nitrate as $NO3^{-}$	ND	0.45	1	05/22/2015 00:00
Nitrite as N	ND	0.10	1	05/22/2015 00:00
Nitrite as $NO2^{-}$	ND	0.33	1	05/22/2015 00:00
Nitrate & Nitrite as N	ND	0.20	1	05/22/2015 00:00
Sulfate	**27**	1.0	10	05/27/2015 17:22

Surrogates	REC (%)	Limits	
Formate	94	90-115	05/22/2015 00:00

Analyst(s): TD

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	**1505875-004G**	**Water**	**05/21/2015 14:20**	**IC3**	**105178**

Analytes	Result	RL	DF	Date Analyzed
Nitrate as N	ND	0.10	1	05/22/2015 00:41
Nitrate as $NO3^{-}$	ND	0.45	1	05/22/2015 00:41
Nitrite as N	ND	0.10	1	05/22/2015 00:41
Nitrite as $NO2^{-}$	ND	0.33	1	05/22/2015 00:41
Nitrate & Nitrite as N	ND	0.20	1	05/22/2015 00:41
Sulfate	**140**	10	100	05/27/2015 18:09

Surrogates	REC (%)	Limits	
Formate	98	90-115	05/22/2015 00:41

Analyst(s): TD

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/21/15 19:34	**Analytical Method:**	SW8260B
Date Prepared:	5/28/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	**1505875-001B**	**Water**	**05/21/2015 12:10**	**GC28**	**105459**

Analytes	Result	RL	DF	Date Analyzed
Benzene	ND	0.50	1	05/28/2015 00:45
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	05/28/2015 00:45
Ethylbenzene	ND	0.50	1	05/28/2015 00:45
Methyl-t-butyl ether (MTBE)	ND	0.50	1	05/28/2015 00:45
Naphthalene	ND	0.50	1	05/28/2015 00:45
Toluene	ND	0.50	1	05/28/2015 00:45
Xylenes, Total	ND	0.50	1	05/28/2015 00:45

Surrogates	REC (%)	Limits	
Dibromofluoromethane	114	70-130	05/28/2015 00:45
Toluene-d8	108	70-130	05/28/2015 00:45
4-BFB	104	70-130	05/28/2015 00:45

Analyst(s): AK

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	**1505875-002B**	**Water**	**05/21/2015 13:15**	**GC28**	**105459**

Analytes	Result	RL	DF	Date Analyzed
Benzene	**2400**	100	200	05/28/2015 01:22
1,2-Dichloroethane (1,2-DCA)	ND	100	200	05/28/2015 01:22
Ethylbenzene	**320**	100	200	05/28/2015 01:22
Methyl-t-butyl ether (MTBE)	ND	100	200	05/28/2015 01:22
Naphthalene	**120**	100	200	05/28/2015 01:22
Toluene	**220**	100	200	05/28/2015 01:22
Xylenes, Total	**520**	100	200	05/28/2015 01:22

Surrogates	REC (%)	Limits	
Dibromofluoromethane	112	70-130	05/28/2015 01:22
Toluene-d8	108	70-130	05/28/2015 01:22
4-BFB	106	70-130	05/28/2015 01:22

Analyst(s): AK

(Cont.)

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/21/15 19:34	**Analytical Method:**	SW8260B
Date Prepared:	5/28/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	**1505875-003B**	**Water**	**05/21/2015 10:05**	**GC28**	**105459**

Analytes	Result	RL	DF	Date Analyzed
Benzene	ND	0.50	1	05/28/2015 02:00
1,2-Dichloroethane (1,2-DCA)	**10**	0.50	1	05/28/2015 02:00
Ethylbenzene	ND	0.50	1	05/28/2015 02:00
Methyl-t-butyl ether (MTBE)	ND	0.50	1	05/28/2015 02:00
Naphthalene	ND	0.50	1	05/28/2015 02:00
Toluene	ND	0.50	1	05/28/2015 02:00
Xylenes, Total	ND	0.50	1	05/28/2015 02:00

Surrogates	REC (%)	Limits	
Dibromofluoromethane	115	70-130	05/28/2015 02:00
Toluene-d8	110	70-130	05/28/2015 02:00
4-BFB	109	70-130	05/28/2015 02:00

Analyst(s): AK

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	**1505875-004B**	**Water**	**05/21/2015 14:20**	**GC28**	**105459**

Analytes	Result	RL	DF	Date Analyzed
Benzene	**240**	5.0	10	05/28/2015 02:37
1,2-Dichloroethane (1,2-DCA)	**74**	5.0	10	05/28/2015 02:37
Ethylbenzene	**42**	5.0	10	05/28/2015 02:37
Methyl-t-butyl ether (MTBE)	ND	5.0	10	05/28/2015 02:37
Naphthalene	**14**	5.0	10	05/28/2015 02:37
Toluene	ND	5.0	10	05/28/2015 02:37
Xylenes, Total	**26**	5.0	10	05/28/2015 02:37

Surrogates	REC (%)	Limits	
Dibromofluoromethane	118	70-130	05/28/2015 02:37
Toluene-d8	111	70-130	05/28/2015 02:37
4-BFB	104	70-130	05/28/2015 02:37

Analyst(s): AK

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/21/15 19:34	**Analytical Method:**	SW8260B
Date Prepared:	5/28/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
Trip Blank	**1505875-005A**	**Water**	**05/21/2015 07:30**	**GC28**	**105459**

Analytes	Result	RL	DF	Date Analyzed
Benzene	ND	0.50	1	05/28/2015 03:15
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	05/28/2015 03:15
Ethylbenzene	ND	0.50	1	05/28/2015 03:15
Methyl-t-butyl ether (MTBE)	ND	0.50	1	05/28/2015 03:15
Naphthalene	ND	0.50	1	05/28/2015 03:15
Toluene	ND	0.50	1	05/28/2015 03:15
Xylenes, Total	ND	0.50	1	05/28/2015 03:15
Surrogates	**REC (%)**	**Limits**		
Dibromofluoromethane	113	70-130		05/28/2015 03:15
Toluene-d8	106	70-130		05/28/2015 03:15
4-BFB	104	70-130		05/28/2015 03:15

Analyst(s): AK

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SM2320B
Date Received:	5/21/15 19:34	**Analytical Method:**	SM2320B
Date Prepared:	5/27/15	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	**1505875-001M**	**Water**	**05/21/2015 12:10**	**Titrino**	**105445**

Analytes	Result	RL	DF	Date Analyzed
Total	**239**	1.00	1	05/27/2015 13:29
Carbonate	ND	1.00	1	05/27/2015 13:29
Bicarbonate	**239**	1.00	1	05/27/2015 13:29
Hydroxide	ND	1.00	1	05/27/2015 13:29

Analyst(s): HN

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	**1505875-002M**	**Water**	**05/21/2015 13:15**	**Titrino**	**105445**

Analytes	Result	RL	DF	Date Analyzed
Total	**510**	1.00	1	05/27/2015 13:41
Carbonate	ND	1.00	1	05/27/2015 13:41
Bicarbonate	**510**	1.00	1	05/27/2015 13:41
Hydroxide	ND	1.00	1	05/27/2015 13:41

Analyst(s): HN

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	**1505875-003M**	**Water**	**05/21/2015 10:05**	**Titrino**	**105445**

Analytes	Result	RL	DF	Date Analyzed
Total	**374**	1.00	1	05/27/2015 13:54
Carbonate	ND	1.00	1	05/27/2015 13:54
Bicarbonate	**374**	1.00	1	05/27/2015 13:54
Hydroxide	ND	1.00	1	05/27/2015 13:54

Analyst(s): HN

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SM2320B
Date Received:	5/21/15 19:34	**Analytical Method:**	SM2320B
Date Prepared:	5/27/15	**Unit:**	mg $CaCO_3$/L

Total & Speciated Alkalinity as Calcium Carbonate

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	**1505875-004M**	**Water**	**05/21/2015 14:20**	**Titrino**	**105445**

Analytes	Result	RL	DF	Date Analyzed
Total	**500**	1.00	1	05/27/2015 14:05
Carbonate	ND	1.00	1	05/27/2015 14:05
Bicarbonate	**500**	1.00	1	05/27/2015 14:05
Hydroxide	ND	1.00	1	05/27/2015 14:05

Analyst(s): HN

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	E200.8
Date Received:	5/21/15 19:34	**Analytical Method:**	E200.8
Date Prepared:	5/21/15	**Unit:**	µg/L

Dissolved CAM / CCR 17 Metals

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	**1505875-002N**	**Water**	**05/21/2015 13:15**	**ICP-MS2**	**105228**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	05/22/2015 22:35
Arsenic	**25**	0.50	1	05/22/2015 22:35
Barium	**280**	5.0	1	05/22/2015 22:35
Beryllium	ND	0.50	1	05/22/2015 22:35
Cadmium	ND	0.25	1	05/22/2015 22:35
Chromium	ND	0.50	1	05/22/2015 22:35
Cobalt	ND	0.50	1	05/22/2015 22:35
Copper	ND	2.0	1	05/22/2015 22:35
Lead	ND	0.50	1	05/22/2015 22:35
Mercury	ND	0.025	1	05/22/2015 22:35
Molybdenum	**0.65**	0.50	1	05/22/2015 22:35
Nickel	**1.5**	0.50	1	05/22/2015 22:35
Selenium	**0.91**	0.50	1	05/22/2015 22:35
Silver	ND	0.19	1	05/22/2015 22:35
Thallium	ND	0.50	1	05/22/2015 22:35
Vanadium	**1.4**	0.50	1	05/22/2015 22:35
Zinc	ND	15	1	05/22/2015 22:35

Analyst(s): DVH

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	E200.8
Date Received:	5/21/15 19:34	**Analytical Method:**	E200.8
Date Prepared:	5/21/15	**Unit:**	µg/L

Dissolved CAM / CCR 17 Metals

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	**1505875-004N**	**Water**	**05/21/2015 14:20**	**ICP-MS2**	**105228**

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	0.50	1	05/22/2015 22:29
Arsenic	**4.0**	0.50	1	05/22/2015 22:29
Barium	**33**	5.0	1	05/22/2015 22:29
Beryllium	ND	0.50	1	05/22/2015 22:29
Cadmium	ND	0.25	1	05/22/2015 22:29
Chromium	ND	0.50	1	05/22/2015 22:29
Cobalt	**2.9**	0.50	1	05/22/2015 22:29
Copper	ND	2.0	1	05/22/2015 22:29
Lead	ND	0.50	1	05/22/2015 22:29
Mercury	ND	0.025	1	05/22/2015 22:29
Molybdenum	**1.1**	0.50	1	05/22/2015 22:29
Nickel	**16**	0.50	1	05/22/2015 22:29
Selenium	ND	0.50	1	05/22/2015 22:29
Silver	ND	0.19	1	05/22/2015 22:29
Thallium	ND	0.50	1	05/22/2015 22:29
Vanadium	**3.4**	0.50	1	05/22/2015 22:29
Zinc	ND	15	1	05/22/2015 22:29

Analyst(s): DVH

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SM3500-Fe B4c
Date Received:	5/21/15 19:34	**Analytical Method:**	SM3500-Fe B4c
Date Prepared:	5/22/15	**Unit:**	µg/L

Ferrous Iron

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	1505875-001E	Water	05/21/2015 12:10	SPECTROPHOTOMETER	105312

Analytes	Result	RL	DF	Date Analyzed
Ferrous Iron	ND	50	1	05/22/2015 19:35

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	1505875-002E	Water	05/21/2015 13:15	SPECTROPHOTOMETER	105312

Analytes	Result	RL	DF	Date Analyzed
Ferrous Iron	**10,000**	500	10	05/22/2015 19:50

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	1505875-003E	Water	05/21/2015 10:05	SPECTROPHOTOMETER	105312

Analytes	Result	RL	DF	Date Analyzed
Ferrous Iron	**210**	50	1	05/22/2015 19:55

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	1505875-004E	Water	05/21/2015 14:20	SPECTROPHOTOMETER	105312

Analytes	Result	RL	DF	Date Analyzed
Ferrous Iron	**520**	50	1	05/22/2015 20:00

Analyst(s): RB

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	E200.8
Date Received:	5/21/15 19:34	**Analytical Method:**	E200.8
Date Prepared:	5/21/15	**Unit:**	µg/L

Metals

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	**1505875-001J**	**Water**	**05/21/2015 12:10**	**ICP-MS2**	**105228**

Analytes	Result	RL	DF	Date Analyzed
Iron	**5700**	20	1	05/22/2015 22:41
Manganese	**71**	20	1	05/22/2015 22:41

Surrogates	REC (%)	Limits	
Terbium	91	70-130	05/22/2015 22:41

Analyst(s): DVH

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	**1505875-002J**	**Water**	**05/21/2015 13:15**	**ICP-MS2**	**105228**

Analytes	Result	RL	DF	Date Analyzed
Iron	**11,000**	20	1	05/22/2015 22:47
Manganese	**6700**	20	1	05/22/2015 22:47

Surrogates	REC (%)	Limits	
Terbium	91	70-130	05/22/2015 22:47

Analyst(s): DVH

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	**1505875-003J**	**Water**	**05/21/2015 10:05**	**ICP-MS2**	**105228**

Analytes	Result	RL	DF	Date Analyzed
Iron	**380**	20	1	05/22/2015 22:54
Manganese	**720**	20	1	05/22/2015 22:54

Surrogates	REC (%)	Limits	
Terbium	92	70-130	05/22/2015 22:54

Analyst(s): DVH

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	E200.8
Date Received:	5/21/15 19:34	**Analytical Method:**	E200.8
Date Prepared:	5/21/15	**Unit:**	µg/L

Metals

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	**1505875-004J**	**Water**	**05/21/2015 14:20**	**ICP-MS2**	**105228**

Analytes	Result	RL	DF	Date Analyzed
Iron	**11,000**	20	1	05/22/2015 23:00
Manganese	**1100**	20	1	05/22/2015 23:00

Surrogates	REC (%)	Limits	
Terbium	90	70-130	05/22/2015 23:00

Analyst(s): DVH

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/21/15 19:34	**Analytical Method:**	SW8021B/8015Bm
Date Prepared:	5/27/15	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	**1505875-001A**	**Water**	**05/21/2015 12:10**	**GC3**	**105449**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	50	1	05/27/2015 02:56
MTBE	---	5.0	1	05/27/2015 02:56
Benzene	---	0.50	1	05/27/2015 02:56
Toluene	---	0.50	1	05/27/2015 02:56
Ethylbenzene	---	0.50	1	05/27/2015 02:56
Xylenes	---	0.50	1	05/27/2015 02:56

Surrogates	REC (%)	Limits	
aaa-TFT	106	70-130	05/27/2015 02:56

Analyst(s): SS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	**1505875-002A**	**Water**	**05/21/2015 13:15**	**GC7**	**105444**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	**18,000**	1000	20	05/27/2015 00:05
MTBE	---	150	20	05/27/2015 00:05
Benzene	---	10	20	05/27/2015 00:05
Toluene	---	10	20	05/27/2015 00:05
Ethylbenzene	---	10	20	05/27/2015 00:05
Xylenes	---	10	20	05/27/2015 00:05

Surrogates	REC (%)	Limits	
aaa-TFT	108	70-130	05/27/2015 00:05

Analyst(s): SS Analytical Comments: d1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/21/15 19:34	**Analytical Method:**	SW8021B/8015Bm
Date Prepared:	5/27/15	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	**1505875-003A**	**Water**	**05/21/2015 10:05**	**GC3**	**105449**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	**91**	50	1	05/27/2015 04:25
MTBE	**---**	5.0	1	05/27/2015 04:25
Benzene	**---**	0.50	1	05/27/2015 04:25
Toluene	**---**	0.50	1	05/27/2015 04:25
Ethylbenzene	**---**	0.50	1	05/27/2015 04:25
Xylenes	**---**	0.50	1	05/27/2015 04:25

Surrogates	REC (%)	Limits	
aaa-TFT	108	70-130	05/27/2015 04:25

Analyst(s): SS Analytical Comments: d1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	**1505875-004A**	**Water**	**05/21/2015 14:20**	**GC3**	**105449**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	**3200**	500	10	05/27/2015 03:25
MTBE	**---**	50	10	05/27/2015 03:25
Benzene	**---**	5.0	10	05/27/2015 03:25
Toluene	**---**	5.0	10	05/27/2015 03:25
Ethylbenzene	**---**	5.0	10	05/27/2015 03:25
Xylenes	**---**	5.0	10	05/27/2015 03:25

Surrogates	REC (%)	Limits	
aaa-TFT	99	70-130	05/27/2015 03:25

Analyst(s): SS Analytical Comments: d1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/21/15 19:34	**Analytical Method:**	SW8021B/8015Bm
Date Prepared:	5/27/15	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
Trip Blank	**1505875-005B**	**Water**	**05/21/2015 07:30**	**GC3**	**105449**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	50	1	05/27/2015 05:24
MTBE	---	5.0	1	05/27/2015 05:24
Benzene	---	0.50	1	05/27/2015 05:24
Toluene	---	0.50	1	05/27/2015 05:24
Ethylbenzene	---	0.50	1	05/27/2015 05:24
Xylenes	---	0.50	1	05/27/2015 05:24

Surrogates	REC (%)	Limits	
aaa-TFT	104	70-130	05/27/2015 05:24

Analyst(s): SS

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	RSK175
Date Received:	5/21/15 19:34	**Analytical Method:**	RSK175
Date Prepared:	6/1/15	**Unit:**	µg/L

Light Gases

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	1505875-001F	Water/DISS.	05/21/2015 12:10	GC26	105675

Analytes	Result	RL	DF	Date Analyzed
Methane	**0.52**	0.10	1	06/01/2015 16:17

Analyst(s): KBO

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	1505875-002F	Water/DISS.	05/21/2015 13:15	GC26	105675

Analytes	Result	RL	DF	Date Analyzed
Methane	**560**	1.0	10	06/01/2015 15:16

Analyst(s): KBO

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	1505875-003F	Water/DISS.	05/21/2015 10:05	GC26	105675

Analytes	Result	RL	DF	Date Analyzed
Methane	**190**	1.0	10	06/01/2015 16:31

Analyst(s): KBO

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	1505875-004F	Water/DISS.	05/21/2015 14:20	GC26	105675

Analytes	Result	RL	DF	Date Analyzed
Methane	**2.5**	0.10	1	06/01/2015 15:52

Analyst(s): KBO

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SM4500 S-2 D
Date Received:	5/21/15 19:34	**Analytical Method:**	SM4500 S-2 D
Date Prepared:	5/22/15	**Unit:**	mg/L

Sulfide

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	1505875-001I	Water	05/21/2015 12:10	SPECTROPHOTOMETER	105311

Analytes	Result	RL	DF	Date Analyzed
Sulfide	**0.067**	0.050	1	05/22/2015 15:20

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	1505875-002I	Water	05/21/2015 13:15	SPECTROPHOTOMETER	105311

Analytes	Result	RL	DF	Date Analyzed
Sulfide	**1.1**	0.050	1	05/22/2015 15:25

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	1505875-003I	Water	05/21/2015 10:05	SPECTROPHOTOMETER	105311

