
2016 PHASE II PILOT STUDY REPORT
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1.0 INTRODUCTION

The Phase II Pilot Study expanded the first phase (Phase I) of the study conducted in 2015 where, nitrate-rich nutrients were injected into the Bark Fill injection gallery (BFIG). For the Phase II Study, the same nutrients plus a surfactant were injected with the treated water into the BFIG, six designated injection wells and 18 direct push boreholes. Monitoring of a select subset of wells continued with the Groundwater Remedy System (GRS) through December 2016 as detailed in the In-Situ Enhanced Biodegradation Phase II Pilot Study Work Plan (Hydrometrics, et al, June 2016). The objective of the test was to evaluate potential aerobic and anaerobic biodegradation of pentachlorophenol (PCP) and residual diesel-range petroleum hydrocarbons (PHC) by providing additional food source for bacteria in the areas where the highest concentrations of known PCP and PHC impacts are present in groundwater.

2.0 PHASE II PILOT TEST PROCEDURES

Phase II Pilot Study activities were initiated the week of July 18, 2016, when injection of CBN™ (NutriMax™) nutrients and PetroSolv™ surfactant began into the Bark Fill injection gallery (BFIG) and injection wells. Injection via the BFIG and injection wells continued through July 28, 2016. Injection via the direct push boreholes was initiated on July 19 and was completed on July 22, 2016.

2.1 INJECTION VIA BFIG AND INJECTION WELLS

In preparation for the test the following actions were completed:

- On July 12, bark fill extraction wells BE-5 and BE-3 were shut down to focus extraction efforts in zones of higher pentachlorophenol (PCP) concentrations (i.e., wells 5-A and P-4). This resulted in an overall extraction rate of about 50 gpm (25 gpm extraction rate each at BE-2 and BE-4).
- Installation of a sump pump in the nutrient tank for delivery of the working solution to the designated injection wells BE-3, IW-1, IW-2, IW-3, BE-1 and Barkfill Injection well BI-15, located near the middle of the BFIG. The sump pump was equipped with shut-off valve (low float) that stopped pumping once the liquid reached the 500 gallon (approximate) level in the tank. The sump pump discharge exited the top of the tank and was connected to 2-inch fire hose that lead to the main distribution header. The header consisted of flowmeters and flow control valves for each injection well. A garden hose connected the header to each well.
- The initial working solution was prepared in the nutrient tank by completely mixing 1,000 pounds (lbs) of CBN™ and 55 gallons of Petrosolv™ with approximately 3,000 gallons of treated groundwater.

Injection of the initial 3000 gallons of working solution began the afternoon of July 18, 2016 and was delivered overnight to the six injection sites at a rate of approximately 0.5 to 0.75 gallons per minute (gpm) per well (Figure 1). A new batch of working solution was mixed

each morning and injected each day through Friday (July 22) and again on Tuesday and Thursday the following week per the approved Work Plan (Hydrometrics et al., June 2016). Flowmeters were checked and adjusted, if necessary, to verify delivery rates. A total of 21,000 gallons of working solution containing 7,000 lbs of CBNTM nutrients and 385 gallons of surfactant were injected from initiation of the test until July 28, 2016, of the following week. After all of the CBNTM nutrients were injected, the nutrient tank was rinsed with treated water and this water was injected into the BFIG.

2.2 DIRECT PUSH INJECTIONS

Injections were conducted in 16 direct push borings that were installed across the site during the week of July 19. Nine boreholes were originally targeted for each of the B and C Source areas (Figure 1), but due to the little impact observed at Source area C, a field decision was made by the Agency and Hydrometrics to relocate two of the proposed borings to Source Area A. These two boreholes were targeted at hot spots identified in 2014, including several borings around 5-A. Two other borings planned for Source Area A were not used for injection as no impacts were observed in the borings during installation. The approximate locations of injection boreholes are shown on Figure 2.

Direct push boreholes were installed using either a GeoProbe 5410 or 6600 rig. Boreholes were advanced to the bottom of target depths with hollow tooling and disposable drive shoe. Once at the total depth, the tooling was pulled up enough to knock off the drive shoe and the working solution was injected via pump through the tooling. The tooling was pulled up during the injection process to distribute the solution through the target zone. The pumping rates varied from less than 1 gallon per minute (gpm) to 5 gpm, depending on location and lithology of target zone.

Approximately 300 gallons of the working solution was injected at each location. The working solution for each boring was prepared by mixing 300 gallons of water with approximately 160 to 170 lbs of CBNTM and 6 gallons of surfactant in a 315 gallon poly tank. The solution was mixed by lowering a sump pump into the tank and circulating the solution.

Approximately 5,400 gallons of working solution containing a total of 3,000 lbs of CBN™ and 110 gallons of surfactant were injected via the boreholes.

During borehole injection in the B source area, a 12-volt pump was used to pump and surge at well 5A in order to facilitate transport of the solution to this area. The removed water and LNAPL (approximately 200 gallons) were pumped into a poly tank, which was emptied into the GRS sump and eventually treated. Any solids that settled out were drummed for off-site disposal.

Three piezometers (P-6, P-7 and P-8) were installed during the injection period for water level and field parameter monitoring. The piezometers were installed between the BFIG and the BFEG at locations shown on Figures 1 and 2. Each piezometer was completed to approximately 15 feet below ground surface (bgs) with 2- inch diameter, schedule 40 PVC screen and casing. The screen was placed from 14.5 to 4.5 feet bgs.

The GRS system continued to operate after injections until it was shut down and placed into stand-by operation as approved by the Agencies in a December 5, 2016 letter from USEPA to Les Lonning, Nordic Technical Services representing Idaho Pole Company (IPC).

3.0 MONITORING

Monitoring was conducted at key monitoring wells, per the approved 2016 Work Plan (Hydrometrics, et al, 2016), prior to (baseline), during and after nutrient and surfactant injection which occurred in July 2016. The sampling schedule is included in Table 1. The key wells are shown on Figure 3 and include the following:

- Source area wells: 5-A, 5-B, P-4, EW-1, P-6, P-7, P-8;
- Down/cross gradient near source area: P-1, P-2, 15-A; and
- Downgradient and North of I-90: GM-4, GM-5, GM-6, 9-A, 9-B. Wells 11-A and 12-A were also included in the monthly sampling for PCP during October.

Field parameters (specific conductance (SC), temperature, oxidation reduction potential (ORP), pH, and dissolved oxygen (DO)) were measured at these wells on a daily basis during the two week injection period and monthly thereafter. Sampling and laboratory analysis of PCP and Diesel Range Organics (DRO) has been conducted monthly after the injection period. Wells 5-B and P-2 were also sampled for dioxins during July and August 2016, per the 2016 Work Plan. Select wells downgradient of 5-A were sampled for Nitrate+Nitrite (N+N) and Ammonia-N on August 25, 2016 and include 9-A, 9-B, 11-A, 12-A, GM-4, GM-5, P-6, P-7 and P-8. Semi-annual site-wide sampling was conducted during September 2016 and those results from key wells are also included in this evaluation.

After the Groundwater Remedy System (GRS) was placed in stand-by operations, with no extraction or injection occurring, a subset of six wells (5-A, BE-2, EW-1, GM-4, P-2 and P-4) are sampled on a monthly frequency for a duration of five months. Samples from these wells are analyzed for PCP and DRO. Results from the first monthly sampling event following shutdown (January 2017) are included in this evaluation.

4.0 RESULTS AND DATA EVALUATION

Results for laboratory analysis of PCP, DRO, dioxins and nitrate/ammonia analysis are tabulated in Table 2. Field parameters measured during baseline sampling and Phase II monitoring are included on Table 3. Laboratory reports are included as Appendix A (ARI Laboratory) and Appendix B (ALS Laboratory – dioxin results). The data validation report is included in Appendix C.

4.1 SOURCE AREAS

4.1.1 Monitoring Well 5-A

Monitoring well 5-A is located upgradient of the BFIG near BE-4 and just upgradient from direct push injections of CBN™ and surfactant solution (Figure 2). Injections began on July 19, just downgradient of 5-A. A sharp increase of SC was observed at this well starting on July 20, indicating influence from injection of the working solution. A peak level of SC was observed on July 22 (27,258 µmhos/cm), since that time, SC levels have declined, but remain above baseline levels (649 µmhos/cm) in January 2017 (1,090 µmhos/cm) as shown on Figure 4. This indicates that there is still significant CBN™ residing in this shallow zone even after operating the system for months.

Historically, anaerobic conditions have been observed at this well. ORP measured during the Phase II Study indicate aerobic conditions (+89 mv ORP) were achieved for two days during the injection period, likely attributable to the surging and pumping conducted at this well to remove LNAPL. Once this activity ceased conditions returned to anaerobic until October 2016 at which time positive ORP was observed through the end of the year (Figure 5). DO remained at slightly above to slightly below 1 mg/L during the injection and monitoring until December 2016 when an increase to 2.67 mg/L was observed. A similar pattern was noted during December 2015.

PCP concentrations at 5-A have increased from 350 µg/L in August to 1,670 µg/L in December 2016, and up to 1,910 µg/L in January 2017 at well 5-A. The January 2017 PCP concentration is lower than the peak observed in October 2015 after Phase I injections were performed (Figure 4). In historical perspective, except for the September 2010 PCP result, the PCP concentrations at 5-A has ranged from 31-1,200 µg/L (avg. 574 µg/L) at this location. As shown on Figure 4, there are two distinct PCP concentration spikes that correlate strongly with both the Phase I and Phase II injection events. These events were performed differently (varying delivery methods, products, and concentrations); however, both events show enhanced desorption of PCP beyond historical values (avg. value since Phase I is 1,328 µg/L, or up to 2.3 times higher than the pre-injection average concentration). The use of surfactant, higher concentration of CBN™, and direct push injections targeting the area around 5-A during the Phase II event appears to be holding a higher PCP concentration for longer than the Phase I event that tapered in October 2015. In addition, the GRS system was shut down in December 2016, which also has to be taken into consideration. The Phase I peak is slightly higher than the Phase II peak, but the Phase II event utilized surfactants and nearby direct push injections. This indicates that the peak observed after Phase I was likely related to an increase in bioactivity. What is notable, the peak after Phase II is less, but holding more consistently. The surfactant/CBN™ appears to be maintaining the higher dissolved phase concentrations, making the PCP more bioavailable for a longer period of time than with just CBN™ alone.

Well 5-A also contains the highest level of petroleum hydrocarbon concentrations observed at the site, with baseline DRO concentration at saturation (6.3 mg/L). As shown in Table 2, DRO concentrations increased immediately after the Phase II event to 15 mg/L. DRO continued to increase and in October 2016 the concentration spiked to 238 mg/L (Table 2). Since that peak in October, DRO concentrations have decreased to 123 mg/L, but are still elevated compared to baseline. Recall that we observed an increase of LNAPL at 5-A while surging this well in July 2016. This increase can be attributed to the surfactant injected in this area mobilizing the carrier oil.

4.1.2 Monitoring Well 5-B

The screened interval of monitoring well 5-B is situated just below the 5-A hot spot. This well is being used to evaluate enhanced downward transport of contaminants due to the injection event. Only a slight increase of PCP concentrations was observed at 5-B following the injections (from about 1 µg/L to almost 7 µg/L during the September sampling event) but declined to non-detect during December (Table 2). These PCP data shows insignificant PCP mass transport from downward transport (5-A). In addition, DRO concentrations at 5-B didn't significantly change throughout the sampling event, showing that even the more soluble DRO did not migrate downward in this area. Figure 5 includes graphs of SC, DO and ORP measured at 5-B that indicate this well was in communication with the working solution injected just downgradient, but not to the degree as was 5-A.

Samples collected at 5-B in July and August were also analyzed for dioxins/furans by EPA Method 8290A. The polychlorinated dibenzodioxin 2,3,7,8-TCDD was non-detect during both events and the Toxicity Equivalence Quotient (TEQ) for 2,3,7,8-TCDD exceeded the DEQ-7 (MDEQ, October 2012) Human Health Standard (HHS) of 2 picograms/liter during both events (Table 2). The PCP, DRO and dioxin data show the injection of surfactants/CBN™ into the hot spot area (5-A) didn't significantly exacerbate downward transportation of the contaminants to the more transmissive horizon in which well 5-B is completed.

4.1.3 Piezometer P-4

P-4 is located between Phase II pilot study extraction well BE-2 and temporary injection well BE-3 and down gradient of temporary injection at IW-2. Levels of SC at this well increased during the injection period until they peaked on August 3 (1,099 µmhos/cm) after injection was complete as shown on Figure 6. A steady decline of SC was observed for about a month. A slow increase of SC began in October and continued through December 2016, potentially showing CBN™ in the vadose/smear zone being contacted as groundwater elevations increase (rose 1.3 feet from August to December).

Concentrations of PCP at P-4 showed a decline after the Phase II injections (560 µg/L to 314 µg/L), until January 2017, at which time, concentrations increased significantly (904 µg/L, Figure 6). This increase in PCP concentration correlates with the increase in SC, indicating rising groundwater may be starting to contact more of the smear zone. To date, the increase in PCP concentration is still on the lower end of the historical range of values, but complete inundation (and bioactivity) of the smear zone may cause concentrations to continue to change since this location has observed detections as high as 2,300 µg/L (August 2014).

DRO concentrations at P-4 increased to above baseline in August (2.41 mg/L) following injections but then began an overall decline through January 2017 (0.997 mg/L, Table 2).

4.1.4 Well EW-1

EW-1 is located in between BE-1 and BE-2. One objective of the Phase II approach was to get better distribution/contact of the working solution in this area. The SC values clearly show an initial spike in SC near the end of the event, then a steady decrease, followed by another spike in August (899 µg/L) showing the presence of the bioamendments (Figure 7). SC values tapered through December 2016 showing the bioamendments starting to dissipate in this area.

The Phase I event appeared to create a spike in PCP concentration to 200 µg/L, as did the Phase II event. This higher spike after Phase II is likely related to the change in delivery method having more of an influence. Change in operation with the shutdown of BE-3 and BE-5 Barkfill extraction wells would also likely have impacted observed PCP concentrations. PCP concentrations briefly peaked at 400 µg/L at EW-1 in September 2016 as a result of direct push injections in July 2016. Concentrations decreased to below baseline levels in November and December 2016 (down to 9.9 µg/L, historical low value). However, in January 2017 the PCP concentration increased to 67 µg/L, which is within historical range. Additional data will be required to obtain a clearer trend.

DRO concentrations overall declined at EW-1 after injections through December (1.98 mg/L to 0.482 mg/L). A slight increase of DRO (0.975 mg/L) was observed in January 2017.

ORP remained negative during the injections but became positive (37.4 mV) during the second week in August, and remained positive for the remainder of the year. ORP at P-4 responded similarly to EW-1 although more aerobic conditions were observed at P-4 during the test. Both P-4 and EW-1 became strongly positive in December.

4.2 DOWNGRAIDENT/NEAR SOURCE AREAS

4.2.1 Piezometer P-1

PCP concentrations at P-1 have historically been at or below 1 µg/L. During September 2016, PCP in the duplicate sample collected at this well was reported at 7.48 µg/L, the primary sample collected at the same time was non-detect for PCP. The October 2016 sample reported less than 1 µg/L for PCP. This well is located directly downgradient of the beginning of BFIG. Figure 8 includes graphs of SC, ORP and DO at P-1. SC responded immediately with an increase but slowly declined shortly after injection of the working solution ceased. DO also increased briefly but then sharply declined. ORP increased briefly but then returned to near baseline levels shortly after the Phase II injections. ORP increased to strongly positive (+165 mV) during September and December.

4.2.2 Piezometer P-2

P-2 is located immediately downgradient of the middle of the BFIG and is downgradient of the hotspot area (5-A to P-4); therefore, it has contained consistent detections of PCP. The SC values show an increase by the end of the event, and significantly higher values in August (839-910 µmhos/cm). This is followed by a steady decrease back to baseline values, until December when it spiked again (843 µg/L) as groundwater elevations increased. The shift towards more positive ORP values is also apparent at P-2 (see Table 3), which is related to a small concentration of the bioamendments leaving the site in this direction.

The baseline concentration (200 µg/L on July 14, 2016) of PCP at P-2 was similar to what was observed immediately following the 2015 Phase I injections (Figure 9). After PCP concentrations declined during the first week of August (87 µg/L) they have fluctuated at an elevated concentration range through January 2017 (100-190 µg/L), remaining above historical levels. This level of PCP is an order of magnitude lower than what is observed at 5-A, indicating the bulk of PCP mass is not migrating away from 5-A. This is confirmed by the low level (less than 1 mg/L) DRO reported at P-2 during the study period, compared to 5-A and P-4. There was a slight increase in DRO during the November 2016 (0.908 mg/L) and January 2017 (0.989 mg/L) sampling events.

Samples collected at P-2 in July and August were also analyzed for dioxins/furans. 2,3,7,8-TCDD was non-detect during both events and the TEQ for 2,3,7,8-TCDD exceeded the DEQ-7 HHS during both events (Table 2).

4.2.3 Well 15-A

This well is located at the eastern and distal end of the BFIG, and had poor communication during the Phase I event. The Phase II event did seem to cause a slight increase in SC values during the injection event and just afterwards, but it quickly returned to below the baseline value (Figure 10). ORP and SC responded with a slight lag behind the initial injection and the DO response. ORP at 15-A went from negative to strongly positive (-61mV to +107 mV) on July 21, 2016 and remained positive through August. An increase of SC corresponded with the ORP response on the same day. PCP concentrations remain at low levels (less than 1 µg/L) at 15-A (Table 2) through September. Figure 10 includes graphs of DRO, ORP and SC at well 15-A during July and August 2016. DRO concentrations remained low at this well through September, showing no significant DRO mass in this area.

4.2.4 New Piezometers P-6, P-7 and P-8

These wells were installed after Phase II injections were initiated, so no baseline data were collected for these locations. They are located just in between the BFIG and BFEG. These piezometers were monitored only for field parameters during the Phase II injections with the exception of samples collected on August 25 for analysis of nitrate + nitrite (N+N) and

Ammonia-N (Table 2). Graphs of SC, ORP and DO are included on Figure 11 through 13. P-6, located just about 20 feet downgradient of 5-A (Figure 1), showed similar decreasing SC, DO and ORP responses during the first week. During the 2nd week, DO levels dropped sharply from 3.8 mg/L to 0.70 mg/L and remained low during August.

ORP at P-6 showed an upward positive trend with the exception of a reading of -37.3 mV on August 4, which may have been an instrument error. DO and SC at P-7 both spiked up at the beginning of the 2nd week with DO taking a steep decline during August. ORP at P-7 mirrored the DO response by dropping to almost 7.31 mV on July 25, followed by a steady increase to almost 160 mV at the end of August (Figure 12). P-8, located just downgradient of extraction well BE-2 exhibited anaerobic conditions during the test, with DO levels less than one and ORP stabilizing at about -60 mV after a sharp drop to -164.2 on July 26.

SC at all three new piezometers fluctuated during the first two weeks of the test and stabilized at approximately 1000 μ mhos/cm in August. Results from the August 25 sampling for N+N and Ammonia-N at P-6, P-7 and P-8 reported N+N ranging from 4.29 to 15 mg/L and Ammonia-N from 0.08 to 2.71 mg/L (Table 2).

4.3 DOWNGRADIENT AND NORTH OF 1-90

4.3.1 Well GM-4

This well is located north of 1-90, approximately 250 feet downgradient of the BFIG (Figure 3). Figure 14 includes graphs of SC, DO and PCP concentrations observed at GM-4. SC and DO trends both trended up slightly between baseline sampling on July 14 to the first measurements taken during the test on July 25-26th. Both SC and DO declined thereafter until September when DO began to return to baseline levels. Similar to other wells at the site, the DO at GM-4 increased in December. Depth to water at this well is usually less than 2 feet below ground surface. SC stabilized at about 800 μ mhos/cm. ORP declined from 11.4 mV (baseline) to -26.3 during the second week of the test. After the second week an upward trend for ORP was observed. December ORP was reported at 256.8 mV. ORP is plotted on Figure 5 with other wells upgradient of GM-4.

The concentration of PCP increased at GM-4 to 199 µg/L in October 2016 (Figure 14), the highest observed since 2008, but still below the threshold for resuming GRS operations of 250 µg/L. This concentration is similar to that observed upgradient at P-2. PCP concentrations at GM-4 have fluctuated from 9.5 to 52 µg/L since October. DRO concentrations at GM-4 remain below 1 µg/L.

4.3.2 Well GM-5

PCP concentrations at GM-5 continue to be below detection levels and DRO concentration in July 2016 was less 1 µg/L. N+N and ammonia-N at GM-5 on August 25 were 1.49 mg/L and 0.59 mg/L, respectively.

4.3.3 Well GM-6

The PCP concentration at GM-6 is unchanged at 2.8 µg/L (Table 2). The DRO concentration measured in July at this well was less 1 µg/L.

4.3.4 Wells 9-A and 9-B

These wells are located approximately 350 feet down gradient of GM-4 and were identified as wells contingent for sampling if concentrations of PCP at GM-4 exceed the threshold of 250 µg/L. A decision was made, in consultation with the Agencies, to sample these wells for PCP and DRO in September, October and November 2016 to further evaluate plume migration, even though PCP concentrations remained below 250 µg/L at GM-4.. Concentrations of PCP at 9-A and 9-B during these three months are typical of normal fluctuations as shown on Figure 15. These wells were also included in the N+N and ammonia-N sampling event in August (Table 2).

4.3.5 Wells 11-A and 12-A

These wells are located down gradient of GM-5 approximately 350 to 400 feet (Figure 3), and were sampled in August for N+N and ammonia-N and for PCP and DRO in September during the semi-annual sampling event and during October. N+N concentrations were reported at 8.69 mg/L (11-A) and 12.6 mg/L (12-A). These levels are higher than would be expected, but cannot be definitively related to the Phase II injections as there was no baseline

data collected. Well 11-A showed a slight increase of PCP from September to October 2016 to 1.55 µg/L. However the October sample was flagged by the laboratory as being outside of their Quality Control (QC) limits. Well 12-A remains at non-detect for PCP. Both 11-A and 12-A were non-detect for DRO.

Further downgradient, at wells 25-A, 25-B and 16-B, typical levels of PCP were observed during the September 2016 fall sampling event (Figure 15).

5.0. SUMMARY AND CONCLUSIONS

The goal of the Phase II pilot study was to evaluate potential aerobic biodegradation of PCP and residual diesel-range petroleum hydrocarbons (PHC) by providing additional food source for bacteria in the areas where the highest concentrations of PCP and PHC impacts are present in groundwater. The modifications to the delivery method (i.e. direct push injection, numerous injection wells, etc.) did appear to help distribute the bioamendments to all key impacted wells, as evidenced in the SC and ORP data collected during Phase II.

PCP concentrations and trends vary across the site. The three most impacted wells (P-2, P-4, and 5-A) are showing continued desorption of PCP due to both the surfactant and bioactivity. 5-A and P-2 are elevated above historical values, while P-4 had been on a downward trend since Phase I. P-4 only started to increase in concentration as groundwater elevations increased, unlike 5-A and P-2. The DRO concentration that is orders of magnitude higher than saturation values (1 mg/L to 10 mg/L, depending on composition of the fuel oil) in 5-A indicates the presence of surfactants, while P-2 is likely more related to bioactivity (like that observed in Phase I), but is being sustained. SC values show bioamendments are still present and active in this area. 5-B is showing no significant downward transport of PCP from the 5-A area; therefore, it is unlikely the PCP mass in 5-A is desorbing and migrating downward and causing the detections at P-2. 5-B did show a small increase in PCP concentrations, but it quickly went back to below detection limits. EW-1 and 15-A were part of the focus of the Phase II delivery modifications/design. These are lower PCP concentration areas, but both appear to be on a downward trend. The downgradient wells (GM-4, GM-5, GM-6, etc.) are showing stable or decreasing concentrations. GM-4 did observe a temporary spike in October, but it decreased immediately back to the lower historical range.

Bioamendments are still present in key impacted wells P-2, P-4, and 5-A, which will continue to impact the overall bioremediation process. Monthly monitoring will continue through May 2017, as part of the temporary GRS shutdown approval and evaluation (USEPA, December 5, 2016), and may continue beyond, pending results and review of the data. The additional data collected in 2017 will help evaluate the biodegradation performance in these key monitoring locations.

6.0. REFERENCES

- Hydrometrics, Inc. 2016. In-Situ Enhanced Biodegradation Phase II Pilot Study Work Plan (Hydrometrics, et al, June 2016).
- MDEQ, Planning Prevention and Assistance Division, Water Quality Planning Bureau, Water Quality Standards Section. October 2012. Circular DEQ-7 Montana Numeric Water Quality Standards. Helena, Montana. Montana Department of Environmental Quality.
- United States Environmental Protection Agency. December 5, 2016. Agency Approval to Allow for Temporary Shutdown of the Groundwater Recover System Idaho Pole Company Site, Bozeman.

TABLES

Table 1
Sampling Schedule - Phase II Pilot Study
Idaho Pole Site, Bozeman Montana

Parameter and Sampling Frequency	Well ID														
	Source/Treatment Area							Down/crossgradient near Treatment Area			Downgradient, North of I-90			Downgradient, to the North	
	5-A	5-B	P-4	EW-1	P-6	P-7	P-8	P-1	P-2	15-A	GM-4	GM-5	GM-6	9-A	9-B
<u>Baseline (after shut down of BE-3 and BE-5)</u> Field measurement of Temperature, SC, ORP, DO, pH; water levels; nitrate and ammonia with test kits; laboratory analysis of PCP and TPH-DRO (all wells), plus dioxin at 5-B and P-2.	X	X D	X	X				X	X D	X	X	X	X	X	X
<u>Initial Injections</u> Daily field measurement of Temperature, SC, ORP, DO, pH; water levels. Nitrate, ammonia at select wells, if shifts in field parameters are observed.	X		X		X	X	X	X	X	X	X*	X*	X*		X*
<u>After Secondary Injections (prior to shut down of BE-2 and BE-4)</u> Field measurement of Temperature, SC, ORP, DO, pH; water levels; nitrate and ammonia with test kits; laboratory analysis of PCP and TPH-DRO (all wells, excluding new piezometers P-6, P-7 and P-8), plus dioxin at 5-B and P-2.	X	X D	X	X	X	X	X		X D	X	X				
<u>Remedy Effectiveness Monitoring</u> Monthly: Field measurements of Temperature, SC, ORP, DO, pH; water levels; nitrate, ammonia. Laboratory analysis of PCP and TPH-DRO. Analyze for dioxin if PCP > 250 ug/L.	X		X	X				X*	X	X*	X	X*	X*	X*	X*

Notes:

1. Acronyms/Abbreviations:

SC - Specific Conductance

DO - Dissolved Oxygen

ORP - Oxidation Reduction Potential

PCP - Pentachlorophenol

TPH-DRO - Total Petroleum Hydrocarbons Diesel Range

D - analysis includes dioxin

X* - Contingent sampling. See Section 5.3 of the 2016 Work Plan (Hydrometrics et al., June 2016)

Table 2
2016 Phase II Pilot Study Laboratory Analytical Results
Idaho Pole Company - Bozeman, Montana

		LABORATORY RESULTS						
WELL	DATE	PCP (ug/L)	DRO (mg/L)	2,3,7,8- TCDD (pg/L)	Total TEQ (pg/L)	N +N (mg/L)	Ammonia-N (mg/L)	Comments
5-A	7/14/16	540	6.34					
	8/3/16	350	14.7					
	9/8/2016	1450	54.2					
	10/6/2016	1350	238					
	11/9/2016	832	182					
	12/8/2016	1670	142					
	1/18/2017	1910	123					
5-B	7/14/2016	0.7	0.12	< 4.75	3.02			
	8/3/2016	1.4	<0.10	< 4.76	8.41			
	9/8/2016	6.93						
	12/8/2016	<0.25	0.245					
5-C	9/8/2016	0.57						Semi-Annual sample
9-A	7/14/2016	0.79	0.15					
	8/25/2016					0.36	0.054	
	9/6/2016	2.88	1.08					
	10/6/2016	3.45	<0.100					
	11/9/2016	<0.25	<0.100					
9-B	7/14/2016	13	0.16					
	8/25/2016					1.93	0.209	
	9/6/2016	9.69	0.13					
	10/6/2016	12.4	<0.100					
	11/9/2016	2.11	0.22					
9-C	9/6/2016	<0.25						
11-A	9/7/2016					8.69	0.058	
	9/7/2016	0.91						
11-D	9/7/2016	0.81						Dup of 11-A
11-A	10/6/2016	1.55 P1	<0.100					
12-A	8/25/2016					12.60	<.040	
	10/6/2016	<0.25	<0.100					
15-A	7/14/2016	0.88	0.58					
	8/3/2016	0.74	0.6					
	9/7/2016	0.66	0.618					
16-B	9/6/2016	19.5						
22	9/7/2016	<0.25						
23-A	9/7/2016	2.03						
23-B	9/7/2016	<0.25						
24-B	9/7/2016	4.31						
25-A	9/6/2016	20.3						
25-B	9/6/2016	<0.25						
26-A	9/6/2016	1.37						
26-B	9/6/2016	<0.25						
26-C	9/6/2016	<0.25						
27-B	9/6/2016	<0.25						
EW-1	7/14/2016	110	1.98					
	8/3/2016	24	0.89					
	9/7/2016	400	0.692					
	10/6/2016	103	0.732					
	11/9/2016	14.8	0.656					
	12/8/2016	9.98	0.535					
EW-D	12/8/2016	9.65	0.482					dup of EW-1
EW-1	1/18/2017	66.5	0.975					
EW-D	1/18/2017	65.9	0.889					dup of EW-1

Table 2
2016 Phase II Pilot Study Laboratory Analytical Results
Idaho Pole Company - Bozeman, Montana

		LABORATORY RESULTS						
WELL	DATE	PCP (ug/L)	DRO (mg/L)	2,3,7,8- TCDD (pg/L)	Total TEQ (pg/L)	N +N (mg/L)	Ammonia-N (mg/L)	Comments
GM-4 GM-4F	7/14/2016	48	0.2					
	8/3/2016	33	0.2					
	8/25/2016					0.33	0.216	
	9/7/2016	79.8	0.382					
	10/6/2016	199	0.353					
	11/9/2016	9.51	0.143					
	12/8/2016	52.1	0.371					
	1/18/2017	18.8	0.482					
	12/8/2016	<0.25	<0.100					Field blank
	1/18/2017	<0.25	<0.100					Field blank
GM-5	7/14/2016	<0.25	0.88					
	8/25/2016					1.49	0.59	
	9/7/2016	<0.25						
GM-6	7/14/2016	2.8	0.12					
	9/7/2016	2.8						
GM-8	9/6/2016	<0.25						
IW-1	9/8/2016	114						
IW-2	9/8/2016	5.48						
IW-3	9/8/2016	7.27						
P-1	7/14/2016	<0.25	0.15					
P-1	9/7/2016	<0.25						
P-1D	9/7/2016	7.48						dup of P-1
P-1	10/6/2016	<0.25	<0.100					
P-1D	10/6/2016	0.53	<0.100					dup of P-1
P-2	7/14/2016	200	0.73	< 4.78	5.35			
	8/3/2016	87	0.47	< 4.75	3.93			
	9/8/2016	139	0.459					
	10/6/2016	190	0.472					
	11/9/2016	164	0.908					
	12/8/2016	100	0.654					
	1/18/2017	166	0.989					
P-4	7/14/2016	560	1.79					
	8/3/2016	410	2.41					
	9/7/2016	377	1.230					
	10/6/2016	416	1.740					
	11/9/2016	314	1.300					
	12/8/2016	498	0.997					
	1/18/2017	904	2.140					
P-6	8/25/2016					11.70	2.71	
P-7	8/25/2016					15.00	0.08	
P-8	8/25/2016					4.29	0.72	

DRO = Diesel Range Organics (C12-C24) by Method NWTPH-Dx

PCP = Pentachlorophenol by EPA 8041A

TEQ = Toxicity Equivalent Quotient of 2,3,7,8-TCDD

P1 = The reported value is greater than 40% RPD between the concentrations determined on two GC columns where applicable.