Analytes	Result	RL	DF	Date Analyzed
Sulfide	ND	0.050	1	05/22/2015 15:00

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	1505875-004I	Water	05/21/2015 14:20	SPECTROPHOTOMETER	105311

Analytes	Result	RL	DF	Date Analyzed
Sulfide	**0.14**	0.050	1	05/22/2015 15:30

Analyst(s): RB

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SM2540C
Date Received:	5/21/15 19:34	**Analytical Method:**	SM2540C
Date Prepared:	5/26/15	**Unit:**	mg/L

Total Dissolved Solids

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	1505875-001L	Water	05/21/2015 12:10	WetChem	105427

Analytes	Result	RL	DF	Date Analyzed
Total Dissolved Solids	**476**	10.0	1	05/26/2015 19:15

Analyst(s): AL

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	1505875-002L	Water	05/21/2015 13:15	WetChem	105427

Analytes	Result	RL	DF	Date Analyzed
Total Dissolved Solids	**817**	10.0	1	05/26/2015 19:25

Analyst(s): AL

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	1505875-003L	Water	05/21/2015 10:05	WetChem	105427

Analytes	Result	RL	DF	Date Analyzed
Total Dissolved Solids	**517**	10.0	1	05/26/2015 19:30

Analyst(s): AL

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	1505875-004L	Water	05/21/2015 14:20	WetChem	105427

Analytes	Result	RL	DF	Date Analyzed
Total Dissolved Solids	**694**	10.0	1	05/26/2015 19:35

Analyst(s): AL

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	E415.3
Date Received:	5/21/15 19:34	**Analytical Method:**	E415.3
Date Prepared:	5/22/15	**Unit:**	mg/L

Total Nitrogen

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	1505875-001D	Water	05/21/2015 12:10	TOC_SHIMADZU	105273

Analytes	Result	RL	DF	Date Analyzed
Total Nitrogen	**1.4**	0.70	1	05/22/2015 16:54

Analyst(s): AV

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	1505875-002D	Water	05/21/2015 13:15	TOC_SHIMADZU	105273

Analytes	Result	RL	DF	Date Analyzed
Total Nitrogen	ND	0.70	1	05/22/2015 22:07

Analyst(s): AV

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	1505875-003D	Water	05/21/2015 10:05	TOC_SHIMADZU	105273

Analytes	Result	RL	DF	Date Analyzed
Total Nitrogen	ND	0.70	1	05/22/2015 17:08

Analyst(s): AV

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	1505875-004D	Water	05/21/2015 14:20	TOC_SHIMADZU	105273

Analytes	Result	RL	DF	Date Analyzed
Total Nitrogen	ND	0.70	1	05/22/2015 17:33

Analyst(s): AV

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	E415.3
Date Received:	5/21/15 19:34	**Analytical Method:**	E415.3
Date Prepared:	5/22/15	**Unit:**	mg/L

Total Organic Carbon (TOC) reported as NPOC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	1505875-001C	Water	05/21/2015 12:10	TOC_SHIMADZU	105273

Analytes	Result	RL	DF	Date Analyzed
TOC	**3.1**	0.30	1	05/22/2015 16:54

Analyst(s): AV

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	1505875-002C	Water	05/21/2015 13:15	TOC_SHIMADZU	105273

Analytes	Result	RL	DF	Date Analyzed
TOC	**13**	0.30	1	05/22/2015 22:07

Analyst(s): AV

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	1505875-003C	Water	05/21/2015 10:05	TOC_SHIMADZU	105273

Analytes	Result	RL	DF	Date Analyzed
TOC	**3.5**	0.30	1	05/22/2015 17:08

Analyst(s): AV

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	1505875-004C	Water	05/21/2015 14:20	TOC_SHIMADZU	105273

Analytes	Result	RL	DF	Date Analyzed
TOC	**16**	0.30	1	05/22/2015 17:33

Analyst(s): AV

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	SW3510C
Date Received:	5/21/15 19:34	**Analytical Method:**	SW8015B
Date Prepared:	5/21/15	**Unit:**	µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	**1505875-001A**	**Water**	**05/21/2015 12:10**	**GC2B**	**105201**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**380**	50	1	05/23/2015 01:09

Surrogates	REC (%)	Limits	
C9	114	70-130	05/23/2015 01:09

Analyst(s): HD Analytical Comments: e7,e2

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	**1505875-002A**	**Water**	**05/21/2015 13:15**	**GC2B**	**105201**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**4100**	50	1	05/23/2015 06:09

Surrogates	REC (%)	Limits	
C9	113	70-130	05/23/2015 06:09

Analyst(s): HD Analytical Comments: e4,e7,e2,b6

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	**1505875-003A**	**Water**	**05/21/2015 10:05**	**GC2B**	**105201**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**130**	50	1	05/23/2015 14:56

Surrogates	REC (%)	Limits	
C9	111	70-130	05/23/2015 14:56

Analyst(s): HD Analytical Comments: e2

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	**1505875-004A**	**Water**	**05/21/2015 14:20**	**GC2B**	**105201**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**2000**	50	1	05/23/2015 13:40

Surrogates	REC (%)	Limits	
C9	112	70-130	05/23/2015 13:40

Analyst(s): HD Analytical Comments: e4,e2

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Project:	#731637001; Connell Auto	**Extraction Method:**	E365.1
Date Received:	5/21/15 19:34	**Analytical Method:**	E365.1
Date Prepared:	5/21/15	**Unit:**	mg/L

Total Phosphorous as P

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-3	1505875-001K	Water/TOTAL	05/21/2015 12:10	SKALAR	105212

Analytes	Result	RL	DF	Date Analyzed
Total Phosphorous as P	**0.25**	0.040	1	05/22/2015 14:38

Analyst(s): LP

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-6	1505875-002K	Water/TOTAL	05/21/2015 13:15	SKALAR	105212

Analytes	Result	RL	DF	Date Analyzed
Total Phosphorous as P	**0.54**	0.040	1	05/22/2015 14:42

Analyst(s): LP

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-8	1505875-003K	Water/TOTAL	05/21/2015 10:05	SKALAR	105212

Analytes	Result	RL	DF	Date Analyzed
Total Phosphorous as P	**0.13**	0.040	1	05/22/2015 14:46

Analyst(s): LP

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-18	1505875-004K	Water/TOTAL	05/21/2015 14:20	SKALAR	105212

Analytes	Result	RL	DF	Date Analyzed
Total Phosphorous as P	**0.14**	0.040	1	05/22/2015 14:50

Analyst(s): LP

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/26/15	**BatchID:**	105374
Date Analyzed:	5/26/15	**Extraction Method:**	E300.1
Instrument:	IC1	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105374 1505875-002HMS/MSD

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Sulfite	ND	1.07	0.10	1	-	107	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Sulfite	1.01	0.972	1	ND	101	97	80-120	3.88	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/20/15	**BatchID:**	105178
Date Analyzed:	5/20/15 - 5/21/15	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105178 1505812-001BMS/MSD

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Nitrate as N	ND	0.907	0.10	1	-	91	85-115
Nitrate as $NO3^{-}$	ND	4.02	0.45	4.4	-	91	85-115
Nitrite as N	ND	0.944	0.10	1	-	94	85-115
Nitrite as $NO2^{-}$	ND	3.11	0.33	3.3	-	94	85-115
Sulfate	ND	0.969	0.10	1	-	95	85-115
Surrogate Recovery							
Formate	0.0916	0.0910		0.10	92	91	90-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Nitrate as N	0.933	1.01	1	ND	93	101	85-115	7.49	15
Nitrate as $NO3^{-}$	4.13	4.45	4.4	ND	94	101	85-115	7.49	15
Nitrite as N	0.957	1.05	1	ND	96	105	85-115	9.00	15
Nitrite as $NO2^{-}$	3.16	3.46	3.3	ND	96	105	85-115	9.00	15
Sulfate	NR	NR	1	13	NR	NR	85-115	NR	15
Surrogate Recovery									
Formate	0.0906	0.0899	0.10		91	90	90-115	0.812	10

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/27/15	**BatchID:**	105459
Date Analyzed:	5/27/15	**Extraction Method:**	SW5030B
Instrument:	GC28	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105459 1505866-019BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	10.2	0.50	10	-	102	54-140
Benzene	ND	9.96	0.50	10	-	100	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	41.2	2.0	40	-	103	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	9.50	0.50	10	-	95	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	9.90	0.50	10	-	99	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	10.1	0.50	10	-	101	66-125
1,1-Dichloroethene	ND	10.3	0.50	10	-	103	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-

(Cont.)

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/27/15	**BatchID:**	105459
Date Analyzed:	5/27/15	**Extraction Method:**	SW5030B
Instrument:	GC28	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105459 1505866-019BMS/MSD

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Diisopropyl ether (DIPE)	ND	9.88	0.50	10	-	99	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	9.66	0.50	10	-	97	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	10.0	0.50	10	-	100	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	9.72	0.50	10	-	97	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	9.68	0.50	10	-	97	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-
Surrogate Recovery							
Dibromofluoromethane	28.2	28.0		25	113	112	70-130
Toluene-d8	26.9	27.4		25	108	110	70-130
4-BFB	2.56	2.61		2.5	102	105	70-130

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/27/15	**BatchID:**	105459
Date Analyzed:	5/27/15	**Extraction Method:**	SW5030B
Instrument:	GC28	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105459 1505866-019BMS/MSD

QC Summary Report for SW8260B

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
tert-Amyl methyl ether (TAME)	10.8	11.5	10	ND	108	115	69-139	6.80	20
Benzene	10.4	10.9	10	ND	103	108	69-141	4.55	20
t-Butyl alcohol (TBA)	45.1	49.1	40	ND	113	123	41-152	8.50	20
Chlorobenzene	9.78	10.3	10	ND	98	103	77-120	4.96	20
1,2-Dibromoethane (EDB)	10.4	11.0	10	ND	104	110	76-135	5.88	20
1,2-Dichloroethane (1,2-DCA)	10.6	11.2	10	ND	106	112	73-139	5.75	20
1,1-Dichloroethene	10.7	11.0	10	ND	107	110	59-140	3.59	20
Diisopropyl ether (DIPE)	10.2	10.9	10	ND	102	109	72-140	6.02	20
Ethyl tert-butyl ether (ETBE)	10.1	10.8	10	ND	101	108	71-140	5.97	20
Methyl-t-butyl ether (MTBE)	10.8	11.6	10	ND	108	116	73-139	7.24	20
Toluene	9.99	10.4	10	ND	99	103	71-128	3.97	20
Trichloroethene	10.0	10.3	10	ND	100	103	64-132	3.13	20
Surrogate Recovery									
Dibromofluoromethane	28.1	28.6	25		112	114	70-130	1.83	20
Toluene-d8	27.3	27.3	25		109	109	70-130	0	20
4-BFB	2.57	2.61	2.5		103	105	70-130	1.71	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/27/15 - 5/28/15	**BatchID:**	105445
Date Analyzed:	5/27/15	**Extraction Method:**	SM2320B
Instrument:	Titrino	**Analytical Method:**	SM2320B
Matrix:	Water	**Test Method:**	SM2320B (Alkalinity)
Project:	#731637001; Connell Auto		

QC Summary Report for Alkalinity

Lab ID	Analyte	Reporting Units	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1505875-001M	Total	mg $CaCO_3$/L	239	1	238	1	0.587	<20
1505875-002M	Total	mg $CaCO_3$/L	510	1	512	1	0.288	<20
1505875-003M	Total	mg $CaCO_3$/L	374	1	373	1	0.286	<20
1505875-004M	Total	mg $CaCO_3$/L	500	1	497	1	0.708	<20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/21/15	**BatchID:**	105228
Date Analyzed:	5/22/15	**Extraction Method:**	E200.8
Instrument:	ICP-MS1	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105228 1505869-006AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Antimony	ND	50.8	0.50	50	-	102	85-115
Arsenic	ND	48.3	0.50	50	-	97	85-115
Barium	ND	484	5.0	500	-	97	85-115
Beryllium	ND	52.7	0.50	50	-	105	85-115
Cadmium	ND	50.2	0.25	50	-	100	85-115
Chromium	ND	49.2	0.50	50	-	98	85-115
Cobalt	ND	49.1	0.50	50	-	98	85-115
Copper	ND	49.8	2.0	50	-	99	85-115
Lead	ND	49.8	0.50	50	-	100	85-115
Mercury	ND	1.12	0.025	1.25	-	89	85-115
Molybdenum	ND	49.7	0.50	50	-	99	85-115
Nickel	ND	49.3	0.50	50	-	99	85-115
Selenium	ND	51.2	0.50	50	-	102	85-115
Silver	ND	50.4	0.19	50	-	101	85-115
Thallium	ND	48.1	0.50	50	-	96	85-115
Vanadium	ND	49.4	0.50	50	-	99	85-115
Zinc	ND	504	15	500	-	100	85-115
Surrogate Recovery							
Terbium	751	890		750	100	119	70-130

(Cont.)

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/21/15	**BatchID:**	105228
Date Analyzed:	5/22/15	**Extraction Method:**	E200.8
Instrument:	ICP-MS1	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105228 1505869-006AMS/MSD

QC Summary Report for Metals

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	52.2	52.1	50	2.3	100	100	70-130	0	20
Arsenic	50.1	49.0	50	1.110	98	96	70-130	2.08	20
Barium	543	552	500	49.81	99	100	70-130	1.50	20
Beryllium	47.3	47.7	50	ND	95	95	70-130	0	20
Cadmium	48.2	47.8	50	ND	96	96	70-130	0	20
Chromium	48.4	47.6	50	ND	96	94	70-130	1.79	20
Cobalt	49.1	48.5	50	0.97	96	95	70-130	1.13	20
Copper	NR	NR	50	3100	NR	NR	70-130	NR	20
Lead	57.6	57.5	50	11.88	91	91	70-130	0	20
Mercury	1.09	1.10	1.25	ND	87	87	70-130	0	20
Molybdenum	49.8	49.6	50	1.0	98	97	70-130	0.483	20
Nickel	148	148	50	110	70	70	70-130	0	20
Selenium	50.7	50.0	50	ND	101	100	70-130	1.37	20
Silver	48.6	48.0	50	0.2003	97	96	70-130	1.18	20
Thallium	45.2	45.0	50	ND	90	90	70-130	0	20
Vanadium	50.0	49.0	50	ND	99	97	70-130	2.18	20
Zinc	NR	NR	500	3600	NR	NR	70-130	NR	20
Surrogate Recovery									
Terbium	762	758	750		102	101	70-130	0.539	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/22/15	**BatchID:**	105312
Date Analyzed:	5/22/15	**Extraction Method:**	SM3500-Fe B4c
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM3500-Fe B4c
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105312 1505875-001EMS/MSD

QC Summary Report for SM3500 Fe B4c

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ferrous Iron	ND	207	50	200	-	104	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Ferrous Iron	208	208	200	ND	104	104	70-130	0	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/21/15	**BatchID:**	105228
Date Analyzed:	5/22/15	**Extraction Method:**	E200.8
Instrument:	ICP-MS1	**Analytical Method:**	E200.8
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105228 1505869-006AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Iron	ND	503	20	500	-	101	85-115
Manganese	ND	515	20	500	-	103	85-115
Surrogate Recovery							
Terbium	751	890		750	100	119	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Iron	920	905	500	440	96	93	70-130	1.56	20
Manganese	769	756	500	270	99	96	70-130	1.68	20
Surrogate Recovery									
Terbium	762	758	750		102	101	70-130	0.539	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/27/15	**BatchID:**	105444
Date Analyzed:	5/27/15 - 5/28/15	**Extraction Method:**	SW5030B
Instrument:	GC3, GC7	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105444 1505892-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	63.2	40	60	-	105	70-130
MTBE	ND	10.6	5.0	10	-	106	70-130
Benzene	ND	11.2	0.50	10	-	112	70-130
Toluene	ND	11.2	0.50	10	-	112	70-130
Ethylbenzene	ND	11.4	0.50	10	-	114	70-130
Xylenes	ND	34.3	0.50	30	-	114	70-130
Surrogate Recovery							
aaa-TFT	9.64	10.2		10	96	102	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	57.4	57.3	60	ND	96	96	70-130	0	20
MTBE	9.59	10.8	10	ND	96	107	70-130	11.3	20
Benzene	10.6	10.6	10	ND	106	106	70-130	0	20
Toluene	10.9	11.2	10	ND	109	112	70-130	2.81	20
Ethylbenzene	10.8	10.8	10	ND	107	108	70-130	0.645	20
Xylenes	33.5	33.2	30	ND	112	111	70-130	0.824	20
Surrogate Recovery									
aaa-TFT	10.4	10.1	10		104	101	70-130	2.49	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/26/15	**BatchID:**	105449
Date Analyzed:	5/27/15	**Extraction Method:**	SW5030B
Instrument:	GC3	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105449 1505838-002AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	59.2	40	60	-	99	70-130
MTBE	ND	12.3	5.0	10	-	123	70-130
Benzene	ND	12.0	0.50	10	-	119	70-130
Toluene	ND	12.1	0.50	10	-	121	70-130
Ethylbenzene	ND	12.1	0.50	10	-	121	70-130
Xylenes	ND	36.1	0.50	30	-	120	70-130
Surrogate Recovery							
aaa-TFT	10.1	10.0		10	101	100	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	65.5	66.4	60	ND	109	111	70-130	1.41	20
MTBE	11.0	11.2	10	ND	110	112	70-130	2.08	20
Benzene	11.0	10.9	10	ND	110	109	70-130	1.50	20
Toluene	11.1	11.0	10	ND	108	107	70-130	1.01	20
Ethylbenzene	11.3	11.0	10	ND	113	110	70-130	1.95	20
Xylenes	33.6	33.3	30	ND	112	111	70-130	0.848	20
Surrogate Recovery									
aaa-TFT	9.94	9.56	10		99	96	70-130	3.83	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	6/1/15	**BatchID:**	105675
Date Analyzed:	6/1/15	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105675

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.33	0.10	1.17	-	113	70-130

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/22/15	**BatchID:**	105311
Date Analyzed:	5/22/15	**Extraction Method:**	SM4500 S-2 D
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105311 1505875-003IMS/MSD

QC Summary Report For SM4500S2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Sulfide	ND	2.71	0.050	2.5	-	108	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Sulfide	2.51	2.44	2.5	ND	100	98	75-125	2.71	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/26/15	**BatchID:**	105427
Date Analyzed:	5/26/15	**Extraction Method:**	SM2540C
Instrument:	WetChem	**Analytical Method:**	SM2540C
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto		

QC Summary Report for Total Dissolved Solids

SampID	Sample Result	Sample DF	Dup / Serial Dilution Result	Dup / Serial Dilution DF	RPD	Acceptance Criteria (%)
1505875-001L	476	1	498	2	4.52	<20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/22/15	**BatchID:**	105273
Date Analyzed:	5/22/15	**Extraction Method:**	E415.3
Instrument:	TOC_SHIMADZU	**Analytical Method:**	E415.3
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105273 1505799-001AMS/MSD

QC Summary Report for E415.3

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Nitrogen	ND	51.6	0.70	50	-	103	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Nitrogen	52.1	52.6	50	0.8014	103	104	70-130	1.03	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/22/15	**BatchID:**	105273
Date Analyzed:	5/22/15	**Extraction Method:**	E415.3
Instrument:	TOC_SHIMADZU	**Analytical Method:**	E415.3
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105273 1505799-001AMS/MSD

QC Summary Report for E415.3

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TOC	ND	47.2	0.30	50	-	94	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TOC	48.6	49.4	50	2.659	92	94	70-130	1.59	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/21/15	**BatchID:**	105201
Date Analyzed:	5/22/15 - 5/28/15	**Extraction Method:**	SW3510C
Instrument:	GC2B, GC6B	**Analytical Method:**	SW8015B
Matrix:	Water	**Unit:**	µg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105201

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	1130	50	1000	-	113	61-157
TPH-Motor Oil (C18-C36)	ND	-	250	-	-	-	-
Surrogate Recovery							
C9	562	706		625	90	113	70-134

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505875
Date Prepared:	5/21/15	**BatchID:**	105212
Date Analyzed:	5/21/15	**Extraction Method:**	E365.1
Instrument:	SKALAR	**Analytical Method:**	E365.1
Matrix:	Water	**Unit:**	mg/L
Project:	#731637001; Connell Auto	**Sample ID:**	MB/LCS-105212 1505601-002AMS/MSD

QC Summary Report for E365.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Total Phosphorous as P	ND	0.832	0.040	0.80	-	104	90-110

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Phosphorous as P	NR	NR	0.80	6.014	NR	NR	80-120	NR	20

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1505875 **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Annie Lee
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5200 FAX: (415) 955-9041

Email: alee@langan.com
cc/3rd Party:
PO:
ProjectNo: #731637001; Connell Auto

Bill to:
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

Requested TAT: 5 days

Date Received: 05/21/2015
Date Printed: 05/22/2015

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1505875-001	MW-3	Water	5/21/2015 12:10	☐	H	G	B	M		E	J	A	B	F	I	L
1505875-002	MW-6	Water	5/21/2015 13:15	☐	H	G	B	M	N	E	J	A		F	I	L
1505875-003	MW-8	Water	5/21/2015 10:05	☐	H	G	B	M		E	J	A		F	I	L
1505875-004	MW-18	Water	5/21/2015 14:20	☐	H	G	B	M	N	E	J	A		F	I	L
1505875-005	Trip Blank	Water	5/21/2015 7:30	☐			A					B	A			

Test Legend:

1	300_1_Sulfite_W	2	300_1_W	3	8260VOC_W	4	Alka(spe)_W	5	CAM17MS_FF_DISS
6	FE2_W	7	FEMNMS_W	8	G-MBTEX_W	9	PREDF REPORT	10	RSK175_W
11	SULFIDE_W	12	TDS_W						

The following SampIDs: 001A, 002A, 003A, 004A contain testgroup.

Prepared by: Jena Alfaro

Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 1505875 **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Annie Lee
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5200 FAX: (415) 955-9041

Email: alee@langan.com
cc/3rd Party:
PO:
ProjectNo: #731637001; Connell Auto

Bill to:
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

Requested TAT: 5 days

Date Received: 05/21/2015
Date Printed: 05/22/2015

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					13	14	15	16	17	18	19	20	21	22	23	24
1505875-001	MW-3	Water	5/21/2015 12:10	☐	D	C	K	A								
1505875-002	MW-6	Water	5/21/2015 13:15	☐	D	C	K	A								
1505875-003	MW-8	Water	5/21/2015 10:05	☐	D	C	K	A								
1505875-004	MW-18	Water	5/21/2015 14:20	☐	D	C	K	A								
1505875-005	Trip Blank	Water	5/21/2015 7:30	☐												

Test Legend:

13	TN_W	14	TOC_W	15	TotalP_W	16	TPH(D)_W	17	
18		19		20		21		22	
23		24							

The following SampIDs: 001A, 002A, 003A, 004A contain testgroup.

Prepared by: Jena Alfaro

Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
Project: #731637001; Connell Auto
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

QC Level: LEVEL 2
Client Contact: Annie Lee
Contact's Email: alee@langan.com

Work Order: 1505875
Date Received: 5/21/2015

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505875-001A	MW-3	Water	Multi-Range TPH(g,d,mo)	4	VOA w/ HCl & 2-aVOA	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001B	MW-3	Water	SW8260B (VOCs) <1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001C	MW-3	Water	E415.3 (TOC)	2	VOA w/ HCl	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001D	MW-3	Water	E415.3 (Total Nitrogen)	2	VOA w/ HCl	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001E	MW-3	Water	SM3500 Fe B4c (Ferrous Iron)	2	aVOA w/ concentrated HCl (1.6ml)	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001F	MW-3	Water	RSK175 <Methane_4>	2	aVOA w/ H2SO4	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001G	MW-3	Water	E300.1 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$, Nitrite as N, Nitrite as $NO2^{-}$, Sulfate>	1	125mL HDPE, unprsv.	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001H	MW-3	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001I	MW-3	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001J	MW-3	Water	E200.8 (Fe & Mn)	1	250mL HDPE w/ HNO3	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001K	MW-3	Water	E365.1 (Total Phosphorous as P)	1	500mL aG w/ H2SO4	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-001L	MW-3	Water	SM2540C (TDS)	1	500mL HDPE, unprsv.	☐	5/21/2015 12:10	5 days	Present	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
Project: #731637001; Connell Auto
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

QC Level: LEVEL 2
Client Contact: Annie Lee
Contact's Email: alee@langan.com

Work Order: 1505875
Date Received: 5/21/2015

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505875-001M	MW-3	Water	SM2320B (Alkalinity)	1	500mL HDPE, unprsv.	☐	5/21/2015 12:10	5 days	Present	☐	
1505875-002A	MW-6	Water	Multi-Range TPH(g,d,mo)	4	VOA w/ HCl & 2-aVOA	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002B	MW-6	Water	SW8260B (VOCs) <1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002C	MW-6	Water	E415.3 (TOC)	2	VOA w/ HCl	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002D	MW-6	Water	E415.3 (Total Nitrogen)	2	VOA w/ HCl	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002E	MW-6	Water	SM3500 Fe B4c (Ferrous Iron)	2	aVOA w/ concentrated HCl (1.6ml)	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002F	MW-6	Water	RSK175 <Methane_4>	2	aVOA w/ H2SO4	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002G	MW-6	Water	E300.1 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$, Nitrite as N, Nitrite as $NO2^{-}$, Sulfate>	1	125mL HDPE, unprsv.	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002H	MW-6	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002I	MW-6	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002J	MW-6	Water	E200.8 (Fe & Mn)	1	250mL HDPE w/ HNO3	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002K	MW-6	Water	E365.1 (Total Phosphorous as P)	1	500mL aG w/ H2SO4	☐	5/21/2015 13:15	5 days	Present	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
Project: #731637001; Connell Auto
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

QC Level: LEVEL 2
Client Contact: Annie Lee
Contact's Email: alee@langan.com

Work Order: 1505875
Date Received: 5/21/2015

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505875-002L	MW-6	Water	SM2540C (TDS)	1	500mL HDPE, unprsv.	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002M	MW-6	Water	SM2320B (Alkalinity)	1	500mL HDPE, unprsv.	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-002N	MW-6	Water	E200.8 (CAM 17) (Dissolved-Field Filtered)	1	250mL HDPE w/ HNO3	☐	5/21/2015 13:15	5 days	Present	☐	
1505875-003A	MW-8	Water	Multi-Range TPH(g,d,mo)	4	VOA w/ HCl & 2-aVOA	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003B	MW-8	Water	SW8260B (VOCs) <1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003C	MW-8	Water	E415.3 (TOC)	2	VOA w/ HCl	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003D	MW-8	Water	E415.3 (Total Nitrogen)	2	VOA w/ HCl	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003E	MW-8	Water	SM3500 Fe B4c (Ferrous Iron)	2	aVOA w/ concentrated HCl (1.6ml)	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003F	MW-8	Water	RSK175 <Methane_4>	2	aVOA w/ H2SO4	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003G	MW-8	Water	E300.1 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^{-}$, Nitrite as N, Nitrite as $NO2^{-}$, Sulfate>	1	125mL HDPE, unprsv.	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003H	MW-8	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003I	MW-8	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/21/2015 10:05	5 days	Present	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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Client Name: TREADWELL & ROLLO
Project: #731637001; Connell Auto
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QC Level: LEVEL 2
Client Contact: Annie Lee
Contact's Email: alee@langan.com

Work Order: 1505875
Date Received: 5/21/2015

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505875-003J	MW-8	Water	E200.8 (Fe & Mn)	1	250mL HDPE w/ HNO3	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003K	MW-8	Water	E365.1 (Total Phosphorous as P)	1	500mL aG w/ H2SO4	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003L	MW-8	Water	SM2540C (TDS)	1	500mL HDPE, unprsv.	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-003M	MW-8	Water	SM2320B (Alkalinity)	1	500mL HDPE, unprsv.	☐	5/21/2015 10:05	5 days	Present	☐	
1505875-004A	MW-18	Water	Multi-Range TPH(g,d,mo)	4	VOA w/ HCl & 2-aVOA	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004B	MW-18	Water	SW8260B (VOCs) <1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004C	MW-18	Water	E415.3 (TOC)	2	VOA w/ HCl	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004D	MW-18	Water	E415.3 (Total Nitrogen)	2	VOA w/ HCl	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004E	MW-18	Water	SM3500 Fe B4c (Ferrous Iron)	2	aVOA w/ concentrated HCl (1.6ml)	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004F	MW-18	Water	RSK175 <Methane_4>	2	aVOA w/ H2SO4	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004G	MW-18	Water	E300.1 (Inorganic Anions) <Nitrate & Nitrite as N, Nitrate as N, Nitrate as $NO3^-$, Nitrite as N, Nitrite as $NO2^-$, Sulfate>	1	125mL HDPE, unprsv.	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004H	MW-18	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/21/2015 14:20	5 days	Present	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
Project: #731637001; Connell Auto
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

QC Level: LEVEL 2
Client Contact: Annie Lee
Contact's Email: alee@langan.com

Work Order: 1505875
Date Received: 5/21/2015

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505875-004I	MW-18	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004J	MW-18	Water	E200.8 (Fe & Mn)	1	250mL HDPE w/ HNO3	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004K	MW-18	Water	E365.1 (Total Phosphorous as P)	1	500mL aG w/ H2SO4	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004L	MW-18	Water	SM2540C (TDS)	1	500mL HDPE, unprsv.	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004M	MW-18	Water	SM2320B (Alkalinity)	1	500mL HDPE, unprsv.	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-004N	MW-18	Water	E200.8 (CAM 17) (Dissolved-Field Filtered)	1	250mL HDPE w/ HNO3	☐	5/21/2015 14:20	5 days	Present	☐	
1505875-005A	Trip Blank	Water	SW8260B (VOCs) <1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/21/2015 7:30	5 days	Present	☐	
1505875-005B	Trip Blank	Water	SW8021B/8015Bm (G/MBTEX)	2	VOA w/ HCl	☐	5/21/2015 7:30	5 days	Present	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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1505875

P 1/2

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTS # 150521-WW1

CLIENT: Treadwell & Rollo

SITE: Connell Auto
3093 Broadway
Oakland, CA

CONDUCT ANALYSIS TO DETECT

LAB McCampbell

DHS #

MUST MEET SPECIFICATIONS
☐ EPA ☐ LIA ☐ OTHER ☐ RWQCB REGION _____

SPECIAL INSTRUCTIONS

Invoice and Report to: Annie Lee

Treadwell & Rollo - San Francisco Office

415.955.5285 Project No: 731637001

alee@langan.com EDF Required

SAMPLE I.D.	DATE	TIME	MATRIX S = Soil W = H2O	CONTAINERS TOTAL		TPH-g, TPH-d (8015)	BTEX, MTBE, 1,2-DCA, Naphthalene (8260B)	Nitrate, Nitrite, Sulfate (E300.1)	Total Manganese, Total Iron (E200.8)	Ferrous Iron (SM 3500 Fe)	Sulfite (SM4500 SO3-2), Sulfide (SM4500 S-2D)	Dissolved Methane (RSK 175)	Total Nitrogen ((E415.3)	Total Phosphorus (E365.1)	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-3	5/21/15	1210	W	18	Various	X	X	X	X	X	X	X	X	X				
MW-6	"	1315	"	18	"	X	X	X	X	X	X	X	X	X				
MW-8	"	1005	"	18	"	X	X	X	X	X	X	X	X	X				
MW-18	"	1420	"	18	"	X	X	X	X	X	X	X	X	X				

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY
	5/21/15	1420	William Wong & Tuan Dang

RESULTS NEEDED NO LATER THAN: Standard

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	5-21-15	1535		5-21-15	~~1650~~ 1535
	5-21-15	1650		5/21/15	1650

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

ICE / t° 2.4
GOOD CONDITION ____ APPROPRIATE
HEAD SPACE ABSENT ____ CONTAINERS ____
DECHLORINATED IN LAB ____ PRESERVED IN LAB ____
VOAS | O & G | METALS | OTHER
PRESERVATION

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTS # 150521-WW1

CLIENT: Treadwell & Rollo

SITE: Connell Auto
3093 Broadway
Oakland, CA

CONDUCT ANALYSIS TO DETECT

LAB McCampbell

DHS #

MUST MEET SPECIFICATIONS
☐ EPA ☐ LIA ☐ OTHER ☐ RWQCB REGION _____

SPECIAL INSTRUCTIONS

Invoice and Report to: Annie Lee

Treadwell & Rollo - San Francisco Office

415.955.5285 Project No: 731637001

alee@langan.com EDF Required

SAMPLE I.D.	DATE	TIME	MATRIX S = Soil W = H2O	CONTAINERS TOTAL		Cam 17 Metals (E200.8) Field filtered	TOC (E415.3)	TDS (SM2540C)	Alkalinity (SM2320B)	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-3	5/21/15	1210	W	~~3~~ 4	various		X	X	X	4 bottles			
MW-6		1315		~~3~~ 5		X	X	X	X	5 bottles			
MW-8		1005		~~3~~ 4			X	X	X	4 bottles			
MW-18		1420		~~3~~ 5		X	X	X	X	5 bottles			

SAMPLING COMPLETED DATE 5/21/15 TIME 1420

SAMPLING PERFORMED BY WILLIAM WONG / JUAN DANG

RESULTS NEEDED NO LATER THAN Standard

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	5/21/15	1535		5-21-15	1535
	5-21-15	1650		5/21/15	1650

SHIPPED VIA | DATE SENT | TIME SENT | COOLER #

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Sample Receipt Checklist

Client Name: **Treadwell & Rollo**
Date and Time Received: **5/21/2015 7:34:44 PM**

Project Name: **#731637001; Connell Auto**
LogIn Reviewed by: Jena Alfaro

WorkOrder №: **1505875** Matrix: Water
Carrier: Bernie Cummins (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Sample/Temp Blank temperature	Temp: 2.4°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	NA ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☑	No ☐	NA ☐
Samples Received on Ice?	Yes ☑	No ☐	
	(Ice Type: WET ICE)		

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

** NOTE: If the "No" box is checked, see comments below.*

Comments:

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1505938

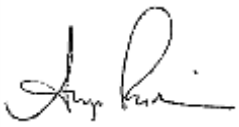
Report Created for: Treadwell & Rollo

555 Montgomery St., Suite 1300
San Francisco, CA 94111

Project Contact: Annie Lee
Project P.O.:
Project Name: 731637001; Connell Auto

Project Received: 05/22/2015

Analytical Report reviewed & approved for release on 06/02/2015 by:



Angela Rydelius,
Laboratory Manager

McCampbell Analytical, Inc.
"When Quality Counts"

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Glossary of Terms & Qualifier Definitions

Client: Treadwell & Rollo
Project: 731637001; Connell Auto
WorkOrder: 1505938

Glossary Abbreviation

95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

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Glossary of Terms & Qualifier Definitions

Client: Treadwell & Rollo
Project: 731637001; Connell Auto
WorkOrder: 1505938

Analytical Qualifiers

S	spike recovery outside accepted recovery limits
a1	sample diluted due to matrix interference
b6	lighter than water immiscible sheen/product is present
c1	surrogate recovery outside of the control limits due to the dilution of the sample.
c2	surrogate recovery outside of the control limits due to matrix interference.
d1	weakly modified or unmodified gasoline is significant
d7	strongly aged gasoline or diesel range compounds are significant in the TPH(g) chromatogram
e2	diesel range compounds are significant; no recognizable pattern
e4	gasoline range compounds are significant.
e7	oil range compounds are significant

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/22/15 20:45	**Analytical Method:**	E300.1
Date Prepared:	5/27/15	**Unit:**	mg/L

Sulfite by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-4	1505938-001D	Water	05/22/2015 08:55	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	0.10	1	05/27/2015 03:17

Analyst(s): TD

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-5	1505938-002D	Water	05/22/2015 09:55	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	10	100	05/27/2015 10:05

Analyst(s): TD Analytical Comments: a1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-7	1505938-003D	Water	05/22/2015 10:45	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	10	100	05/27/2015 10:33

Analyst(s): TD Analytical Comments: a1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-14	1505938-004D	Water	05/22/2015 11:30	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	5.0	50	05/27/2015 11:00

Analyst(s): TD Analytical Comments: a1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/22/15 20:45	**Analytical Method:**	E300.1
Date Prepared:	5/27/15	**Unit:**	mg/L

Sulfite by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-19	1505938-005D	Water	05/22/2015 13:50	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	10	100	05/27/2015 11:27

Analyst(s): TD Analytical Comments: a1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3A	1505938-006D	Water	05/22/2015 12:20	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	0.10	1	05/27/2015 01:00

Analyst(s): TD

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3B	1505938-007D	Water	05/22/2015 12:55	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	10	100	05/27/2015 11:54

Analyst(s): TD Analytical Comments: a1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-1	1505938-008D	Water	05/22/2015 09:00	IC1	105374

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	0.10	1	05/27/2015 00:06

Analyst(s): TD

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/22/15 20:45	**Analytical Method:**	E300.1
Date Prepared:	5/27/15	**Unit:**	mg/L

Sulfite by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-2	**1505938-009D**	**Water**	**05/22/2015 10:00**	**IC1**	**105374**

Analytes	Result	RL	DF	Date Analyzed
Sulfite	ND	10	100	05/27/2015 12:21

Analyst(s): TD

Analytical Comments: a1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/22/15 20:45	**Analytical Method:**	E300.1
Date Prepared:	5/27/15-5/29/15	**Unit:**	mg/L

Inorganic Anions by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-4	**1505938-001C**	**Water**	**05/22/2015 08:55**	**IC3**	**105315**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**1.0**	0.10	1	05/27/2015 19:43

Surrogates	REC (%)	Limits	
Formate	100	90-115	05/27/2015 19:43

Analyst(s): TD

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-5	**1505938-002C**	**Water**	**05/22/2015 09:55**	**IC1**	**105315**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**100**	10	100	05/28/2015 21:56