Table 3
Phase II Pilot Study Field Parameters
Idaho Pole Company - Bozeman, Montana

		FIELD PARAMETER RESULTS								Comments
WELL	DATE	SC umhos/cm	DO mg/L	pH	ORP mv	Temp °C	Nitrate mg/L	Ammonia mg/L	SWL ft	
5-A	7/14/16	649	1.24	7.29	-72.90	11.7			8.41	Deviation in well prevented meter probe from being put in well. Had to purge into bucket
	7/19/16	697	0.63	7.28	-66	11.9			8.04	
	7/20/16	20157	0.85	6.59	89.6				7.95	
	7/21/16	27258	1.16	6.65	35.8	13.4			8.26	Had to be measured with peristaltic and metering probe in a bucket
	7/22/16	25989	1.11	6.81	-62.6	12.3			8.18	
	7/25/16	18003	0.66	7.34	-118.3	12.9	>225	>300	8.23	
	7/26/16	13110	1.18	7.38	-137.3	12.8	>225	>300	8.21	
	7/27/16	8208	1.06	7.21	-106.7	12.8	<225	>300	8.20	
	7/28/16	7452	0.67	7.22	-119.5	12.8	>225	>300	8.36	
	8/1/16	5278	0.36	7.48	-98.10	11.6	225	300	8.42	
	8/2/16	4811	0.71	7.37	-87.60	11.8	225	300	8.46	
	8/3/16	3882	0.07	7.43	-110.3	12.5		300	8.48	
	8/4/2016	4988	0.91	7.42	-101.30	11.6	225	300	8.49	
	8/5/2016	4610	0.74	7.35	-89.70	11.9	225	300	8.51	
	8/11/2016	3489	0.37	7.45	-69.70	12.8			8.56	
	8/22/2016	2455	0.75	7.71	-126.80	13.8			8.62	
	9/8/2016	2536	0.37	7.71	-13.00	13.5	90	300	8.52	
	10/6/2016	1969	0.80	7.63	102.00	14.2			8.03	
	11/9/2016	1680	0.70	7.77	96.80	11.2			7.4	
	12/8/2016	1313	2.67	7.73	168.00	10.3				
	1/18/2017	1090	1.03	7.77	274.40	8.9			7.94	
5-B	7/14/2016	554	3.10	7.55	110.60	12.6			8.51	
	7/20/2016	604	1.10	7.35	222.8				8.54	
	7/21/2016	612	2.30	7.56	53.6	12.0			8.63	
	7/22/2016	691	1.66	7.34	47.2	12.2			8.53	
	7/25/2016	627	0.21	7.69	61.3	12.1			8.75	
	7/26/2016	636	0.43	7.71	42.6	12.6			8.74	
	7/27/2016	612	0.37	7.82	58.6	12.4			8.70	
	7/28/2016	606	0.30	7.65	71.90	11.9			8.56	
	8/1/2016	617	2.11	7.81	137.20	12	0	0	8.97	
	8/2/2016	610	1.88	7.67	149.10	12.1	0	0	9.03	
	8/3/2016	609	1.84	7.48	149.80	12.3	<20	0	9.11	
	8/4/2016	639	1.39	7.54	137.20	11.8	0	0	9.08	
	8/11/2016	636	1.11	7.24	181.40	11.7			9.13	
	8/22/2016	618	0.44	7.47	158.90	13.2			9.11	
	9/8/2016	606	0.64	7.42	186.10	12.8	<20	0	9.1	
	12/8/2016	558	4.59	7.75	350.00	9.3			8.12	
9-A	7/14/2016	595	1.08	7.44	-70.80	10.3			4.4	
	8/22/2016	587	0.07	7.34	144.80	10.6			5.04	
	8/25/2016	577	0.79	7.40	167.70	10.2			4.98	
	9/6/2016	606	0.64	7.47	-58.10	11.2			4.80	
	10/6/2016	597	0.89	7.52	42.60	10.6			4.19	
	11/9/2016	618	1.18	7.67	160.80	9.9			3.64	
9-B	7/14/2016	572	1.16	7.48	199.40	9.8			4.51	
	8/22/2016	582	0.13	7.29	248.50	10.8			5.12	
	8/25/2016	563	0.66	7.43	240.10	9.8			5.14	
	9/6/2016	572	0.57	7.54	85.30	10.4			4.94	
	10/6/2016	593	0.74	7.57	266.60	10.2			4.29	
	11/9/2016	591	1.06	7.63	274.10	10.1			3.8	
11A	8/25/2016	587	0.80	7.49	147.60	11.1			5.41	
	9/7/2016	653	0.58	7.63	-4.10	11.3			5.2	
	10/6/2016	653	0.79	7.58	182.00	11			4.59	
12-A	8/25/2016	602	1.20	7.45	121.90	11.2			5.24	
	10/6/2016	591	1.20	7.54	155.30	10.9			4.43	
15-A	7/14/2016	656	1.60	7.43	-72.30	12.1			7.11	Probe placed directly in well / purging into a bucket
	7/19/2016	637	0.19	7.43	-53.9	11.3 / 10.2			7.04	
	7/20/2016	642	0.54	7.44	-61.6	12			7.02	
	7/21/2016	639	0.19	7.63	107.7	11.6			7.13	
	7/22/2016	710	0.23	7.49	1127	12.1			7.09	
	7/25/2016	686	0.11	7.64	171.1	11.6			7.29	
	7/26/2016	677	0.11	7.78	164.4	11.8	0	0	7.27	
	7/27/2016	637	0.19	8.06	183.6	11.4	0	0	7.32	
	7/28/2016	629	0.25	7.72	155.6	11.6			7.35	
	8/1/2016	678	0.81	7.38	64.40	11.2	0	0	7.37	
	8/2/2016	670	0.98	7.29	87.30	11.7	0	0	7.43	
	8/3/2016	659	0.95	7.35	99.00	11.9	<20	0	7.59	
	8/4/2016	636	0.81	7.21	74.80	11.3	0	0	7.47	
	8/22/2016	582	0.34	7.32	116.70	12			8.02	
	9/7/2016	566	0.74	7.40	196.20	12.3	0	0	7.59	
EW-1	7/14/2016	798	0.90	7.26	-61.80	12.3			8.27	
	7/19/2016	781	0.54	7.3	-82.3	11.5			8.27	
	7/20/2016	729	0.38	7.42	-82	10.9			8.30	
	7/21/2016	733	0.07	7.35	-86.5	10.7			8.34	
	7/23/2016	782	0.18	7.26	-94.8	11.8			8.27	
	7/25/2016	881	0.17	7.51	-87.60	11.6	0	0	8.43	
	7/26/2016	837	0.29	7.43	-67.2	12.1	0	0	8.47	
	7/27/2016	814	0.24	7.65	-66.4	10.8	0	0	8.54	
	7/28/2016	795	0.18	7.42	-45.20	10.9			8.59	
	8/1/2016	771	0.98	7.29	-64.20	12.1	0	0	8.51	
	8/2/2016	761	1.13	7.41	-47.20	12.1	0	0	8.57	

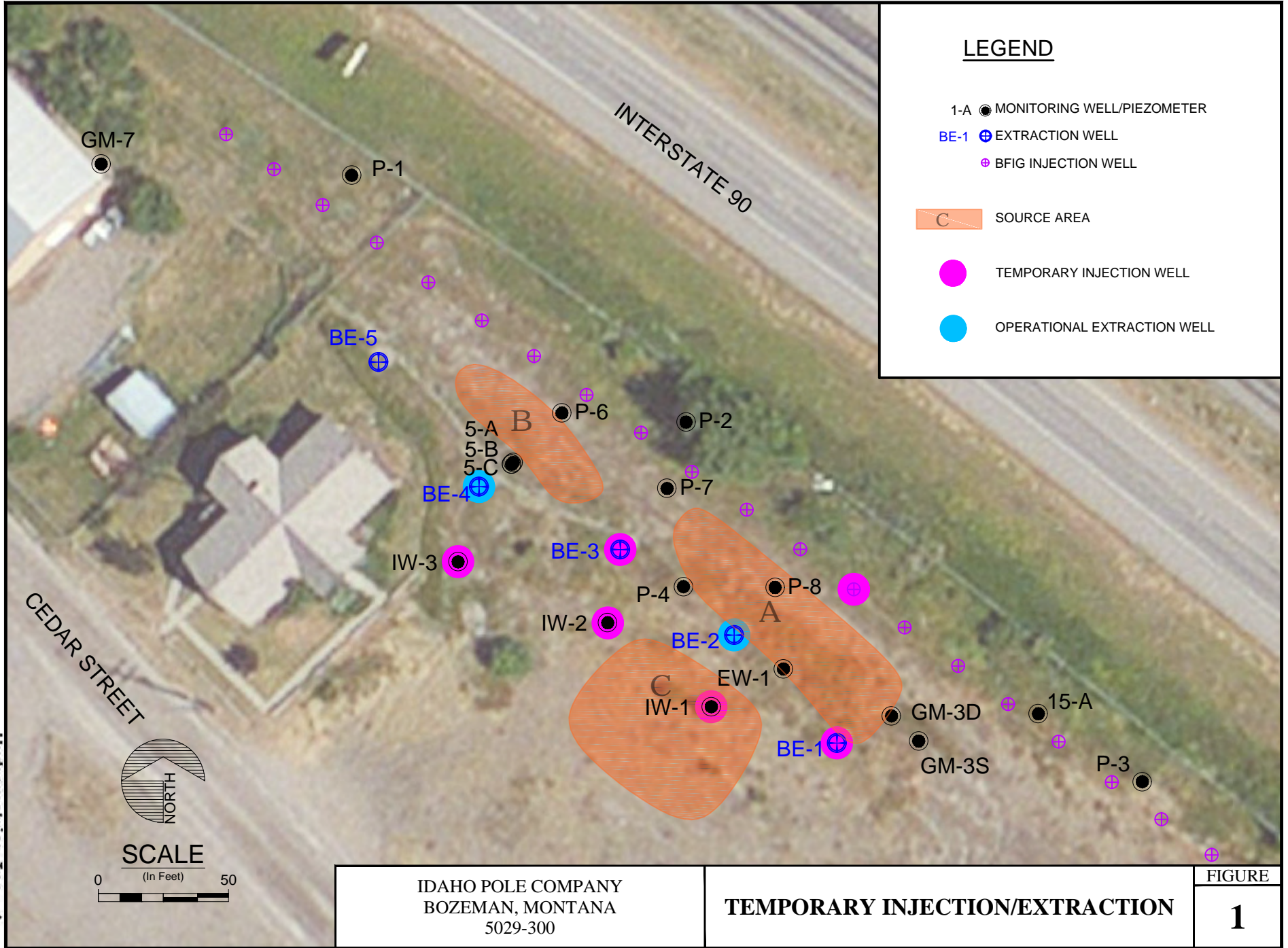
Table 3
Phase II Pilot Study Field Parameters
Idaho Pole Company - Bozeman, Montana

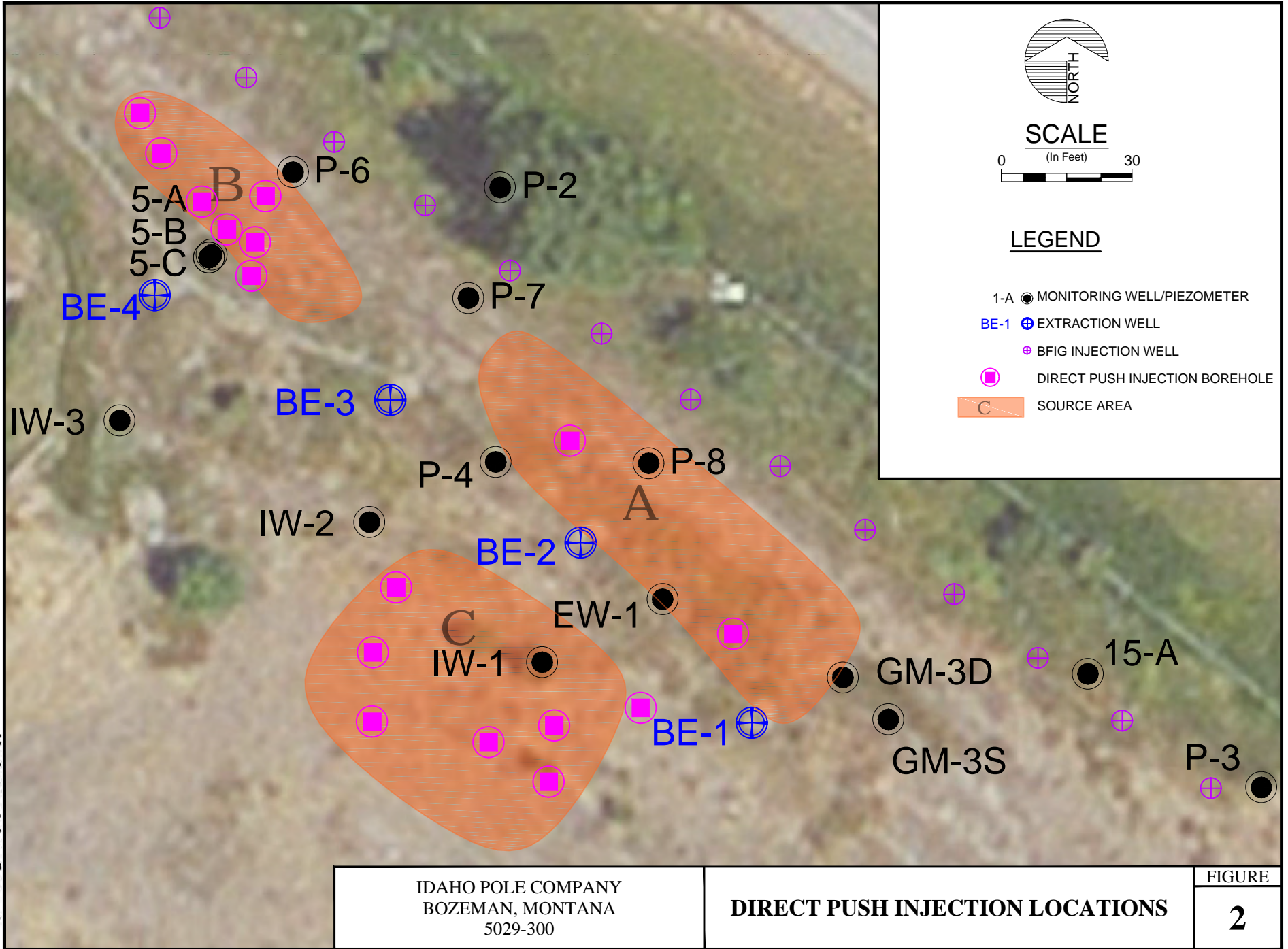
		FIELD PARAMETER RESULTS								Comments
WELL	DATE	SC umhos/cm	DO mg/L	pH	ORP mv	Temp °C	Nitrate mg/L	Ammonia mg/L	SWL ft	
EW-1 cont'd	8/3/2016	754	0.90	7.45	-53.00	12.7	0	0	8.66	
	8/4/2016	736	1.27	7.31	-64.10	11.6	0	0	8.59	
	8/11/2016	899	1.18	7.48	37.40	12.6			8.61	
	8/22/2016	888	0.29	7.50	123.10	12.4			8.98	
	9/7/2016	767	2.24	8.01	96.80	15	0	5	8.89	
	10/6/2016	723	1.18	7.64	61.60	14.3			8.41	
	11/9/2016	759	1.28	7.57	70.30	10.6			7.77	
	12/8/2016	725	1.32	7.59	223.60	11.5			7.79	
	1/18/2017	727	0.96	7.91	59.80	10.4			8.28	
GM-4	7/14/2016	971	1.45	7.22	11.40	12.4			1.42	
	7/25/2016	994	1.88	7.21	-11.8	12.1	0	<5	1.89	
	7/26/2016	1011	1.71	7.30	-23.6	11.6	0	<5	1.93	
	8/1/2016	810	0.54	7.47	-27.8	11.9	20	5	1.89	
	8/2/2016	788	0.69	7.31	-11.3	11.6	20	5	1.97	
	8/3/2016	750	0.56	7.18	-31.70	11.1	50	15	2.01	
	8/4/2016	803	0.89	7.39	-26.30	11.8	20	5	1.98	
	8/11/2016	797	0.58	7.28	53.20	11.9			1.99	
	8/22/2016	688	0.22	7.30	39.10	13.3			2.01	
	8/25/2016	645	0.85	7.39	1.00	11.4			2.06	
	9/7/2016	667	1.32	7.38	3.60	11.9	<20	10	1.9	
	10/6/2016	764	1.00	7.41	119.70	11.3			1.29	
	11/9/2016	741	1.05	7.55	164.60	10.8			1.14	
	12/8/2016	781	3.08	7.50	256.80	10.7			1.01	
	1/18/2017	715	1.61	8.21	288.10	8			1.74	
GM-5	7/14/2016	626	1.38	7.31	-36.40	13.3			1.6	
	8/25/2016	691	0.81	7.40	36.80	11.7			2.29	
	9/7/2016	230	2.78	7.94	116.70	13.4			2.12	SC appears anomalous
GM-6	7/14/2016	746	0.84	7.18	48.10	15.1			4.42	
	9/7/2016	772	0.67	7.15	-5.70	15.5			4.94	
P-1	7/14/2016	617	6.22	7.62	103.80	13.7			9.05	
	7/19/2016	586	5.81	7.56	143.70	12.6			9.00	Probe placed directly in well / purging into a bucket
	7/20/2016	652	7.08	7.71	71.90	12.8			9.00	
	7/21/2016	673	6.34	7.68	83.20	12.4			8.53	
	7/22/2016	654	4.28	7.54	92.30	12.1			8.51	
	7/25/2016	686	3.61	7.32	87.90	11.8			8.47	
	7/26/2016	710	3.74	7.41	98.90	11.9	0	0	8.43	
	7/27/2016	723	3.18	7.37	110.10	11.8			8.4	
	7/28/2016	737	2.91	7.24	91.60	11.6			8.38	
	8/1/2016	669	3.11	7.47	91.60	11.9			8.38	
	8/2/2016	710	3.34	7.35	87.00	11.5			8.41	re-extracted due to PCP in method blank
	9/7/2016	608	1.33	7.46	165.10	13.8	<20	5	9.64	
	10/6/2016	585	2.50	7.52	161.00	12.7			9.06	
P-2	7/14/2016	683	0.91	7.42	6.20	13	0	<5	5.68	
	7/19/2016	641	0.72	7.34	47.3	12.5			5.44	Probe placed directly in well / purging into a bucket
	7/20/2016	607	0.76	7.55	-14.3				5.49	
	7/21/2016	616	0.25	7.53	55.0	12.0			5.54	
	7/22/2016	634	0.31	7.43	45.1	11.8			5.48	
	7/25/2016	737	0.42	7.51	13.2	11.1	5	20	5.52	
	7/26/2016	736	0.21	7.68	-11.6	12.1	5	20	5.58	
	7/27/2016	718	0.15	7.62	-2.20	11.9	5	20	5.6	
	7/28/2016	732	0.16	7.70	-9.40	12.4			5.81	
	8/1/2016	903	0.21	7.31	45.20	11.6	20	5	5.87	
	8/2/2016	887	0.61	7.39	112.20	11.8	20	5	5.92	
	8/3/2016	839	0.76	7.33	118.50	12	20	5	6.01	
	8/4/2016	910	0.83	7.41	127.80	11.6	20	5	5.96	
	8/11/2016	781	0.36	7.34	181.20	13.3			6.01	
	8/22/2016	678		7.42	154.70	13.1			6.18	
	9/8/2016	631	0.51	7.42	201.50	12.6	0	5	6.07	
	10/6/2016	629	0.66	7.52	139.10	12.6			5.51	
	11/9/2016	642	0.72	7.41	146.10	10.7			5.01	
	12/8/2016	843	2.02	7.52	158.30	7.2			5.01	
	1/18/2017	738	1.10	7.68	83.90	7.6			6	
P-4	7/14/2016	773	1.28	7.30	-13.20	11.9	0	5	7.15	
	7/19/2016	755	0.09	7.28	30.3	10.4			6.14	Probe placed directly in well / purging into a bucket
	7/20/2016	734	0.16	7.46	-29.4	10.8			6.02	
	7/21/2016	746	0.13	7.37	-38.8	11.8			6.20	
	7/22/2016	813	0.18	7.31	49.1	11.6			6.11	
	7/25/2016	810	0.24	7.37	-64.3	11.3	0	0	6.27	
	7/26/2016	810	0.79	7.43	-36.60	11.9	0	0	6.33	
	7/27/2016	775	0.77	7.51	-25.90	11.7	0	0	6.39	
	7/28/2016	763	0.38	7.41	-47.80	11.2			6.5	
	8/1/2016	937	0.18	7.21	18.90	11.1	0	0	6.45	
	8/2/2016	910	0.36	7.18	11.80	11.5	0	0	6.57	
	8/3/2016	1099	0.56	7.25	48.20	11.3	0	0	6.65	
	8/4/2016	881	0.24	7.28	29.80	11.8	0	0	7.01	
	8/11/2016	834	0.48	7.39	94.30	13.1			7	
	8/11/2016	834	0.48	7.39	94.30	13.1			7	
	8/22/2016	783	0.42	7.30	122.80	13.4			6.86	
	9/7/2016	715	1.01	7.45	121.70	12.6	0	0	6.79	
	10/6/2016	763	0.75	7.56	128.00	12.7			6.32	
	11/9/2016	786	0.94	7.62	140.10	10.5			5.63	
	12/8/2016	813	1.59	7.55	202.60	9.2			5.71	
	1/18/2017	811	1.11	7.50	-49.60	8.1			6.09	

Table 3
Phase II Pilot Study Field Parameters
Idaho Pole Company - Bozeman, Montana

		FIELD PARAMETER RESULTS								Comments
WELL	DATE	SC umhos/cm	DO mg/L	pH	ORP mv	Temp °C	Nitrate mg/L	Ammonia mg/L	SWL ft	
P-6	7/21/2016	1262	4.14	7.41	75.7	12.6			9.41	Had to be measured with peristaltic and metering probe in a bucket
	7/22/2016	1310	3.91	7.38	100.2	12.4			8.86	
	7/25/2016	1098	2.98	7.36	36.8	12.6	<20	<5	8.41	
	7/26/2016	1003	2.64	7.31	61.3	12.8	<20	<5	8.39	
	7/27/2016	982	3.80	7.44	53.10	13.1			8.36	
	7/28/2016	913	0.70	7.28	67.80	12.5	<20	<5	9.65	
	8/1/2016	988	0.37	7.29	54.10	11.6	<20	<5	9.68	
	8/2/2016	937	0.54	7.37	45.30	11.8	<20	<5	9.71	
	8/4/2016	989	0.18	7.37	-37.30	12	<20	<20	9.38	
	8/11/2016	988	0.21	7.54	91.90	13.8			9.81	
	8/22/2016	964	0.18	7.19	137.20	13.8			9.96	
	8/25/2016	626	2.81	7.51	132.30	13.3			9.9	
P-7	7/21/2016	926	1.62	7.22	99.8	17.2			8.70	Had to be measured with peristaltic and metering probe in a bucket
	7/22/2016	1011	1.18	7.31	89.8	13.2			8.29	
	7/25/2016	1210	3.17	7.31	7.31	9.18	17.2	<20	<5	
	7/26/2016	1113	3.17	7.47	27.2	12.3	<20	<5	8.77	
	7/27/2016	1048	3.14	7.42	33.4	12.9			8.70	
	7/28/2016	995	1.96	7.07	60.20	12.3	<20	<5	9.54	
	8/1/2016	991	1.88	7.20	68.20	12.3	<20	<5	9.52	
	8/2/2016	1010	2.10	7.18	52.80	12.1	<20	<5	9.58	
	8/4/2016	1110	1.89	7.28	43.20	11.9	<20	<5	9.6	
	8/11/2016	1037	0.07	7.31	112.80	12.9			9.63	
	8/22/2016	988	0.27	7.31	153.80	14.2			9.76	
	8/25/2016	683	4.65	7.45	92.70	16.2			9.35	
P-8	7/22/2016	1198	0.89	7.28	-99.6	13.6			9.03	
	7/25/2016	1388	0.61	7.29	-112.8	12.9	<20	<5	9.18	
	7/26/2016	1198	0.21	7.29	-164.20	13	<20	<5	9.21	
	7/27/2016	1145	0.35	7.17	-102.3	13.2			9.16	
	7/28/2016	954	0.77	7.14	-57.1	12.8	<20	<5	9.30	
	8/1/2016	1011	0.18	7.36	-54.8	11.8	<20	<5	9.29	
	8/2/2016	962	0.31	7.41	-69.1	12.3	<20	<5	9.37	
	8/4/2016	1003	0.18	7.37	-37.30	12	<20	<5	9.38	
	8/11/2016	1011	0.38	7.12	-36.20	13.30			9.44	
	8/22/2016	1001.00	0.33	7.41	-61.20	13.60			9.82	
	8/25/2016	718.00	1.09	7.19	-55.00	13.40			9.52	

FIGURES





IDAHO POLE COMPANY
 BOZEMAN, MONTANA
 5029-300

DIRECT PUSH INJECTION LOCATIONS

FIGURE

2

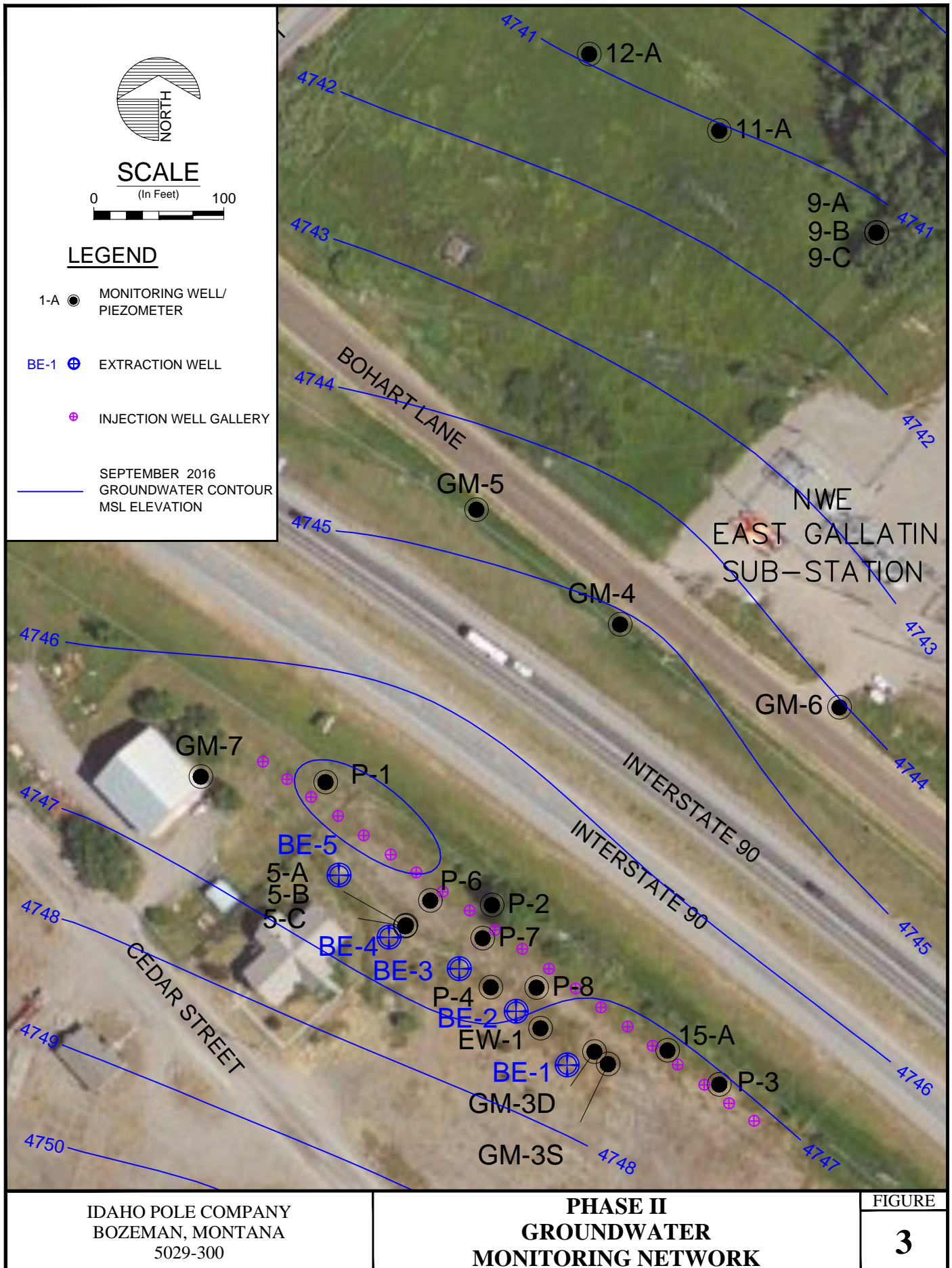


Figure 4. PCP and Specific Conductance at 5-A

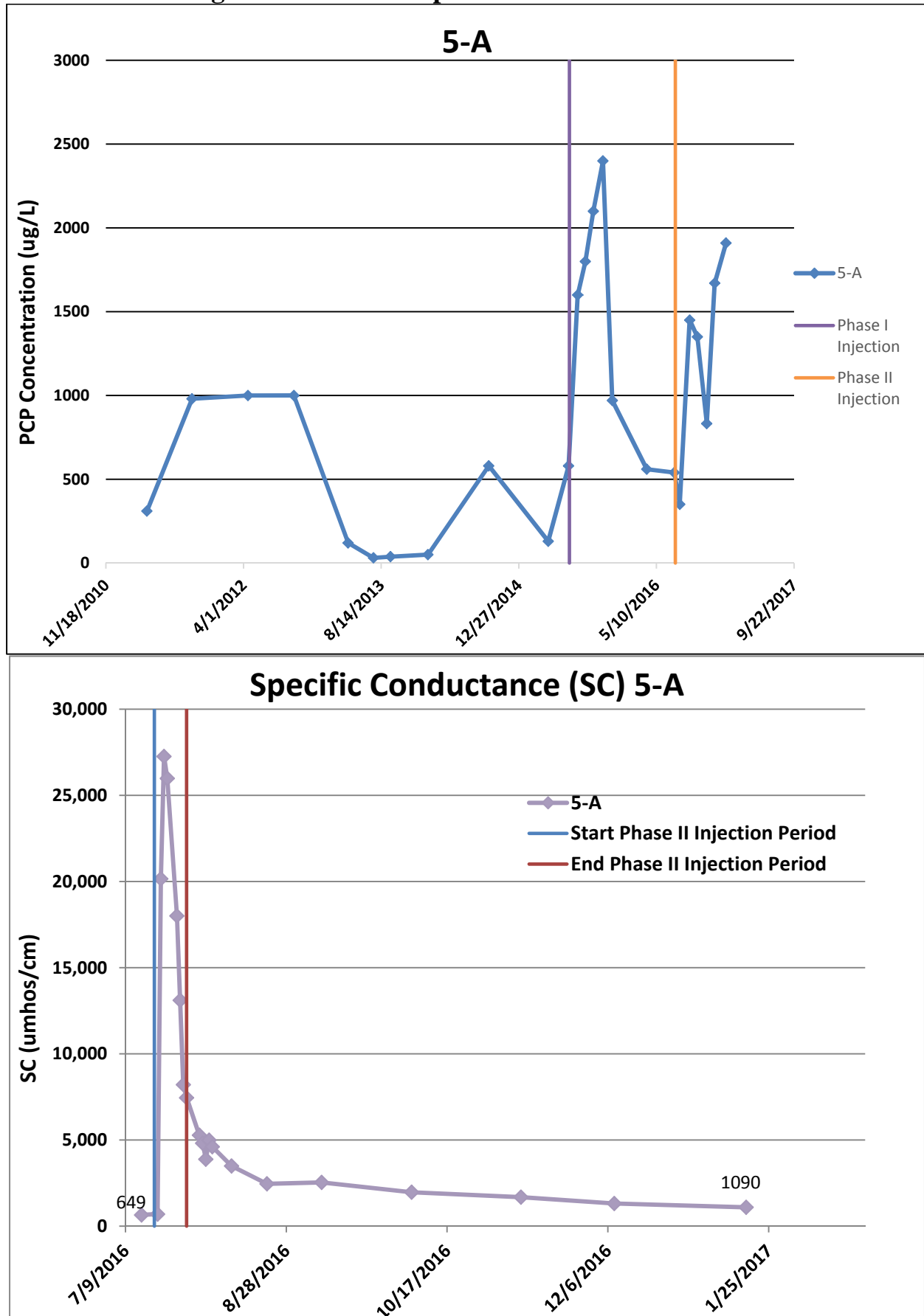


Figure 5. ORP and SC at Select Wells

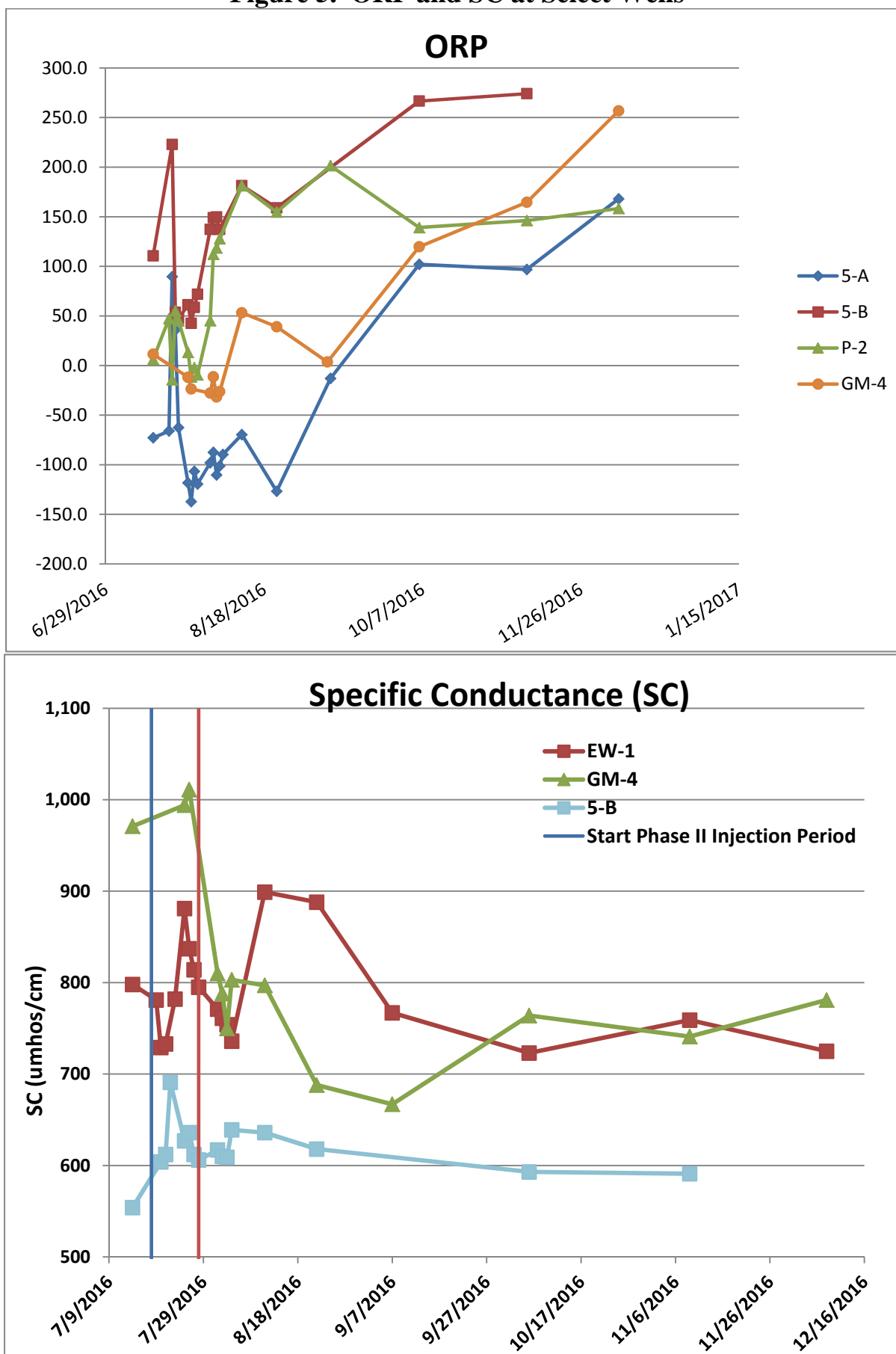


Figure 6. PCP, SC and DO at P-4

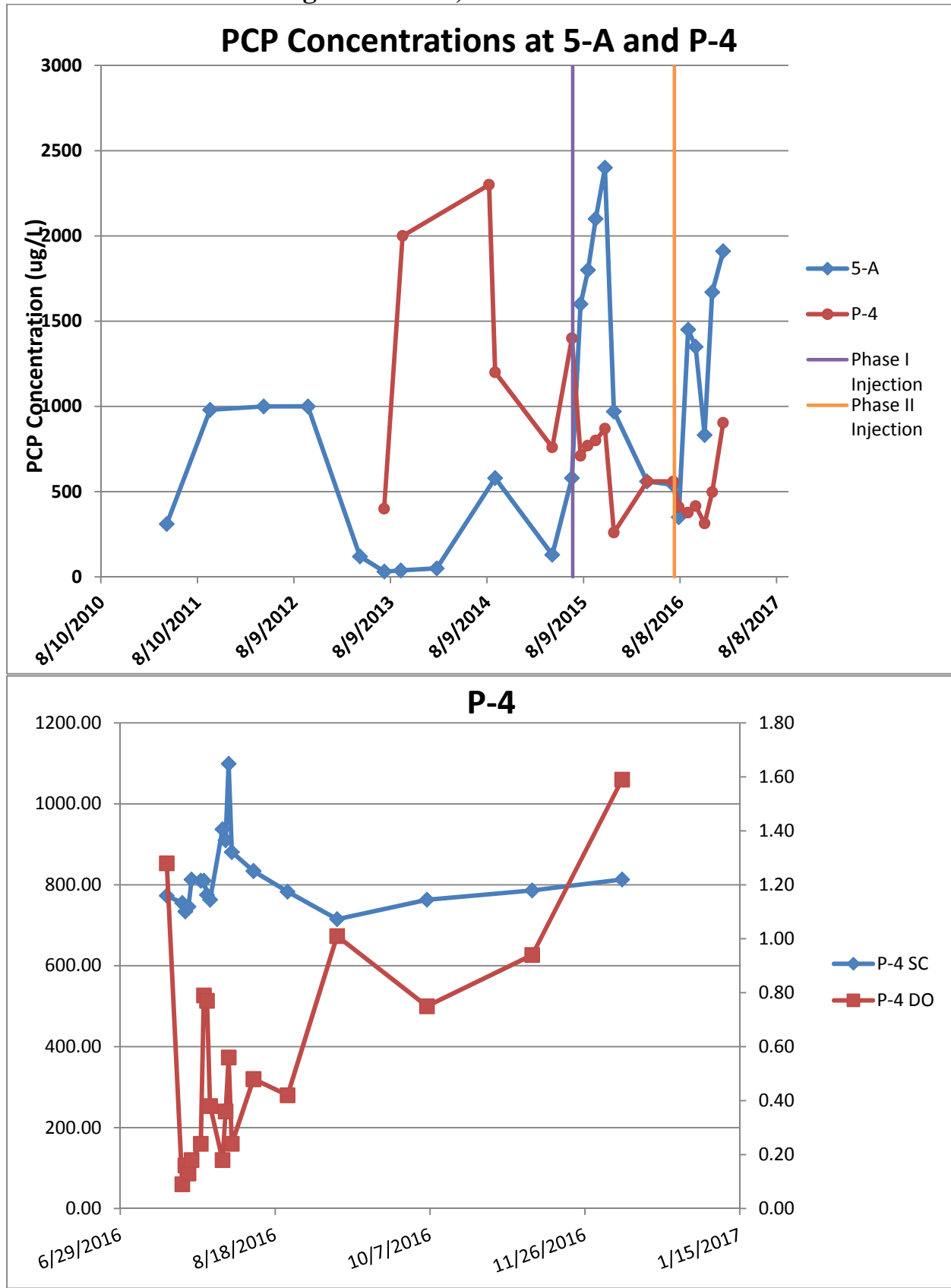


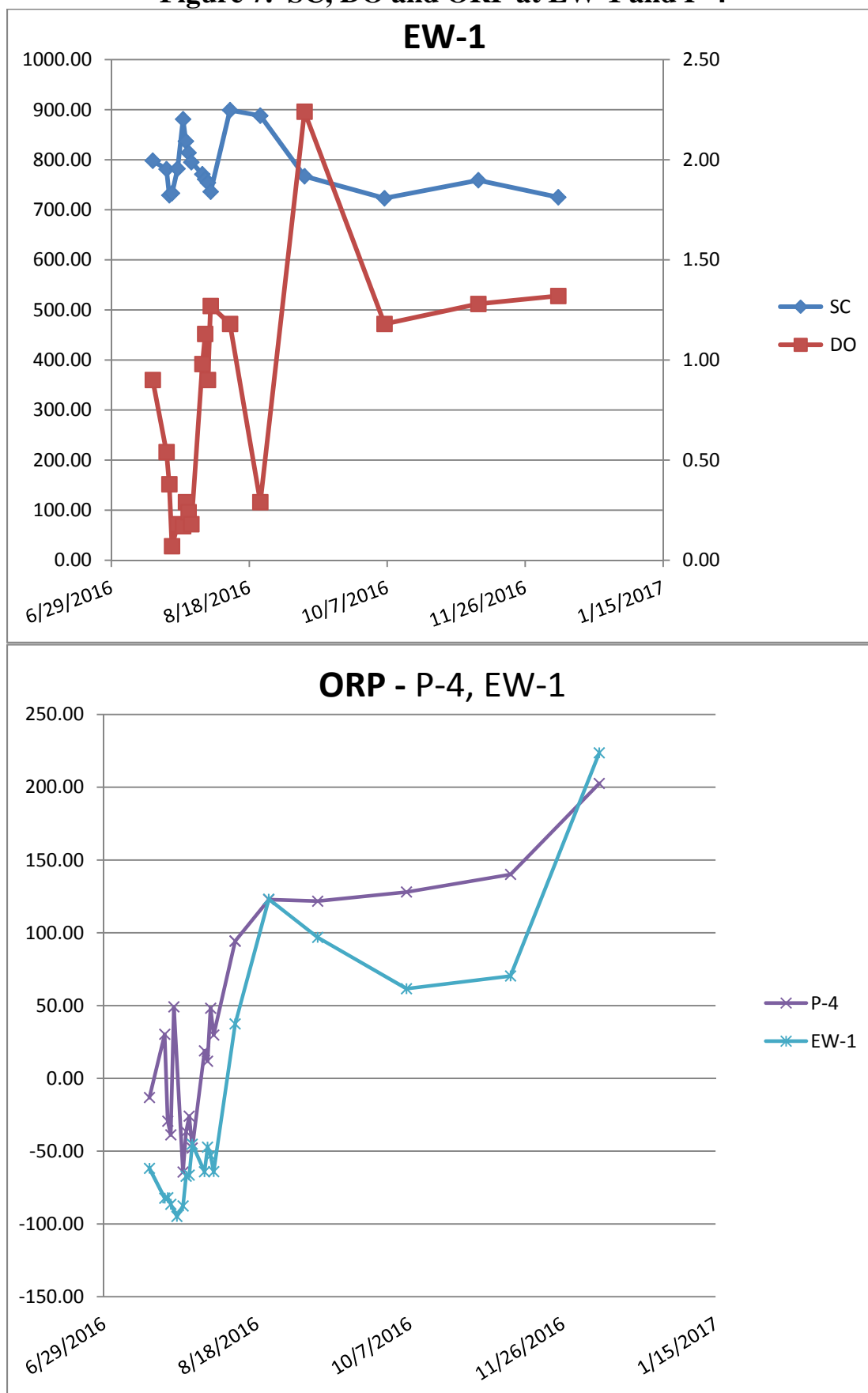
Figure 7. SC, DO and ORP at EW-1 and P-4

Figure 8. SC, DO and ORP at P-1

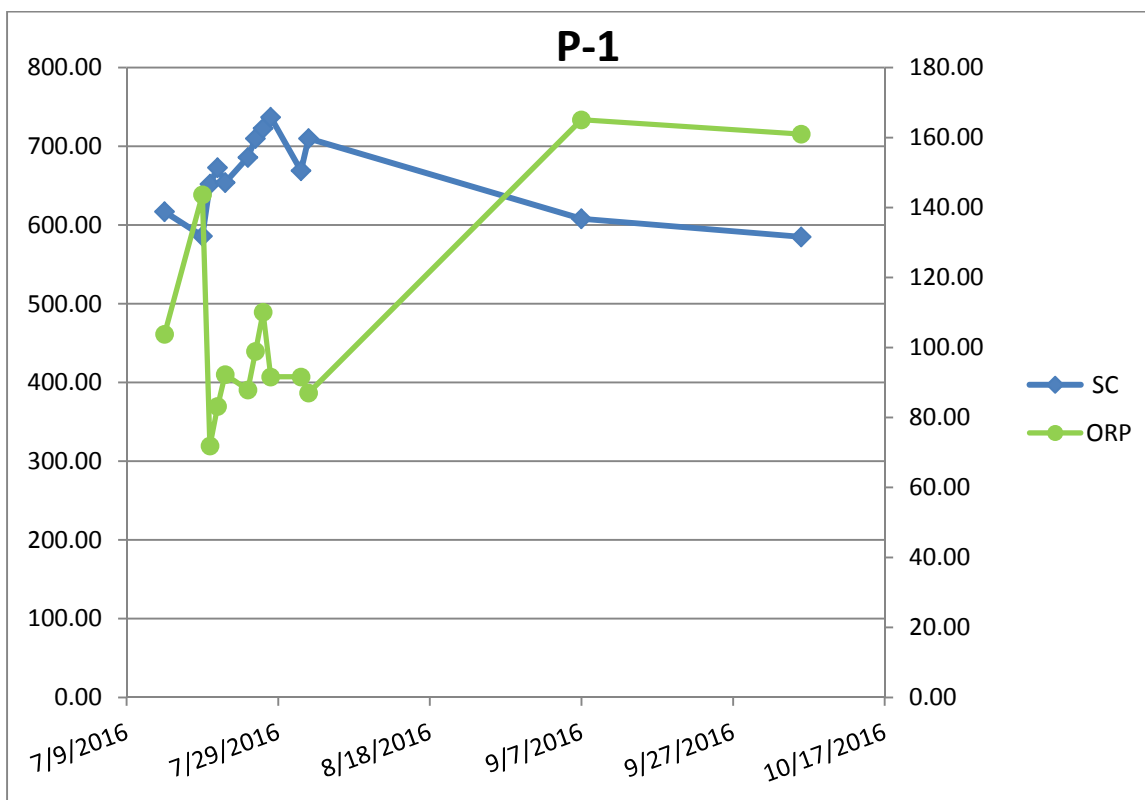
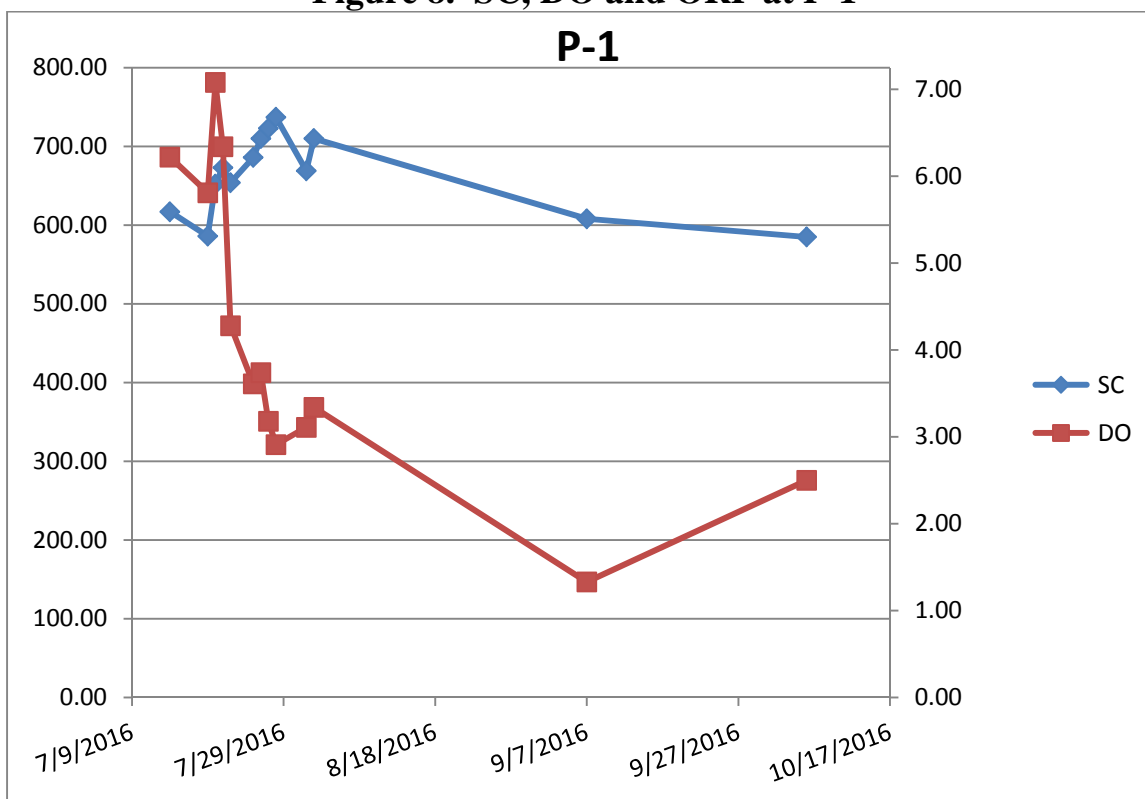


Figure 9. SC, DO and PCP at P-2

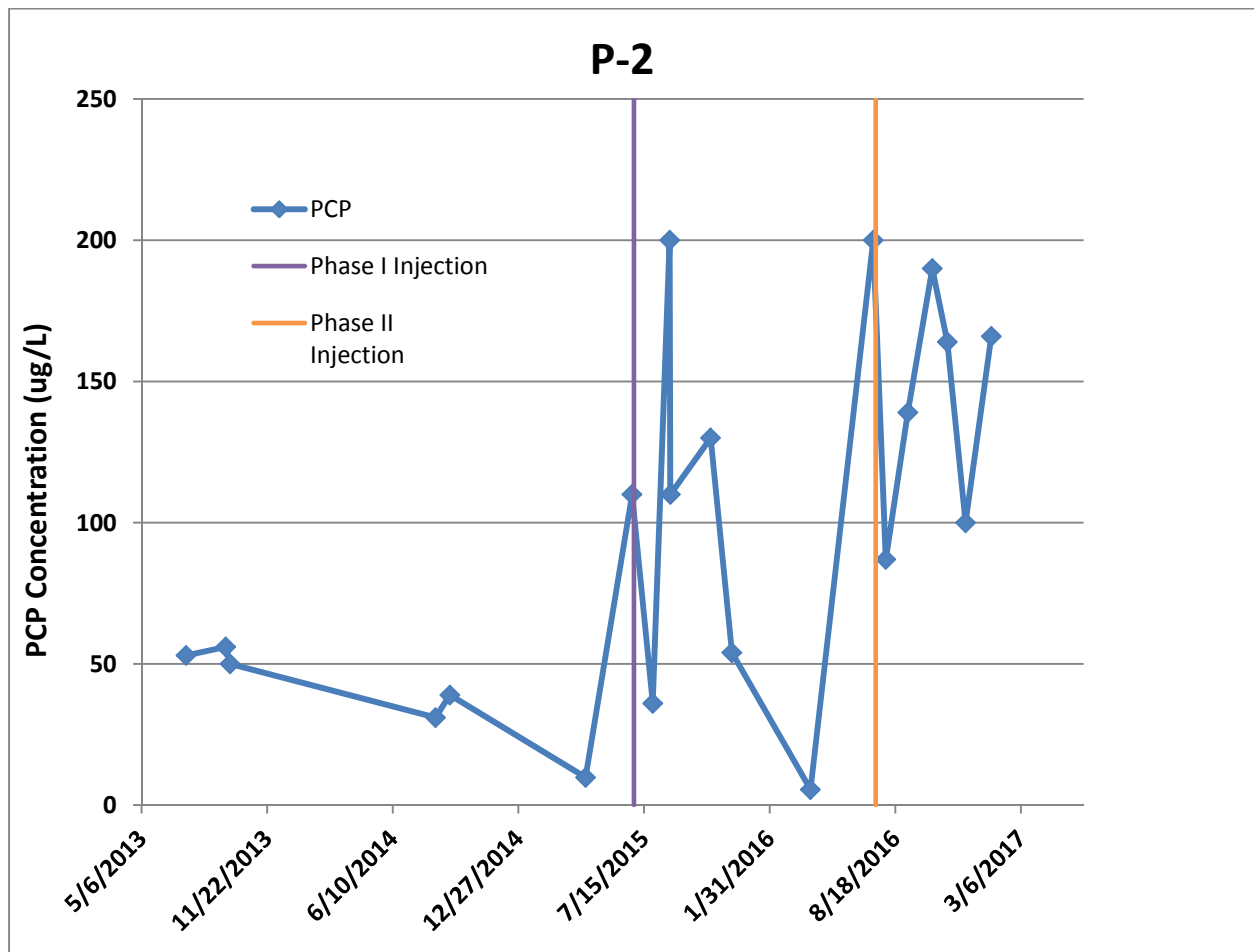
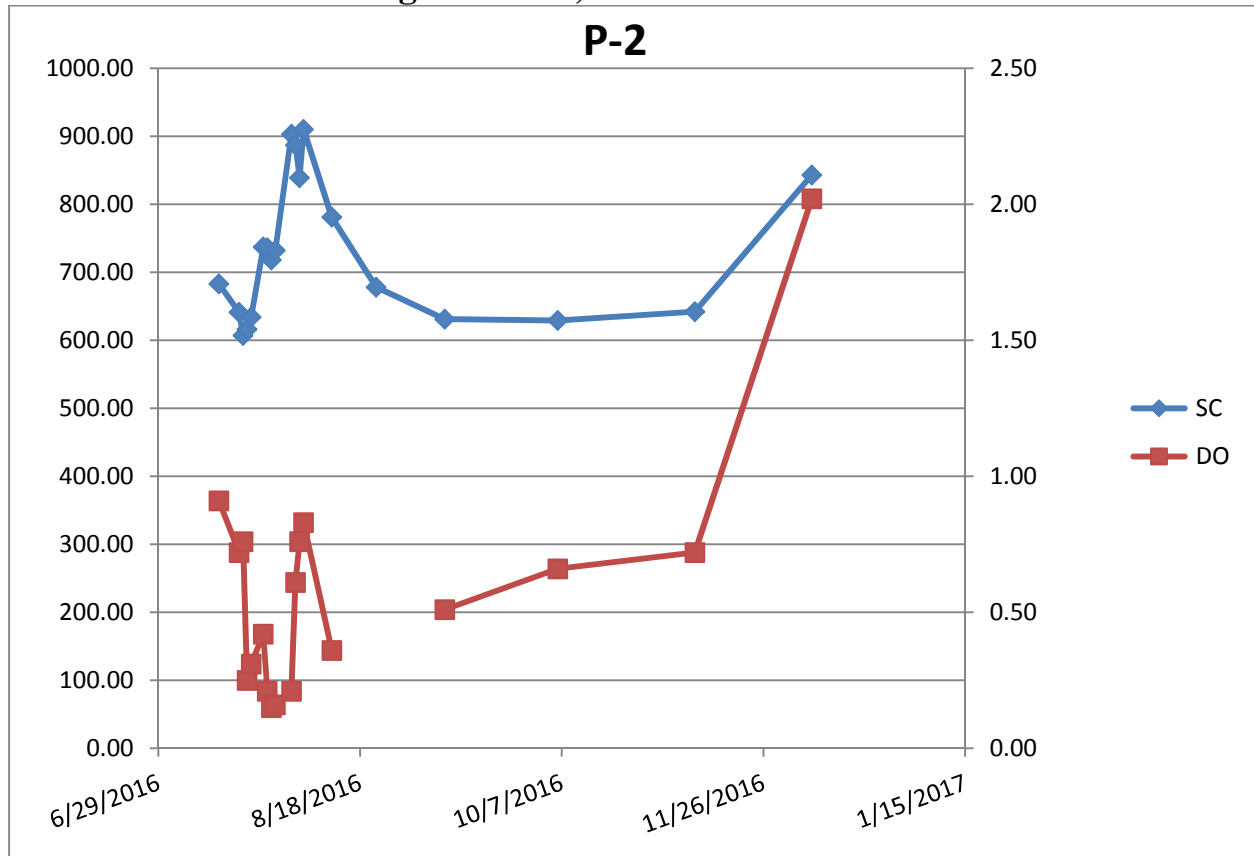


Figure 10. PCP, SC and ORP at 15-A

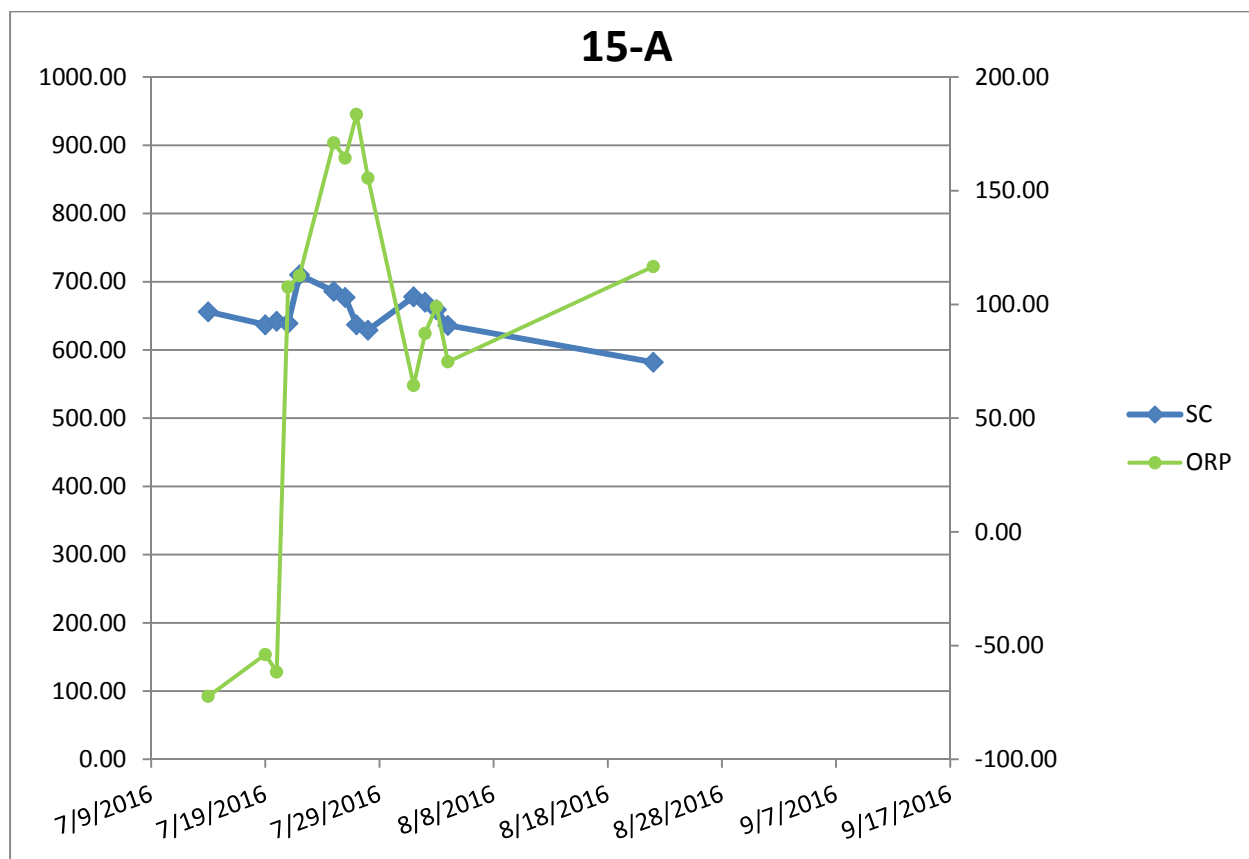
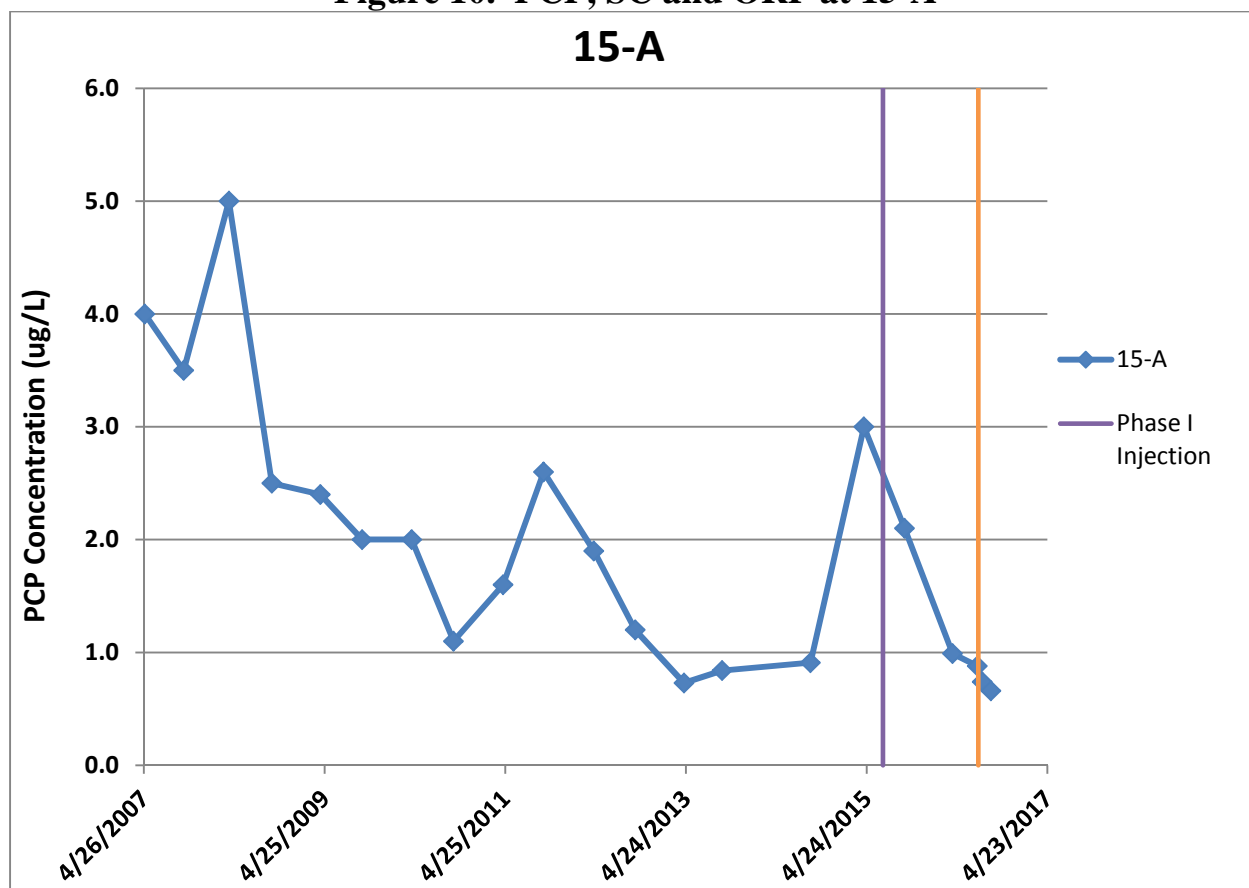


Figure 11. SC, DO and ORP at P-6

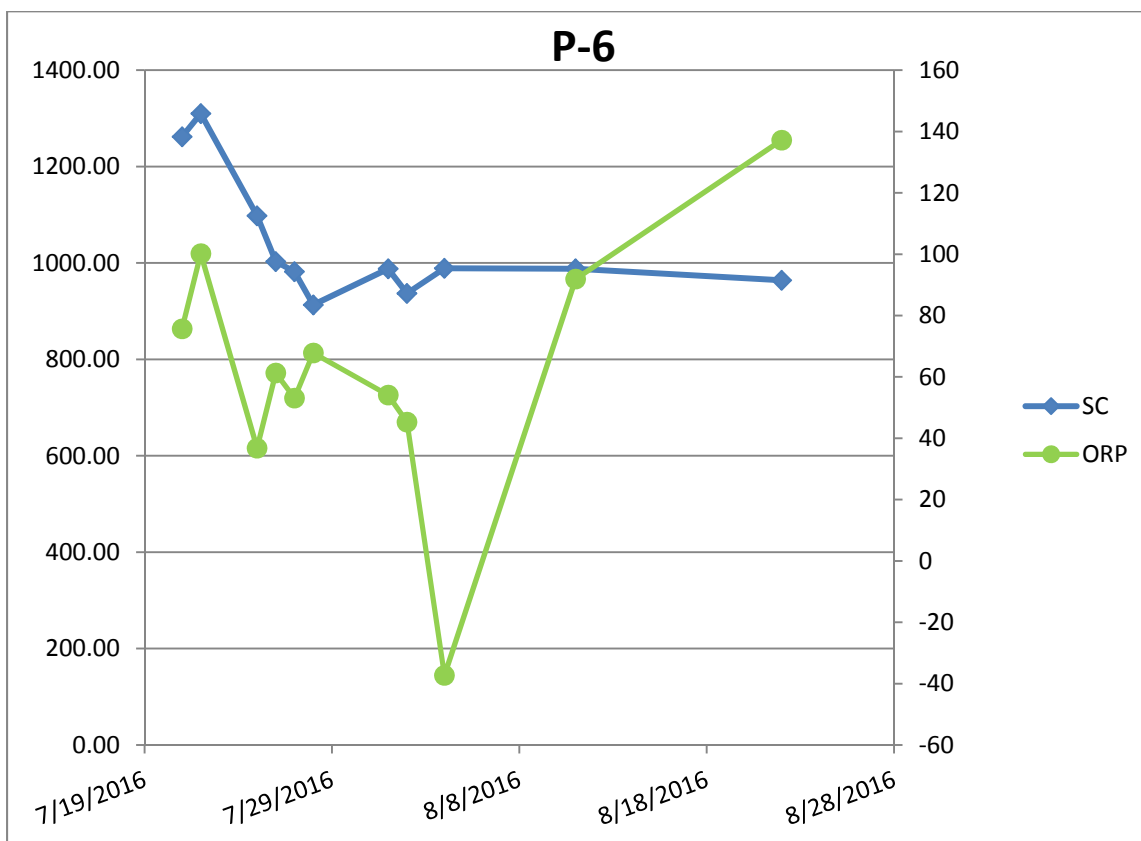
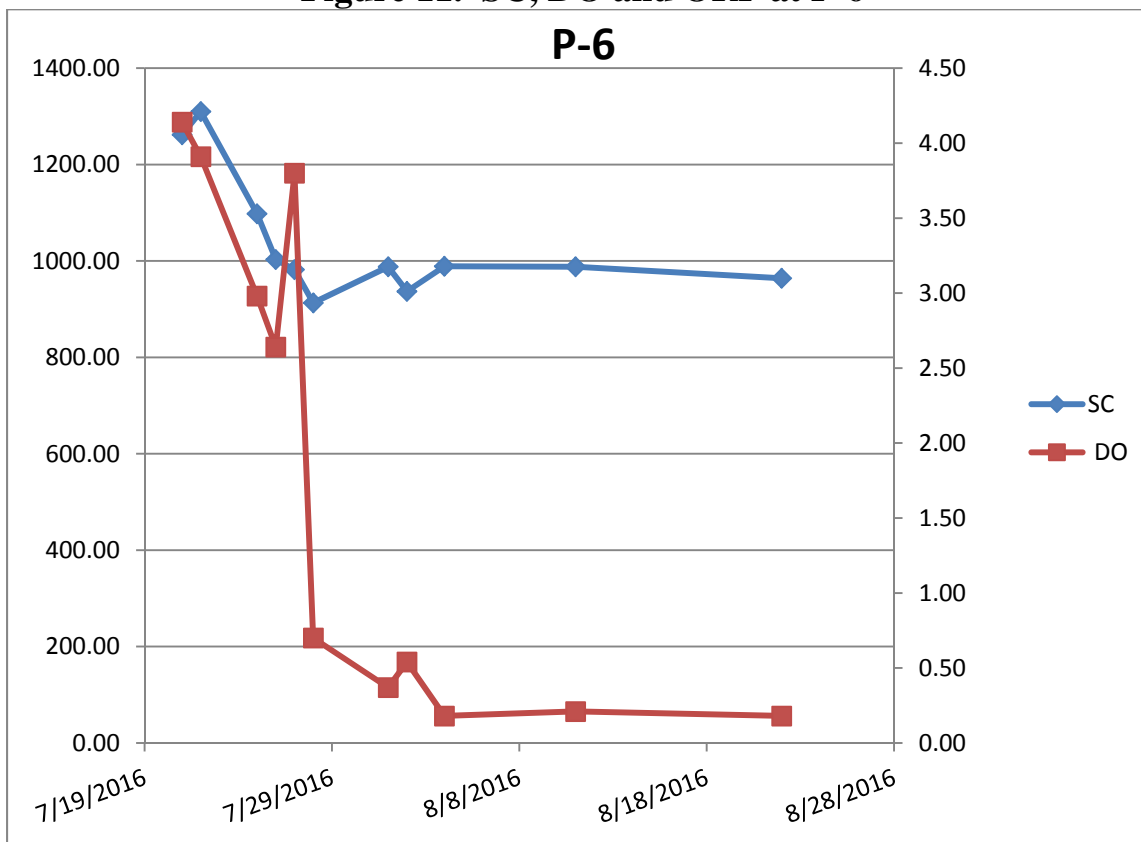


Figure 12. SC, DO and ORP at P-7

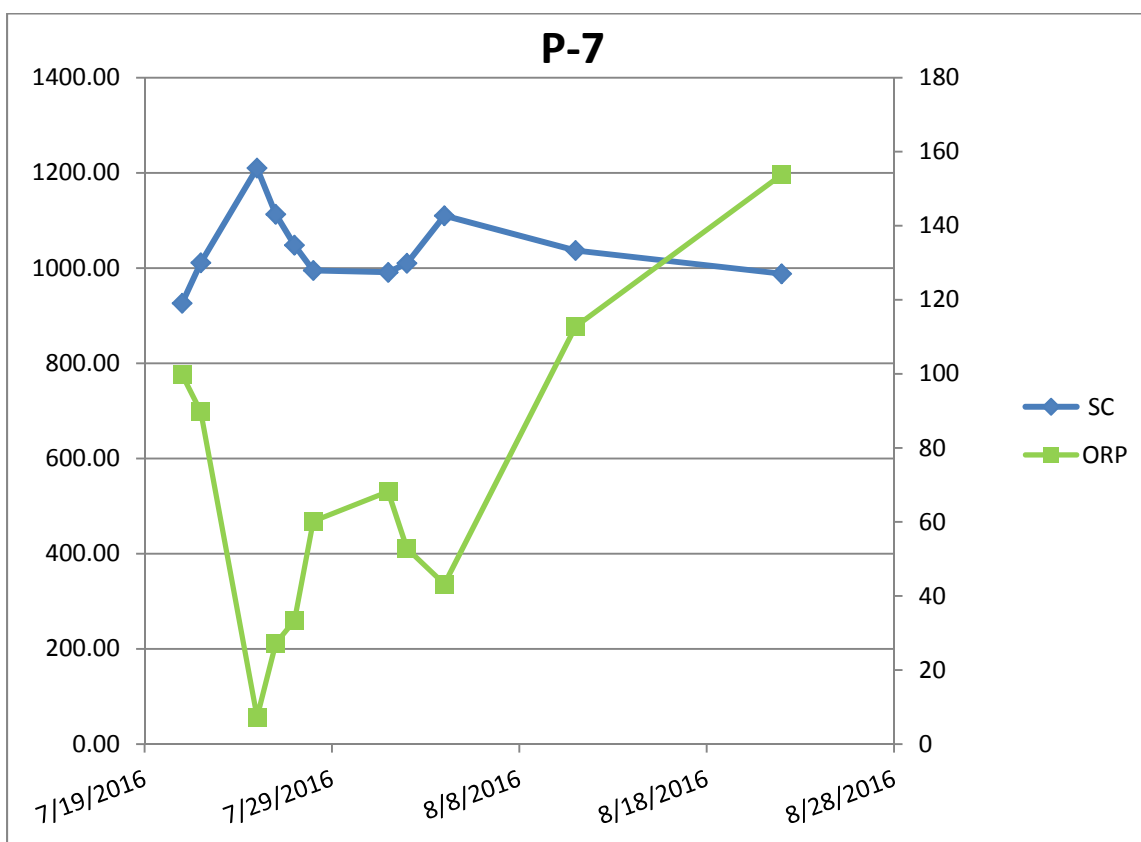
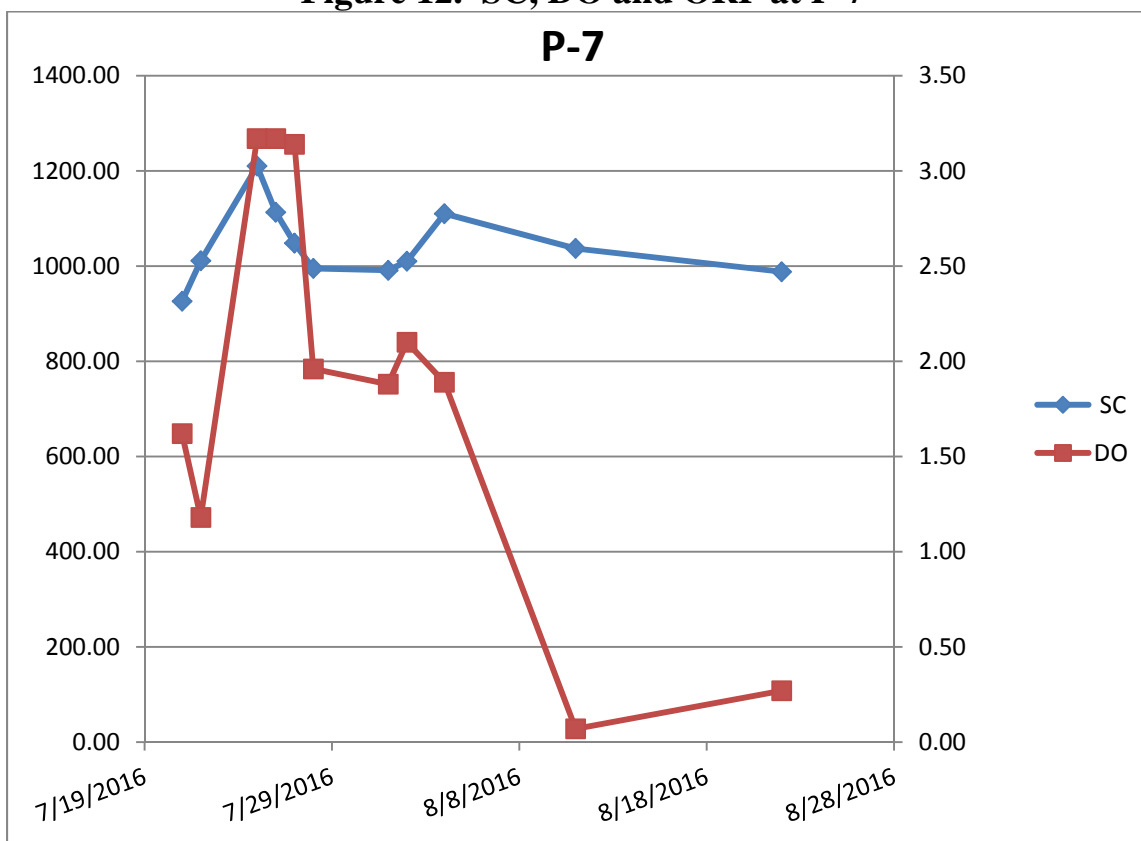