Surrogates	REC (%)	Qualifiers	Limits	
Formate	0	S	90-115	05/28/2015 21:56

Analyst(s): TD Analytical Comments: c1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-7	**1505938-003C**	**Water**	**05/22/2015 10:45**	**IC1**	**105315**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**80**	10	100	05/28/2015 22:24

Surrogates	REC (%)	Qualifiers	Limits	
Formate	0	S	90-115	05/28/2015 22:24

Analyst(s): TD Analytical Comments: c1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-14	**1505938-004C**	**Water**	**05/22/2015 11:30**	**IC3**	**105315**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**21**	1.0	10	05/27/2015 22:04

Surrogates	REC (%)	Qualifiers	Limits	
Formate	66	S	90-115	05/27/2015 22:04

Analyst(s): TD Analytical Comments: c1

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Angela Rydelius, Lab Manager

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/22/15 20:45	**Analytical Method:**	E300.1
Date Prepared:	5/27/15-5/29/15	**Unit:**	mg/L

Inorganic Anions by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-19	**1505938-005C**	**Water**	**05/22/2015 13:50**	**IC1**	**105315**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**66**	5.0	50	05/28/2015 22:51

Surrogates	REC (%)	Qualifiers	Limits	
Formate	0	S	90-115	05/28/2015 22:51

Analyst(s): TD Analytical Comments: c1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3A	**1505938-006C**	**Water**	**05/22/2015 12:20**	**IC1**	**105315**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**0.59**	0.10	1	05/28/2015 21:02

Surrogates	REC (%)	Qualifiers	Limits	
Formate	0	S	90-115	05/28/2015 21:02

Analyst(s): TD Analytical Comments: c1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3B	**1505938-007C**	**Water**	**05/22/2015 12:55**	**IC1**	**105315**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**69**	5.0	50	05/28/2015 23:18

Surrogates	REC (%)	Qualifiers	Limits	
Formate	0	S	90-115	05/28/2015 23:18

Analyst(s): TD Analytical Comments: c1

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-1	**1505938-008C**	**Water**	**05/22/2015 09:00**	**IC1**	**105315**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**2.7**	0.10	1	05/28/2015 16:57

Surrogates	REC (%)	Limits	
Formate	95	90-115	05/28/2015 16:57

Analyst(s): TD

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	E300.1
Date Received:	5/22/15 20:45	**Analytical Method:**	E300.1
Date Prepared:	5/27/15-5/29/15	**Unit:**	mg/L

Inorganic Anions by IC

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-2	**1505938-009C**	**Water**	**05/22/2015 10:00**	**IC1**	**105315**

Analytes	Result	RL	DF	Date Analyzed
Sulfate	**97**	10	100	05/29/2015 10:13

Surrogates	REC (%)	Qualifiers	Limits	
Formate	0	S	90-115	05/29/2015 10:13

Analyst(s): TD Analytical Comments: c1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8260B
Date Prepared:	6/1/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
TB-2	1505938-010A	Water	05/22/2015 08:00	GC10	105707

Analytes	Result	RL	DF	Date Analyzed
Acetone	ND	10	1	06/01/2015 11:10
tert-Amyl methyl ether (TAME)	ND	0.50	1	06/01/2015 11:10
Benzene	ND	0.50	1	06/01/2015 11:10
Bromobenzene	ND	0.50	1	06/01/2015 11:10
Bromochloromethane	ND	0.50	1	06/01/2015 11:10
Bromodichloromethane	ND	0.50	1	06/01/2015 11:10
Bromoform	ND	0.50	1	06/01/2015 11:10
Bromomethane	ND	0.50	1	06/01/2015 11:10
2-Butanone (MEK)	ND	2.0	1	06/01/2015 11:10
t-Butyl alcohol (TBA)	ND	2.0	1	06/01/2015 11:10
n-Butyl benzene	ND	0.50	1	06/01/2015 11:10
sec-Butyl benzene	ND	0.50	1	06/01/2015 11:10
tert-Butyl benzene	ND	0.50	1	06/01/2015 11:10
Carbon Disulfide	ND	0.50	1	06/01/2015 11:10
Carbon Tetrachloride	ND	0.50	1	06/01/2015 11:10
Chlorobenzene	ND	0.50	1	06/01/2015 11:10
Chloroethane	ND	0.50	1	06/01/2015 11:10
Chloroform	ND	0.50	1	06/01/2015 11:10
Chloromethane	ND	0.50	1	06/01/2015 11:10
2-Chlorotoluene	ND	0.50	1	06/01/2015 11:10
4-Chlorotoluene	ND	0.50	1	06/01/2015 11:10
Dibromochloromethane	ND	0.50	1	06/01/2015 11:10
1,2-Dibromo-3-chloropropane	ND	0.20	1	06/01/2015 11:10
1,2-Dibromoethane (EDB)	ND	0.50	1	06/01/2015 11:10
Dibromomethane	ND	0.50	1	06/01/2015 11:10
1,2-Dichlorobenzene	ND	0.50	1	06/01/2015 11:10
1,3-Dichlorobenzene	ND	0.50	1	06/01/2015 11:10
1,4-Dichlorobenzene	ND	0.50	1	06/01/2015 11:10
Dichlorodifluoromethane	ND	0.50	1	06/01/2015 11:10
1,1-Dichloroethane	ND	0.50	1	06/01/2015 11:10
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	06/01/2015 11:10
1,1-Dichloroethene	ND	0.50	1	06/01/2015 11:10
cis-1,2-Dichloroethene	ND	0.50	1	06/01/2015 11:10
trans-1,2-Dichloroethene	ND	0.50	1	06/01/2015 11:10
1,2-Dichloropropane	ND	0.50	1	06/01/2015 11:10
1,3-Dichloropropane	ND	0.50	1	06/01/2015 11:10
2,2-Dichloropropane	ND	0.50	1	06/01/2015 11:10
1,1-Dichloropropene	ND	0.50	1	06/01/2015 11:10

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8260B
Date Prepared:	6/1/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
TB-2	1505938-010A	Water	05/22/2015 08:00	GC10	105707

Analytes	Result	RL	DF	Date Analyzed
cis-1,3-Dichloropropene	ND	0.50	1	06/01/2015 11:10
trans-1,3-Dichloropropene	ND	0.50	1	06/01/2015 11:10
Diisopropyl ether (DIPE)	ND	0.50	1	06/01/2015 11:10
Ethylbenzene	ND	0.50	1	06/01/2015 11:10
Ethyl tert-butyl ether (ETBE)	ND	0.50	1	06/01/2015 11:10
Freon 113	ND	0.50	1	06/01/2015 11:10
Hexachlorobutadiene	ND	0.50	1	06/01/2015 11:10
Hexachloroethane	ND	0.50	1	06/01/2015 11:10
2-Hexanone	ND	0.50	1	06/01/2015 11:10
Isopropylbenzene	ND	0.50	1	06/01/2015 11:10
4-Isopropyl toluene	ND	0.50	1	06/01/2015 11:10
Methyl-t-butyl ether (MTBE)	ND	0.50	1	06/01/2015 11:10
Methylene chloride	ND	0.50	1	06/01/2015 11:10
4-Methyl-2-pentanone (MIBK)	ND	0.50	1	06/01/2015 11:10
Naphthalene	ND	0.50	1	06/01/2015 11:10
n-Propyl benzene	ND	0.50	1	06/01/2015 11:10
Styrene	ND	0.50	1	06/01/2015 11:10
1,1,1,2-Tetrachloroethane	ND	0.50	1	06/01/2015 11:10
1,1,2,2-Tetrachloroethane	ND	0.50	1	06/01/2015 11:10
Tetrachloroethene	ND	0.50	1	06/01/2015 11:10
Toluene	ND	0.50	1	06/01/2015 11:10
1,2,3-Trichlorobenzene	ND	0.50	1	06/01/2015 11:10
1,2,4-Trichlorobenzene	ND	0.50	1	06/01/2015 11:10
1,1,1-Trichloroethane	ND	0.50	1	06/01/2015 11:10
1,1,2-Trichloroethane	ND	0.50	1	06/01/2015 11:10
Trichloroethene	ND	0.50	1	06/01/2015 11:10
Trichlorofluoromethane	ND	0.50	1	06/01/2015 11:10
1,2,3-Trichloropropane	ND	0.50	1	06/01/2015 11:10
1,2,4-Trimethylbenzene	ND	0.50	1	06/01/2015 11:10
1,3,5-Trimethylbenzene	ND	0.50	1	06/01/2015 11:10
Vinyl Chloride	ND	0.50	1	06/01/2015 11:10
Xylenes, Total	ND	0.50	1	06/01/2015 11:10

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8260B
Date Prepared:	6/1/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS (Basic Target List)

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
TB-2	**1505938-010A**	**Water**	**05/22/2015 08:00**	**GC10**	**105707**

Analytes	Result	RL	DF	Date Analyzed
Surrogates	REC (%)	Limits		
Dibromofluoromethane	92	70-130		06/01/2015 11:10
Toluene-d8	88	70-130		06/01/2015 11:10
4-BFB	80	70-130		06/01/2015 11:10

Analyst(s): KF

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8260B
Date Prepared:	5/30/15-5/31/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-4	**1505938-001B**	**Water**	**05/22/2015 08:55**	**GC28**	**105634**

Analytes	Result	RL	DF	Date Analyzed
Benzene	**1400**	250	500	05/31/2015 00:52
1,2-Dichloroethane (1,2-DCA)	ND	250	500	05/31/2015 00:52
1,1-Dichloroethene	ND	250	500	05/31/2015 00:52
Ethylbenzene	**1200**	250	500	05/31/2015 00:52
Methyl-t-butyl ether (MTBE)	ND	250	500	05/31/2015 00:52
Naphthalene	**780**	250	500	05/31/2015 00:52
Toluene	**5300**	250	500	05/31/2015 00:52
Xylenes, Total	**7100**	250	500	05/31/2015 00:52

Surrogates	REC (%)	Limits	
Dibromofluoromethane	112	70-130	05/31/2015 00:52
Toluene-d8	110	70-130	05/31/2015 00:52
4-BFB	102	70-130	05/31/2015 00:52

Analyst(s): KF

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-5	**1505938-002B**	**Water**	**05/22/2015 09:55**	**GC28**	**105634**

Analytes	Result	RL	DF	Date Analyzed
Benzene	ND	0.50	1	05/30/2015 12:15
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	05/30/2015 12:15
1,1-Dichloroethene	ND	0.50	1	05/30/2015 12:15
Ethylbenzene	ND	0.50	1	05/30/2015 12:15
Methyl-t-butyl ether (MTBE)	ND	0.50	1	05/30/2015 12:15
Naphthalene	ND	0.50	1	05/30/2015 12:15
Toluene	**0.50**	0.50	1	05/30/2015 12:15
Xylenes, Total	**1.4**	0.50	1	05/30/2015 12:15

Surrogates	REC (%)	Limits	
Dibromofluoromethane	110	70-130	05/30/2015 12:15
Toluene-d8	111	70-130	05/30/2015 12:15
4-BFB	101	70-130	05/30/2015 12:15

Analyst(s): KF

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8260B
Date Prepared:	5/30/15-5/31/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-7	**1505938-003B**	**Water**	**05/22/2015 10:45**	**GC28**	**105634**

Analytes	Result	RL	DF	Date Analyzed
Benzene	ND	0.50	1	05/30/2015 01:55
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	05/30/2015 01:55
1,1-Dichloroethene	ND	0.50	1	05/30/2015 01:55
Ethylbenzene	ND	0.50	1	05/30/2015 01:55
Methyl-t-butyl ether (MTBE)	ND	0.50	1	05/30/2015 01:55
Naphthalene	ND	0.50	1	05/30/2015 01:55
Toluene	ND	0.50	1	05/30/2015 01:55
Xylenes, Total	**0.63**	0.50	1	05/30/2015 01:55

Surrogates	REC (%)	Limits	
Dibromofluoromethane	109	70-130	05/30/2015 01:55
Toluene-d8	112	70-130	05/30/2015 01:55
4-BFB	102	70-130	05/30/2015 01:55

Analyst(s): KF

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-14	**1505938-004B**	**Water**	**05/22/2015 11:30**	**GC28**	**105634**

Analytes	Result	RL	DF	Date Analyzed
Benzene	**250**	5.0	10	05/30/2015 13:30
1,2-Dichloroethane (1,2-DCA)	ND	5.0	10	05/30/2015 13:30
1,1-Dichloroethene	ND	5.0	10	05/30/2015 13:30
Ethylbenzene	**110**	5.0	10	05/30/2015 13:30
Methyl-t-butyl ether (MTBE)	ND	5.0	10	05/30/2015 13:30
Naphthalene	**100**	5.0	10	05/30/2015 13:30
Toluene	**90**	5.0	10	05/30/2015 13:30
Xylenes, Total	**850**	5.0	10	05/30/2015 13:30

Surrogates	REC (%)	Limits	
Dibromofluoromethane	113	70-130	05/30/2015 13:30
Toluene-d8	112	70-130	05/30/2015 13:30
4-BFB	96	70-130	05/30/2015 13:30

Analyst(s): KF

(Cont.)

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8260B
Date Prepared:	5/30/15-5/31/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-19	**1505938-005B**	**Water**	**05/22/2015 13:50**	**GC28**	**105634**

Analytes	Result	RL	DF	Date Analyzed
Benzene	ND	0.50	1	05/30/2015 14:07
1,2-Dichloroethane (1,2-DCA)	**1.9**	0.50	1	05/30/2015 14:07
1,1-Dichloroethene	ND	0.50	1	05/30/2015 14:07
Ethylbenzene	ND	0.50	1	05/30/2015 14:07
Methyl-t-butyl ether (MTBE)	ND	0.50	1	05/30/2015 14:07
Naphthalene	ND	0.50	1	05/30/2015 14:07
Toluene	ND	0.50	1	05/30/2015 14:07
Xylenes, Total	**0.69**	0.50	1	05/30/2015 14:07

Surrogates	REC (%)	Limits	
Dibromofluoromethane	111	70-130	05/30/2015 14:07
Toluene-d8	111	70-130	05/30/2015 14:07
4-BFB	101	70-130	05/30/2015 14:07

Analyst(s): KF

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3A	**1505938-006B**	**Water**	**05/22/2015 12:20**	**GC28**	**105634**

Analytes	Result	RL	DF	Date Analyzed
Benzene	**1100**	25	50	05/30/2015 14:45
1,2-Dichloroethane (1,2-DCA)	ND	25	50	05/30/2015 14:45
1,1-Dichloroethene	ND	25	50	05/30/2015 14:45
Ethylbenzene	**170**	25	50	05/30/2015 14:45
Methyl-t-butyl ether (MTBE)	ND	25	50	05/30/2015 14:45
Naphthalene	**260**	25	50	05/30/2015 14:45
Toluene	**190**	25	50	05/30/2015 14:45
Xylenes, Total	**2700**	25	50	05/30/2015 14:45

Surrogates	REC (%)	Limits	
Dibromofluoromethane	112	70-130	05/30/2015 14:45
Toluene-d8	111	70-130	05/30/2015 14:45
4-BFB	97	70-130	05/30/2015 14:45

Analyst(s): KF

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8260B
Date Prepared:	5/30/15-5/31/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3B	**1505938-007B**	**Water**	**05/22/2015 12:55**	**GC28**	**105634**

Analytes	Result	RL	DF	Date Analyzed
Benzene	ND	0.50	1	05/30/2015 15:24
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	05/30/2015 15:24
1,1-Dichloroethene	ND	0.50	1	05/30/2015 15:24
Ethylbenzene	ND	0.50	1	05/30/2015 15:24
Methyl-t-butyl ether (MTBE)	ND	0.50	1	05/30/2015 15:24
Naphthalene	ND	0.50	1	05/30/2015 15:24
Toluene	ND	0.50	1	05/30/2015 15:24
Xylenes, Total	**0.92**	0.50	1	05/30/2015 15:24

Surrogates	REC (%)	Limits	
Dibromofluoromethane	112	70-130	05/30/2015 15:24
Toluene-d8	111	70-130	05/30/2015 15:24
4-BFB	100	70-130	05/30/2015 15:24

Analyst(s): KF Analytical Comments: b6

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-1	**1505938-008B**	**Water**	**05/22/2015 09:00**	**GC28**	**105634**

Analytes	Result	RL	DF	Date Analyzed
Benzene	**1300**	100	200	05/30/2015 16:02
1,2-Dichloroethane (1,2-DCA)	ND	100	200	05/30/2015 16:02
1,1-Dichloroethene	ND	100	200	05/30/2015 16:02
Ethylbenzene	**1000**	100	200	05/30/2015 16:02
Methyl-t-butyl ether (MTBE)	ND	100	200	05/30/2015 16:02
Naphthalene	**700**	100	200	05/30/2015 16:02
Toluene	**5100**	100	200	05/30/2015 16:02
Xylenes, Total	**6500**	100	200	05/30/2015 16:02

Surrogates	REC (%)	Limits	
Dibromofluoromethane	113	70-130	05/30/2015 16:02
Toluene-d8	108	70-130	05/30/2015 16:02
4-BFB	94	70-130	05/30/2015 16:02

Analyst(s): KF

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8260B
Date Prepared:	5/30/15-5/31/15	**Unit:**	µg/L

Volatile Organics by P&T and GC/MS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-2	**1505938-009B**	**Water**	**05/22/2015 10:00**	**GC28**	**105634**

Analytes	Result	RL	DF	Date Analyzed
Benzene	ND	0.50	1	05/31/2015 01:29
1,2-Dichloroethane (1,2-DCA)	ND	0.50	1	05/31/2015 01:29
1,1-Dichloroethene	ND	0.50	1	05/31/2015 01:29
Ethylbenzene	ND	0.50	1	05/31/2015 01:29
Methyl-t-butyl ether (MTBE)	ND	0.50	1	05/31/2015 01:29
Naphthalene	ND	0.50	1	05/31/2015 01:29
Toluene	ND	0.50	1	05/31/2015 01:29
Xylenes, Total	**1.3**	0.50	1	05/31/2015 01:29

Surrogates	REC (%)	Limits	
Dibromofluoromethane	112	70-130	05/31/2015 01:29
Toluene-d8	109	70-130	05/31/2015 01:29
4-BFB	107	70-130	05/31/2015 01:29

Analyst(s): KF

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8021B/8015Bm
Date Prepared:	5/26/15-5/28/15	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-4	**1505938-001A**	**Water**	**05/22/2015 08:55**	**GC7**	**105444**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	**66,000**	500	10	05/26/2015 20:02
MTBE	**---**	50	10	05/26/2015 20:02
Benzene	**---**	5.0	10	05/26/2015 20:02
Toluene	**---**	5.0	10	05/26/2015 20:02
Ethylbenzene	**---**	5.0	10	05/26/2015 20:02
Xylenes	**---**	5.0	10	05/26/2015 20:02