Figure 13. SC, DO and ORP at P-8

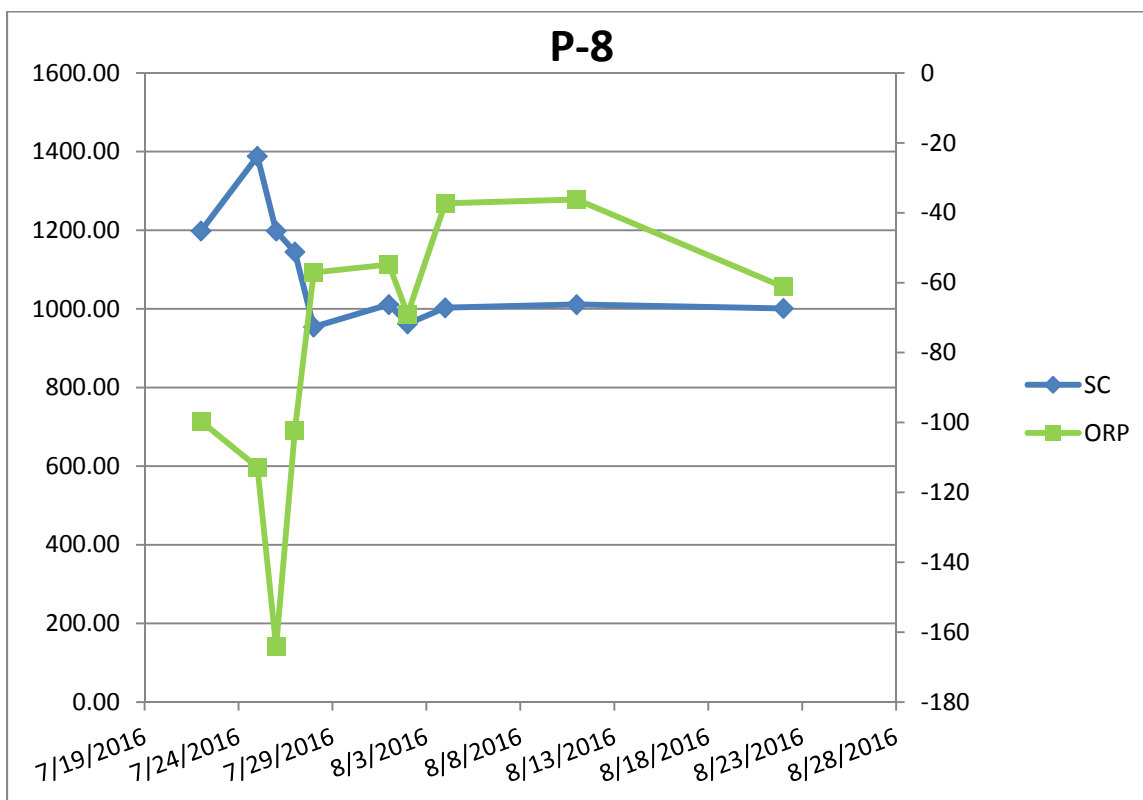
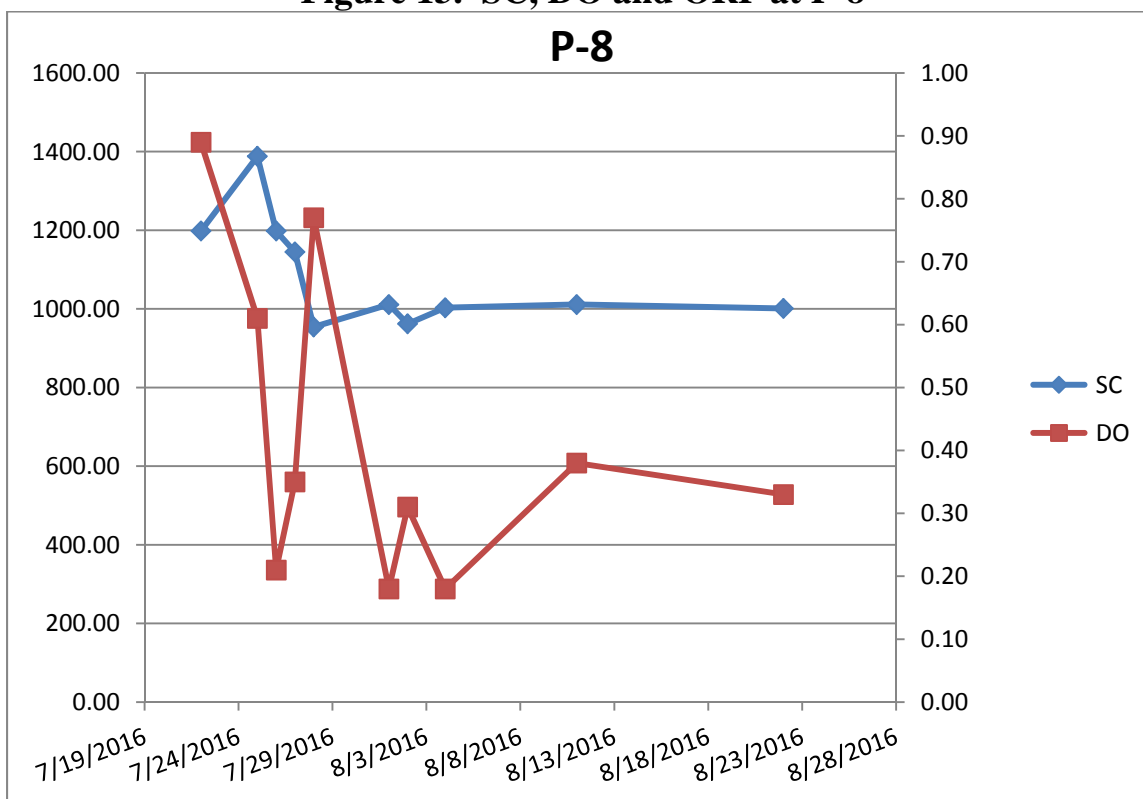


Figure 14. SC, DO and PCP at GM-4

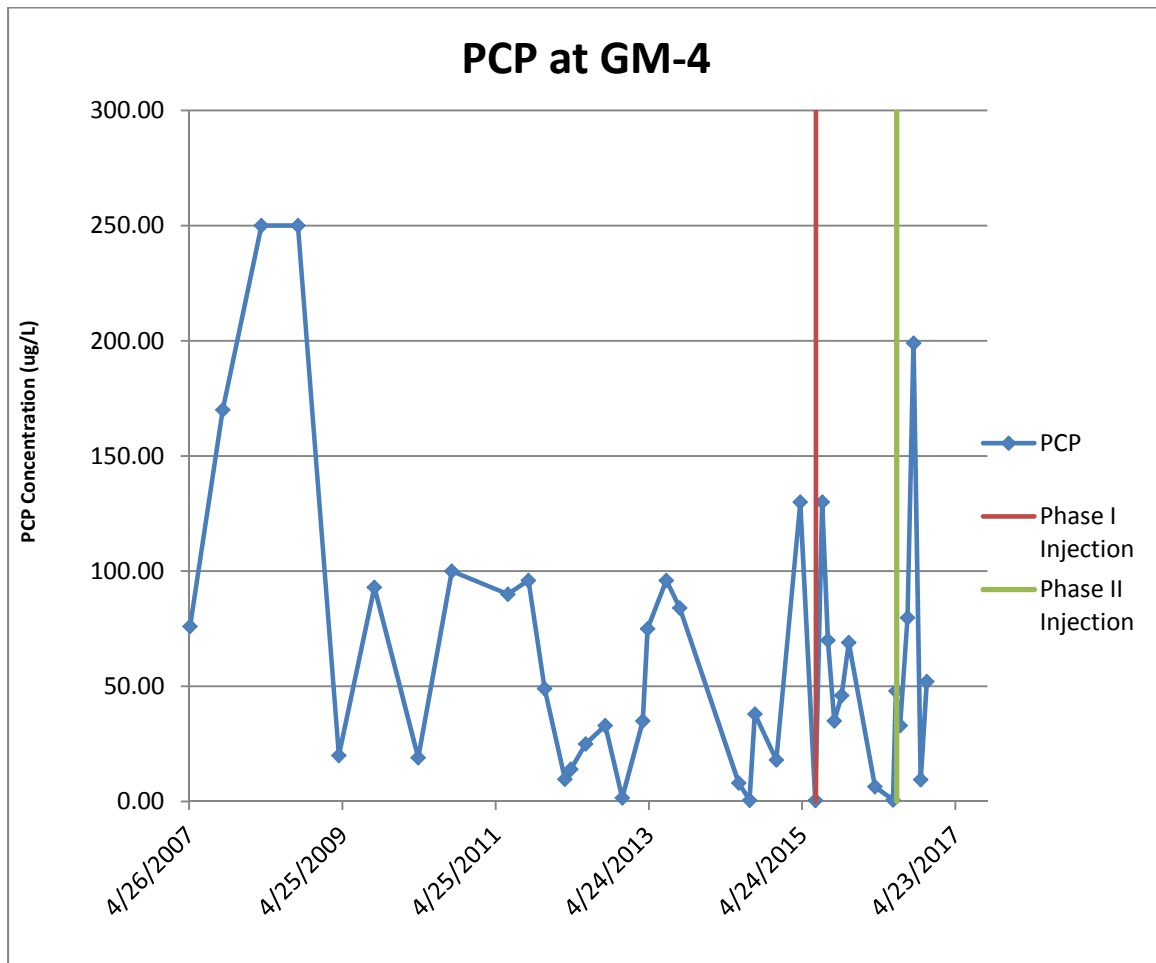
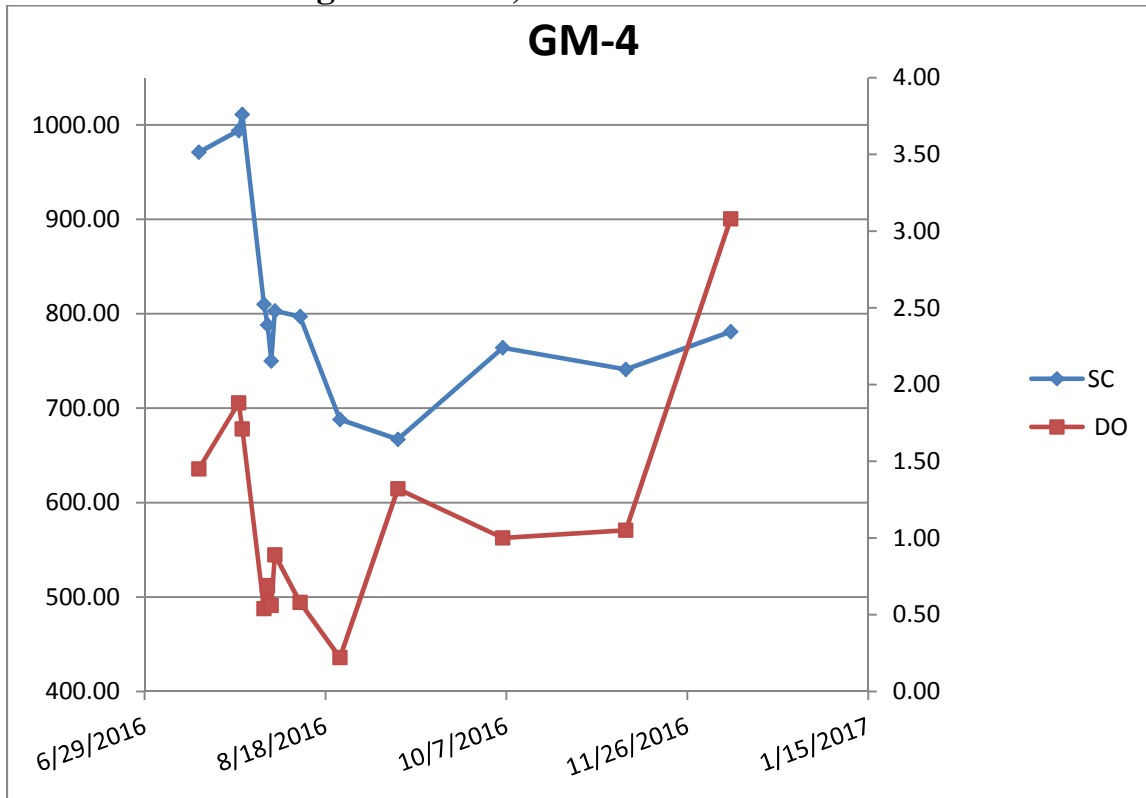
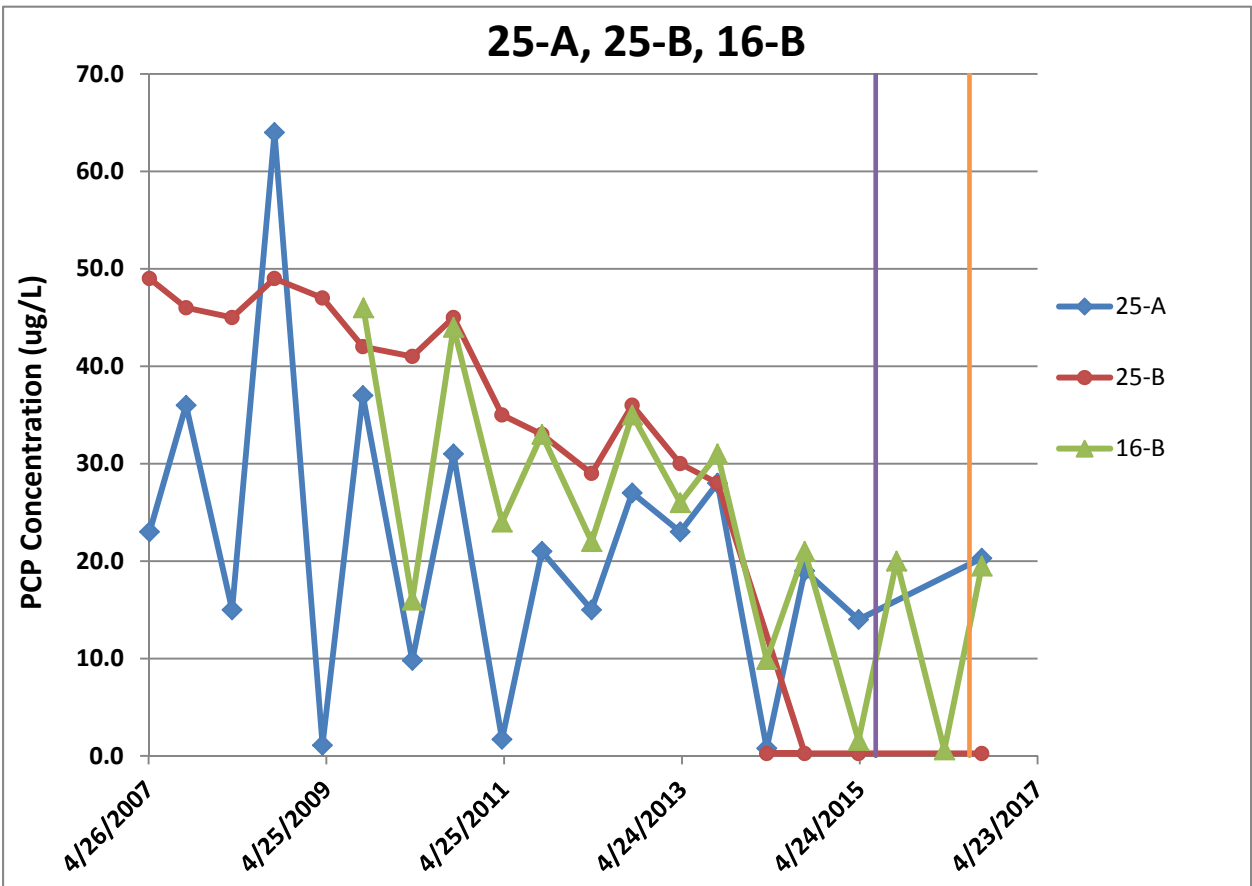
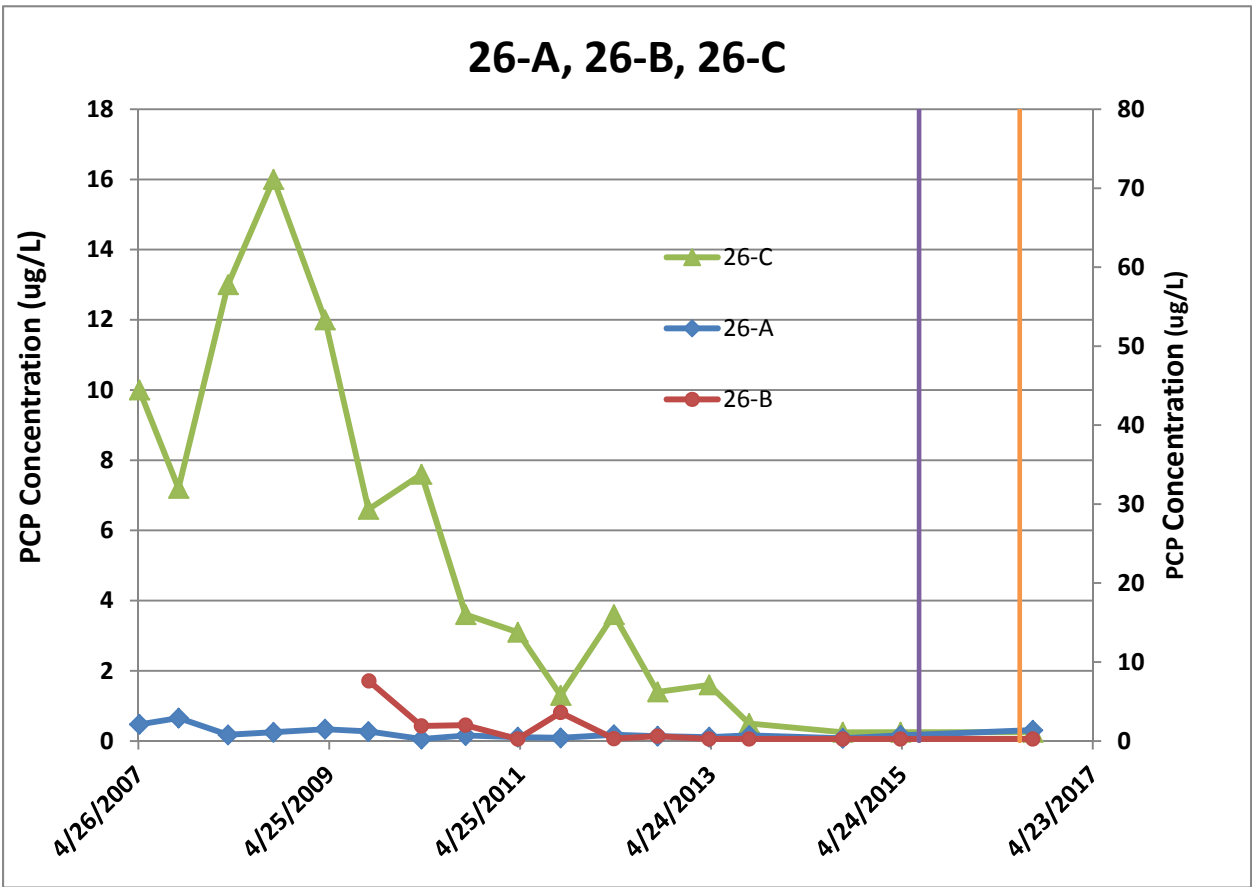
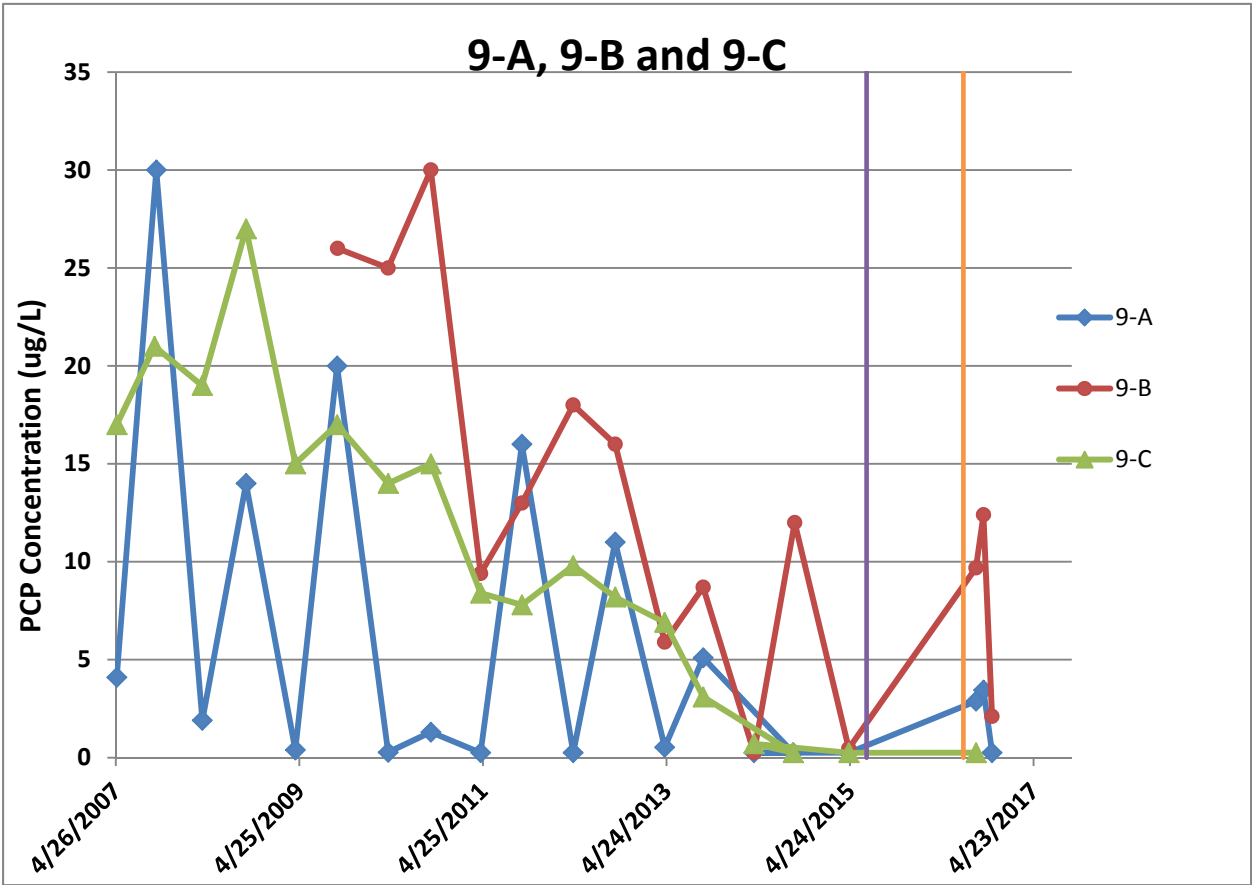


Figure 15. PCP Concentrations at Downgradient Wells



APPENDIX A
ARI LABORATORY REPORTS



Analytical Resources, Incorporated
Analytical Chemists and Consultants

2 August 2016

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Road
Billings, MT 59106

RE: Client Project: Idaho Pole
ARI Job No.: BDN0

Dear Heidi:

Please find enclosed the original Chain-of-Custody (COC) records and the final results for the samples from the project referenced above. Analytical Resources Inc. (ARI) received fourteen water samples on July 15, 2016. The samples were analyzed for NWTPH-Dx and PCP as requested.

There were no anomalies associated with these analyses.

An electronic copy of these reports and all associated raw data will be kept on file at ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

Enclosures

cc: Angela Roddy
File BDN0

MDH/mdh

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 13DN8	Turn-around Requested: Normal	Page: 1 of 2
ARI Client Company: Hydrometrics	Phone:	Date: 7/14/16 Ice Present? yes
Client Contact: Heidi Kaiser	No. of Coolers: 3	Cooler Temps: 9.8-12.5



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Client Project Name: Idaho Pole					Analysis Requested								Notes/Comments
Sample ID	Date	Time	Matrix	No. Containers	PCP	8040	TPH-DRO						
9-B	7/14/16	1047	H ₂ O	4	X	X							
9-A		1108		4	X	X							
GM-6		1143		4	X	X							
GM-4		1212		4	X	X							
GM-5		1233		4	X	X							
P-1		1258		4	X	X							
15-A		1319		4	X	X							
EW-1		1337		4	X	X							
P-4		1352		4	X	X							
P-4D		1352		4	X	X							

Comments/Special Instructions	Relinquished by: (Signature) Rebecca Fabich	Received by: (Signature) Justin Meyer	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Rebecca Fabich	Printed Name: Justin Meyer	Printed Name:	Printed Name:
	Company: Idaho Pole	Company: ARI	Company:	Company:
	Date & Time: 7/14/16 1630	Date & Time: 7-15-16 1155	Date & Time:	Date & Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

ARI Assigned Number: BDN0	Turn-around Requested: Normal
ARI Client Company: Hydro Metrics	Phone:
Client Contact: Heidi Kavan	
Client Project Name: Idaho Pole	
Client Project #:	Samplers: Rebecca Fabich

Date: 7/14/16	Ice Present? <input checked="" type="checkbox"/>
---------------	--

No. of Coolers: 3 Cooler Temps: 9.8-12.5

[illegible]

Notes/Comments

8040
PCP

TPH-DRO

Comments/Special Instructions	
-------------------------------	--

Relinquished by:

(Signature) Rubenc Fabrich

Printed Name:

Rebecca Fabich

Company:

Ladino Polo

Date & Time:

Date & Time: 7/14/16 1630

Received by

(Signature)

Printed Name:

Justin Meyer

Сотрапу:

Company: MS

Date & Time:

Date & Time: 7-15-16 115C

Relinquished by:

(Signature)

Printed Name:

Company:

Date & Time:

Received by:	
--------------	--

(Signature)

Printed Name:

Company:

Date & Time:	
--------------	--

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Hydrometres

Project Name: Idaho Pole

COC No(s): _____ NA

Delivered by: FedEx UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: BDN

Tracking No: 809700261206 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? 783593443798 YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)
Time: 11.2 9.8 12.5

If cooler temperature is out of compliance fill out form 00070F

Cooler Accepted by: SM Date: 7-15-16 Time: 1155 Temp Gun ID#: DO09276

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: TR Date: 7-18-16 Time: 1408

SA

** Notify Project Manager of discrepancies or concerns **

SB

S-B

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
<u>GMG</u>	<u>GM-6</u>		
<u>15A</u>	<u>15-A</u>		
<u>EW1</u>	<u>EW-1</u>		
<u>P4</u>	<u>P-4</u>		

Additional Notes, Discrepancies, & Resolutions:

2x 500-L AG for "P-2F" have broken lids. Replaced with new lids.

By: TR Date: 7-18-16

Small Air Bubbles -2mm 	Peabubbles 2-4 mm 	LARGE Air Bubbles > 4 mm 	Small → "sm" (< 2 mm)
			Peabubbles → "pb" (2 to < 4 mm)
			Large → "lg" (4 to < 6 mm)
			Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report



ARI Job No: BDN0
Client: Hydrometrics Inc.
Project Event: N/A
Project Name: Idaho Pole

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. 9-B	BDN0A	16-10752	Water	07/14/16 10:47	07/15/16 11:55
2. 9-A	BDN0B	16-10753	Water	07/14/16 11:08	07/15/16 11:55
3. GM-6	BDN0C	16-10754	Water	07/14/16 11:43	07/15/16 11:55
4. GM-4	BDN0D	16-10755	Water	07/14/16 12:12	07/15/16 11:55
5. GM-5	BDN0E	16-10756	Water	07/14/16 12:33	07/15/16 11:55
6. P-1	BDN0F	16-10757	Water	07/14/16 12:58	07/15/16 11:55
7. 15-A	BDN0G	16-10758	Water	07/14/16 13:19	07/15/16 11:55
8. EW-1	BDN0H	16-10759	Water	07/14/16 13:37	07/15/16 11:55
9. P-4	BDN0I	16-10760	Water	07/14/16 13:52	07/15/16 11:55
10. P-4D	BDN0J	16-10761	Water	07/14/16 13:52	07/15/16 11:55
11. P-2	BDN0K	16-10762	Water	07/14/16 14:19	07/15/16 11:55
12. P-2F	BDN0L	16-10763	Water	07/14/16 14:19	07/15/16 11:55
13. 5-B	BDN0M	16-10764	Water	07/14/16 14:40	07/15/16 11:55
14. 5-A	BDN0N	16-10765	Water	07/14/16 14:58	07/15/16 11:55



Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but \geq the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤ 5 times the Reporting Limit and the replicate control limit defaults to ± 1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.



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Incorporated
Analytical Chemists and
Consultants

- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" (Dioxin/Furan analysis only)
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by $\geq 40\%$ RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. (Dioxin/Furan analysis only)
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. (Dioxin/Furan analysis only)



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Geotechnical Data

- A** The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F** Samples were frozen prior to particle size determination
- SM** Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS** Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- W** Weight of sample in some pipette aliquots was below the level required for accurate weighting

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS


NWTPHD by GC/FID
 Extraction Method: SW3510C
 Page 1 of 2



QC Report No: BDN0-Hydrometrics Inc.
 Project: Idaho Pole

Matrix: Water

Date Received: 07/15/16

Data Release Authorized: 
 Reported: 08/01/16

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
MB-072116 16-10752	Method Blank HC ID: ---	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	< 0.10 U < 0.20 U 94.0%
BDN0A 16-10752	9-B HC ID: DRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.16 < 0.20 U 94.2%
BDN0B 16-10753	9-A HC ID: DRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.15 < 0.20 U 95.6%
BDN0C 16-10754	GM-6 HC ID: DRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.12 < 0.20 U 95.0%
BDN0D 16-10755	GM-4 HC ID: DRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.20 < 0.20 U 87.0%
BDN0E 16-10756	GM-5 HC ID: DRO/MOTOR OIL	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.50 0.38 78.7%
BDN0F 16-10757	P-1 HC ID: DRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.15 < 0.20 U 94.1%
BDN0G 16-10758	15-A HC ID: DRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.58 < 0.20 U 91.2%
BDN0H 16-10759	EW-1 HC ID: DRO/RRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	1.7 0.28 97.4%
BDN0I 16-10760	P-4 HC ID: DRO/RRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	1.5 0.29 74.2%
BDN0J 16-10761	P-4D HC ID: DRO/RRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	1.6 0.27 84.8%
BDN0K 16-10762	P-2 HC ID: DRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.73 < 0.20 U 90.0%

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS

NWTPHD by GC/FID
Extraction Method: SW3510C
Page 2 of 2



QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole

Matrix: Water

Date Received: 07/15/16

Data Release Authorized:
Reported: 08/01/16

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
BDN0L 16-10763	P-2F HC ID: ---	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	< 0.10 U < 0.20 U 98.3%
BDN0M 16-10764	5-B HC ID: DRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.12 < 0.20 U 93.5%
BDN0N 16-10765	5-A HC ID: DRO/RRO	07/21/16	07/29/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	5.4 E 0.94 91.7%
BDN0N DL 16-10765	5-A HC ID: DRO	07/21/16	08/01/16 FID4A	1.00 10	Diesel Range Motor Oil Range o-Terphenyl	1.0 2.0	4.2 < 2.0 U 69.6%

Reported in mg/L (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in ranges are not identifiable.