Surrogates	REC (%)	Limits	
aaa-TFT	125	70-130	05/26/2015 20:02

Analyst(s): SS Analytical Comments: d1,c2

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-5	**1505938-002A**	**Water**	**05/22/2015 09:55**	**GC7**	**105444**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	50	1	05/27/2015 01:05
MTBE	**---**	5.0	1	05/27/2015 01:05
Benzene	**---**	0.50	1	05/27/2015 01:05
Toluene	**---**	0.50	1	05/27/2015 01:05
Ethylbenzene	**---**	0.50	1	05/27/2015 01:05
Xylenes	**---**	0.50	1	05/27/2015 01:05

Surrogates	REC (%)	Limits	
aaa-TFT	98	70-130	05/27/2015 01:05

Analyst(s): SS

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8021B/8015Bm
Date Prepared:	5/26/15-5/28/15	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-7	**1505938-003A**	**Water**	**05/22/2015 10:45**	**GC7**	**105444**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	50	1	05/27/2015 04:36
MTBE	---	5.0	1	05/27/2015 04:36
Benzene	---	0.50	1	05/27/2015 04:36
Toluene	---	0.50	1	05/27/2015 04:36
Ethylbenzene	---	0.50	1	05/27/2015 04:36
Xylenes	---	0.50	1	05/27/2015 04:36

Surrogates	REC (%)	Limits	
aaa-TFT	100	70-130	05/27/2015 04:36

Analyst(s): SS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-14	**1505938-004A**	**Water**	**05/22/2015 11:30**	**GC7**	**105444**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	**5700**	500	10	05/27/2015 05:06
MTBE	---	50	10	05/27/2015 05:06
Benzene	---	5.0	10	05/27/2015 05:06
Toluene	---	5.0	10	05/27/2015 05:06
Ethylbenzene	---	5.0	10	05/27/2015 05:06
Xylenes	---	5.0	10	05/27/2015 05:06

Surrogates	REC (%)	Limits	
aaa-TFT	107	70-130	05/27/2015 05:06

Analyst(s): SS Analytical Comments: d1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8021B/8015Bm
Date Prepared:	5/26/15-5/28/15	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-19	**1505938-005A**	**Water**	**05/22/2015 13:50**	**GC7**	**105444**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	50	1	05/27/2015 05:36
MTBE	---	5.0	1	05/27/2015 05:36
Benzene	---	0.50	1	05/27/2015 05:36
Toluene	---	0.50	1	05/27/2015 05:36
Ethylbenzene	---	0.50	1	05/27/2015 05:36
Xylenes	---	0.50	1	05/27/2015 05:36

Surrogates	REC (%)	Limits	
aaa-TFT	101	70-130	05/27/2015 05:36

Analyst(s): SS

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3A	**1505938-006A**	**Water**	**05/22/2015 12:20**	**GC7**	**105444**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	**20,000**	500	10	05/27/2015 06:06
MTBE	---	50	10	05/27/2015 06:06
Benzene	---	5.0	10	05/27/2015 06:06
Toluene	---	5.0	10	05/27/2015 06:06
Ethylbenzene	---	5.0	10	05/27/2015 06:06
Xylenes	---	5.0	10	05/27/2015 06:06

Surrogates	REC (%)	Limits	
aaa-TFT	112	70-130	05/27/2015 06:06

Analyst(s): SS Analytical Comments: d1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8021B/8015Bm
Date Prepared:	5/26/15-5/28/15	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3B	**1505938-007A**	**Water**	**05/22/2015 12:55**	**GC3**	**105444**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	**190**	50	1	05/28/2015 06:40
MTBE	**---**	5.0	1	05/28/2015 06:40
Benzene	**---**	0.50	1	05/28/2015 06:40
Toluene	**---**	0.50	1	05/28/2015 06:40
Ethylbenzene	**---**	0.50	1	05/28/2015 06:40
Xylenes	**---**	0.50	1	05/28/2015 06:40

Surrogates	REC (%)	Limits	
aaa-TFT	98	70-130	05/28/2015 06:40

Analyst(s): SS Analytical Comments: d7,b6

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-1	**1505938-008A**	**Water**	**05/22/2015 09:00**	**GC3**	**105444**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	**57,000**	2500	50	05/28/2015 01:43
MTBE	**---**	250	50	05/28/2015 01:43
Benzene	**---**	25	50	05/28/2015 01:43
Toluene	**---**	25	50	05/28/2015 01:43
Ethylbenzene	**---**	25	50	05/28/2015 01:43
Xylenes	**---**	25	50	05/28/2015 01:43

Surrogates	REC (%)	Limits	
aaa-TFT	103	70-130	05/28/2015 01:43

Analyst(s): SS Analytical Comments: d1

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW5030B
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8021B/8015Bm
Date Prepared:	5/26/15-5/28/15	**Unit:**	µg/L

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-2	**1505938-009A**	**Water**	**05/22/2015 10:00**	**GC3**	**105499**

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	ND	50	1	05/27/2015 14:10
MTBE	---	5.0	1	05/27/2015 14:10
Benzene	---	0.50	1	05/27/2015 14:10
Toluene	---	0.50	1	05/27/2015 14:10
Ethylbenzene	---	0.50	1	05/27/2015 14:10
Xylenes	---	0.50	1	05/27/2015 14:10

Surrogates	REC (%)	Limits	
aaa-TFT	100	70-130	05/27/2015 14:10

Analyst(s): SS

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SM4500 S-2 D
Date Received:	5/22/15 20:45	**Analytical Method:**	SM4500 S-2 D
Date Prepared:	5/26/15	**Unit:**	mg/L

Sulfide

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-4	1505938-001E	Water	05/22/2015 08:55	SPECTROPHOTOMETER	105428

Analytes	Result	RL	DF	Date Analyzed
Sulfide	**0.65**	0.050	1	05/26/2015 18:05

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-5	1505938-002E	Water	05/22/2015 09:55	SPECTROPHOTOMETER	105428

Analytes	Result	RL	DF	Date Analyzed
Sulfide	ND	0.050	1	05/26/2015 18:10

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-7	1505938-003E	Water	05/22/2015 10:45	SPECTROPHOTOMETER	105428

Analytes	Result	RL	DF	Date Analyzed
Sulfide	ND	0.050	1	05/26/2015 18:15

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-14	1505938-004E	Water	05/22/2015 11:30	SPECTROPHOTOMETER	105428

Analytes	Result	RL	DF	Date Analyzed
Sulfide	**1.1**	0.10	2	05/26/2015 18:20

Analyst(s): RB

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SM4500 S-2 D
Date Received:	5/22/15 20:45	**Analytical Method:**	SM4500 S-2 D
Date Prepared:	5/26/15	**Unit:**	mg/L

Sulfide

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-19	1505938-005E	Water	05/22/2015 13:50	SPECTROPHOTOMETER	105428

Analytes	Result	RL	DF	Date Analyzed
Sulfide	ND	0.050	1	05/26/2015 18:25

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3A	1505938-006E	Water	05/22/2015 12:20	SPECTROPHOTOMETER	105428

Analytes	Result	RL	DF	Date Analyzed
Sulfide	**0.14**	0.050	1	05/26/2015 18:30

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3B	1505938-007E	Water	05/22/2015 12:55	SPECTROPHOTOMETER	105428

Analytes	Result	RL	DF	Date Analyzed
Sulfide	**2.4**	0.10	2	05/26/2015 18:35

Analyst(s): RB

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-1	1505938-008E	Water	05/22/2015 09:00	SPECTROPHOTOMETER	105428

Analytes	Result	RL	DF	Date Analyzed
Sulfide	**0.66**	0.050	1	05/26/2015 18:40

Analyst(s): RB

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SM4500 S-2 D
Date Received:	5/22/15 20:45	**Analytical Method:**	SM4500 S-2 D
Date Prepared:	5/26/15	**Unit:**	mg/L

Sulfide

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-2	1505938-009E	Water	05/22/2015 10:00	SPECTROPHOTOMETER	105428

Analytes	Result	RL	DF	Date Analyzed
Sulfide	ND	0.050	1	05/26/2015 17:50

Analyst(s): RB

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW3510C
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8015B
Date Prepared:	5/22/15	**Unit:**	µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-4	**1505938-001A**	**Water**	**05/22/2015 08:55**	**GC11B**	**105293**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**14,000**	50	1	05/24/2015 16:14
Surrogates	**REC (%)**	**Limits**		
C9	111	70-130		05/24/2015 16:14

Analyst(s): HD Analytical Comments: e4,e2

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-5	**1505938-002A**	**Water**	**05/22/2015 09:55**	**GC11B**	**105293**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	50	1	05/24/2015 17:23
Surrogates	**REC (%)**	**Limits**		
C9	108	70-130		05/24/2015 17:23

Analyst(s): HD

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-7	**1505938-003A**	**Water**	**05/22/2015 10:45**	**GC11B**	**105293**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	50	1	05/24/2015 18:32
Surrogates	**REC (%)**	**Limits**		
C9	110	70-130		05/24/2015 18:32

Analyst(s): HD

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-14	**1505938-004A**	**Water**	**05/22/2015 11:30**	**GC11A**	**105293**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**1500**	500	10	05/24/2015 16:14
Surrogates	**REC (%)**	**Limits**		
C9	98	70-130		05/24/2015 16:14

Analyst(s): HD Analytical Comments: e4

(Cont.)

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW3510C
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8015B
Date Prepared:	5/22/15	**Unit:**	µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
MW-19	1505938-005A	Water	05/22/2015 13:50	GC11A	105293

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	50	1	05/24/2015 17:23
Surrogates	**REC (%)**	**Limits**		
C9	100	70-130		05/24/2015 17:23

Analyst(s): HD

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3A	1505938-006A	Water	05/22/2015 12:20	GC11A	105293

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**5000**	500	10	05/24/2015 18:32
Surrogates	**REC (%)**	**Limits**		
C9	101	70-130		05/24/2015 18:32

Analyst(s): HD Analytical Comments: e4

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
RW-3B	1505938-007A	Water	05/22/2015 12:55	GC11A	105293

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**2600**	500	10	05/24/2015 20:49
Surrogates	**REC (%)**	**Limits**		
C9	98	70-130		05/24/2015 20:49

Analyst(s): HD Analytical Comments: e7,e2,e4,b6

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-1	1505938-008A	Water	05/22/2015 09:00	GC11A	105293

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	**13,000**	500	10	05/24/2015 21:57
Surrogates	**REC (%)**	**Limits**		
C9	105	70-130		05/24/2015 21:57

Analyst(s): HD Analytical Comments: e4

(Cont.)

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Analytical Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Project:	731637001; Connell Auto	**Extraction Method:**	SW3510C
Date Received:	5/22/15 20:45	**Analytical Method:**	SW8015B
Date Prepared:	5/22/15	**Unit:**	µg/L

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix/ExtType	Date Collected	Instrument	Batch ID
DUP-2	**1505938-009A**	**Water**	**05/22/2015 10:00**	**GC11A**	**105293**

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	50	1	05/24/2015 23:06
Surrogates	**REC (%)**	**Limits**		
C9	103	70-130		05/24/2015 23:06

Analyst(s): HD

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Date Prepared:	5/26/15	**BatchID:**	105374
Date Analyzed:	5/26/15	**Extraction Method:**	E300.1
Instrument:	IC1	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	731637001; Connell Auto	**Sample ID:**	MB/LCS-105374 1505875-002HMS/MSD

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Sulfite	ND	1.07	0.10	1	-	107	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Sulfite	1.01	0.972	1	ND	101	97	80-120	3.88	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Date Prepared:	5/22/15	**BatchID:**	105315
Date Analyzed:	5/26/15	**Extraction Method:**	E300.1
Instrument:	IC3	**Analytical Method:**	E300.1
Matrix:	Water	**Unit:**	mg/L
Project:	731637001; Connell Auto	**Sample ID:**	MB/LCS-105315 1505921-002AMS/MSD

QC Summary Report for E300.1

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Sulfate	ND	1.06	0.10	1	-	101	85-115
Surrogate Recovery							
Formate	0.106	0.101		0.10	106	101	90-115

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Sulfate	NR	NR	1	1200	NR	NR	85-115	NR	15
Surrogate Recovery									
Formate	0.0976	0.0997	0.10		98	100	90-115	2.22	10

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Date Prepared:	6/1/15	**BatchID:**	105707
Date Analyzed:	6/1/15	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	731637001; Connell Auto	**Sample ID:**	MB/LCS-105707

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	9.23	0.50	10	-	92	54-140
Benzene	ND	9.52	0.50	10	-	95	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	27.5	2.0	40	-	69	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	8.96	0.50	10	-	90	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	8.97	0.50	10	-	90	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	9.91	0.50	10	-	99	66-125
1,1-Dichloroethene	ND	9.54	0.50	10	-	95	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Date Prepared:	6/1/15	**BatchID:**	105707
Date Analyzed:	6/1/15	**Extraction Method:**	SW5030B
Instrument:	GC10	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	731637001; Connell Auto	**Sample ID:**	MB/LCS-105707

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Diisopropyl ether (DIPE)	ND	9.86	0.50	10	-	99	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	9.65	0.50	10	-	96	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	9.34	0.50	10	-	93	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	9.37	0.50	10	-	94	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	9.17	0.50	10	-	92	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-
Surrogate Recovery							
Dibromofluoromethane	22.5	24.0		25	90	96	70-130
Toluene-d8	22.2	22.1		25	89	88	70-130
4-BFB	2.08	2.33		2.5	83	93	70-130

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Date Prepared:	5/30/15	**BatchID:**	105634
Date Analyzed:	5/29/15	**Extraction Method:**	SW5030B
Instrument:	GC28	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	731637001; Connell Auto	**Sample ID:**	MB/LCS-105634

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	10	-	-	-	-
tert-Amyl methyl ether (TAME)	ND	11.3	0.50	10	-	113	54-140
Benzene	ND	10.7	0.50	10	-	107	47-158
Bromobenzene	ND	-	0.50	-	-	-	-
Bromochloromethane	ND	-	0.50	-	-	-	-
Bromodichloromethane	ND	-	0.50	-	-	-	-
Bromoform	ND	-	0.50	-	-	-	-
Bromomethane	ND	-	0.50	-	-	-	-
2-Butanone (MEK)	ND	-	2.0	-	-	-	-
t-Butyl alcohol (TBA)	ND	47.5	2.0	40	-	119	42-140
n-Butyl benzene	ND	-	0.50	-	-	-	-
sec-Butyl benzene	ND	-	0.50	-	-	-	-
tert-Butyl benzene	ND	-	0.50	-	-	-	-
Carbon Disulfide	ND	-	0.50	-	-	-	-
Carbon Tetrachloride	ND	-	0.50	-	-	-	-
Chlorobenzene	ND	10.0	0.50	10	-	100	43-157
Chloroethane	ND	-	0.50	-	-	-	-
Chloroform	ND	-	0.50	-	-	-	-
Chloromethane	ND	-	0.50	-	-	-	-
2-Chlorotoluene	ND	-	0.50	-	-	-	-
4-Chlorotoluene	ND	-	0.50	-	-	-	-
Dibromochloromethane	ND	-	0.50	-	-	-	-
1,2-Dibromo-3-chloropropane	ND	-	0.20	-	-	-	-
1,2-Dibromoethane (EDB)	ND	10.5	0.50	10	-	105	44-155
Dibromomethane	ND	-	0.50	-	-	-	-
1,2-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,3-Dichlorobenzene	ND	-	0.50	-	-	-	-
1,4-Dichlorobenzene	ND	-	0.50	-	-	-	-
Dichlorodifluoromethane	ND	-	0.50	-	-	-	-
1,1-Dichloroethane	ND	-	0.50	-	-	-	-
1,2-Dichloroethane (1,2-DCA)	ND	11.0	0.50	10	-	110	66-125
1,1-Dichloroethene	ND	10.7	0.50	10	-	107	47-149
cis-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
trans-1,2-Dichloroethene	ND	-	0.50	-	-	-	-
1,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,3-Dichloropropane	ND	-	0.50	-	-	-	-
2,2-Dichloropropane	ND	-	0.50	-	-	-	-
1,1-Dichloropropene	ND	-	0.50	-	-	-	-
cis-1,3-Dichloropropene	ND	-	0.50	-	-	-	-
trans-1,3-Dichloropropene	ND	-	0.50	-	-	-	-

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Date Prepared:	5/30/15	**BatchID:**	105634
Date Analyzed:	5/29/15	**Extraction Method:**	SW5030B
Instrument:	GC28	**Analytical Method:**	SW8260B
Matrix:	Water	**Unit:**	µg/L
Project:	731637001; Connell Auto	**Sample ID:**	MB/LCS-105634

QC Summary Report for SW8260B

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Diisopropyl ether (DIPE)	ND	11.0	0.50	10	-	111	57-136
Ethylbenzene	ND	-	0.50	-	-	-	-
Ethyl tert-butyl ether (ETBE)	ND	10.8	0.50	10	-	108	55-137
Freon 113	ND	-	0.50	-	-	-	-
Hexachlorobutadiene	ND	-	0.50	-	-	-	-
Hexachloroethane	ND	-	0.50	-	-	-	-
2-Hexanone	ND	-	0.50	-	-	-	-
Isopropylbenzene	ND	-	0.50	-	-	-	-
4-Isopropyl toluene	ND	-	0.50	-	-	-	-
Methyl-t-butyl ether (MTBE)	ND	11.3	0.50	10	-	113	53-139
Methylene chloride	ND	-	0.50	-	-	-	-
4-Methyl-2-pentanone (MIBK)	ND	-	0.50	-	-	-	-
Naphthalene	ND	-	0.50	-	-	-	-
n-Propyl benzene	ND	-	0.50	-	-	-	-
Styrene	ND	-	0.50	-	-	-	-
1,1,1,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
1,1,2,2-Tetrachloroethane	ND	-	0.50	-	-	-	-
Tetrachloroethene	ND	-	0.50	-	-	-	-
Toluene	ND	10.1	0.50	10	-	101	52-137
1,2,3-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,2,4-Trichlorobenzene	ND	-	0.50	-	-	-	-
1,1,1-Trichloroethane	ND	-	0.50	-	-	-	-
1,1,2-Trichloroethane	ND	-	0.50	-	-	-	-
Trichloroethene	ND	10.1	0.50	10	-	101	43-157
Trichlorofluoromethane	ND	-	0.50	-	-	-	-
1,2,3-Trichloropropane	ND	-	0.50	-	-	-	-
1,2,4-Trimethylbenzene	ND	-	0.50	-	-	-	-
1,3,5-Trimethylbenzene	ND	-	0.50	-	-	-	-
Vinyl Chloride	ND	-	0.50	-	-	-	-
Xylenes, Total	ND	-	0.50	-	-	-	-
Surrogate Recovery							
Dibromofluoromethane	28.2	27.9		25	113	112	70-130
Toluene-d8	27.2	27.2		25	109	109	70-130
4-BFB	2.46	2.70		2.5	98	108	70-130