ORGANICS ANALYSIS DATA SHEET

NWTPHD by GC/FID

Page 1 of 1

Sample ID: LCS-072116

LAB CONTROL

Lab Sample ID: LCS-072116

LIMS ID: 16-10752

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: NA

Date Received: NA

Date Extracted: 07/21/16

Date Analyzed: 07/29/16 13:32

Instrument/Analyst: FID4A/ML

Sample Amount: 500 mL

Final Extract Volume: 1.0 mL

Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	2.28	3.00	76.0%

TPHD Surrogate Recovery

o-Terphenyl	91.0%
-------------	-------

Results reported in mg/L

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Water
 Date Received: 07/15/16
 ARI Job: BDN0
 Project: Idaho Pole

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
16-10752-072116MB1	Method Blank	500 mL	1.00 mL	07/21/16
16-10752-072116LCS1	Lab Control	500 mL	1.00 mL	07/21/16
16-10752-BDN0A	9-B	500 mL	1.00 mL	07/21/16
16-10753-BDN0B	9-A	500 mL	1.00 mL	07/21/16
16-10754-BDN0C	GM-6	500 mL	1.00 mL	07/21/16
16-10755-BDN0D	GM-4	500 mL	1.00 mL	07/21/16
16-10756-BDN0E	GM-5	500 mL	1.00 mL	07/21/16
16-10757-BDN0F	P-1	500 mL	1.00 mL	07/21/16
16-10758-BDN0G	15-A	500 mL	1.00 mL	07/21/16
16-10759-BDN0H	EW-1	500 mL	1.00 mL	07/21/16
16-10760-BDN0I	P-4	500 mL	1.00 mL	07/21/16
16-10761-BDN0J	P-4D	500 mL	1.00 mL	07/21/16
16-10762-BDN0K	P-2	500 mL	1.00 mL	07/21/16
16-10763-BDN0L	P-2F	500 mL	1.00 mL	07/21/16
16-10764-BDN0M	5-B	500 mL	1.00 mL	07/21/16
16-10765-BDN0N	5-A	500 mL	1.00 mL	07/21/16

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-072116	94.0%	0
LCS-072116	91.0%	0
9-B	94.2%	0
9-A	95.6%	0
GM-6	95.0%	0
GM-4	87.0%	0
GM-5	78.7%	0
P-1	94.1%	0
15-A	91.2%	0
EW-1	97.4%	0
P-4	74.2%	0
P-4D	84.8%	0
P-2	90.0%	0
P-2F	98.3%	0
5-B	93.5%	0
5-A	91.7%	0
5-A DL	69.6%	0

LCS/MB LIMITS QC LIMITS

(OTER) = o-Terphenyl

(50-150)

(50-150)

Prep Method: SW3510C
Log Number Range: 16-10752 to 16-10765

Date : 29-JUL-2016 13:09

Client ID: BDK7MBW1

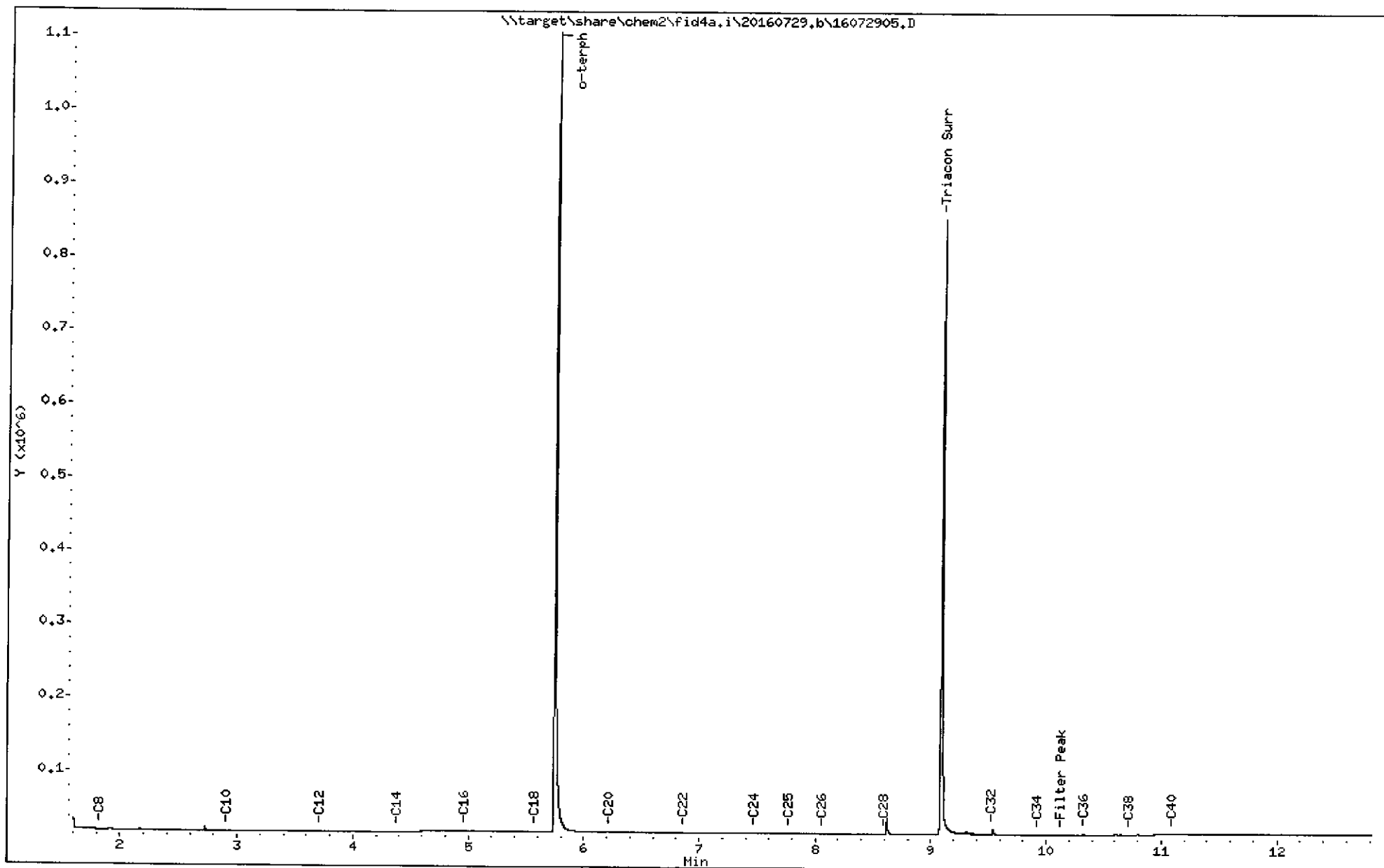
Sample Info: BDK7MBW1

Instrument: fid4a.i

Operator: JW

Column diameter: 0.25

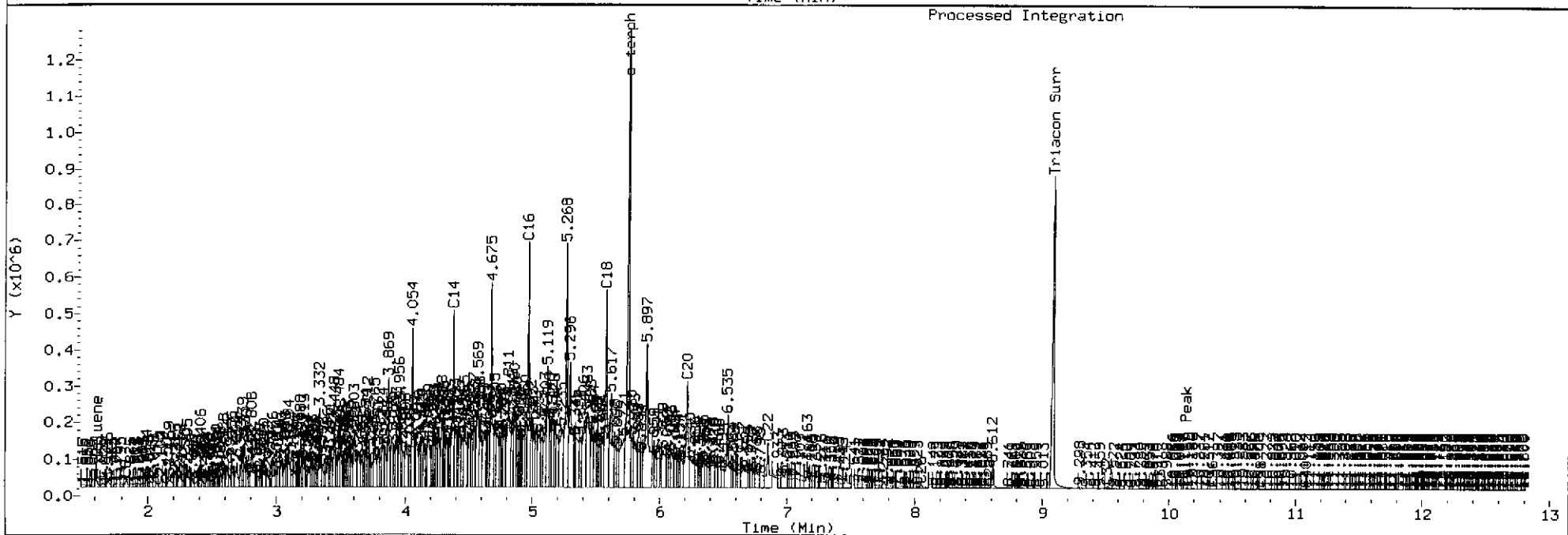
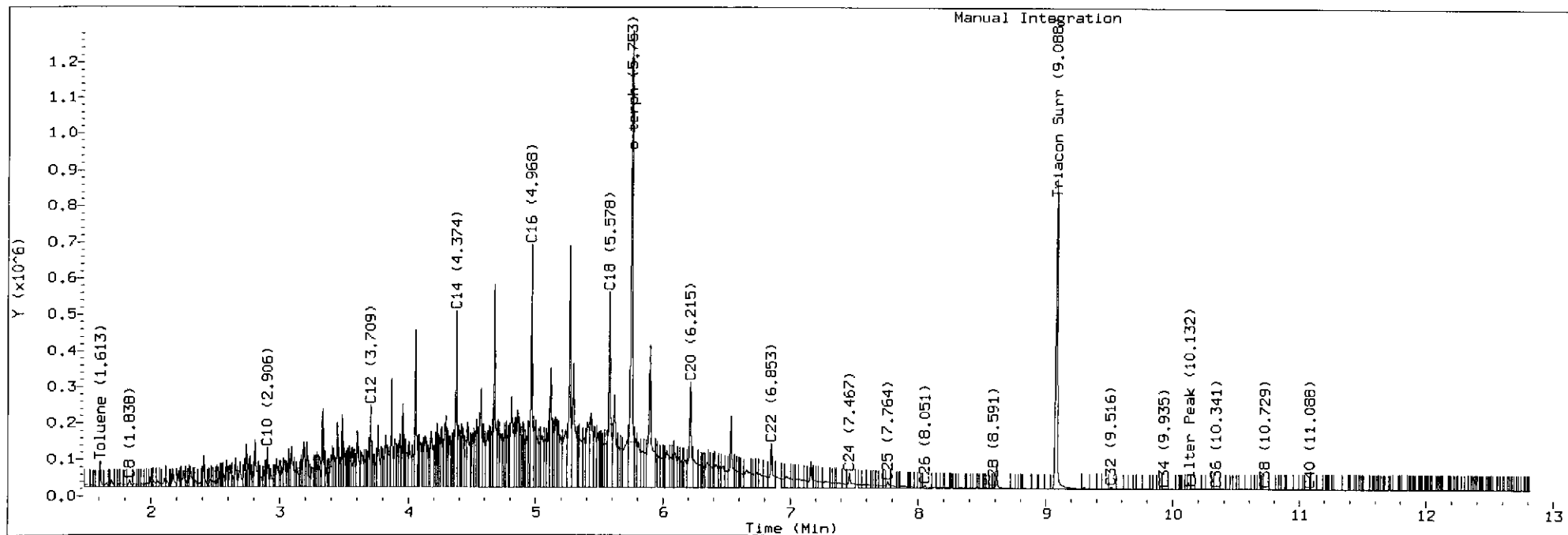
Column phase: RTX-1



TPH Manual Integrations Report

Datafile: FID4A, 20160729.b/16072906.D Injection: 29-JUL-2016 13:32

Lab ID:BDK7LCSW1



Data File: \\target\share\chem2\fid4a.i\20160729.b\16072906.D

Date : 29-JUL-2016 13:32

Client ID: BDK7LCSW1

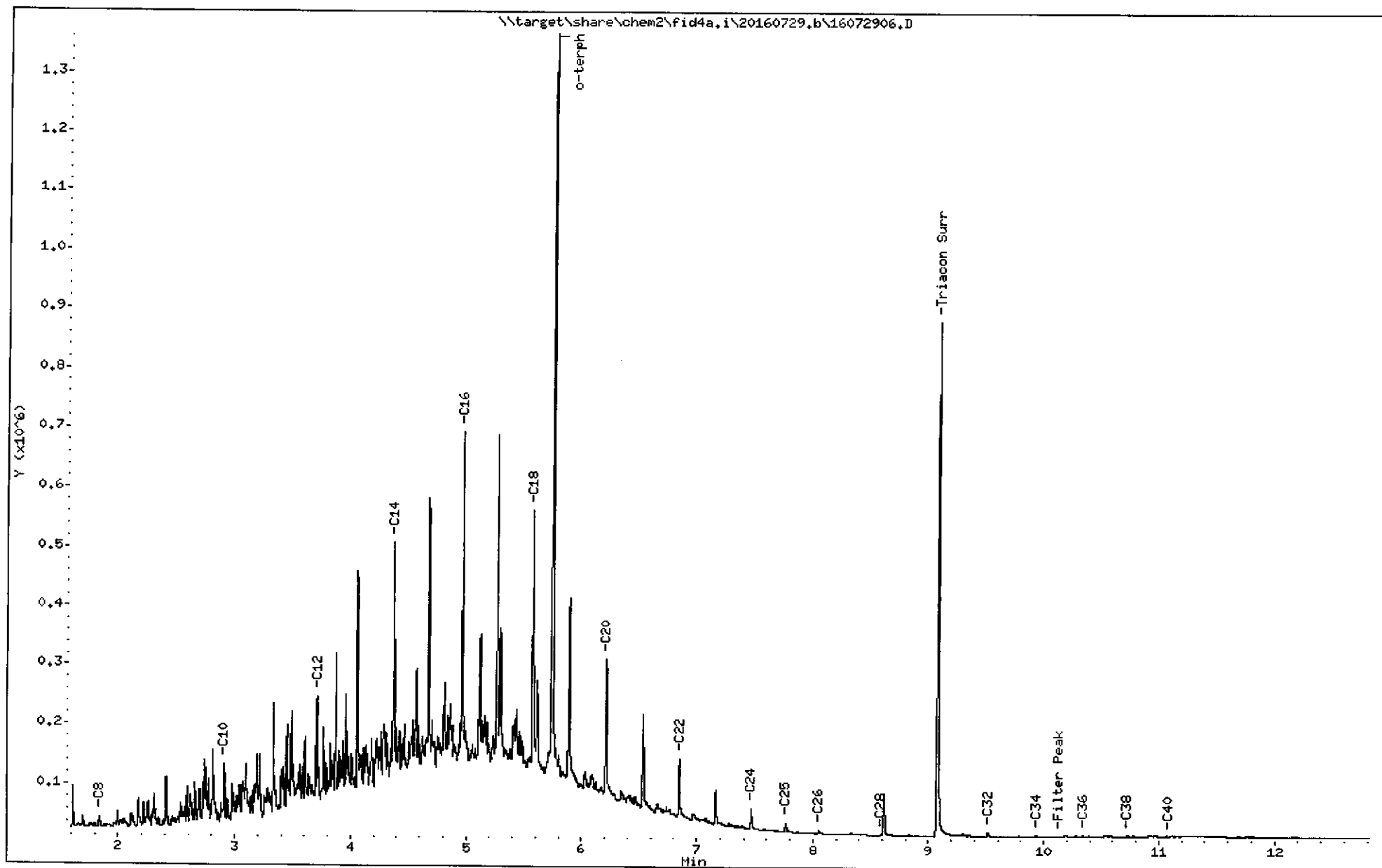
Sample Info: BDK7LCSW1

Instrument: fid4a.i

Operator: JW

Column diameter: 0.25

Column phase: RTX-1



BLIND : 000016

Date : 29-JUL-2016 14:40

Client ID: 9-B

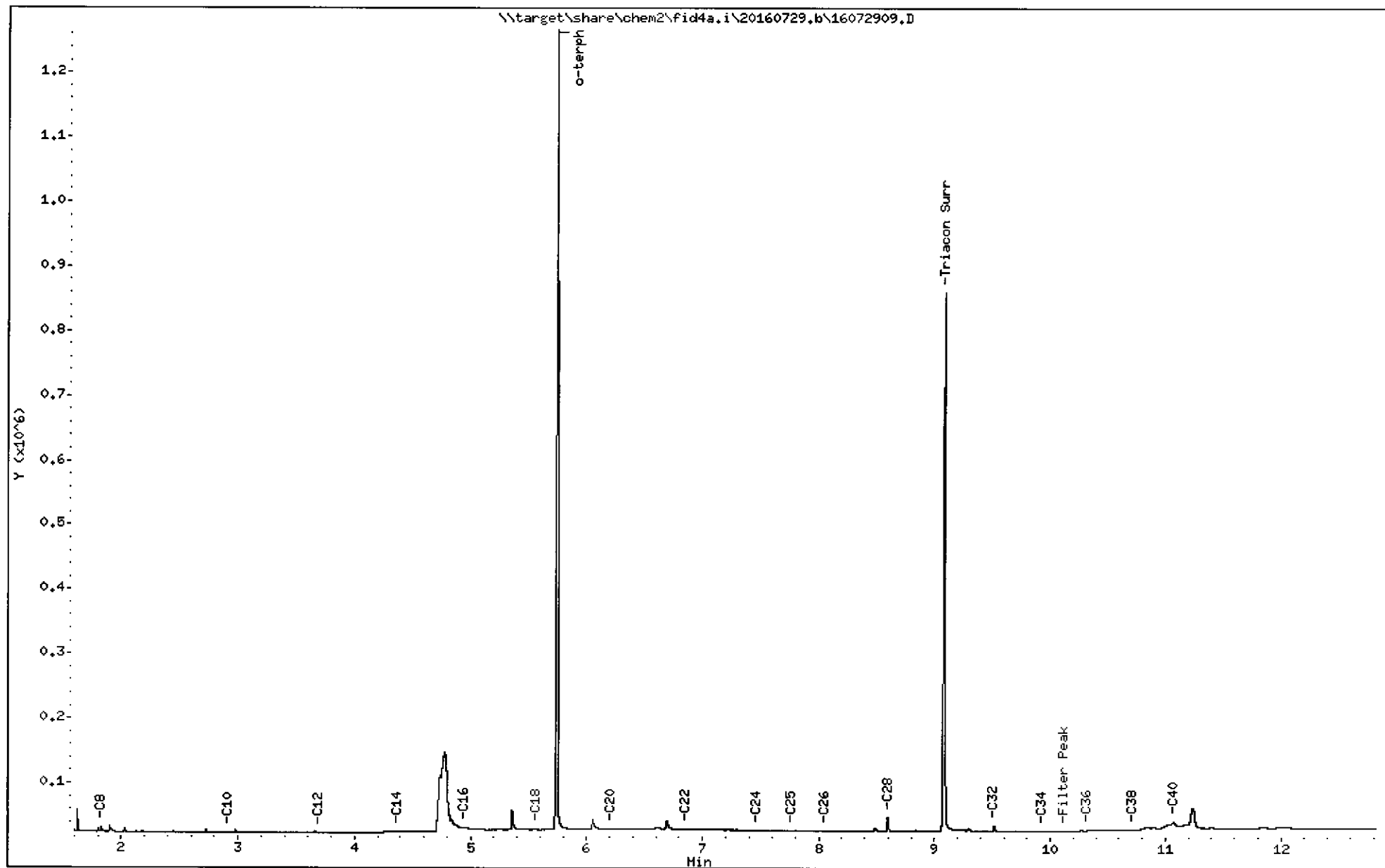
Sample Info: BDN0A

Instrument: fid4a.i

Operator: JW

Column diameter: 0.25

Column phase: RTX-1



Date : 29-JUL-2016 15:01

Client ID: 9-A

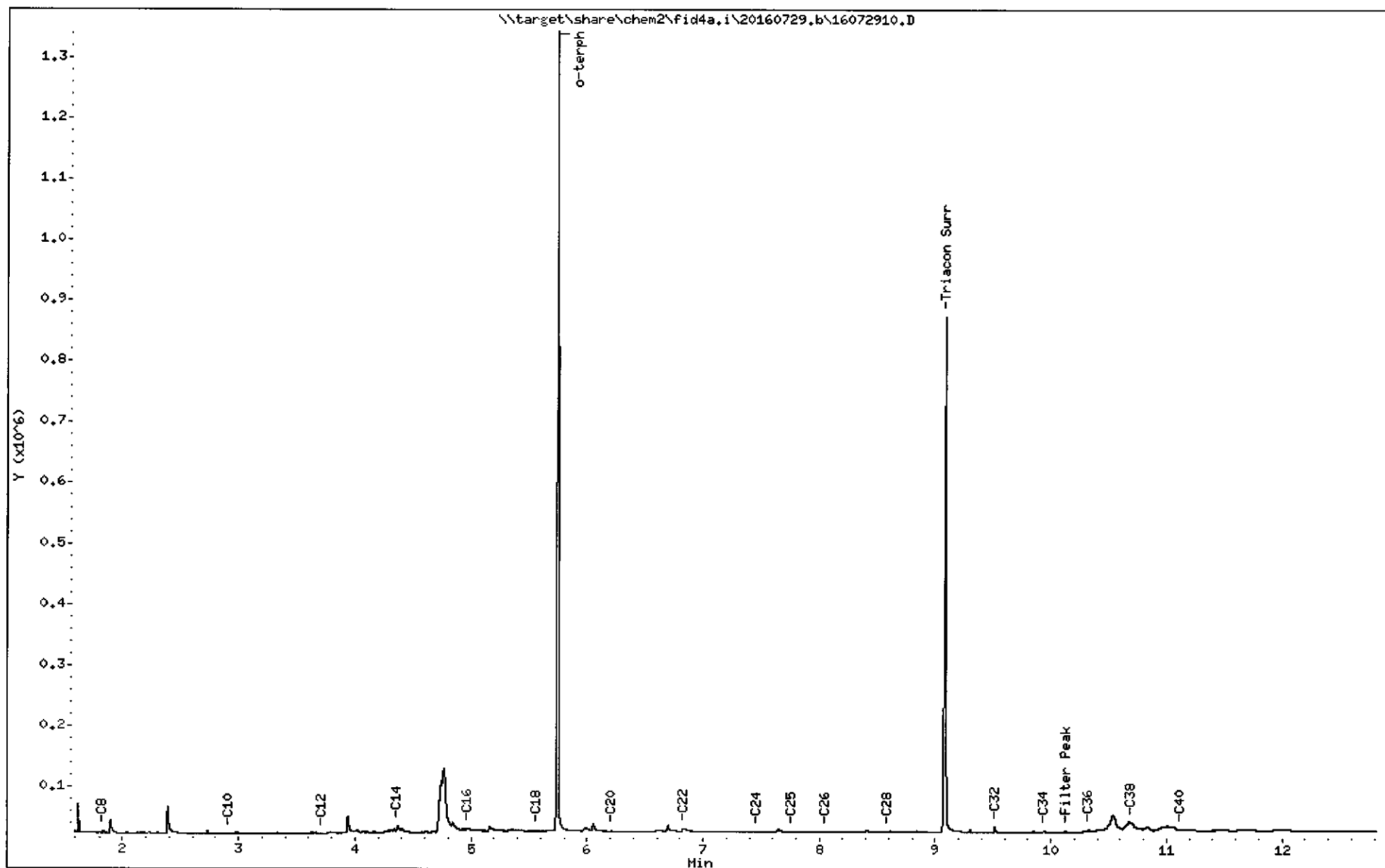
Sample Info: BDN08

Instrument: fid4a.i

Operator: JH

Column diameter: 0.25

Column phase: RTX-1



Date : 29-JUL-2016 15:25

Client ID: GM-6

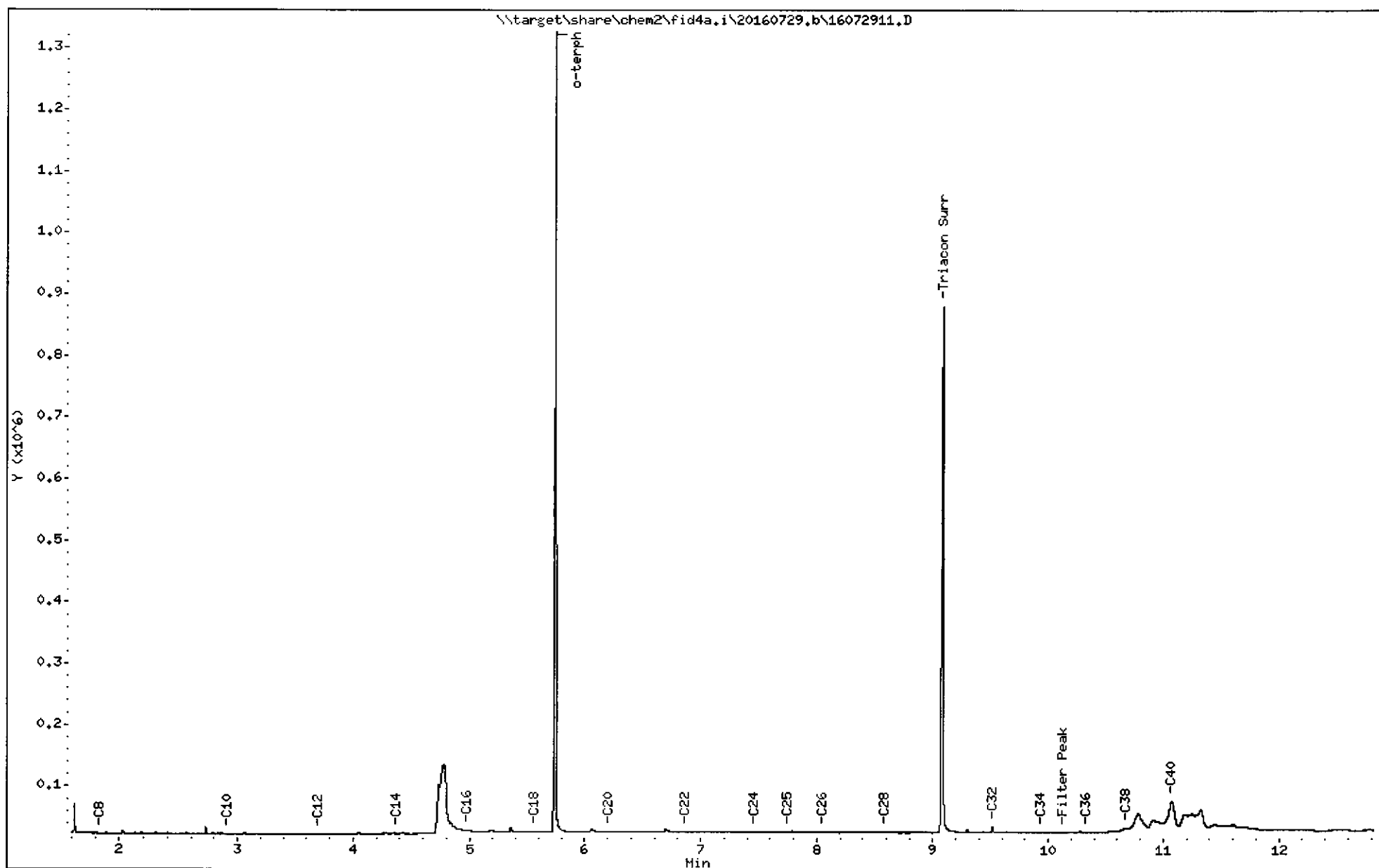
Sample Info: BDNOC

Instrument: fid4a.i

Operator: JW

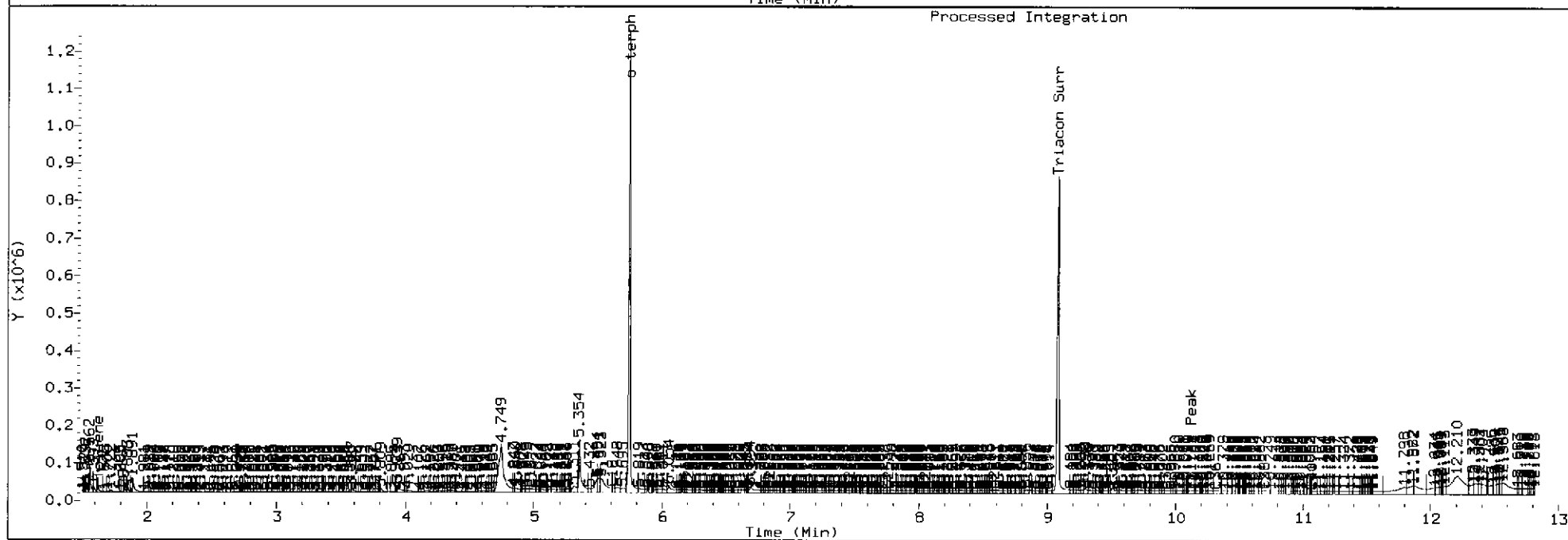
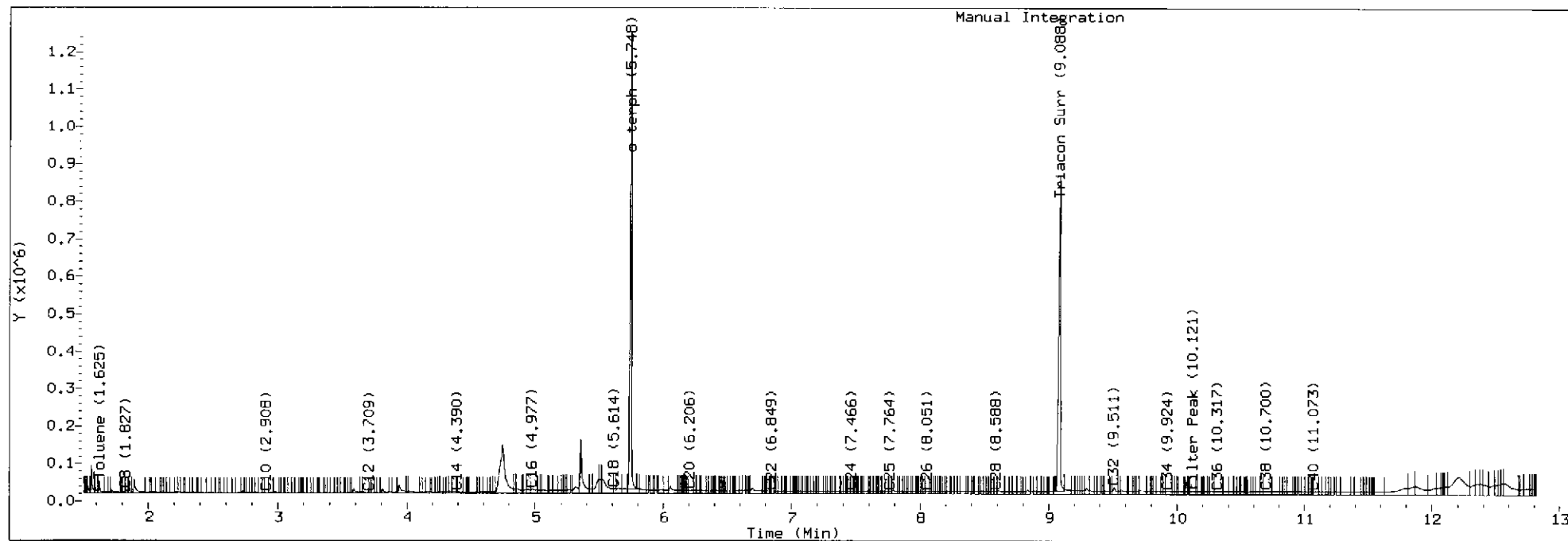
Column diameter: 0.25

Column phase: RTX-1



TPH Manual Integrations Report

Datafile: FID4A, 20160729.b/16072912.D Injection: 29-JUL-2016 15:48
Lab ID:BDN0D



BDN0 : 20160729

Date : 29-JUL-2016 15:48

Client ID: GH-4

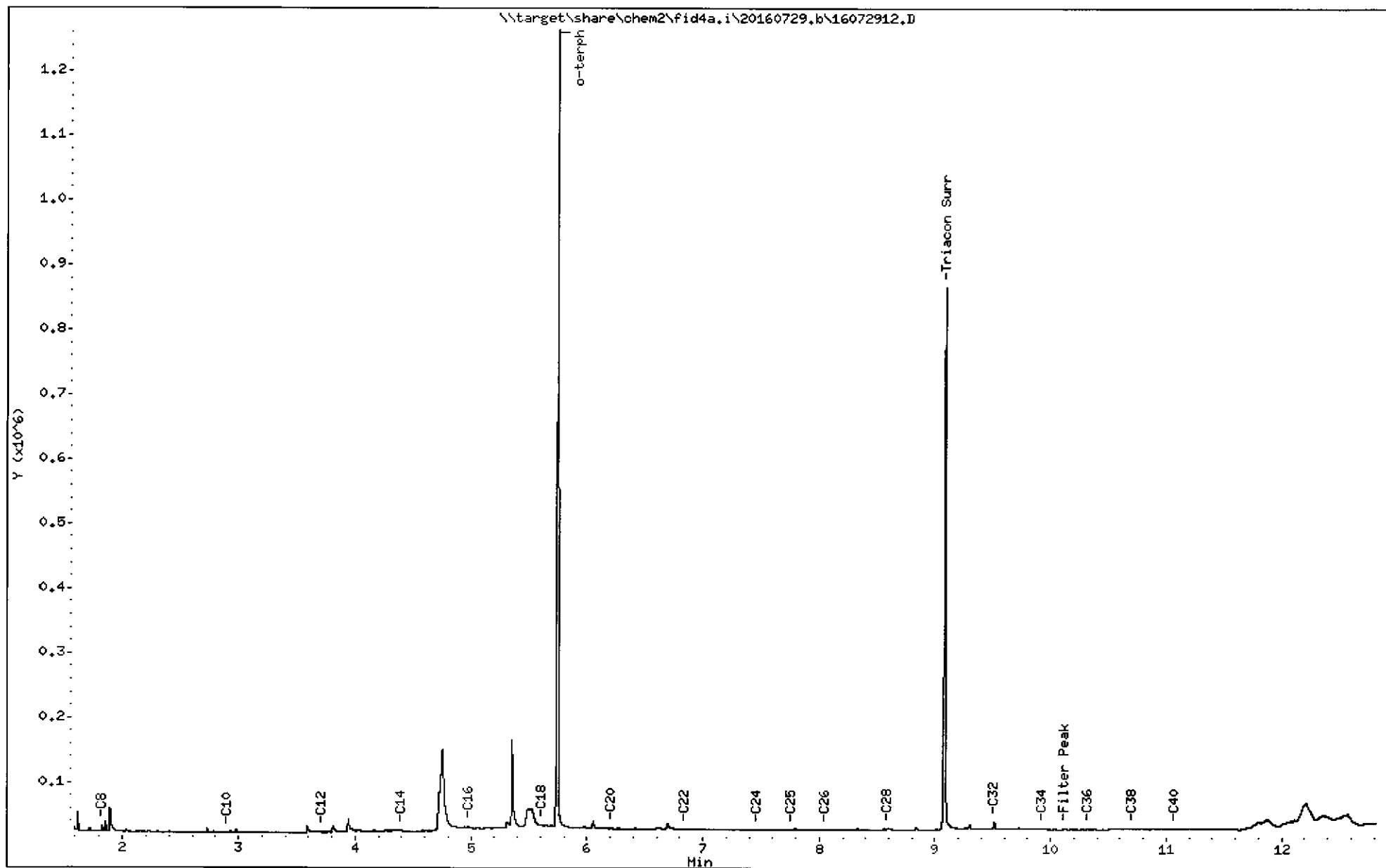
Sample Info: BDNOD

Instrument: fid4a.i

Operator: JW

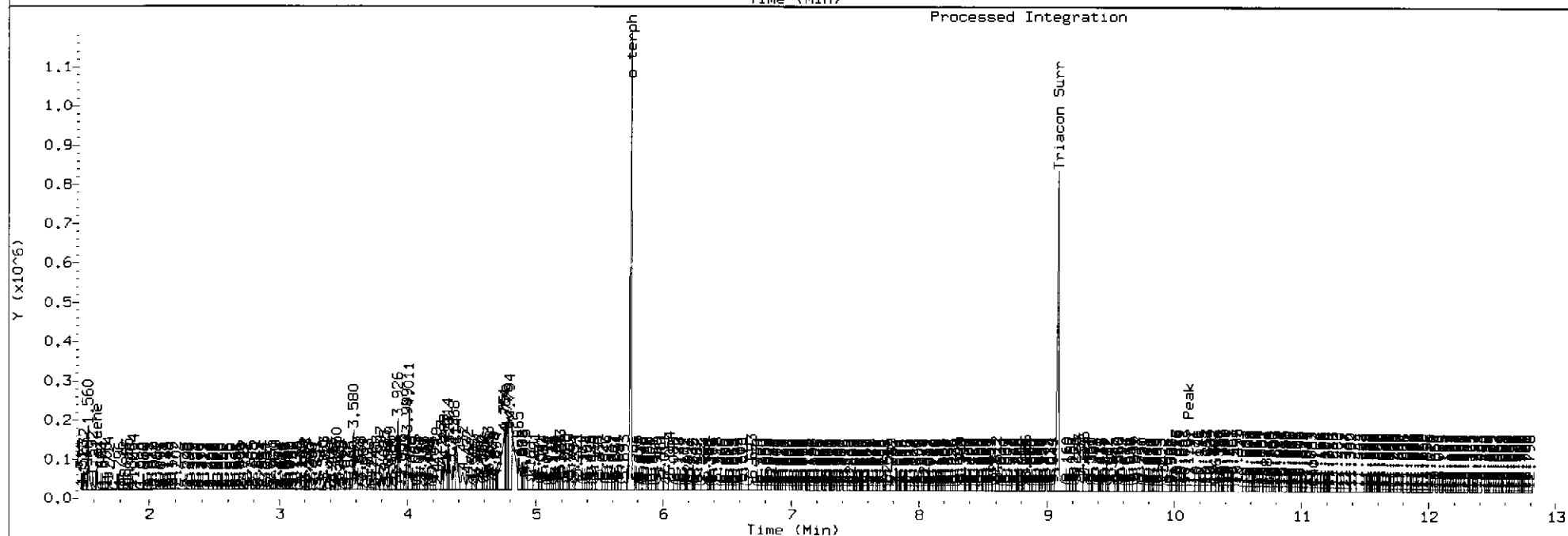
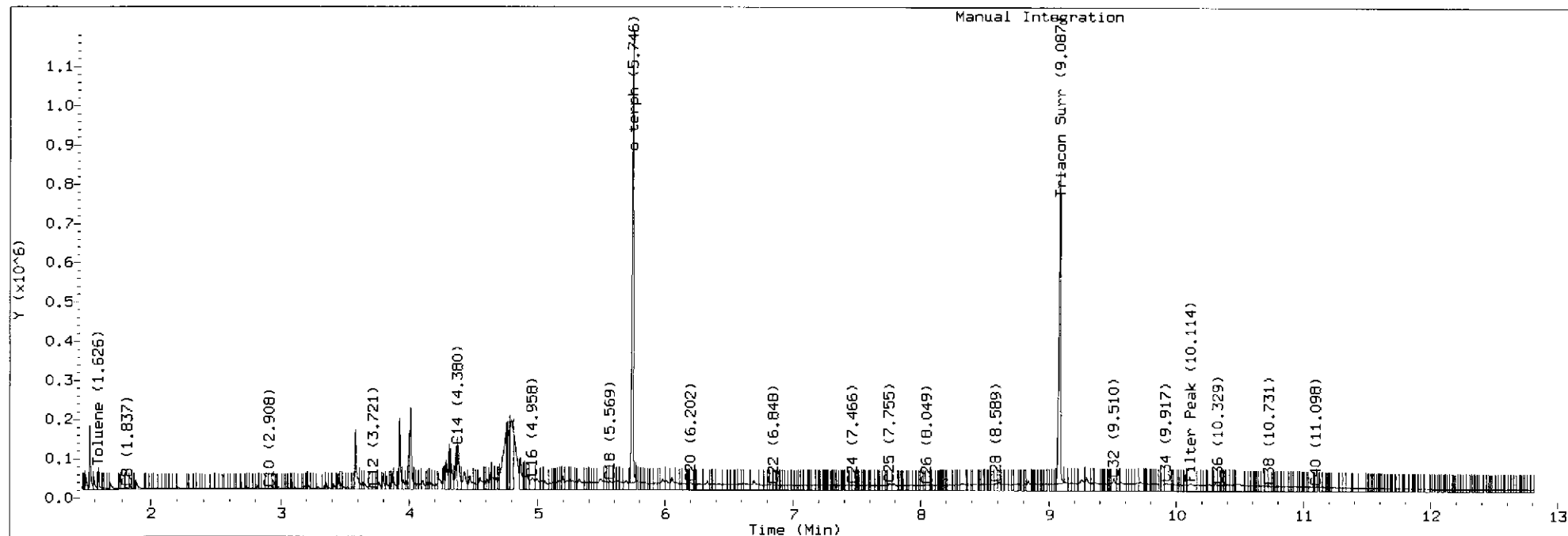
Column diameter: 0.25

Column phase: RTX-1



TPH Manual Integrations Report

Datafile: FID4A, 20160729.b/16072916.D Injection: 29-JUL-2016 17:18
Lab ID:BDN0E



Date : 29-JUL-2016 17:18

Client ID: GM-5

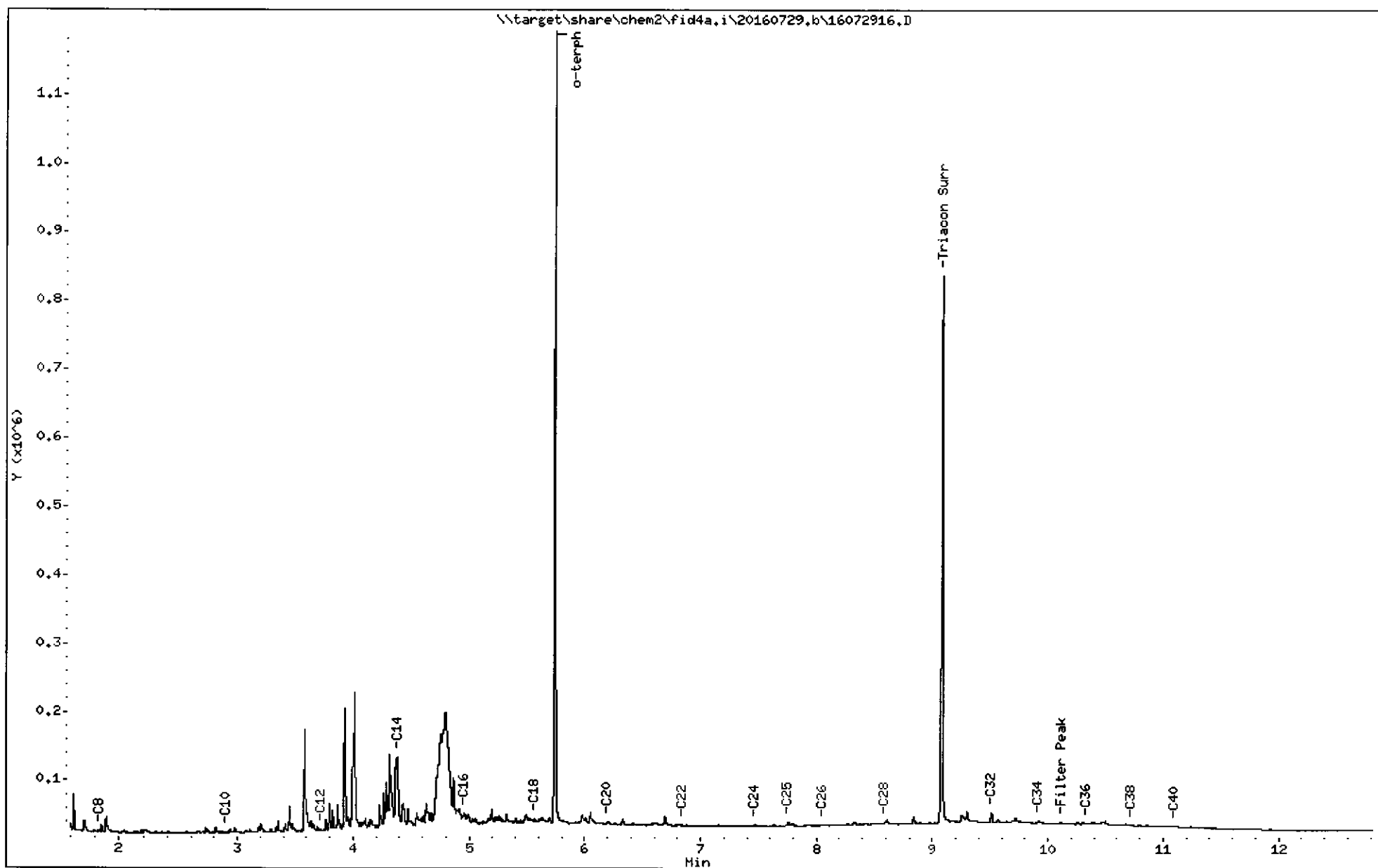
Sample Info: BDN0E

Instrument: fid4a.i

Operator: JW

Column diameter: 0.25

Column phase: RTX-1



BDN0E : 000023

Date : 29-JUL-2016 17:42

Client ID: P-1

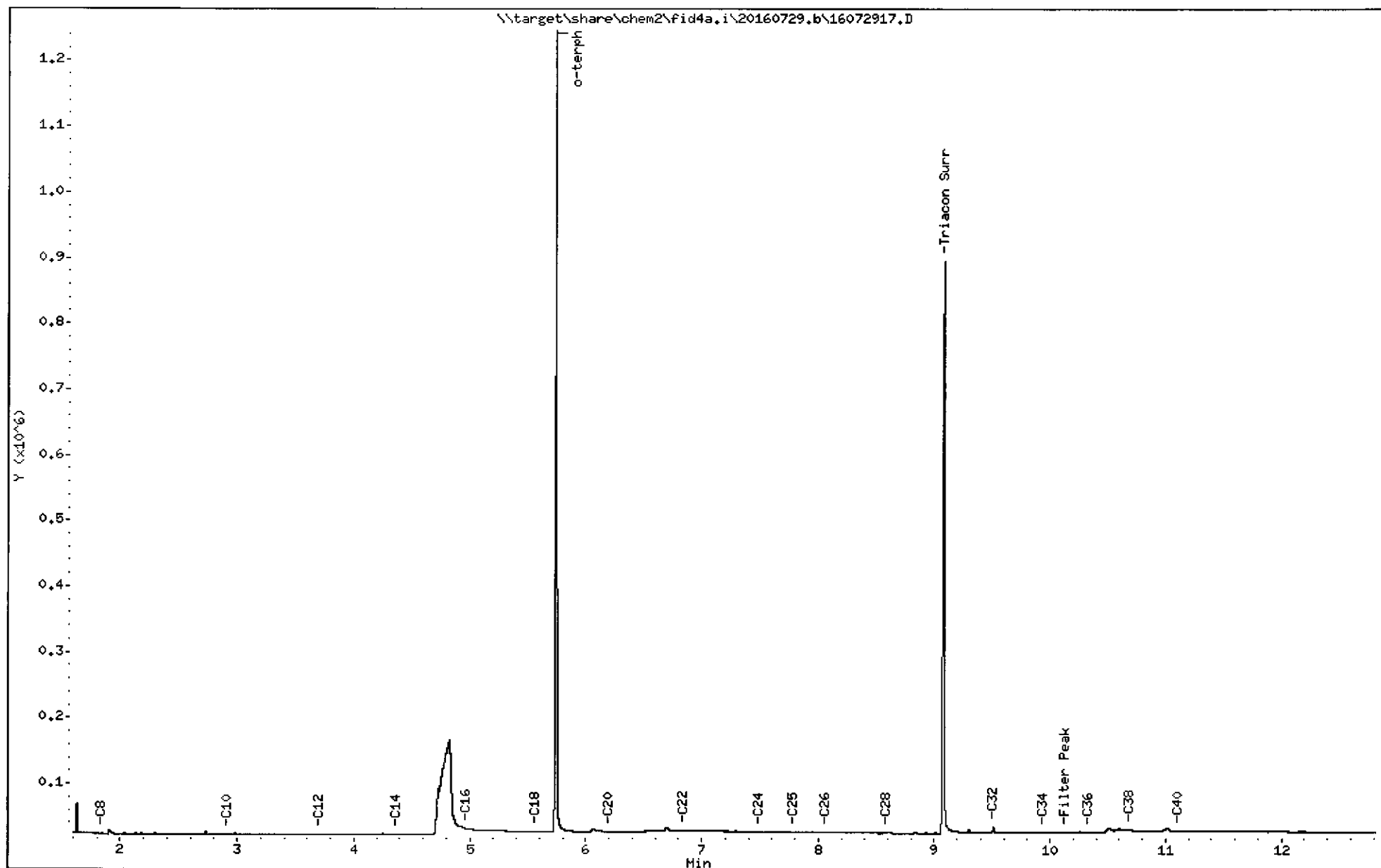
Sample Info: BDNOF

Instrument: fid4a.i

Operator: JW

Column diameter: 0.25

Column phase: RTX-1

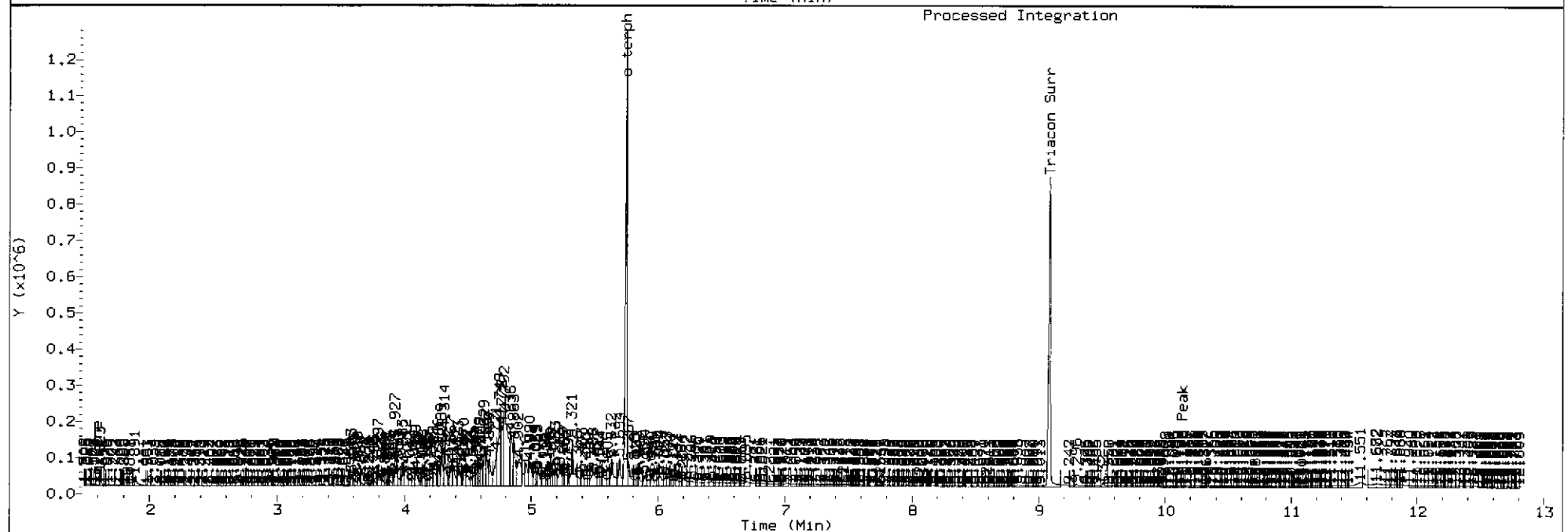
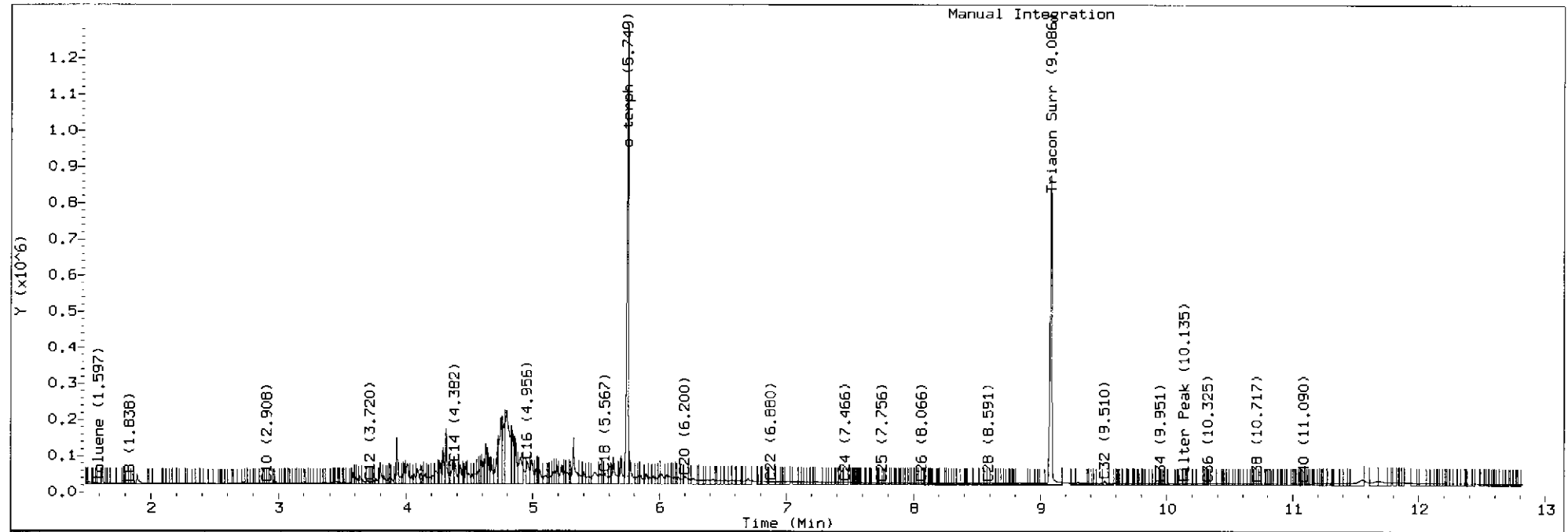


BLIND : 000024

TPH Manual Integrations Report

Datafile: FID4A, 20160729.b/16072918.D Injection: 29-JUL-2016 18:05

Lab ID:BDN0G



Run: 00025

Date : 29-JUL-2016 18:05

Client ID: 15-A

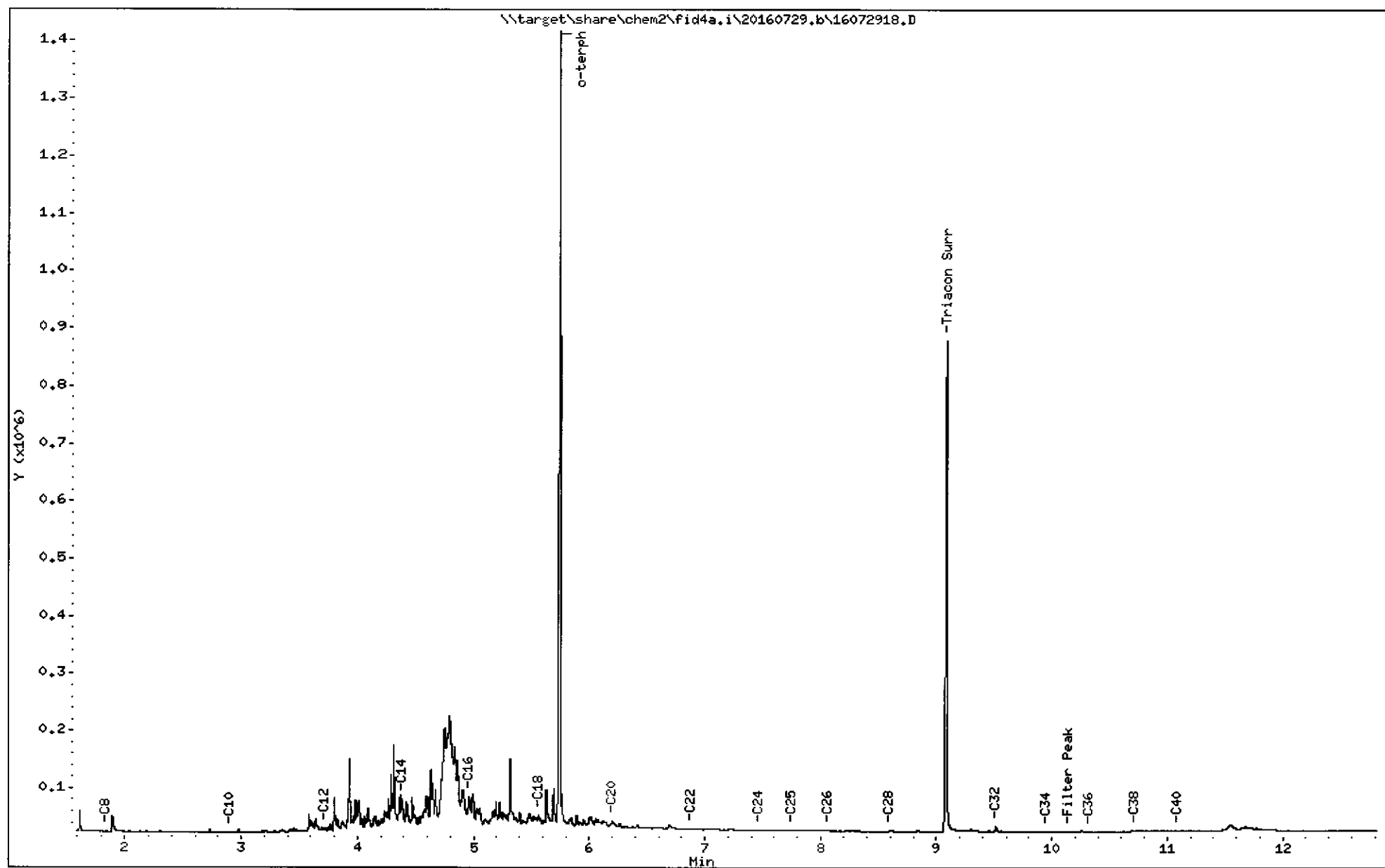
Sample Info: BDNOC

Instrument: fid4a.i

Operator: JW

Column diameter: 0.25

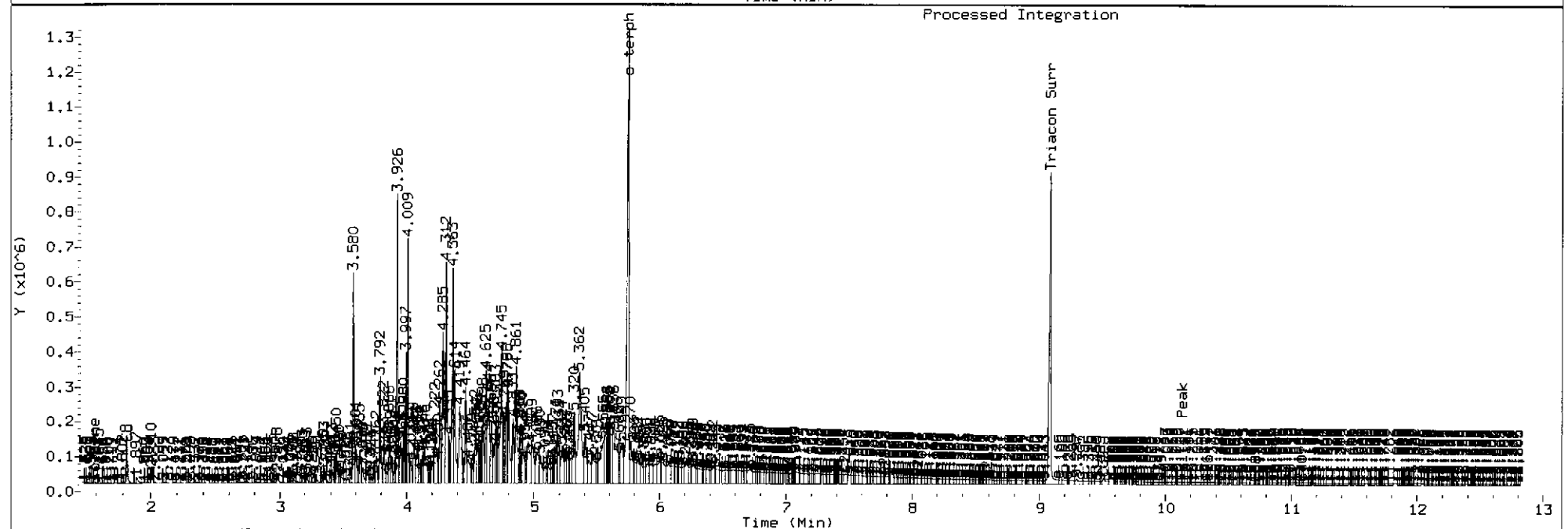
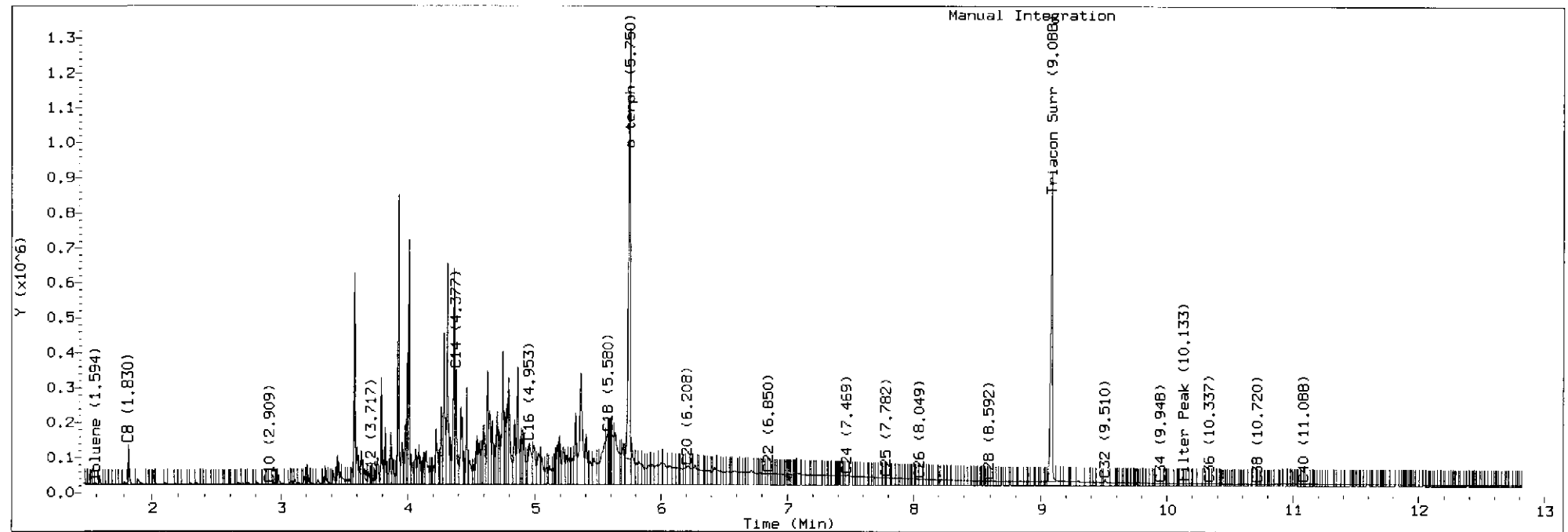
Column phase: RTX-1



TPH Manual Integrations Report

Datafile: FID4A, 20160729.b/16072919.D Injection: 29-JUL-2016 18:29

Lab ID:BDN0H



Date : 29-JUL-2016 18:29

Client ID: EW-1

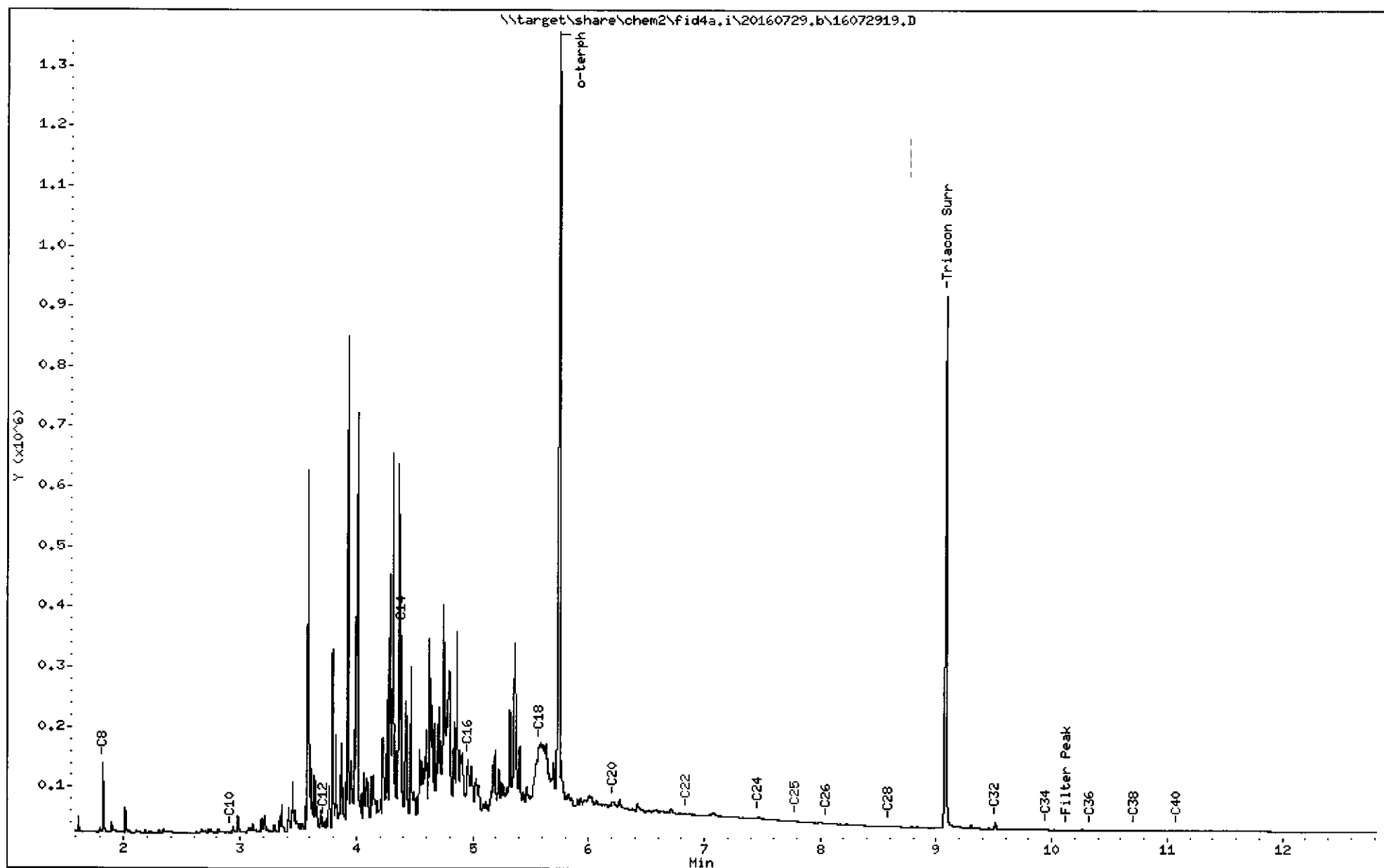
Sample Info: BDN0H

Instrument: fid4a.i

Operator: JW

Column diameter: 0.25

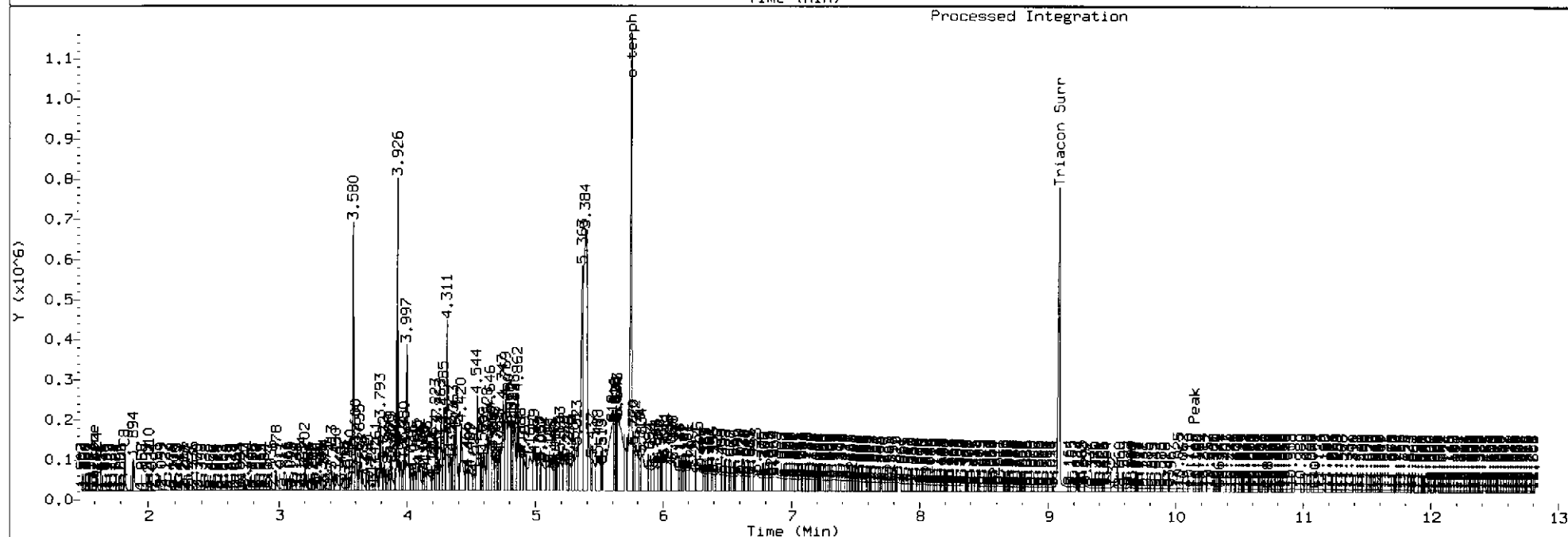
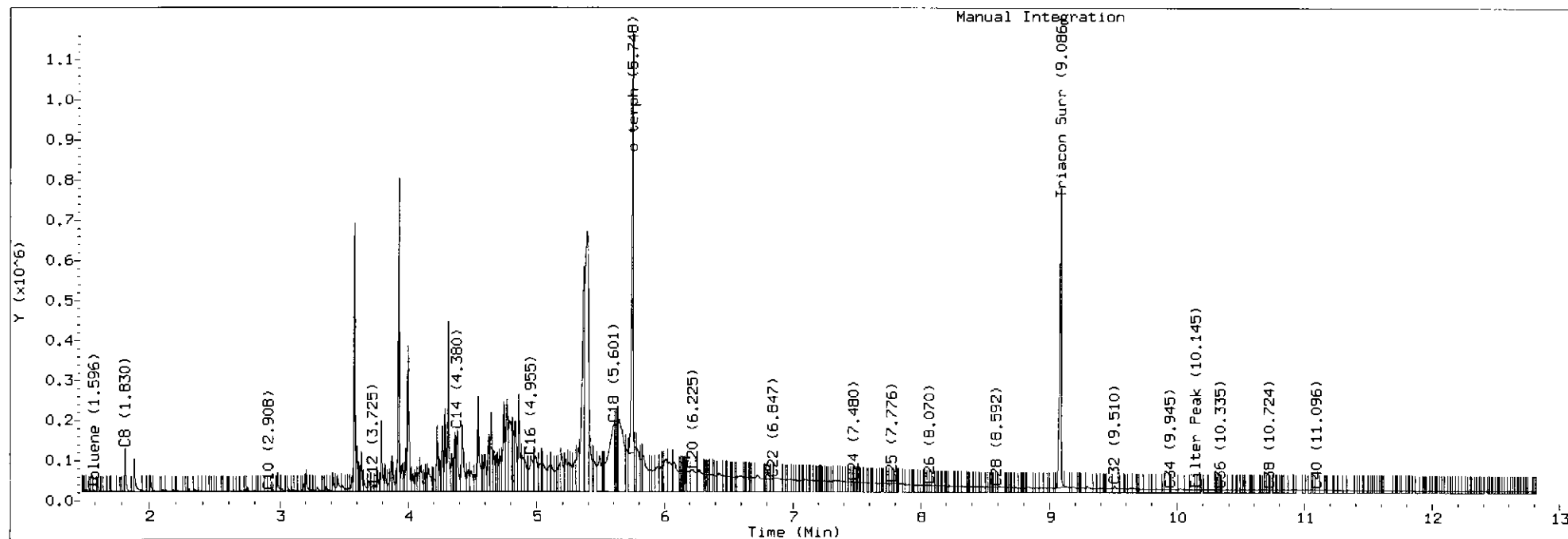
Column phase: RTX-1