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Date Prepared:	5/27/15	**BatchID:**	105444
Date Analyzed:	5/27/15 - 5/28/15	**Extraction Method:**	SW5030B
Instrument:	GC3, GC7	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Water	**Unit:**	µg/L
Project:	731637001; Connell Auto	**Sample ID:**	MB/LCS-105444 1505892-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	63.2	40	60	-	105	70-130
MTBE	ND	10.6	5.0	10	-	106	70-130
Benzene	ND	11.2	0.50	10	-	112	70-130
Toluene	ND	11.2	0.50	10	-	112	70-130
Ethylbenzene	ND	11.4	0.50	10	-	114	70-130
Xylenes	ND	34.3	0.50	30	-	114	70-130
Surrogate Recovery							
aaa-TFT	9.64	10.2		10	96	102	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	57.4	57.3	60	ND	96	96	70-130	0	20
MTBE	9.59	10.8	10	ND	96	107	70-130	11.3	20
Benzene	10.6	10.6	10	ND	106	106	70-130	0	20
Toluene	10.9	11.2	10	ND	109	112	70-130	2.81	20
Ethylbenzene	10.8	10.8	10	ND	107	108	70-130	0.645	20
Xylenes	33.5	33.2	30	ND	112	111	70-130	0.824	20
Surrogate Recovery									
aaa-TFT	10.4	10.1	10		104	101	70-130	2.49	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Date Prepared:	5/27/15	**BatchID:**	105499
Date Analyzed:	5/27/15 - 5/29/15	**Extraction Method:**	SW5030B
Instrument:	GC3, GC7	**Analytical Method:**	SW8021B/8015Bm
Matrix:	Water	**Unit:**	µg/L
Project:	731637001; Connell Auto	**Sample ID:**	MB/LCS-105499 1505938-009AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH(btex)	ND	57.5	40	60	-	96	70-130
MTBE	ND	10.4	5.0	10	-	104	70-130
Benzene	ND	10.7	0.50	10	-	107	70-130
Toluene	ND	10.7	0.50	10	-	107	70-130
Ethylbenzene	ND	11.0	0.50	10	-	110	70-130
Xylenes	ND	32.6	0.50	30	-	109	70-130
Surrogate Recovery							
aaa-TFT	9.60	10.2		10	96	102	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	66.5	62.1	60	ND	111	103	70-130	6.83	20
MTBE	10.7	10.5	10	ND	107	105	70-130	2.40	20
Benzene	10.6	11.2	10	ND	105	111	70-130	4.82	20
Toluene	11.1	11.8	10	0.7510	104	110	70-130	5.62	20
Ethylbenzene	11.1	11.5	10	ND	108	112	70-130	3.35	20
Xylenes	34.2	36.4	30	1.4	109	116	70-130	6.28	20
Surrogate Recovery									
aaa-TFT	9.63	9.52	10		96	95	70-130	1.19	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Date Prepared:	5/26/15	**BatchID:**	105428
Date Analyzed:	5/26/15	**Extraction Method:**	SM4500 S-2 D
Instrument:	SPECTROPHOTOMETER	**Analytical Method:**	SM4500 S-2 D
Matrix:	Water	**Unit:**	mg/L
Project:	731637001; Connell Auto	**Sample ID:**	MB/LCS-105428 1505938-009EMS/MSD

QC Summary Report For SM4500S2D

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Sulfide	ND	2.60	0.050	2.5	-	104	80-120

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Sulfide	2.73	2.72	2.5	ND	108	107	75-125	0.454	20

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Quality Control Report

Client:	Treadwell & Rollo	**WorkOrder:**	1505938
Date Prepared:	5/22/15	**BatchID:**	105293
Date Analyzed:	5/24/15 - 5/26/15	**Extraction Method:**	SW3510C
Instrument:	GC11B, GC9a	**Analytical Method:**	SW8015B
Matrix:	Water	**Unit:**	µg/L
Project:	731637001; Connell Auto	**Sample ID:**	MB/LCS-105293

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	1140	50	1000	-	114	61-157
TPH-Motor Oil (C18-C36)	ND	-	250	-	-	-	-
Surrogate Recovery							
C9	723	705		625	116	113	70-134

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Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1505938 **ClientCode: TWRF**

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ EQuIS ☑ Email ☑ HardCopy ☐ ThirdParty ☐ J-flag

Report to:
Annie Lee
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
(415) 955-5200 FAX: (415) 955-9041

Email: alee@langan.com
cc/3rd Party:
PO:
ProjectNo: 731637001; Connell Auto

Bill to:
Accounts Payable
Treadwell & Rollo
555 Montgomery St., Suite 1300
San Francisco, CA 94111
Langan_InvoiceCapture@concursolutio

Requested TAT: 5 days

Date Received: **05/22/2015**
Date Printed: **05/26/2015**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1505938-001	MW-4	Water	5/22/2015 8:55	☐	D	C		B	A	B	E	A				
1505938-002	MW-5	Water	5/22/2015 9:55	☐	D	C		B	A		E	A				
1505938-003	MW-7	Water	5/22/2015 10:45	☐	D	C		B	A		E	A				
1505938-004	MW-14	Water	5/22/2015 11:30	☐	D	C		B	A		E	A				
1505938-005	MW-19	Water	5/22/2015 13:50	☐	D	C		B	A		E	A				
1505938-006	RW-3A	Water	5/22/2015 12:20	☐	D	C		B	A		E	A				
1505938-007	RW-3B	Water	5/22/2015 12:55	☐	D	C		B	A		E	A				
1505938-008	DUP-1	Water	5/22/2015 9:00	☐	D	C		B	A		E	A				
1505938-009	DUP-2	Water	5/22/2015 10:00	☐	D	C		B	A		E	A				
1505938-010	TB-2	Water	5/22/2015 8:00	☐			A									

Test Legend:

1	300_1_Sulfite_W	2	300_1_W	3	8260B_W	4	8260VOC_W	5	G-MBTEX_W
6	PREDF REPORT	7	SULFIDE_W	8	TPH(D)_W	9		10	
11		12							

The following SampIDs: 001A, 002A, 003A, 004A, 005A, 006A, 007A, 008A, 009A contain testgroup.

Prepared by: Agustina Venegas

Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
Project: 731637001; Connell Auto
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

QC Level: LEVEL 2
Client Contact: Annie Lee
Contact's Email: alee@langan.com

Work Order: 1505938
Date Received: 5/22/2015

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☑ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505938-001A	MW-4	Water	Multi-Range TPH(g,d,mo)	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	☐	5/22/2015 8:55	5 days	Present	☐	
1505938-001B	MW-4	Water	SW8260B (VOCs) <1,1-Dichloroethene, 1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/22/2015 8:55	5 days	Present	☐	
1505938-001C	MW-4	Water	E300.1 (Inorganic Anions) <Sulfate>	1	125mL HDPE, unprsv.	☐	5/22/2015 8:55	5 days	Present	☐	
1505938-001D	MW-4	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/22/2015 8:55	5 days	Present	☐	
1505938-001E	MW-4	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/22/2015 8:55	5 days	Present	☐	
1505938-002A	MW-5	Water	Multi-Range TPH(g,d,mo)	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	☐	5/22/2015 9:55	5 days	None	☐	
1505938-002B	MW-5	Water	SW8260B (VOCs) <1,1-Dichloroethene, 1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/22/2015 9:55	5 days	None	☐	
1505938-002C	MW-5	Water	E300.1 (Inorganic Anions) <Sulfate>	1	125mL HDPE, unprsv.	☐	5/22/2015 9:55	5 days	None	☐	
1505938-002D	MW-5	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/22/2015 9:55	5 days	None	☐	
1505938-002E	MW-5	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/22/2015 9:55	5 days	None	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

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WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
Project: 731637001; Connell Auto
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

QC Level: LEVEL 2
Client Contact: Annie Lee
Contact's Email: alee@langan.com

Work Order: 1505938
Date Received: 5/22/2015

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☑ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505938-003A	MW-7	Water	Multi-Range TPH(g,d,mo)	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	☐	5/22/2015 10:45	5 days	Present	☐	
1505938-003B	MW-7	Water	SW8260B (VOCs) <1,1-Dichloroethene, 1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/22/2015 10:45	5 days	Present	☐	
1505938-003C	MW-7	Water	E300.1 (Inorganic Anions) <Sulfate>	1	125mL HDPE, unprsv.	☐	5/22/2015 10:45	5 days	Present	☐	
1505938-003D	MW-7	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/22/2015 10:45	5 days	Present	☐	
1505938-003E	MW-7	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/22/2015 10:45	5 days	Present	☐	
1505938-004A	MW-14	Water	Multi-Range TPH(g,d,mo)	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	☐	5/22/2015 11:30	5 days	Present	☐	
1505938-004B	MW-14	Water	SW8260B (VOCs) <1,1-Dichloroethene, 1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/22/2015 11:30	5 days	Present	☐	
1505938-004C	MW-14	Water	E300.1 (Inorganic Anions) <Sulfate>	1	125mL HDPE, unprsv.	☐	5/22/2015 11:30	5 days	Present	☐	
1505938-004D	MW-14	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/22/2015 11:30	5 days	Present	☐	
1505938-004E	MW-14	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/22/2015 11:30	5 days	Present	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
Project: 731637001; Connell Auto
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

QC Level: LEVEL 2
Client Contact: Annie Lee
Contact's Email: alee@langan.com

Work Order: 1505938
Date Received: 5/22/2015

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☑ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505938-005A	MW-19	Water	Multi-Range TPH(g,d,mo)	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	☐	5/22/2015 13:50	5 days	Present	☐	
1505938-005B	MW-19	Water	SW8260B (VOCs) <1,1-Dichloroethene, 1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/22/2015 13:50	5 days	Present	☐	
1505938-005C	MW-19	Water	E300.1 (Inorganic Anions) <Sulfate>	1	125mL HDPE, unprsv.	☐	5/22/2015 13:50	5 days	Present	☐	
1505938-005D	MW-19	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/22/2015 13:50	5 days	Present	☐	
1505938-005E	MW-19	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/22/2015 13:50	5 days	Present	☐	
1505938-006A	RW-3A	Water	Multi-Range TPH(g,d,mo)	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	☐	5/22/2015 12:20	5 days	Present	☐	
1505938-006B	RW-3A	Water	SW8260B (VOCs) <1,1-Dichloroethene, 1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/22/2015 12:20	5 days	Present	☐	
1505938-006C	RW-3A	Water	E300.1 (Inorganic Anions) <Sulfate>	1	125mL HDPE, unprsv.	☐	5/22/2015 12:20	5 days	Present	☐	
1505938-006D	RW-3A	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/22/2015 12:20	5 days	Present	☐	
1505938-006E	RW-3A	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/22/2015 12:20	5 days	Present	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
Project: 731637001; Connell Auto
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14

QC Level: LEVEL 2
Client Contact: Annie Lee
Contact's Email: alee@langan.com

Work Order: 1505938
Date Received: 5/22/2015

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☑ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505938-007A	RW-3B	Water	Multi-Range TPH(g,d,mo)	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	☐	5/22/2015 12:55	5 days	Present	☐	
1505938-007B	RW-3B	Water	SW8260B (VOCs) <1,1-Dichloroethene, 1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/22/2015 12:55	5 days	Present	☐	
1505938-007C	RW-3B	Water	E300.1 (Inorganic Anions) <Sulfate>	1	125mL HDPE, unprsv.	☐	5/22/2015 12:55	5 days	Present	☐	
1505938-007D	RW-3B	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/22/2015 12:55	5 days	Present	☐	
1505938-007E	RW-3B	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/22/2015 12:55	5 days	Present	☐	
1505938-008A	DUP-1	Water	Multi-Range TPH(g,d,mo)	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	☐	5/22/2015 9:00	5 days	Present	☐	
1505938-008B	DUP-1	Water	SW8260B (VOCs) <1,1-Dichloroethene, 1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/22/2015 9:00	5 days	Present	☐	
1505938-008C	DUP-1	Water	E300.1 (Inorganic Anions) <Sulfate>	1	125mL HDPE, unprsv.	☐	5/22/2015 9:00	5 days	Present	☐	
1505938-008D	DUP-1	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/22/2015 9:00	5 days	Present	☐	
1505938-008E	DUP-1	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/22/2015 9:00	5 days	Present	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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WORK ORDER SUMMARY

Client Name: TREADWELL & ROLLO
QC Level: LEVEL 2
Work Order: 1505938
Project: 731637001; Connell Auto
Client Contact: Annie Lee
Date Received: 5/22/2015
Comments: SEND HARD COPY/ Always notify the PM when TAT is not going to be met! JEL 9-9-14
Contact's Email: alee@langan.com

☐ WaterTrax ☐ WriteOn ☑ EDF ☐ Excel ☐ Fax ☑ Email ☑ HardCopy ☐ ThirdParty ☐ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1505938-009A	DUP-2	Water	Multi-Range TPH(g,d,mo)	4	2 VOAs w/HCL + 2-aVOAs (multi-range)	☐	5/22/2015 10:00	5 days	None	☐	
1505938-009B	DUP-2	Water	SW8260B (VOCs) <1,1-Dichloroethene, 1,2-Dichloroethane (1,2-DCA), Benzene, Ethylbenzene, Methyl-t-butyl ether (MTBE), Naphthalene, Toluene, Xylenes, Total>	2	VOA w/ HCl	☐	5/22/2015 10:00	5 days	None	☐	
1505938-009C	DUP-2	Water	E300.1 (Inorganic Anions) <Sulfate>	1	125mL HDPE, unprsv.	☐	5/22/2015 10:00	5 days	None	☐	
1505938-009D	DUP-2	Water	E300.1 (Sulfite)	1	125mL HDPE w/ MAI Presv.	☐	5/22/2015 10:00	5 days	None	☐	
1505938-009E	DUP-2	Water	SM4500S2D (Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	5/22/2015 10:00	5 days	None	☐	
1505938-010A	TB-2	Water	SW8260B (VOCs)	4	VOA w/ HCl	☐	5/22/2015 8:00	5 days	None	☐	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

1505938

P 1/2

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTS # 150521-WW1

CLIENT: Treadwell & Rollo

SITE: Connell Auto
3093 Broadway
Oakland, CA

CONDUCT ANALYSIS TO DETECT

LAB McCampbell

DHS #

MUST MEET SPECIFICATIONS
☐ EPA ☐ LIA ☐ OTHER ☐ RWQCB REGION _____

SPECIAL INSTRUCTIONS

Invoice and Report to: Annie Lee

Treadwell & Rollo - San Francisco Office

415.955.5285 Project No: 731637001

alee@langan.com EDF Required

SAMPLE I.D.	DATE	TIME	MATRIX S = Soil W = H2O	CONTAINERS TOTAL		TPH-g, TPH-d (8015)	BTEX, MTBE, 1,2-DCA, Naphthalene (8260B)	Nitrate, Nitrite, Sulfate (E300.1)	Total Manganese, Total Iron (E200.8)	Ferrous Iron (SM 3500 Fe)	SULFATE (E300.1) Sulfite (SM4500 SO3-2), Sulfide (SM4500 S-2D)	Dissolved Methane (RSK 175)	Total Nitrogen ((E415.3)	Total Phosphorus (E365.1)	ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
+ MW-4	5-21-15	0855	W	9	various	X	X				X							
MW-5		0955		9		X	X				X							
+ MW-7		1045		9		X	X				X							
+ MW-14		1130		9		X	X				X							
+ MW-19		1350		9		X	X				X				SULFITE PRESERVED IN NP POLY, PRESERVED UPON ARRIVAL.			
+ RW-3A		1220		9		X	X				X							
+ RW-3B		1255		9		X	X				X							
+ DUP-1		0900		9		X	X				X							
DUP-2		1000		9		X	X				X							
~~TB-2~~																		

ICE ht. 4.5
GOOD CONDITION ___ APPROPRIATE
~~HEAD SPACE/ABSENT~~ ___ CONTAINERS ___
DECHLORINATED IN LAB ___ PRESERVED IN LAB ___
VOAS O&G METALS OTHER
PRESERVATION ___

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY
	5-22-15	1350	WILLIAM WONG

RESULTS NEEDED NO LATER THAN: Standard

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	5-22-15	1645		5-22-15	1645
	5-22-15	1820	Agustina V.	5/22/15	1820

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTS # 150521-MW1

CLIENT Treadwell & Rollo

SITE Connell Auto
3093 Broadway
Oakland, CA

CONDUCT ANALYSIS TO DETECT

LAB McCampbell

DHS #

MUST MEET SPECIFICATIONS
☐ EPA ☐ LIA ☐ OTHER ☐ RWQCB REGION _____

SPECIAL INSTRUCTIONS

Invoice and Report to: Annie Lee

Treadwell & Rollo - San Francisco Office

415.955.5285 Project No: 731637001

alee@langan.com EDF Required

SAMPLE I.D.	DATE	TIME	MATRIX S = Soil W = H2O	CONTAINERS TOTAL		Cam 17 Metals (E200.8) Field filtered	TOC (E415.3)	TDS (SM2540C)	Alkalinity (SM2320B)	VOCs				ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
TB-2	5-22-15	0900	W	2	HCl vials					X							

SAMPLING COMPLETED	DATE	TIME	SAMPLING PERFORMED BY	RESULTS NEEDED NO LATER THAN
	5-22-15	1350	William Woms	Standard

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
	5-22-15	1446		5-22-15	1446
	5-22-15	1820	Agustina V.	5/22/15	1820

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name: **Treadwell & Rollo**
Date and Time Received: **5/22/2015 8:45:14 PM**

Project Name: **731637001; Connell Auto**
LogIn Reviewed by: Agustina Venegas

WorkOrder №: **1505938** Matrix: Water
Carrier: Bernie Cummins (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present?	Yes ☑	No ☐
Chain of custody signed when relinquished and received?	Yes ☑	No ☐
Chain of custody agrees with sample labels?	Yes ☑	No ☐
Sample IDs noted by Client on COC?	Yes ☑	No ☐
Date and Time of collection noted by Client on COC?	Yes ☑	No ☐
Sampler's name noted on COC?	Yes ☑	No ☐

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	NA ☑
Shipping container/cooler in good condition?	Yes ☑	No ☐	
Samples in proper containers/bottles?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes ☑	No ☐	
Sample/Temp Blank temperature	Temp: 4.5°C		NA ☐
Water - VOA vials have zero headspace / no bubbles?	Yes ☑	No ☐	NA ☐
Sample labels checked for correct preservation?	Yes ☑	No ☐	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes ☐	No ☐	NA ☑
Samples Received on Ice?	Yes ☑	No ☐	
	(Ice Type: WET ICE)		

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes ☐	No ☐	NA ☑
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes ☐	No ☐	NA ☑

** NOTE: If the "No" box is checked, see comments below.*

Comments:

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client: Annie Lee
Langan Engineering & Environmental Services
555 Montgomery Street
Suite 1300
San Francisco, CA 94111-2517

Phone: 415.955.5285

Fax:

Identifier: 062ME **Date Rec:** 05/19/2015 **Report Date:** 05/21/2015

Client Project #: 731637001 **Client Project Name:** Connell Auto

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **Langan Engineering & Environmental Servic**
Project: Connell Auto

MI Project Number: **062ME**
Date Received: 05/19/2015

Sample Information

Client Sample ID:	**MW-1**
Sample Date:	05/18/2015
Units:	cells/mL
Analyst:	RW

Phylogenetic Group

Sulfate Reducing Bacteria	APS	**2.84E+05**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133

Client:	Annie Lee Langan Engineering & Environmental Services 555 Montgomery Street Suite 1300 San Francisco, CA 94111-2517	**Phone:** **Fax:**	415.955.5285

Identifier: 062ME **Date Rec:** 05/19/2015 **Report Date:** 05/29/2015

Client Project #: 731637001 **Client Project Name:** Connell Auto

Purchase Order #:

Analysis Requested: CENSUS

Reviewed By:

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

CENSUS

Client: **Langan Engineering & Environmental Servic**
Project: Connell Auto

MI Project Number: **062ME**
Date Received: 05/19/2015

Sample Information

Client Sample ID:		**MW-1**	**MW-3**	**MW-6**	**MW-8**	**MW-18**
Sample Date:		05/18/2015	05/21/2015	05/21/2015	05/21/2015	05/21/2015
Units:		cells/mL	cells/mL	cells/mL	cells/mL	cells/mL
Analyst:		CB	CB	CB	CB	CB
Phylogenetic Group						
Sulfate Reducing Bacteria	APS	**2.84E+05**	**5.94E+03**	**1.05E+06**	**5.93E+04**	**3.03E+04**

Legend:
NA = Not Analyzed NS = Not Sampled J = Estimated gene copies below PQL but above LQL I = Inhibited
< = Result not detected

APPENDIX D
MATERIAL DATA SHEETS FOR GYPSUM AND SAND

High-purity additives for high-quality food, beverage and pharmaceutical products

Calcium Sulfate Fillers

Calcium sulfate products are used by the food, beverage and pharmaceutical industries as an economical and FDA-approved source of supplemental calcium. Calcium sulfate is also acceptable as an additive in pigments and colorants used in food containers.