FILE: 000028

TPH Manual Integrations Report

Datafile: FID4A, 20160729.b/16072920.D Injection: 29-JUL-2016 18:53
Lab ID:BDN0I



Date : 29-JUL-2016 18:53

Client ID: P-4

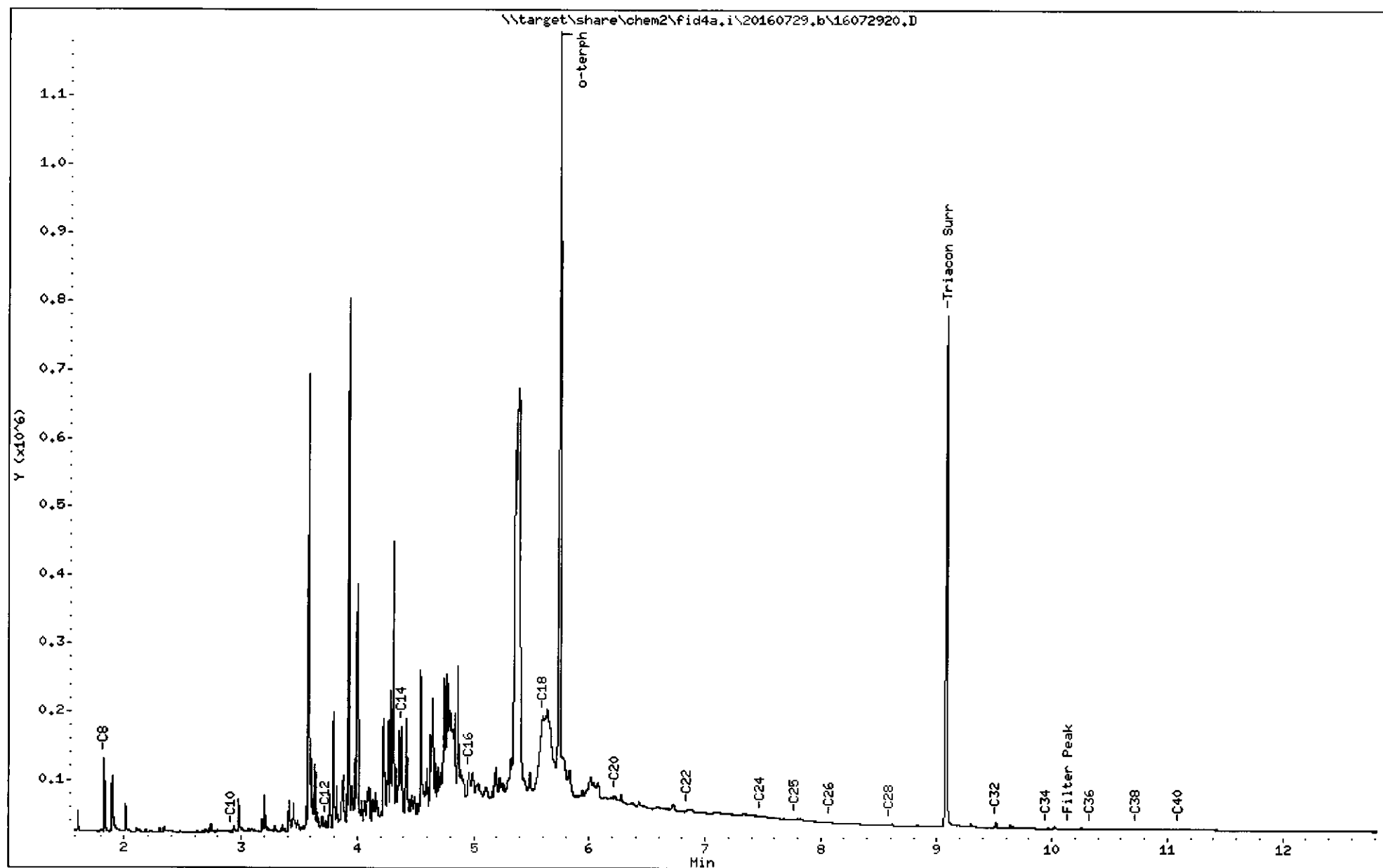
Sample Info: BDNOI

Instrument: fid4a.i

Operator: JW

Column diameter: 0.25

Column phase: RTX-1

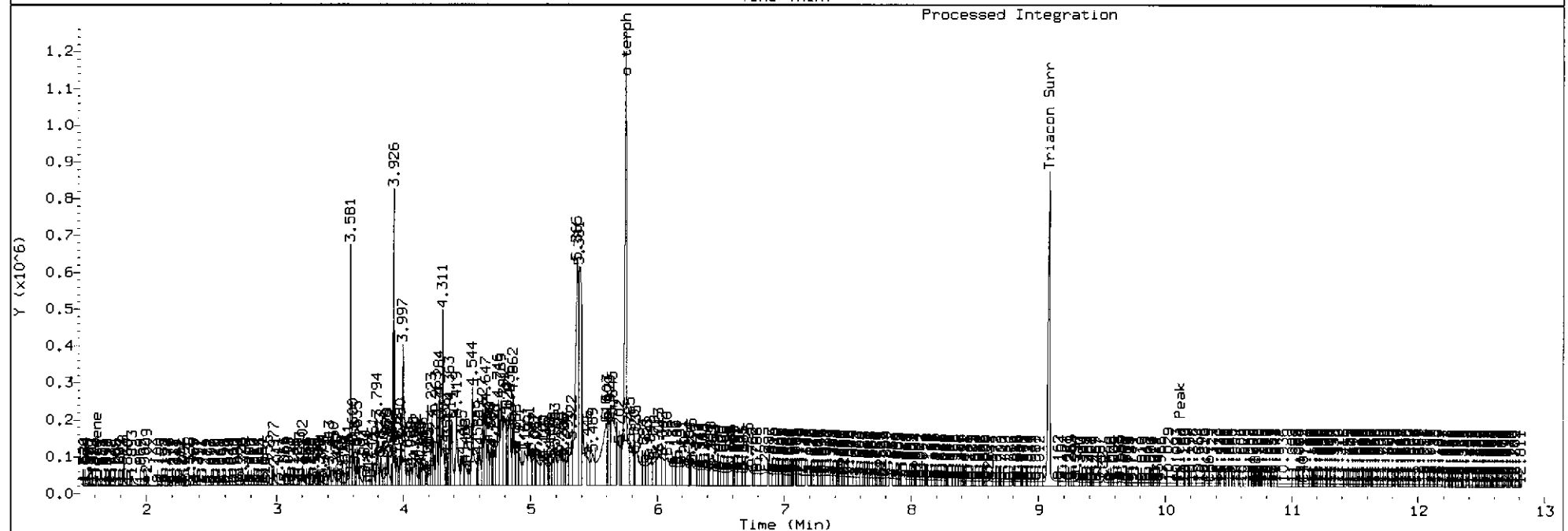
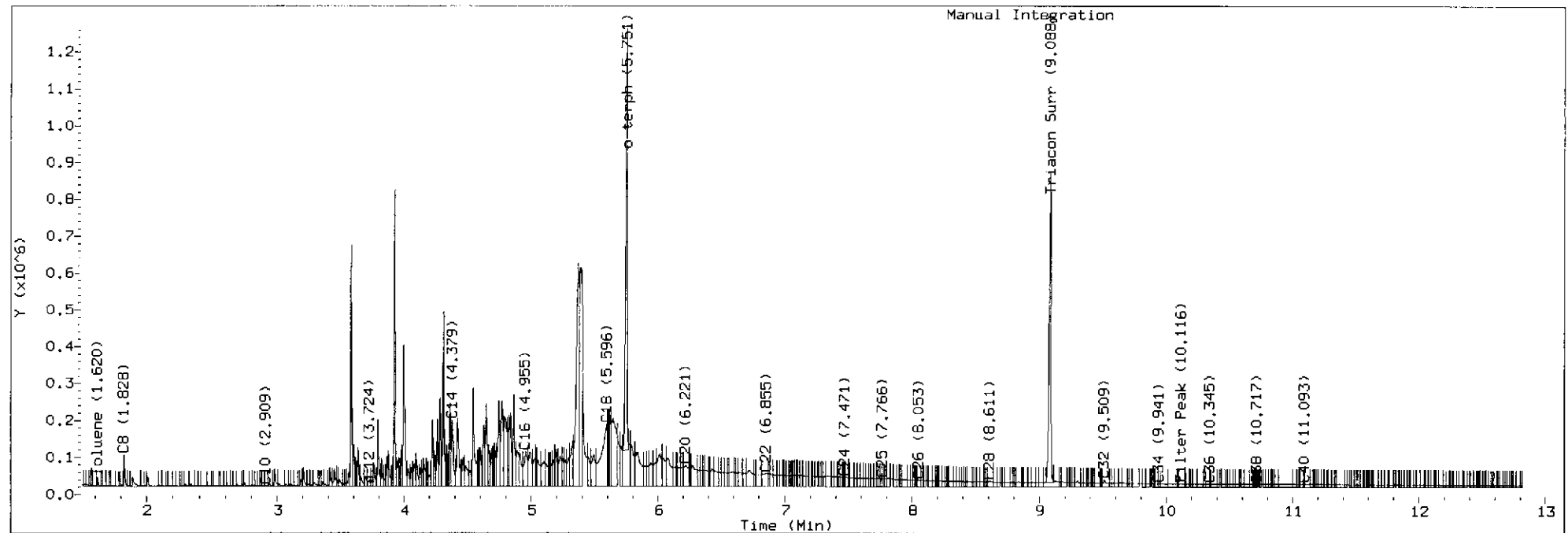


20160729

TPH Manual Integrations Report

Datafile: FID4A, 20160729.b/16072921.D Injection: 29-JUL-2016 19:16

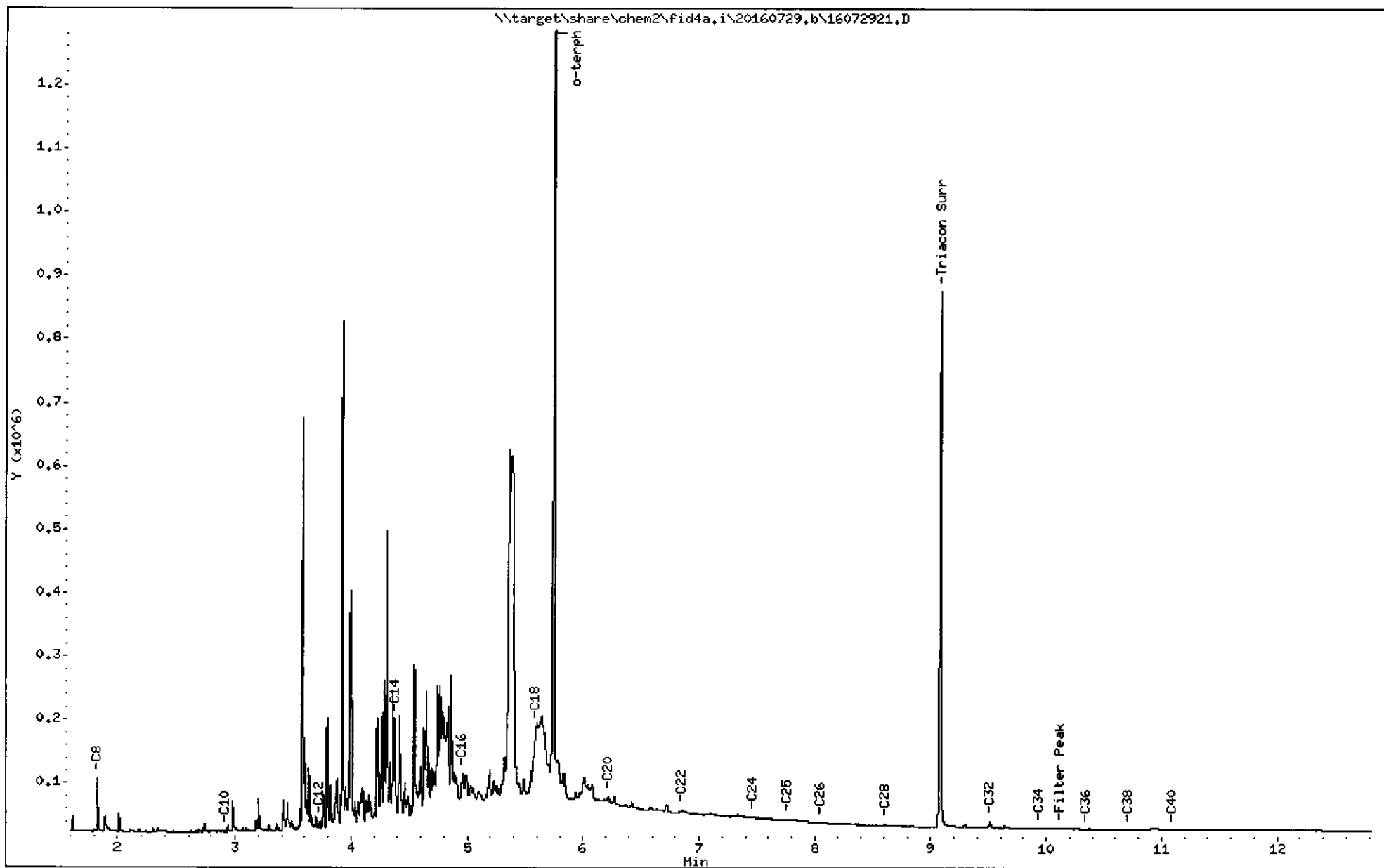
Lab ID:BDN0J



Instrument: fid4a.i

Operator: JW

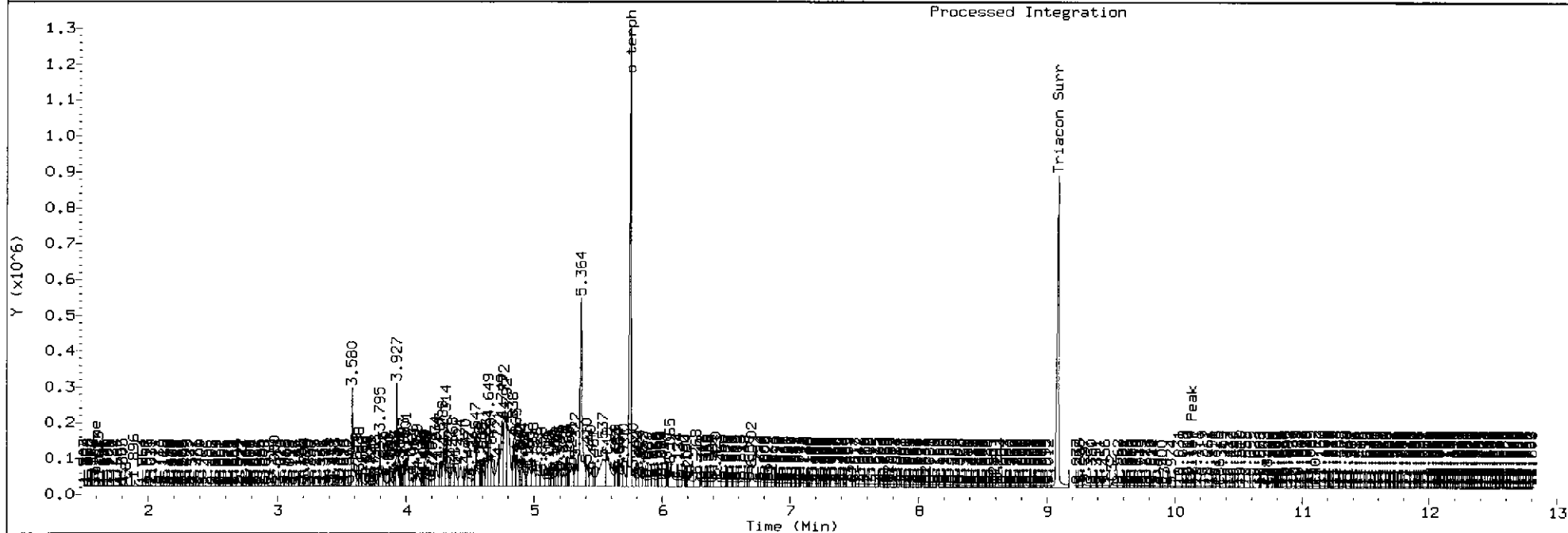
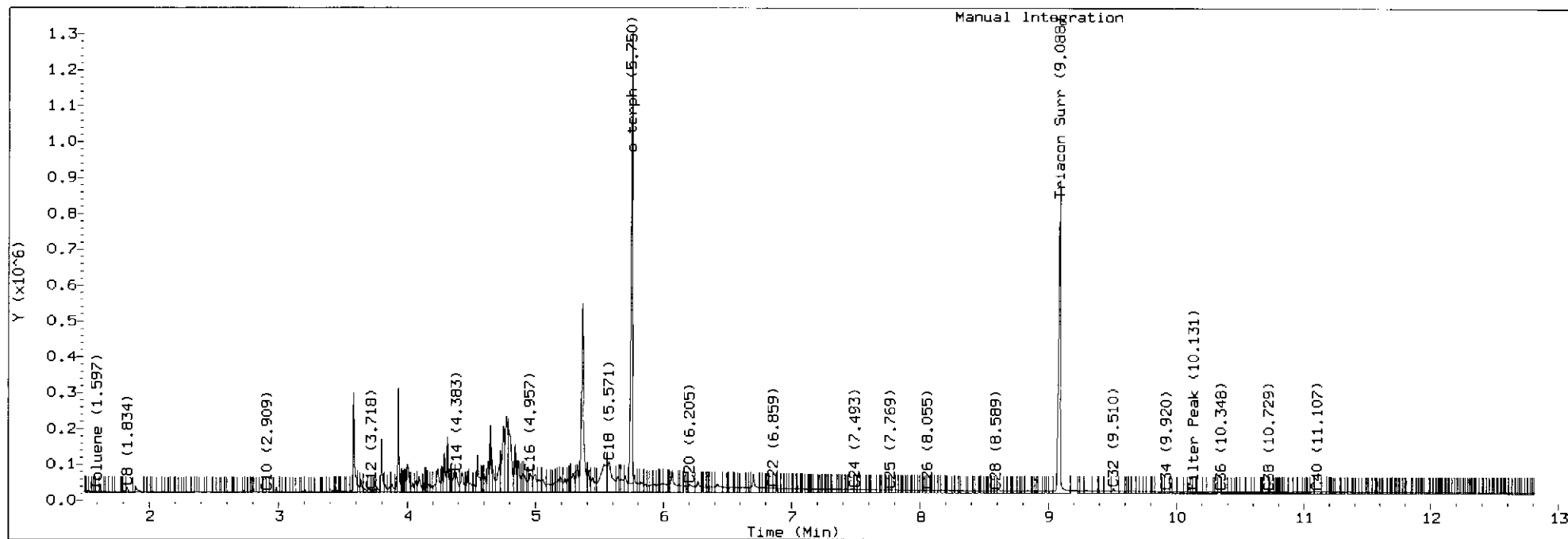
Column diameter: 0.25



W

TPH Manual Integrations Report

Datafile: FID4A, 20160729.b/16072922.D Injection: 29-JUL-2016 19:39
Lab ID:BDN0K



BDN0K 000033

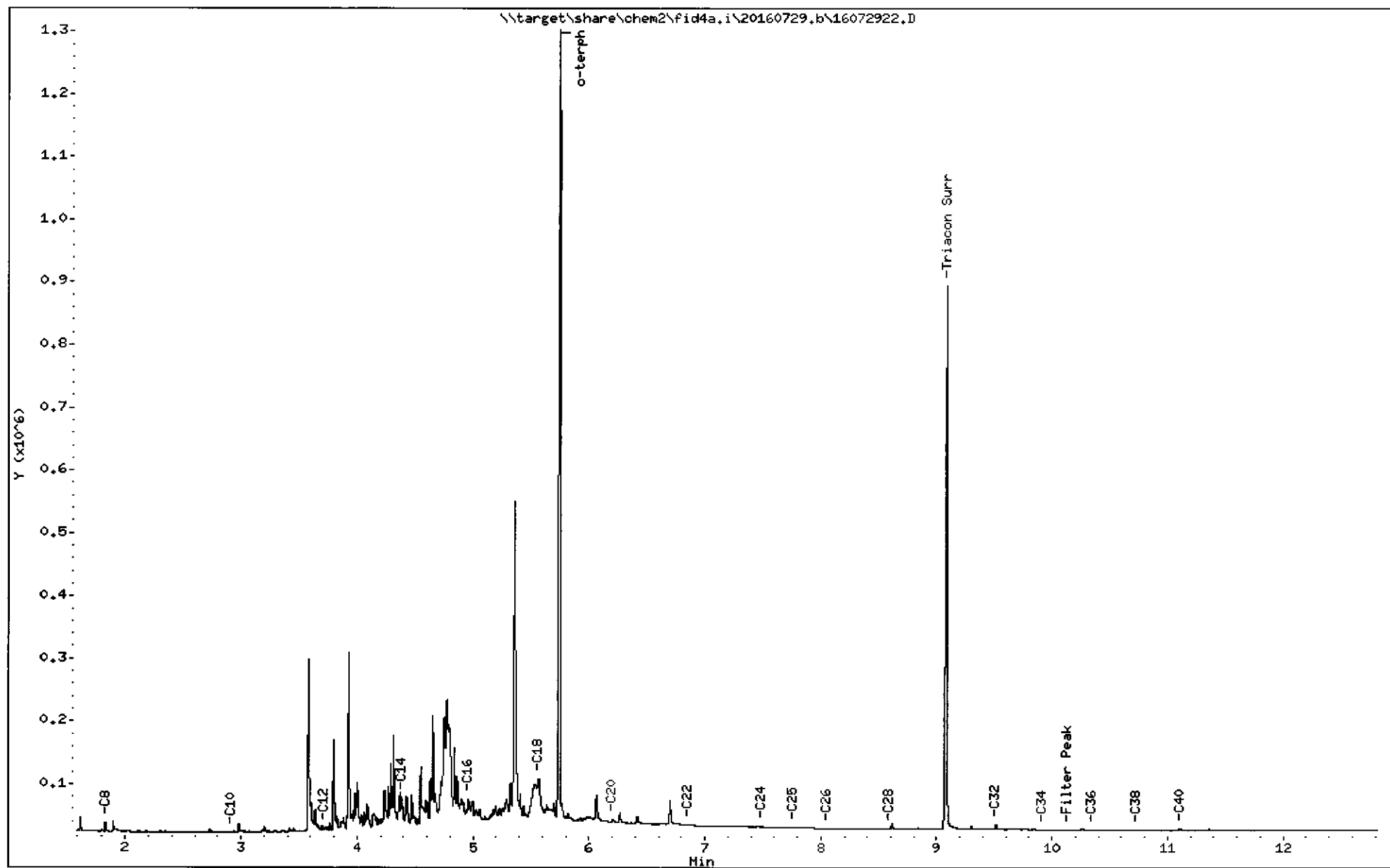
Page 1

Instrument: fid4a.i

Operator: JW

Column diameter: 0.25

Column phase: RTX-1



Date : 29-JUL-2016 20:02

Client ID: P-2F

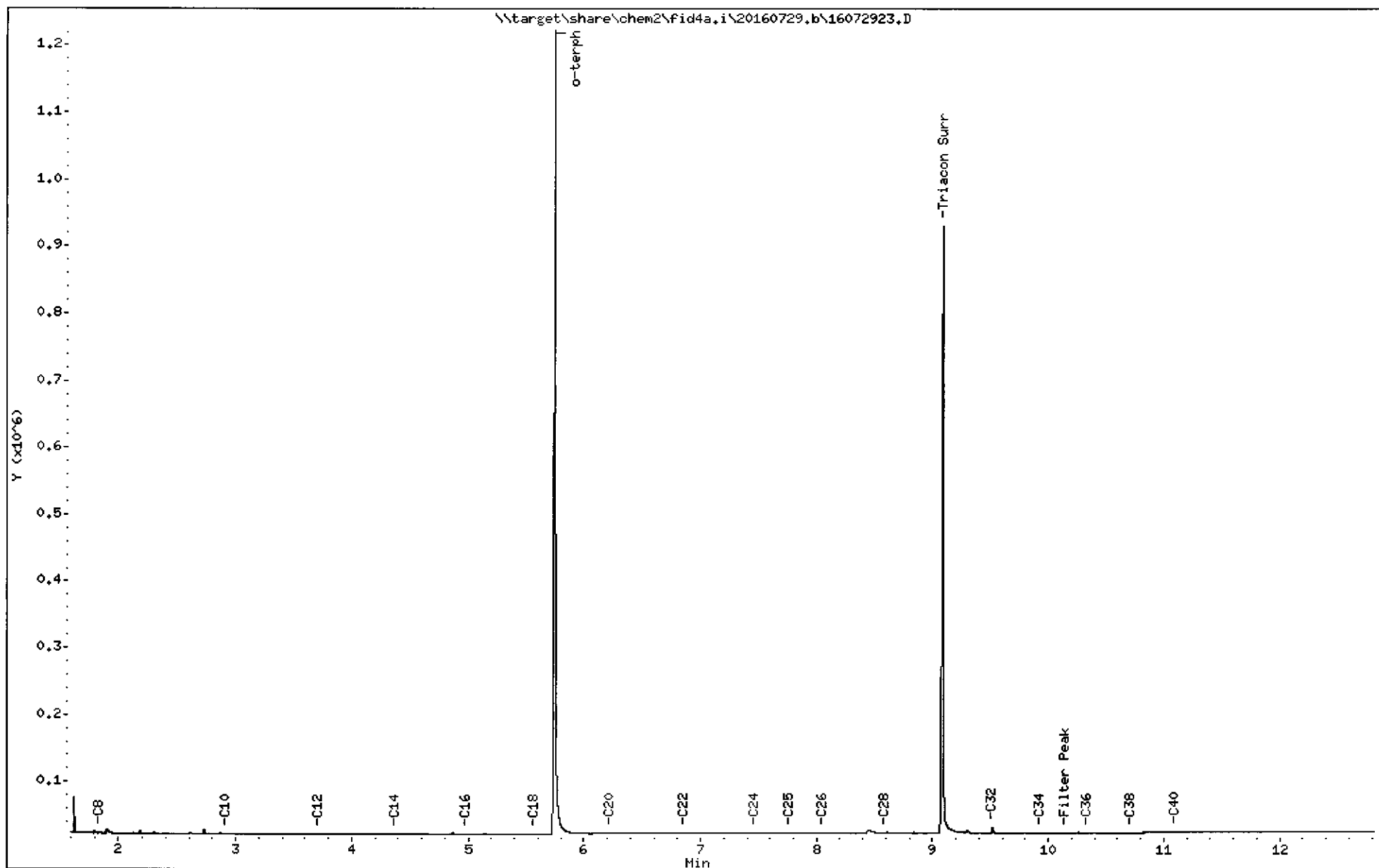
Sample Info: BDNOL

Instrument: fid4a.i

Operator: JW

Column diameter: 0.25

Column phase: RTX-1



BDNOL 00095

Analytical Resources Inc.
TPH Quantitation Report

Data file: 20160729.b/16072924.D

Method: 20160729.b\FID4TPH.m

Instrument: fid4a.i, JW

Report Date: 08/01/2016

Macro: 28-JUL-2016

Calibration Dates: Gas:24-FEB-2016 Diesel:28-JUL-2016 M.Oil:28-JUL-2016

ARI ID: BDN0M

Client ID: 5-B

Injection: 29-JUL-2016 20:26

Dilution Factor: 1

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc
Toluene	1.599	-0.010	2807	3812	WATPHG	(Tol-C12)	92752	3.81
C8	1.840	0.001	1372	2249	WATPHD	(C12-C24)	1194463	58.78
C10	2.910	0.002	420	424	WATPHM	(C24-C38)	498710	31.15
C12	3.702	-0.009	452	96	AK102	(C10-C25)	1233707	51.32
C14	4.379	0.000	848	757	AK103	(C25-C36)	404730	28.07
C16	4.976	0.005	6772	22615	OR.DIES	(C10-C28)	1390516	57.39
C18	5.597	0.023	4687	2606				
C20	6.209	-0.005	4362	7391				
C22	6.848	-0.007	4020	6493	STODDARD	(C8-C12)	44384	1.59
C24	7.468	-0.006	3190	4877				
C25	7.766	-0.006	2932	4318				
C26	8.064	0.004	2645	4028				
C28	8.590	-0.009	2957	3160				
C32	9.511	-0.012	10588	16075				
C34	9.918	-0.019	2862	7348				
Filter Peak	10.133	0.004	2732	4253				
C36	10.357	0.022	3018	7458				
C38	10.726	0.006	3185	7519				
C40	11.086	-0.009	3807	7320				
o-terph	5.748	-0.002	1234556	1043103				
Triacon Surr	9.088	-0.003	904481	884531	NAS DIES	(C10-C24)	1205442	50.34

Range Times: NW Diesel(3.710 - 7.474) AK102(2.91 - 7.77) Jet A(2.91 - 5.57)
NW M.Oil(7.47 - 10.72) AK103(7.77 - 10.33) OR Diesel(2.91 - 8.60)

Surrogate	Area	Amount	%Rec
o-Terphenyl	1043103	42.1	93.5
Triacotane	884531	46.3	102.9

ml
8/1/16

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	24784.5	28-JUL-2016
Triacon Surr	19097.8	28-JUL-2016
Gas	24336.2	24-FEB-2016
Diesel	20320.0	28-JUL-2016
Motor Oil	16008.0	28-JUL-2016
AK102	24040.0	28-JUL-2016
AK103	14417.0	22-JUL-2015
OR Diesel	24229.0	28-JUL-2016
NAS Diesel	23945.0	28-JUL-2016

Date : 29-JUL-2016 20:26

Client ID: 5-B

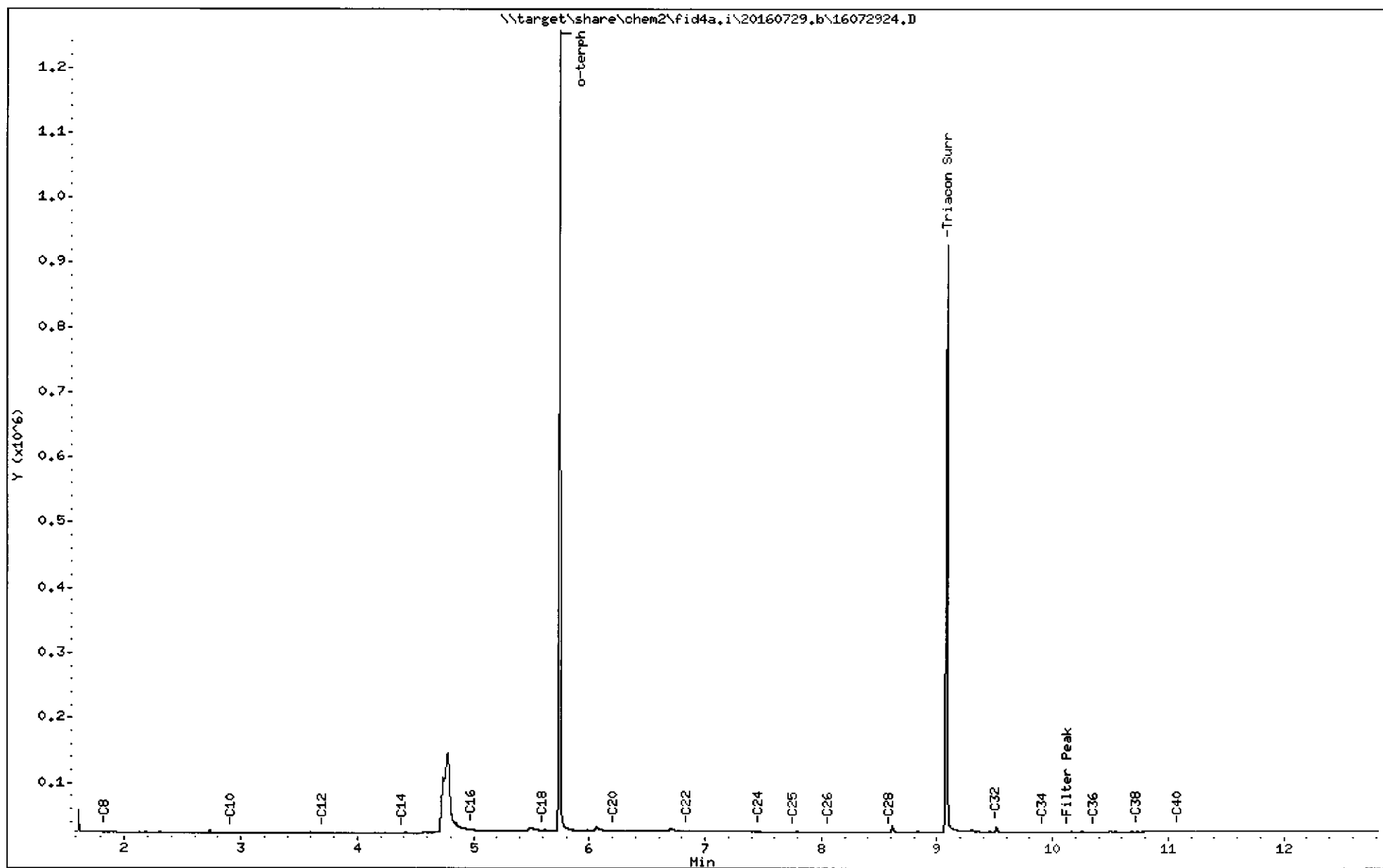
Sample Info: BDNOM

Instrument: fid4a.i

Operator: JN

Column diameter: 0.25

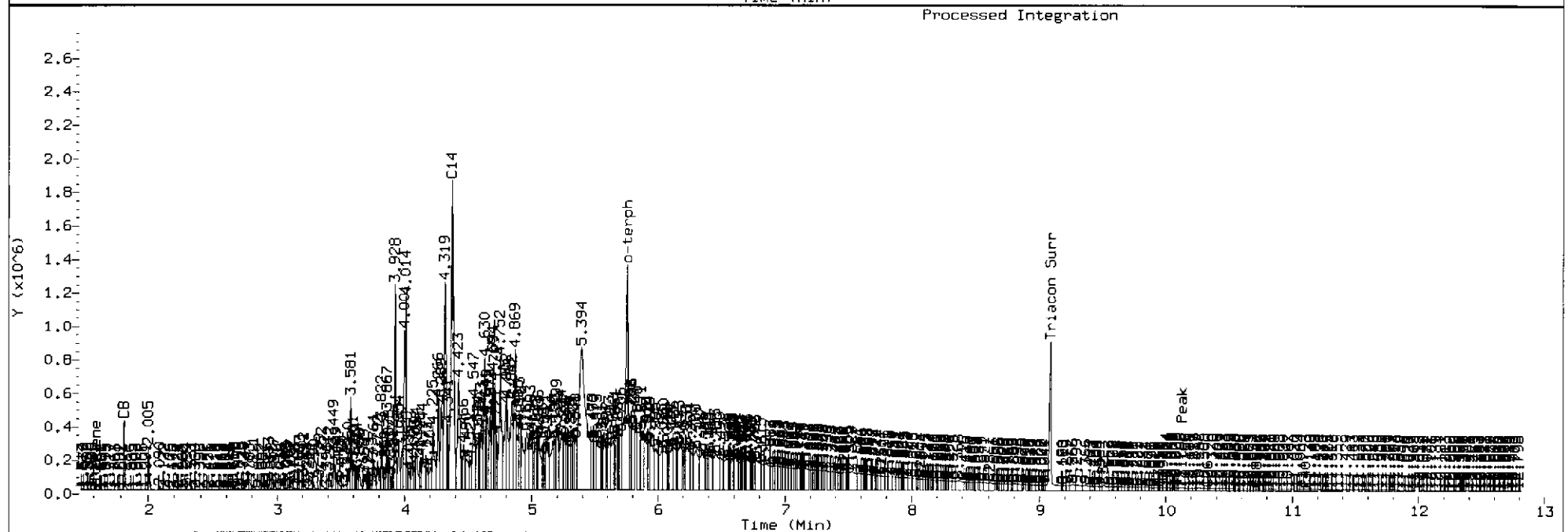
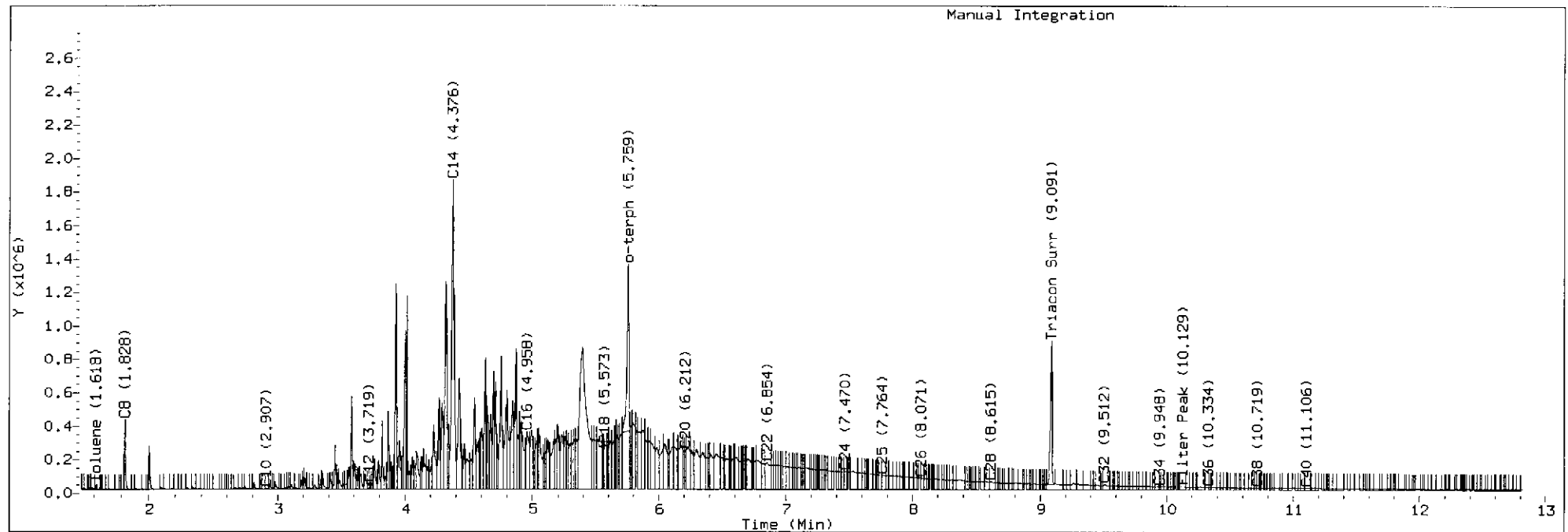
Column phase: RTX-1