Calcium Sulfate Fillers

Overview

Use of calcium sulfate in food and pharmaceutical applications is widespread and continues to expand. United States Gypsum Company offers two highly refined calcium sulfate products: USG® Terra Alba and SNOW WHITE® filler. Both fillers are food- and pharmaceutical-grade forms of calcium sulfate, a mineral that appears on the Food and Drug Administration's GRAS (Generally Recognized as Safe) list of additives approved for nutritional and functional use in food products.

Calcium Sulfate Products

USG Terra Alba ($CaSO_4 \cdot 2H_2O$), the dihydrate form of calcium sulfate, results from fine-grinding and air-separating a select, high-purity white gypsum that contains about 20 percent water of crystallization.

SNOW WHITE filler ($CaSO_4$), the anhydrous form of calcium sulfate, is produced by calcining and milling high-purity white gypsum.

Typical Analyses

		USG Terra Alba filler	SNOW WHITE filler
Total calcium[a]		23.1%	29.2%
CaO		32.31%	40.92%
SO_3		45.22%	57.46%
$CaSO_4$		0.39%	97.68%
$CaSO_4 \cdot 2H_2O$		97.1%	—
$CaCO_3 \cdot MgCO_3$		1.52%	0.77%
SiO_2 and insolubles		0.24%	0.13%
$Fe_2O_3 \cdot Al_2O_3$		0.12%	0.12%
Water loss 250 °C		20.31%	0.33%
Brightness index (min.)[b]		84.4	97.1
Oil absorption[c]		23.5	26.5
Specific gravity		2.32	2.96
Bulk density (pcf)	Loose	42.0	44.0
	Compacted	70.0	80.0
Bulking values	Lbs. per solid gal.	19.38	24.43
	Solid gals. per lb.	0.0518	0.0406
Solubility (70 °F) per 100 cc of H_2O		0.26 grams	0.26 grams
pH (10% slurry)		7.3	10.4
Refractive index		1.52	1.56
Through 100 mesh (min.)		100%	100%
Through 325 mesh (min.)		93%	97%
Avg. particle size (microns)		12-15	7-9

(a) Conversion of calcium content:
Milligrams of calcium per lb. of USG Terra Alba filler computed as follows: 1 lb. = 454 grams = 454,000 mg 23% x 454,000 mg = 104,420 • 1 lb. of USG Terra Alba filler = 104,420 mg of calcium.
Milligrams of calcium per lb. of SNOW WHITE filler computed as follows: 1 lb. = 454,000 mg 29% of 454,000 mg = 131,600 mg • 1 lb. of SNOW WHITE filler = 131,660 mg of calcium.
(b) The brightness index was determined on a Beckman DU Spectrophotometer using magnesium oxide as the standard.
(c) Oil absorption is the amount of linseed oil, in cubic centimeters, required to wet 100 grams of filler.

Applications

USG Terra Alba and SNOW WHITE filler are used primarily in the food, beverage and pharmaceutical industries.

Commercial Baking Industry	In the commercial baking industry, the fillers are economical sources of supplemental calcium in enriched flour, cereals, baking powder, yeast, bread conditioners, baking powder, and cake icing. The gypsum products can also be found in canned vegetables and artificially sweetened jellies and preserves.
Brewing Industry	In the brewing industry, calcium sulfate promotes a smoother-tasting beer with improved stability and a longer shelf life.
Pharmaceutical	For pharmaceutical applications, calcium sulfate is extensively used as a diluent because it makes an excellent inert extender while also serving as a dietary calcium supplement.

FDA Regulations
Title 21
Food and Drugs
Parts 1-199

Section	Uses
133.111 (c) 2	With benzoyl peroxide in caciocavallo siciliano cheese
133.141 (c) 2	With benzoyl peroxide in gorgonzola cheese
133.165 (c) 2	With benzoyl peroxide in parmesan and reggiano cheese
133.181 (c) 3	With benzoyl peroxide in provolone and pasta filata cheese
133.183 (c) 2	With benzoyl peroxide in romano cheese
133.195 (c) 1	With benzoyl peroxide in swiss and emmenthaler cheese
136.115 (a) 2	Enriched bread, rolls and buns
137.105 (a) 5	Flour
137.165 (b)	Enriched flour
137.185 (b)	Enriched self-rising flour
137.235 (a) 3	Enriched corn grits
137.260 (a) 3	Enriched corn meals
137.305 (a) 3	Enriched farina
139.115 (a) 3	Enriched macaroni products
139.117 (b) 2	Enriched macaroni products with fortified protein
139.155 (a) 3	Enriched noodle products
150.141 (a) 5	Artificially sweetened fruit jelly
150.161 (a) 5	Artificially sweetened fruit preserves and jams
155.170 (a) 2 xi	Firming agent in canned peas
155.190 (a) 2 i	Firming agent in canned tomatoes
155.200 (c) 6	Firming agent in canned potatoes
155.200 (c) 6	Firming agent in canned green sweet peppers, red sweet peppers and lima beans
155.200 (c) 6	Firming agent in canned carrots
175.300 (xxvi)	Resinous and polymeric coatings (pigments and colorants)
178.3297	Colorants for polymers
182.90	Substances migrating to food from paper and paperboard products
184.1	GRAS
184.1230	Nutrient and/or dietary supplement

(a) Product: calcium sulfate
(b) Meets specifications of the Food Chemicals Codex
(c) Anti-caking, coloring, drying, firming, leavening; adjunct, dough strengthener, formulation aid, nutrient supplement, pH control, processing aid, stabilizer and thickener, synergist, texturizer.
(d) Conditions of use: This substance is generally recognized as safe when used in accordance with good manufacturing practices.
(e) Waiver-prior sanctions

Specification

USG Terra Alba and SNOW WHITE filler are manufactured only at USG's plant in Southard, Oklahoma. Both products are guaranteed to meet the specifications of the Food Chemicals Codex and the National Formulary, as listed below:

Standards

	Food Chemicals Codex	National Formulary
Arsenic	3.0 ppm max.	3.0 ppm max.
Selenium	30.0 ppm max.	30.0 ppm max.
Fluorine	30.0 ppm max.	30.0 ppm max.
Heavy metals	—	10.0 ppm max.
Iron	—	100.0 ppm max.
Lead	2.0 ppm max.	—
Calcium assay	98.0% min.	98.0% min.

Upon request, USG will supply a continuing guarantee to customers using USG Terra Alba or SNOW WHITE filler. Each shipment is batch-coded to show the day, month and year of manufacture. Representative samples are kept for reference at the Southard plant for five years from the date of shipment.

Technical Service
800 487.4431

Web Site
www.usg.com

Samples/Literature
888 874.2450

Samples/Literature E-mail
samplit@usg.com

Samples/Literature Fax
888 874.2348

Customer Service
800 950.3839

Trademarks
The following trademark used herein is owned by USG Corporation or its subsidiaries: USG. SNOW WHITE is a registered trademark of United States Gypsum Company.

Notice
We shall not be liable for incidental and consequential damages, directly or indirectly sustained, nor for any loss caused by application of these goods not in accordance with current printed instructions or for other than the intended use. Our liability is expressly limited to replacement of defective goods. Any claim shall be deemed waived unless made in writing to us within thirty (30) days from date it was or reasonably should have been discovered.

Safety First!
Follow good safety and industrial hygiene practices during handling and installation of all products and systems. Take necessary precautions and wear the appropriate personal protective equipment as needed. Read material safety data sheets and related literature on products before specification and/or installation.

Manufactured by
United States Gypsum Company
Industrial Division
125 South Franklin Street
Chicago, IL 60606

800 USG.4YOU (874-4968)
800 487.4431
www.gypsumsolutions.com

IG172/rev. 11-05

Printed in U.S.A.

ProductNo:233970 LotNo:042015S
Annotation:

Apr. 24. 2015 1:57PM No. 6704 P. 1

PN - 233970 LOT - 042015S

USG

United States Gypsum Co.
HCR 65 BOX 100
Highway 51A
Southard, OK 73770
Tele: (580) 822-6156
Fax: (580) 822-4501

Certificate of Analysis

Hydrous Calcium Sulfate Gypsum

CaSO4.2H2O

Lot#:	042015S
Product:	40786
Description:	Terra Alba Food & Pharmaceutical
	CAS# 13397-24-5
Order #:	990885
Customer PO #:	SJ-763859

Customer: UNIVAR (SAN JOSE)
Address:

Attn: kcjones@usg.com

Tests Results Approved By: Kelly Bedwell

		SAMPLE ID's
Test	**UOM**	042015S
Arsenic	ppm	0.1
CaSO4 Assay	%	100.01
Combined Water	% LOD	19.47
Flouride	ppm	<30
Heavy Metal	ppm	<10
ID. For CaSO4	0	Positive
Iron	ppm	75.87
Lead	ppm	0.359
Minus 100 Mesh	%	99.99
Minus 325 Mesh	%	99.36
Selenium	ppm	<30

FCC& NATIONAL FORMULARY SPECIFICATIONS

ID - Positive CaSO4. Lead - 2 ppm max. Iron - 100 ppm max. Arsenic - 3 ppm max. Selenium - 30 ppm max.
CaSO4 Assay - 98-101%. Flouride - 30 ppm max. LOD(%Wt. Loss) -19%-23%. Heavy Metals - 10 ppm max.

PHYSICAL SPECIFICATIONS

Alpine Jet Sieve Specifications: -100 = 99.95-100%; -325 = 93-100%

REMARKS: FOOD & CHEMICAL CODEX = HEAVY METALS AS LEAD = PASS

*Manufacturing Date = Bag Stamped Date Code (ie 020114$ = 2/01/14)

Terra Alba will process best if used within 1 year of Manufacturing Date. As shipped Terra Alba is free from odor and contains no residual solvents.

CONTROLLED COPY IF THIS PRINT IS IN RED

Friday, April 24, 2015

Univar USA Inc Material Safety Data Sheet

MSDS No:	P16232VS
Version No:	011 2014-01-10
Order No:	

Univar USA Inc., 17425 NE Union Hill Rd., Redmond WA 98052
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300

MATERIAL SAFETY DATA SHEET
USG® Terra Alba No. 1

SECTION 1
CHEMICAL PRODUCT AND IDENTIFICATION

United States Gypsum Company 550 West Adams Street Chicago, Illinois 60661-3637 A Subsidiary of USG Corporation	Product Safety: 1 (800) 507-8899 www.usg.com Version Date: January 1, 2014 Version: 4

PRODUCT(S)	USG® Terra Alba No. 1
CHEMICAL FAMILY / GENERAL CATEGORY	Industrial Products, Gypsum
SYNONYMS	Gypsum or Calcium Sulfate Dihydrate ($CaSO_4 \cdot 2H_2O$)

SECTION 2
HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:
ΔCAUTION!
This product is not expected to produce any unusual hazards during normal use. Exposure to high dust levels may irritate the skin, eyes, nose, throat, or upper respiratory tract. This product does not present an inhalation, ingestion, or contact health hazard unless subjected to operations such as sawing, sanding or machining which result in the generation of airborne particulate. This product contains quartz (crystalline silica) as a naturally occurring contaminant.

POTENTIAL HEALTH EFFECTS (See Section 11 for more information)

ACUTE :

Inhalation	Exposure to dust generated during the handling or use of the product may cause temporary irritation to eyes, skin, nose, throat, and upper respiratory tract. Persons subjected to large amounts of this dust will be forced to leave area because of nuisance conditions such as coughing, sneezing and nasal irritation. Labored breathing may occur after excessive inhalation. If respiratory symptoms persist, consult physician.
Eyes	Dust can cause temporary mechanical irritation of eyes. If burning, redness, itching, pain or other symptoms persist or develop, consult physician.
Skin	None known.
Ingestion	None known.

CHRONIC:

Inhalation	Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing. Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. The risk of developing silicosis is dependent upon the exposure intensity and duration.
Eyes	None known.
Skin	None known.
Ingestion	None known.

MATERIAL SAFETY DATA SHEET
USG® Terra Alba No. 1

TARGET ORGANS: Eyes, skin and respiratory system.

PRIMARY ROUTES OF ENTRY: Inhalation, eyes and skin contact.

CARCINOGENICITY CLASSIFICATION OF INGREDIENT(S) All substances listed are associated with the nature of the raw materials used in the manufacture of this product and are not independent components of the product formulation. All substances, if present, are at levels well below regulatory limits. See Section 11: Toxicology Information for detailed information.

MATERIAL	IARC	NTP	ACGIH	CAL- 65
Crystalline silica	1	1	A2	Listed

IARC - International Agency for Research on Cancer: 1- Carcinogenic to humans; 2A – Probably carcinogenic to humans; 2B – Possibly carcinogenic to humans; 3 - Not classifiable as a carcinogen; 4 – Probably not a carcinogen

NTP – National Toxicology Program (Health and Human Services Dept., Public Health Service, NIH/NIEHS): 1- Known to be carcinogen; 2- Anticipated to be carcinogens

ACGIH – American Conference of Governmental Industrial Hygienists: A1 – Confirmed human carcinogen; A2 – Suspected human carcinogen; A3 – Animal carcinogen; A4 - Not classifiable as a carcinogen; A5 – Not suspected as a human carcinogen

CAL-65 – California Proposition 65 "Chemicals known to the State of California to Cause Cancer"

Respirable crystalline silica: IARC: Group 1 carcinogen, NTP: Known human carcinogen. The weight percent of crystalline silica given represents total quartz and not the respirable fraction. The weight percent of respirable silica has not been measured in this product.

Food and Drug Administration [CFR Title 21, v.3, sec 184.1230] – Calcium Sulfate is Generally Recognized as Safe (GRAS).

POTENTIAL ENVIRONMENTAL EFFECTS: Toxicity studies of gypsum performed with fish, aquatic invertebrates and aquatic plants showed no toxic effect. (See Section 12 for more information.)

SECTION 3
COMPOSITION, INFORMATION ON INGREDIENTS

MATERIAL	WT%	CAS #
Gypsum, Anhydrite or Gypsum/Anhydrite Blend	>95	13397-24-5/14798-04-0
Crystalline Silica	<1	14808-60-7^

All ingredients of this product are included in the U.S. Environmental Protection Agency's Toxic Substances Control Act Chemical Substance Inventory and the Canadian Domestic Substances List (DSL).

^The weight percent for silica represents total quartz and not the respirable fraction.

SECTION 4
FIRST AID MEASURES

FIRST AID PROCEDURES

Inhalation	Remove to fresh air. Leave the area of exposure and remain away until coughing and other symptoms subside. Other measures are usually not necessary, however if conditions warrant, contact physician.
Eyes	In case of contact, do not rub or scratch your eyes. To prevent mechanical irritation, flush thoroughly with water for 15 minutes. If irritation persists, consult physician.
Skin	Wash with mild soap and water. If irritation persists, consult physician.

MATERIAL SAFETY DATA SHEET
USG® Terra Alba No. 1

Ingestion	This product is not intended to be ingested or eaten. If gastric disturbance occurs, call physician.

MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED: Pre-existing upper respiratory and lung diseases such as, but not limited to, bronchitis, emphysema and asthma. Pre-existing skin diseases such as, but not limited to, rashes and dermatitis.

NOTES TO PHYSICIAN: Treatment should be directed at the control of symptoms and the clinical condition.

SECTION 5
FIRE FIGHTING MEASURES

General Fire Hazards	None known
Extinguishing Media	Water or use extinguishing media appropriate for surrounding fire.
Special Fire Fighting Procedures	Wear appropriate personal protective equipment. See section 8.
Unusual Fire/ Explosion Hazards	None known
Hazardous Combustion Products	Above 1450° C - decomposes to calcium oxide (CaO) and sulfur dioxide (SO_2).

Flash Point	Not Determined	**Auto Ignition**	Not Applicable
Method Used	Not Applicable	**Flammability Classification**	Not Applicable
Upper Flammable Limit (UFL)	Not Determined		
Lower Flammable Limit (LFL)	Not Determined	**Rate of Burning**	Not Applicable

SECTION 6
ACCIDENTAL RELEASE MEASURES

CONTAINMENT: No special precautions. Wear appropriate personal protective equipment. See section 8.

CLEAN-UP: Use normal clean up procedures. No special precautions.

DISPOSAL: Follow all local, state, provincial and federal regulations. Never discharge large releases directly into sewers or surface waters.

SECTION 7
HANDLING AND STORAGE

HANDLING: Avoid dust contact with eyes and skin. Wear the appropriate eye and skin protection against dust (See Section 8). Minimize dust generation and accumulation. Avoid breathing dust. Wear the appropriate respiratory protection against dust in poorly ventilated areas and if TLV is exceeded (see Sections 2 and 8). Use good safety and industrial hygiene practices.

STORAGE: Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities (see Section 10).

MATERIAL SAFETY DATA SHEET
USG® Terra Alba No. 1

SECTION 8
EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL	WT%	TLV (mg/m^3)	PEL(mg/m^3)
Gypsum, Anhydrite or Gypsum/Anhydrite Blend	>95	10	15(T)/5(R)
Crystalline Silica	<1	0.025(R)	0.1(R)

(T)–Total; (R)–Respirable; (NE)-Not Established; (C)-Ceiling; (STEL)-Short-term exposure limit
(F)-Fume; (Du)-Dust; (M)-Mist
ppm-part per million; f/cc-fiber per cubic centimeter; mppcf- million particles per cubic foot

ENGINEERING CONTROLS: Provide ventilation sufficient to control airborne dust levels. If user operations generate airborne dust, use ventilation to keep dust concentrations below permissible exposure limits. Where general ventilation is inadequate, use process enclosures, local exhaust ventilation, or other engineering controls to control dust levels below permissible exposure limits.

RESPIRATORY PROTECTION: Wear a NIOSH/MSHA-approved respirator equipped with particulate cartridges when dusty in poorly ventilated areas, and if TLV is exceeded. A respiratory program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. If engineering controls are not possible, wear a properly fitted NIOSH/MSHA-approved particulate respirator.

OTHER PERSONAL PROTECTIVE EQUIPMENT:

Eye/Face	Wear eye protection, safety glasses or goggles, to avoid possible eye contact.
Skin	Wear gloves and protective clothing to prevent repeated or prolonged skin contact.
General	Selection of Personal Protective Equipment will depend on environmental working conditions and operations.

SECTION 9
PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White to off-white	**Vapor Density (Air = 1)**	Not Applicable
Odor	Low to no odor	**Specific Gravity (H_2O = 1)**	~2.32 (Gypsum)
Odor Threshold	Not Determined	**Solubility in water (g/100g)**	~ 21 (Gypsum)
Physical State	Solid/ Powder	**Partition Coefficient**	Not Determined
pH @ 25 ° C	~7	**Auto-ignition Temp**	Not Determined
Melting Point	Not Applicable	**Decomposition Temp**	2642°F/1450°C
Freezing Point	Not Applicable	**Viscosity**	Not Applicable
Boiling Point	Not Applicable	**Particle Size**	Varies
Flash Point	Not Determined	**Bulk Density**	~ 45-150 lb/ft3 / 0.7 - 2.5 kg/m3
Evaporation Rate (BuAc = 1)	Not Applicable	**Molecular Weight**	~172 g/mole
Upper Flammable Limit (UFL)	Not Determined	**VOC Content**	Zero g/L
Lower Flammable Limit (LFL)	Not Determined	**Percent Volatile**	Zero

MATERIAL SAFETY DATA SHEET
USG® Terra Alba No. 1

Vapor Pressure (mm Hg)	Not Applicable		

SECTION 10
CHEMICAL STABILITY AND REACTIVITY

STABILITY	Stable.
CONDITIONS TO AVOID	Contact with incompatibles (see below).
INCOMPATIBILITY	None known.
HAZARDOUS POLYMERIZATION	None known.
HAZARDOUS DECOMPOSITION	Above 1450° C - calcium oxide (CaO) and sulfur dioxide (SO2).

SECTION 11
TOXICOLOGICAL INFORMATION

ACUTE EFFECTS: The acute oral toxicity study [OECD TG 420] of calcium sulfate dihydrate showed that this chemical did not cause any changes even at 2,000 mg/kg b.w. Therefore, the oral LD50 value was more than 2,000-mg/kg b.w. for female rats. Gypsum paste applied experimentally to the eyes of rabbits was not an irritant. Gypsum dust particulate has shown an irritant action on mucous membranes of the respiratory tract and eyes. The sulfate ion has caused gastro-intestinal disturbance in humans following large oral doses. Limited studies involving the repeated inhalation of an (unspecified) calcium sulfate failed to identify any particular target organs in monkeys, rats and hamsters. No evidence of mutagenicity was found in Ames bacterial tests.

CHRONIC EFFECTS / CARCINOGENICITY:

Crystalline Silica: Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing. The weight percent of respirable crystalline silica may not have been measured in this product. Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. Smoking in combination with silica exposures increases the risk of cancer. The risk of developing silicosis is dependent upon the exposure intensity and duration.

In June, 1997, IARC classified crystalline silica (quartz and cristobalite) as a human carcinogen. In making the overall evaluation, the IARC Working Group noted that carcinogenicity in humans was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs.

IARC states that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1).

SECTION 12
ECOLOGICAL INFORMATION

ENVIRONMENTAL TOXICITY: This product has no known adverse effect on ecology. Toxicity studies of gypsum performed with fish, aquatic invertebrates and aquatic plants showed no toxic effect.

Ecotoxicity value	Not determined.

MATERIAL SAFETY DATA SHEET
USG® Terra Alba No. 1

SECTION 13
DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of material in accordance with federal, state, and local regulations. Never discharge directly into sewers or surface waters. Consult with environmental regulatory agencies for guidance on acceptable disposal practices.

SECTION 14
TRANSPORT INFORMATION

U.S. DOT INFORMATION: Not a hazardous material per DOT shipping requirements. Not classified or regulated.

Shipping Name	Same as product name.
Hazard Class	Not classified.
UN/NA #	None. Not classified.
Packing Group	None.
Label (s) Required	Not applicable.
GGVSec/MDG-Code	Not classified.
ICAO/IATA-DGR	Not applicable.
RID/ADR	None.
ADNR	None.

SECTION 15
REGULATORY INFORMATION

UNITED STATES REGULATIONS

All ingredients of this product are included in the U.S. Environmental Protection Agency's Toxic Substances Control Act Chemical Substance Inventory.

MATERIAL	WT%	302	304	313	CERCLA	CAA Sec. 112	RCRA Code
Gypsum, Anhydrite or Gypsum/Anhydrite Blend	>95	NL	NL	NL	NL	NL	NL
Crystalline Silica	<1	NL	NL	NL	NL	NL	NL

Key : NL = Not Listed

SARA Title III Section 302 (EPCRA) Extremely Hazardous Substances: Threshold Planning Quantity (TPQ)

SARA Title III Section 304 (EPCRA) Extremely Hazardous Substances: Reportable Quantity (RQ)

SARA Title III Section 313 (EPCRA) Toxic Chemicals: X= Subject to reporting under section 313

CERCLA Hazardous Substances: Reportable Quantity (RQ)

CAA Section 112 (r) Regulated Chemicals for Accidental Release Prevention: Threshold Quantities(TQ)

RCRA Hazardous Waste: RCRA hazardous waste code

MATERIAL SAFETY DATA SHEET
USG® Terra Alba No. 1

CANADIAN REGULATIONS

This product has been classified in accordance with the hazard criteria of Controlled Product regulations and the MSDS contains all the information required by the Controlled Products Regulations. All ingredients of this product are included in the Canadian Domestic Substances List (DSL).

MATERIAL	WT%	IDL Item #	WHMIS Classification
Gypsum, Anhydrite or Gypsum/Anhydrite Blend	>95	Not Listed	Not Listed
Crystalline Silica	<1	1406	D2A

IDL Item#: Canadian Hazardous Products Act – Ingredient Disclosure List Item #

WHMIS Classification: Workplace Hazardous Material Information System

Risk and Safety Phrases defined by European Union Directive 67/548/EEC (Annex III and IV)

R-Phrase(s): R36/37/38

S-Phrase(s): S51 S38 S39

SECTION 16
OTHER INFORMATION

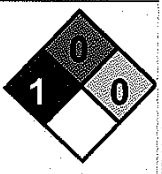
Label Information

Δ CAUTION!

Dust can cause irritation to eyes, skin and respiratory tract. Wear eye, skin and respiratory protection as necessary per working conditions. If eye contact occurs flush with water for 15 minutes. Do not ingest. If ingested, call physician. Product safety information: 800-507-8899 or usg. com. Customer Service: 800 USG-4-YOU (800 874-4968). KEEP OUT OF REACH OF CHILDREN.

INFORMATION FOR HANDLING AND IDENTIFICATION OF CHEMICAL HAZARDS

NFPA Ratings:	
Health:	1
Fire:	0
Reactivity:	0



HMIS Ratings:	
Health:	1
Fire:	0
Reactivity:	0

HEALTH	*	1
FLAMMABILITY		0
PHYSICAL HAZARD		0
PERSONAL PROTECTION		E

0 = Minimal Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

E – Safety glasses, gloves and dust respirator; * - Contains silica

Key/Legend

ANSI	American National Standards Institute
ACGIH	American Conference of Governmental Industrial Hygienists
CAA	Clean Air Act
CAS	Chemical Abstracts Service (Registry Number)
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CFR	Code of Federal Regulations
DOT	United States Department of Transportation
DSL	Canadian Domestic Substances List

MATERIAL SAFETY DATA SHEET
USG® Terra Alba No. 1

EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning & Community Right-to-know Act
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
MSHA	Mine Safety and Health Administration
NDSL	Canadian Non-Domestic Substances List
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Health and Safety Administration
PEL	Permissible Exposure Limit
PPE	Personal Protection Equipment
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act of 1986
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
UN/NA#	United Nations/North America number
WHMIS	Workplace Hazardous Material Information System

Prepared by:
Product Safety
USG Corporation
550 West Adams Street
Chicago, IL 60661-3637

END

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

Notice

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Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Univar sales office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

TECHNICAL SERVICES

LAPIS LUSTRE SAND GRADING PARAMETERS

Cumulative percent passing US Sieves

Summary of Test Results

PRODUCT		Special Blend	Coarse Aquarium	Medium Aquarum	4 x 16 6 Mesh	8 Mesh	#3	#2/12
Nominal Sieve Size		3/8" x #6	4 x 12	6 x 16	4 x 16	8 x 16	8 x 20	12 x 20
US	mm							
3/8"	9.52	100 ± 0						
#3	6.70	77 ± 24						
1/4"	6.35	65 ± 33	100 ± 0	100 ± 0	100 ± 0			
#4	4.75	21 ± 20	97 ± 3	98 ± 2	99 ± 1			
#6	3.35	4 ± 4	78 ± 10	87 ± 14	79 ± 7	100 ± 0	100 ± 0	
#8	2.36	2 ± 1	31 ± 7	37 ± 18	39 ± 17	99 ± 1	99 ± 1	100 ± 0
#12	1.70		1 ± 1	9 ± 5	6 ± 5	40 ± 15	59 ± 12	96 ± 3
#16	1.18			2 ± 1	2 ± 2	4 ± 3	9 ± 5	20 ± 8
#20	0.850			1 ± 1	1 ± 1	2 ± 2	2 ± 1	1 ± 1
#30	0.600						1 ± 1	1 ± 1

PRODUCT		#2/16	#1C	#1/20	#0/30	30 Mesh	#60	All Purpose
Nominal Sieve Size		16 x 30	16 x 40	20 x 40	30 x 50	30 x 70	40 x 70	4 x 50
US	mm							
#4	4.75							100 ± 0
#8	2.36							99 ± 1
#12	1.70	100 ± 0	100 ± 0					
#16	1.18	94 ± 5	95 ± 3	100 ± 0				76 ± 21
#20	0.850	22 ± 16	55 ± 9	88 ± 8	100 ± 0	100 ± 0	100 ± 0	
#30	0.600	3 ± 3	10 ± 6	18 ± 11	77 ± 5	95 ± 5	99 ± 1	42 ± 25
#40	0.425		1 ± 1	1 ± 1	12 ± 6	73 ± 23	80 ± 12	
#50	0.300				2 ± 2	25 ± 11	30 ± 11	13 ± 7
#70	0.212				0.5 ± 0.5	3 ± 2	5 ± 4	
#100	0.150					1 ± 1	1 ± 1	1 ± 1

THESE ARE GENERAL GRADINGS ONLY. FOR CURRENT INDIVIDUAL GRADING DATA A CERTIFICATE OF COMPLIANCE IS AVAILABLE ON REQUEST FROM THE TECHNICAL SERVICES LABORATORY. FOR PRICING OR AVAILABILITY INFORMATION CONTACT THE INDUSTRIAL SAND SALES DESK AT 925-200-6207.

Cemex's Lapis Lustre Plant is located on Lapis Road, 2 miles south of Marina, CA.
PO Box 337
Marina, CA
93933

831/883-3700

11/8/2010

ELIOT QC LABORATORY
1544 Stanley Boulevard
Pleasanton, CA 94566

Telephone: (925) 249-6422 Fax: (925) 249-6444

LAPIS LUSTRE DRIED SAND

PHYSICAL PROPERTIES

COLOR	***GRAY TO AMBER***
UNIT WEIGHT	***100 pounds per cubic foot***
BULK SPECIFIC GRAVITY (Dry)	***2.61***
APPARENT SPECIFIC GRAVITY	***2.65***
ABSORPTION	***0.5 percent***
MOH HARDNESS	***6 to 7***
ACID SOLUBILITY	***0.5 percent*** *(AWWA B100-01, SEC 5.3.1)*
SPHERICITY	***0.5-0.6***
ROUNDNESS	***0.5-0.6***

CHEMICAL ANALYSIS (Dry Basis)

Aluminum as Al_2O_3	***10.2 percent***
Calcium as CaO	***0.96 percent***
Chlorine as Cl	***0.018 percent***
Flourine as F	***0.01 percent***
Iron as Fe_2O_3	***0.79 percent***
Magnesium as MgO	***0.08 percent***
Potassium as K_2O	***3.84 percent***
Combined Silica as SiO_2	***80.2 percent***
Sodium as Na_2O	***2.3 percent***
Sulfur as SO_2	***0.02 percent***
Titanium as TiO_2	***0.06 percent***
Loss on Ignition	***0.55 percent***
Asbestos	***NONE***
Total Siliceous Material	***90.6 percent***

Revised 4/24/09 per test results dated 7/17/08

APPENDIX E
BIOREMEDIATION DOSING CALCULATIONS

Dosing Calculations
TPHg Mass Estimates
3093 Broadway, Oakland, CA

Assumptions: Treatment interval ranges from 15 ft thick near former USTs to 10 feet in downgradient area
Approximately 15,000 square feet treatment area, as shown on Figure 4

Porosity: 0.35 (Estimated based on soil type)
LNAPL Density: 750 g/L for gasoline http://www.atsdr.cdc.gov/toxprofiles/tp72-c3.pdf

Treatment Area Characteristics	Source	Around Source	Upper Plume	Lower Plume	Total
Area (SF)	500	1,400	6,100	7,000	15,000
Depth Int (ft)	15	15	15	10	
Average TPHg Conc (ug/L)	31,000	31,000	5,700	34,667	
Average Benzene Conc (ug/L)	2,300	2,300	250	1,633	
Groundwater Volume (ft^3)	2,625	7,350	32,025	24,500	66,500
Groundwater Volume (L)	74,332	208,128	906,846	693,762	1,883,067
Est. LNAPL Saturation (% of porosity)	5.0%	1.5%	0.5%	0.5%	
Est. LNAPL Vertical Extent (ft)	10	3	2	2	

Estimated Mass of TPHg (grams)	Source	Around Source	Upper Plume	Lower Plume	Total
in groundwater (g)	2,304	6,452	5,169	24,050	37,976
sorbed to soil (g)	23,043	64,520	51,690	240,504	379,757
as NAPL (g)	1,858,290	468,289	453,423	520,321	3,300,323
Total					**3,718,056**

Estimated Mass of TPHg (lbs)	Source	Around Source	Upper Plume	Lower Plume	Total
in groundwater (lb)	5	14	11	53	84
sorbed to soil (lb)	51	142	114	530	837
as NAPL (lb)	4,097	1,032	1,000	1,147	7,276
Total					**8,197**

Notes:
Sorbed mass is estimated to be 10 times the dissolved phase mass
Benzene mass is included in the TPHg mass and is therefore not calculated separately
TPHg - gasoline-range Total Petroleum Hydrocarbons

Dosing Calculations
Sulfate Demand Estimates, Upper Plume
3093 Broadway, Oakland, CA

Representative Equation for Microbially Mediated Hydrocarbon Degradation

1 C8H18 + 6.25 SO4^-2 --> 8 CO2 + 9 H2O + 6.25 S^-2

Note: For the purposes of reaction stoichiometry, octane (C8H18) is used as a representative compound for the petroleum impacts at the site, including the gasoline-range Total Petroleum Hydrocarbons and benzene

Physical Properties

Molecular Mass of Sulfate (SO4)	96.1	g/mol
Molecular Mass of Octane (C8H18)	114.2	g/mol
Molecular Mass of Gypsum (CaSO4-2H20)	172.2	g/mol

Gypsum Properties

Solubility of Gypsum	2 to 2.5	g/L
Corresponding Sulfate Concentration	1.1 to 1.4	g/L
% Sulfate in Gypsum	54%	
Assumed gypsum bulk density	70	lb/ft3

Mass Calculations

	TPHg	Sulfate Demand	Gypsum Demand	
mols	25,678	160,486.52		
g	2,933,180	15,416,495	28,549,065	
pounds		33,988	62,940	< total stoichiometric gypsum demand
ft3			899.14	< estimated volume of gypsum required to meet stoichiometric gypsum demand

Proposed Gypsum Dosage

Proposed Borehole Size	12	inches diameter
Volume of Borehole	11.8	ft3 over 15 feet depth
Proposed % Gypsum in Borehole (by volume)	59%	(accounts for pore volume in sand)
Gypsum mass introduced in pilot phase	1,531	lbs, excluding RB-1
Additional gypsum mass required	14,204	lbs (to satisfy 25% of total gypsum demand)
Additional gypsum volume required	203	ft3 (to satisfy 25% of total gypsum demand)
Additional Boreholes required	29	(to satisfy 25% of total gypsum demand)
Proposed # Boreholes	29	
Proposed gypsum volume	201	ft3
Proposed gypsum mass required	14,068	lbs
	25%	of total gypsum demand satisfied

Dosing Calculations
Sulfate Demand Estimates, Lower Plume
3093 Broadway, Oakland, CA

Representative Equation for Microbially Mediated Hydrocarbon Degradation

1 C8H18 + 6.25 SO4^-2 --> 8 CO2 + 9 H2O + 6.25 S^-2

Note: For the purposes of reaction stoichiometry, octane (C8H18) is used as a representative compound for the petroleum impacts at the site, including the gasoline-range Total Petroleum Hydrocarbons and benzene

Physical Properties

Molecular Mass of Sulfate (SO4)	96.1	g/mol
Molecular Mass of Octane (C8H18)	114.2	g/mol
Molecular Mass of Gypsum (CaSO4-2H20)	172.2	g/mol

Gypsum Properties

Solubility of Gypsum	2 to 2.5	g/L
Corresponding Sulfate Concentration	1.1 to 1.4	g/L
% Sulfate in Gypsum	54%	
Assumed gypsum bulk density	70	lb/ft3

Mass Calculations

	TPHg	Sulfate Demand	Gypsum Demand	
mols	6,871	42,943.82		
g	784,876	4,125,226	7,639,308	
pounds		9,095	16,842	< total stoichiometric gypsum demand
ft3			241	< estimated volume of gypsum required to meet stoichiometric gypsum demand

Proposed Gypsum Dosage

Proposed Borehole Size	12	inches diameter
Volume of Borehole	7.9	ft3 over 10 feet depth
Proposed % Gypsum in Borehole (by volume)	59%	(accounts for pore volume in sand)
Gypsum mass introduced in pilot phase	-	lbs
Additional gypsum mass required	4,210	lbs (to satisfy 25% of total gypsum demand)
Additional gypsum volume required	60	ft3 (to satisfy 25% of total gypsum demand)
Additional Boreholes required	13	(to satisfy 25% of total gypsum demand)
Proposed # Boreholes	13	
Proposed gypsum volume	60	ft3
Proposed gypsum mass required	4,204	lbs
	25%	of total gypsum demand satisfied