CLING : 000037

TPH Manual Integrations Report

Datafile: FID4A, 20160729.b/16072925.D Injection: 29-JUL-2016 20:50
Lab ID:BDN0N



Date : 29-JUL-2016 20:50

Client ID: 5-A

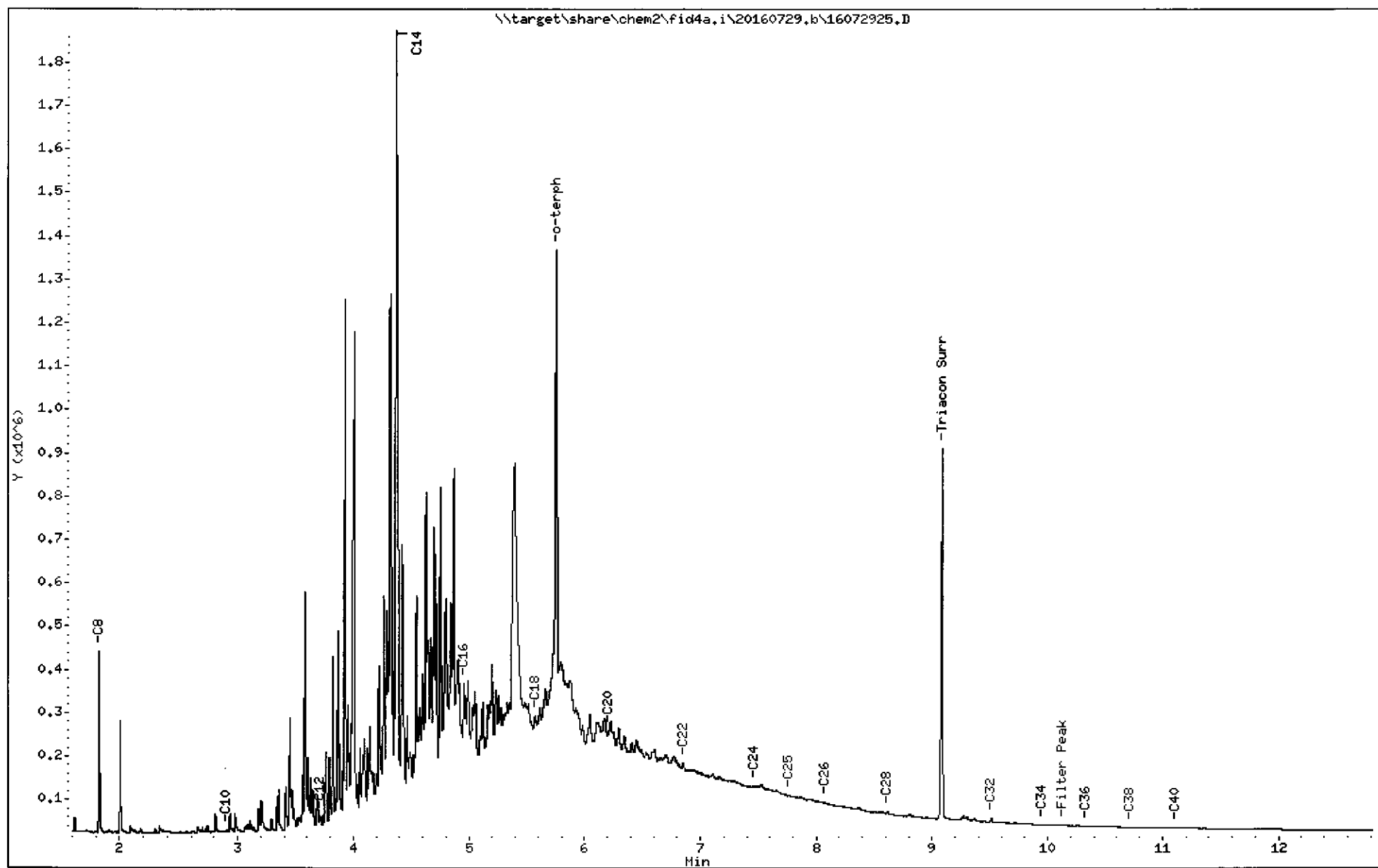
Sample Info: BDNON

Instrument: fid4a.i

Operator: JW

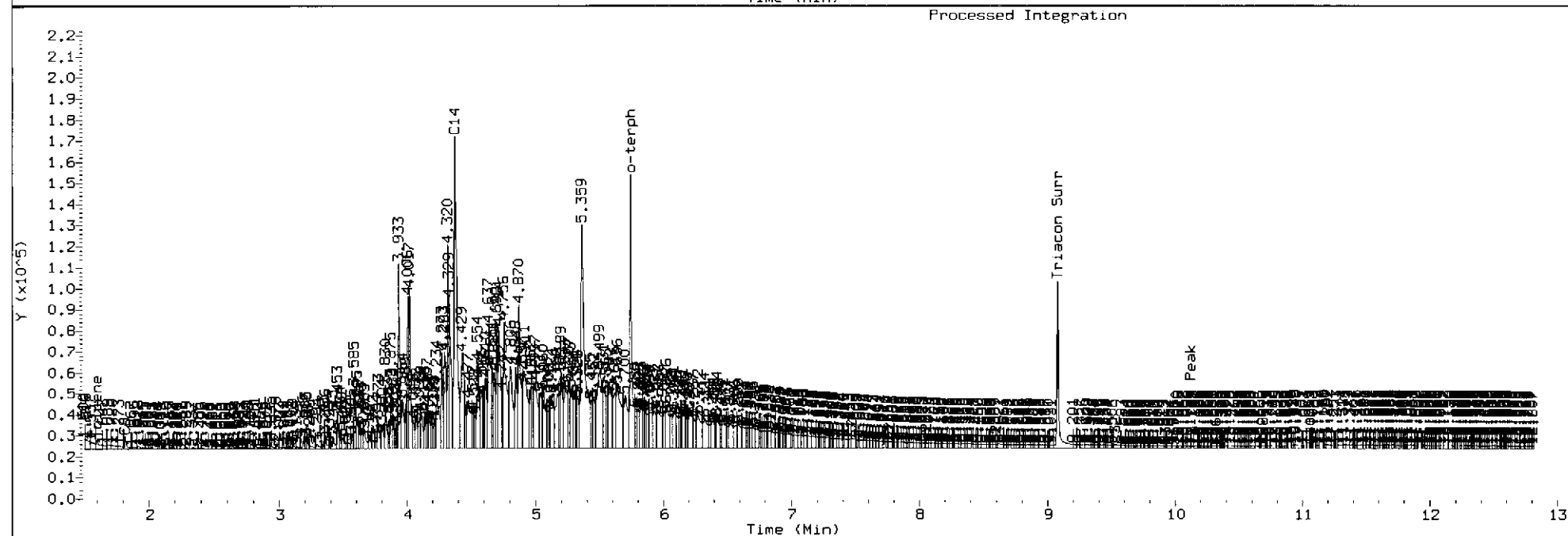
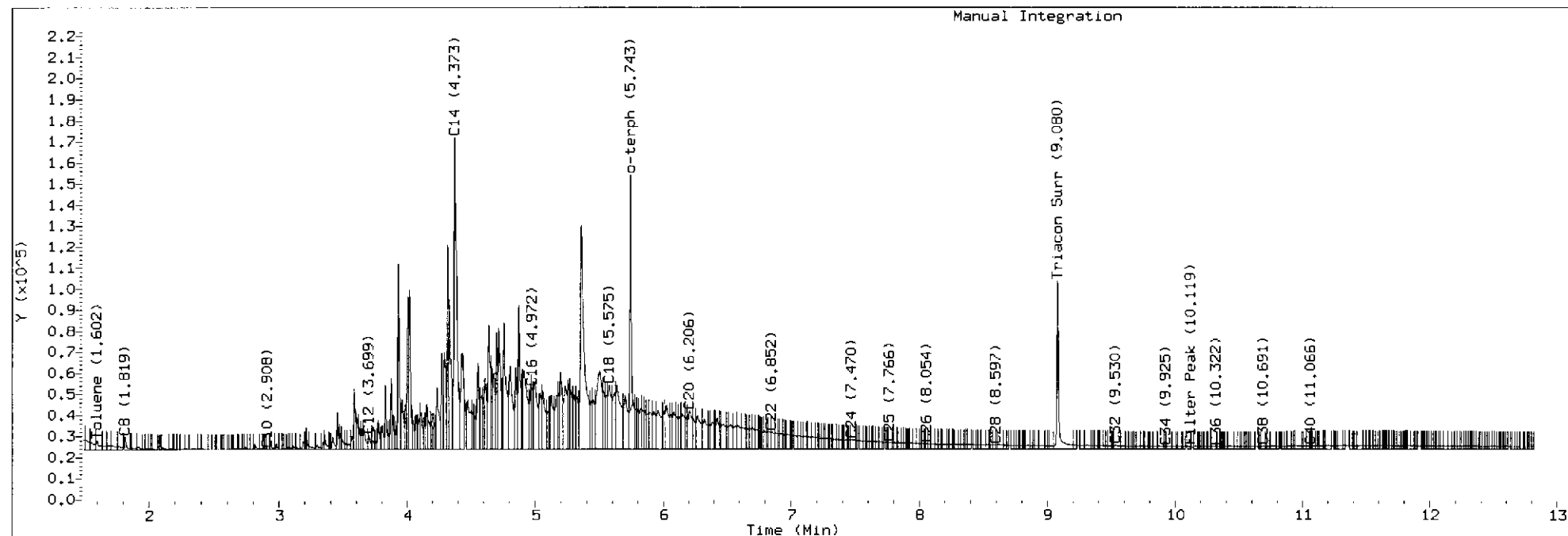
Column diameter: 0.25

Column phase: RTX-1



TPH Manual Integrations Report

Datafile: FID4A, 20160801.b/16080105.D Injection: 01-AUG-2016 12:05
Lab ID:BDN0N



Date : 01-AUG-2016 12:05

Client ID: 5-A

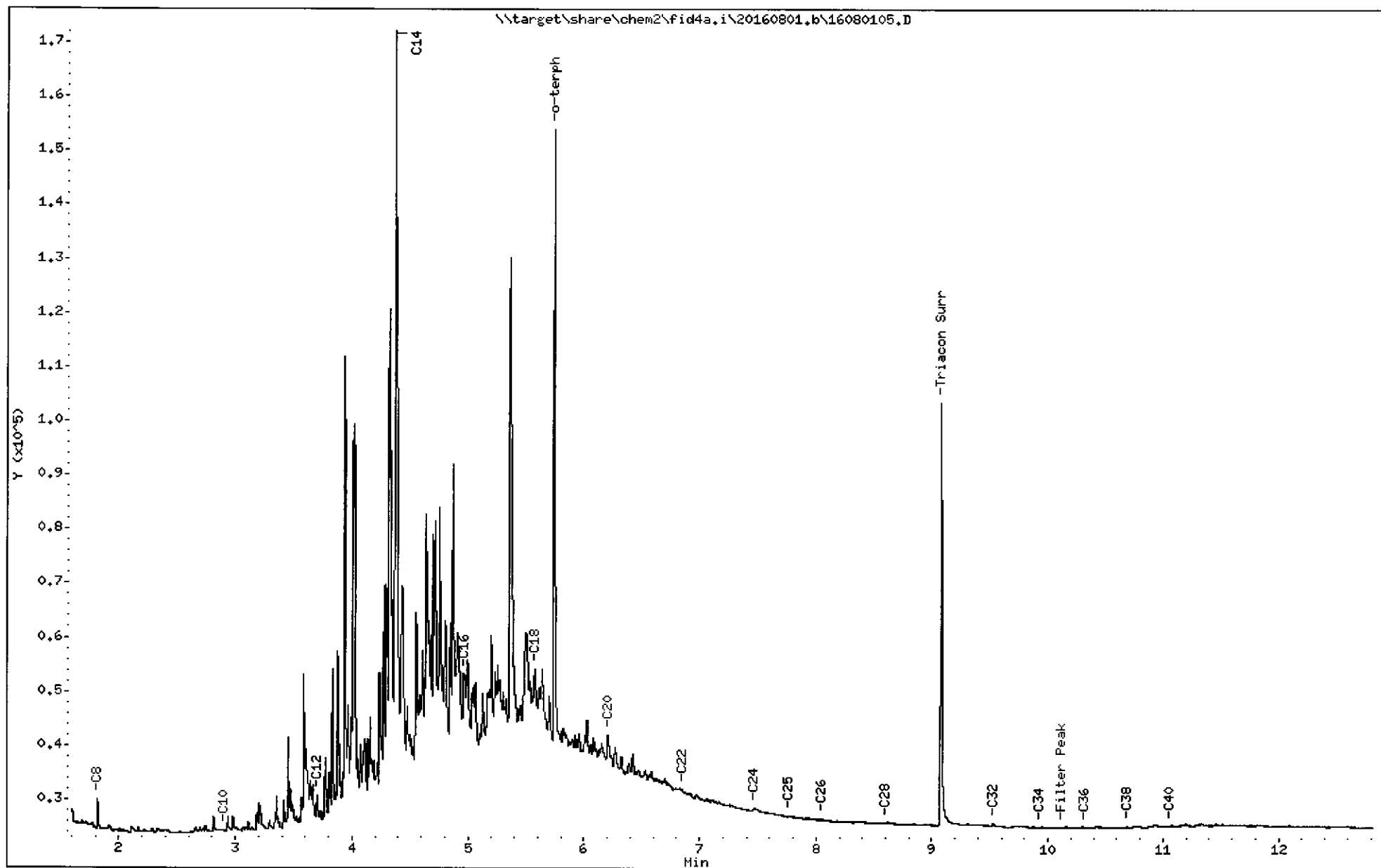
Sample Info: BDNON,10

Instrument: fid4a.i

Operator: ML

Column diameter: 0.25

Column phase: RTX-1



ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1



Sample ID: 9-B
SAMPLE

Lab Sample ID: BDN0A

LIMS ID: 16-10752

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 07/29/16 16:23

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	12 E

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	90.8%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: 9-B
DILUTION



Lab Sample ID: BDN0A

LIMS ID: 16-10752

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 08/01/16 12:01

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 2.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.50	13

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	113%
----------------------	------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1


Sample ID: 9-A
SAMPLE



Lab Sample ID: BDN0B

LIMS ID: 16-10753

Matrix: Water

Data Release Authorized: 

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 07/29/16 16:39

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	0.79

Reported in $\mu\text{g/L}$ (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	92.4%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: GM-6
SAMPLE



Lab Sample ID: BDN0C

LIMS ID: 16-10754

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 07/29/16 16:55

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	2.8

Reported in $\mu\text{g/L}$ (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	89.6%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: GM-4
SAMPLE

Lab Sample ID: BDN0D
LIMS ID: 16-10755
Matrix: Water
Data Release Authorized: *[Signature]*
Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole
Date Sampled: 07/14/16
Date Received: 07/15/16

Date Extracted: 07/21/16
Date Analyzed: 07/29/16 17:11
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	47 E

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	85.6%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET

PCP by GC/ECD Method SW8041

Extraction Method: SW3510C

Page 1 of 1


Sample ID: GM-4

DILUTION

Lab Sample ID: BDN0D

LIMS ID: 16-10755

Matrix: Water

Data Release Authorized: 

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 08/01/16 12:18

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 10.0

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	2.5	48

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	104%
----------------------	------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: GM-5
SAMPLE



Lab Sample ID: BDN0E

LIMS ID: 16-10756

Matrix: Water

Data Release Authorized: *B*

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 07/29/16 17:27

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	80.4%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: P-1
SAMPLE



Lab Sample ID: BDN0F

LIMS ID: 16-10757

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 07/29/16 17:43

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	97.2%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: 15-A
SAMPLE



Lab Sample ID: BDN0G
LIMS ID: 16-10758
Matrix: Water
Data Release Authorized: *AB*
Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: 07/14/16
Date Received: 07/15/16

Date Extracted: 07/21/16
Date Analyzed: 07/29/16 17:59
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	0.88

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	97.6%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: EW-1
SAMPLE

Lab Sample ID: BDN0H
LIMS ID: 16-10759
Matrix: Water
Data Release Authorized: *[Signature]*
Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole
Date Sampled: 07/14/16
Date Received: 07/15/16

Date Extracted: 07/21/16
Date Analyzed: 07/29/16 18:15
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	110 ES


Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	93.6%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
 Page 1 of 1

Sample ID: EW-1
DILUTION

Lab Sample ID: BDN0H
 LIMS ID: 16-10759
 Matrix: Water
 Data Release Authorized: 
 Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.
 Project: Idaho Pole
 Date Sampled: 07/14/16
 Date Received: 07/15/16

Date Extracted: 07/21/16
 Date Analyzed: 08/01/16 12:34
 Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
 Final Extract Volume: 50 mL
 Dilution Factor: 20.0

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	5.0	110

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	114%
----------------------	------

ORGANICS ANALYSIS DATA SHEET

PCP by GC/ECD Method SW8041

Extraction Method: SW3510C

Page 1 of 1

Sample ID: P-4


SAMPLE

**ANALYTICAL
RESOURCES
INCORPORATED** 

Lab Sample ID: BDN0I

LIMS ID: 16-10760

Matrix: Water

Data Release Authorized: 

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 07/29/16 18:31

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	580 ES

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	96.4%
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ORGANICS ANALYSIS DATA SHEET

PCP by GC/ECD Method SW8041

Extraction Method: SW3510C

Page 1 of 1

Sample ID: P-4

DILUTION

ANALYTICAL
RESOURCES
INCORPORATED 

Lab Sample ID: BDN01

LIMS ID: 16-10760

Matrix: Water

Data Release Authorized: *AB*

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 08/01/16 12:50

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 100

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	25	560

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	D
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1




Sample ID: P-4D
SAMPLE

Lab Sample ID: BDN0J

LIMS ID: 16-10761

Matrix: Water

Data Release Authorized: 

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 07/29/16 19:04

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	580 ES

Reported in $\mu\text{g/L}$ (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	108%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: P-4D
DILUTION

ANALYTICAL
RESOURCES
INCORPORATED 

Lab Sample ID: BDN0J

LIMS ID: 16-10761

Matrix: Water

Data Release Authorized: *SP*

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 08/01/16 13:05

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 100

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	25	570

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	D
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: P-2
SAMPLE

ANALYTICAL
RESOURCES
INCORPORATED 

Lab Sample ID: BDN0K

LIMS ID: 16-10762

Matrix: Water

Data Release Authorized: *AB*

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 07/29/16 19:20

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	390 ESP

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	102%
----------------------	------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: P-2
DILUTION

Lab Sample ID: BDNOK
LIMS ID: 16-10762
Matrix: Water
Data Release Authorized: *AB*
Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole
Date Sampled: 07/14/16
Date Received: 07/15/16

Date Extracted: 07/21/16
Date Analyzed: 08/01/16 13:22
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 100

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	25	200

Reported in µg/L (ppb)


Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	D
----------------------	---

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1



Sample ID: P-2F
SAMPLE

Lab Sample ID: BDNOL
LIMS ID: 16-10763
Matrix: Water
Data Release Authorized: 
Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: 07/14/16
Date Received: 07/15/16

Date Extracted: 07/21/16
Date Analyzed: 07/29/16 19:36
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	0.40

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	85.2%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: 5-B
SAMPLE

ANALYTICAL
RESOURCES
INCORPORATED

Lab Sample ID: BDNOM

LIMS ID: 16-10764

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 07/14/16

Date Received: 07/15/16

Date Extracted: 07/21/16

Date Analyzed: 07/29/16 19:52

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	0.70

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	95.2%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: 5-A
SAMPLE

ANALYTICAL
RESOURCES
INCORPORATED

Lab Sample ID: BDN0N
LIMS ID: 16-10765
Matrix: Water
Data Release Authorized: *[Signature]*
Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole
Date Sampled: 07/14/16
Date Received: 07/15/16

Date Extracted: 07/21/16
Date Analyzed: 07/29/16 20:08
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	550 ES

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	99.6%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: 5-A
DILUTION

ANALYTICAL
RESOURCES
INCORPORATED

Lab Sample ID: BDN0N
LIMS ID: 16-10765
Matrix: Water
Data Release Authorized: *BB*
Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole
Date Sampled: 07/14/16
Date Received: 07/15/16

Date Extracted: 07/21/16
Date Analyzed: 08/01/16 13:38
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 100

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	25	540

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	D
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1



Sample ID: MB-072116
METHOD BLANK

Lab Sample ID: MB-072116
LIMS ID: 16-10752
Matrix: Water
Data Release Authorized: *AB*
Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: NA
Date Received: NA

Date Extracted: 07/21/16
Date Analyzed: 07/29/16 15:35
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	86.4%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Page 1 of 1



Sample ID: LCS-072116
LAB CONTROL

Lab Sample ID: LCS-072116
LIMS ID: 16-10752
Matrix: Water
Data Release Authorized: *[Signature]*
Reported: 08/01/16

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole
Date Sampled: 07/14/16
Date Received: 07/15/16

Date Extracted: 07/21/16
Date Analyzed: 07/29/16 15:51
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

Analyte	Lab Control	Spike Added	Recovery
Pentachlorophenol	1.79	2.50	71.6%

Chlorophenols Surrogate Recovery

2,4,6-Tribromophenol	86.0%
----------------------	-------

Results reported in µg/L

SW8041 CHLOROPHENOLICS SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: BDN0-Hydrometrics Inc.
Project: Idaho Pole

<u>Client ID</u>	<u>TBP</u>	<u>TOT OUT</u>
MB-072116	86.4%	0
LCS-072116	86.0%	0
9-B	90.8%	0
9-B DL	113%	0
9-A	92.4%	0
GM-6	89.6%	0
GM-4	85.6%	0
GM-4 DL	104%	0
GM-5	80.4%	0
P-1	97.2%	0
15-A	97.6%	0
EW-1	93.6%	0
EW-1 DL	114%	0
P-4	96.4%	0
P-4 DL	D	0
P-4D	108%	0
P-4D DL	D	0
P-2	102%	0
P-2 DL	D	0
P-2F	85.2%	0
5-B	95.2%	0
5-A	99.6%	0
5-A DL	D	0

QC LIMITS

(TBP) = 2,4,6-Tribromophenol

(26-120)

Prep Method: SW3510C
Log Number Range: 16-10752 to 16-10765



Analytical Resources, Incorporated
Analytical Chemists and Consultants

24 August 2016

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Road
Billings, MT 59106

RE: Client Project: Idaho Pole
ARI Job No.: BEG9

Dear Heidi:

Please find enclosed the original Chain-of-Custody (COC) record and the final results for the samples from the project referenced above. Analytical Resources Inc. (ARI) received nine water samples on August 4, 2016. The samples were analyzed for NWTPH-Dx and PCP as requested.

All samples were initially extracted for PCP on 8/10/16 and they were analyzed on 8/18/16. A small amount of PCP was detected in the method blank associated with these samples. PCP was detected in all samples associated with this blank. Samples P-2F and 5-B only were re-extracted as instructed. The re-extractions proceeded without incident of note. Since the re-extractions were not performed with holding time, the results for both analyses have been submitted for these samples.

There were no further anomalies associated with these analyses.

An electronic copy of these reports and all associated raw data will be kept on file at ARI. Should you have any questions regarding these results, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

Enclosures

cc: Angela Roddy
File BEG9

MDH/mdh

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 5669	Turn-around Requested: Normal	Page: 1 of
ARI Client Company: Hydrometric	Phone:	Date: 8/3/16 Ice Present? Yes
Client Contact: Nadi Kavel	No. of Coolers: 2	Cooler Temps: 3.9-4.3



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)
 www.arilabs.com

Client Project Name: Idaho Pole					Analysis Requested								Notes/Comments
Client Project #:	Samplers: Rebecca Fabisch				POP 8040	TPH-DRO							
Sample ID	Date	Time	Matrix	No Containers									
GM-4	8/3/16	921	1120	4	X	X							
15-A		944		4	X	X							
EW-1		1003		4	X	X							
P-4		1020		4	X	X							
P-4D		1020		4	X	X							
P-2		1043		4	X	X							
P-2F		1043		4	X	X							
5-B		1106		4	X	X							
5-A	✓	1123	✓	4	X	X							
Comments/Special Instructions					Relinquished by (Signature) Rebecca Fabisch		Received by (Signature) Justin Meyer		Relinquished by (Signature)		Received by (Signature)		
					Printed Name Rebecca Fabisch		Printed Name Justin Meyer		Printed Name		Printed Name		
					Company Idaho Pole		Company ARI		Company		Company		
					Date & Time 8/3/16 1300		Date & Time 8-4-16 1030		Date & Time		Date & Time		

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Hydromet Project Name: Idaho Pole
COC No(s): _____ NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Assigned ARI Job No: BEG9 Tracking No: 008178373709 8159 NA
Preliminary Examination Phase: 0215804700201180
Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES ☒ NO ☐
Were custody papers included with the cooler? YES ☒ NO ☐
Were custody papers properly filled out (ink, signed, etc.) YES ☒ NO ☐
Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.4 4.3
Time: _____
If cooler temperature is out of compliance fill out form 00070F
Cooler Accepted by: SM Date: 8-4-16 Temp Gun ID#: D005276
Time: 10:30
Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES ☐ NO ☒
What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____
Was sufficient ice used (if appropriate)? NA YES ☒ NO ☐
Were all bottles sealed in individual plastic bags? YES ☒ NO ☐
Did all bottles arrive in good condition (unbroken)? YES ☒ NO ☐
Were all bottle labels complete and legible? YES ☒ NO ☐
Did the number of containers listed on COC match with the number of containers received? YES ☒ NO ☐
Did all bottle labels and tags agree with custody papers? YES ☒ NO ☐
Were all bottles used correct for the requested analyses? YES ☒ NO ☐
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES ☐ NO ☒
Were all VOC vials free of air bubbles? NA YES ☐ NO ☒
Was sufficient amount of sample sent in each bottle? YES ☒ NO ☐
Date VOC Trip Blank was made at ARI: NA
Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____
Samples Logged by: TR Date: 8-4-16 Time: 1049
**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Small Air Bubbles ~ 2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm

Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report



ARI Job No: BEG9
Client: Hydrometrics Inc.
Project Event: N/A
Project Name: Idaho Pole

Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1. GM-4	BEG9A	16-11616	Water	08/03/16 09:21	08/04/16 10:36
2. 15-A	BEG9B	16-11617	Water	08/03/16 09:44	08/04/16 10:36
3. EW-1	BEG9C	16-11618	Water	08/03/16 10:03	08/04/16 10:36
4. P-4	BEG9D	16-11619	Water	08/03/16 10:20	08/04/16 10:36
5. P-4D	BEG9E	16-11620	Water	08/03/16 10:20	08/04/16 10:36
6. P-2	BEG9F	16-11621	Water	08/03/16 10:43	08/04/16 10:36
7. P-2F	BEG9G	16-11622	Water	08/03/16 10:43	08/04/16 10:36
8. 5-B	BEG9H	16-11623	Water	08/03/16 11:06	08/04/16 10:36
9. 5-A	BEG9I	16-11624	Water	08/03/16 11:23	08/04/16 10:36



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Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Duplicate RPD is not within established control limits
- B Reported value is less than the CRDL but \geq the Reporting Limit
- N Matrix Spike recovery not within established control limits
- NA Not Applicable, analyte not spiked
- H The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
- L Analyte concentration is ≤ 5 times the Reporting Limit and the replicate control limit defaults to ± 1 RL instead of the normal 20% RPD

Organic Data

- U Indicates that the target analyte was not detected at the reported concentration
- * Flagged value is not within established control limits
- B Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
- J Estimated concentration when the value is less than ARI's established reporting limits
- D The spiked compound was not detected due to sample extract dilution
- E Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.



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- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).
- S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte
- NA The flagged analyte was not analyzed for
- NR Spiked compound recovery is not reported due to chromatographic interference
- NS The flagged analyte was not spiked into the sample
- M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"
- Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.
- EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**
- C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column
- P The analyte was detected on both chromatographic columns but the quantified values differ by $\geq 40\%$ RPD with no obvious chromatographic interference
- X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**
- Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**




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Geotechnical Data

- A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.
- F Samples were frozen prior to particle size determination
- SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations
- SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis
- W Weight of sample in some pipette aliquots was below the level required for accurate weighting

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: GM-4
SAMPLE

Lab Sample ID: BEG9A
LIMS ID: 16-11616
Matrix: Water
Data Release Authorized: 
Reported: 08/18/16

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: 08/03/16
Date Received: 08/04/16

Date Extracted: 08/10/16
Date Analyzed: 08/18/16 11:52
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	34 EB

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	84.8%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: GM-4
DILUTION



Lab Sample ID: BEG9A

QC Report No: BEG9-Hydrometrics Inc.

LIMS ID: 16-11616

Project: Idaho Pole

Matrix: Water

Data Release Authorized: *mw*

Date Sampled: 08/03/16

Reported: 08/19/16

Date Received: 08/04/16

Date Extracted: 08/10/16

Sample Amount: 500 mL

Date Analyzed: 08/18/16 15:37

Final Extract Volume: 50 mL

Instrument/Analyst: ECD8/YZ

Dilution Factor: 10.0

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	2.5	33 B

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	92.4%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: 15-A
SAMPLE

Lab Sample ID: BEG9B

LIMS ID: 16-11617

Matrix: Water

Data Release Authorized: 

Reported: 08/18/16

QC Report No: BEG9-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 08/03/16

Date Received: 08/04/16

Date Extracted: 08/10/16

Date Analyzed: 08/18/16 12:08

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	0.74 B

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	68.0%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: EW-1
SAMPLE

Lab Sample ID: BEG9C

QC Report No: BEG9-Hydrometrics Inc.

LIMS ID: 16-11618

Project: Idaho Pole

Matrix: Water

Data Release Authorized: *AB*

Date Sampled: 08/03/16

Reported: 08/18/16

Date Received: 08/04/16

Date Extracted: 08/10/16

Sample Amount: 500 mL

Date Analyzed: 08/18/16 12:24

Final Extract Volume: 50 mL

Instrument/Analyst: ECD8/YZ

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	24 EB

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	80.4%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: P-4
SAMPLE

Lab Sample ID: BEG9D

LIMS ID: 16-11619

Matrix: Water

Data Release Authorized: 

Reported: 08/18/16

QC Report No: BEG9-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 08/03/16

Date Received: 08/04/16

Date Extracted: 08/10/16

Date Analyzed: 08/18/16 12:40

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	530 ESB

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	68.4%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1



Sample ID: P-4
DILUTION

Lab Sample ID: BEG9D
LIMS ID: 16-11619
Matrix: Water
Data Release Authorized: *mm*
Reported: 08/19/16

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole
Date Sampled: 08/03/16
Date Received: 08/04/16

Date Extracted: 08/10/16
Date Analyzed: 08/18/16 16:09
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 100

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	25	410 B

Reported in $\mu\text{g/L}$ (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	D
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: P-4D
SAMPLE

Lab Sample ID: BEG9E

QC Report No: BEG9-Hydrometrics Inc.

LIMS ID: 16-11620

Project: Idaho Pole

Matrix: Water

Data Release Authorized: *AB*

Date Sampled: 08/03/16

Reported: 08/18/16

Date Received: 08/04/16

Date Extracted: 08/10/16

Sample Amount: 500 mL

Date Analyzed: 08/18/16 12:56

Final Extract Volume: 50 mL

Instrument/Analyst: ECD8/YZ

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	500 ESPB

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	72.8%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: P-4D
DILUTION



Lab Sample ID: BEG9E

LIMS ID: 16-11620

Matrix: Water

Data Release Authorized: *mm*

Reported: 08/19/16

QC Report No: BEG9-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 08/03/16

Date Received: 08/04/16

Date Extracted: 08/10/16

Date Analyzed: 08/18/16 16:25

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 100

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	25	330 B

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	D
----------------------	---

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: P-2
SAMPLE

Lab Sample ID: BEG9F

QC Report No: BEG9-Hydrometrics Inc.

LIMS ID: 16-11621

Project: Idaho Pole

Matrix: Water

Data Release Authorized: *B*

Date Sampled: 08/03/16

Reported: 08/18/16

Date Received: 08/04/16

Date Extracted: 08/10/16

Sample Amount: 500 mL

Date Analyzed: 08/18/16 13:12

Final Extract Volume: 50 mL

Instrument/Analyst: ECD8/YZ

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	100 EBP

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	86.4%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1



Sample ID: P-2
DILUTION

Lab Sample ID: BEG9F
LIMS ID: 16-11621
Matrix: Water
Data Release Authorized: *MMW*
Reported: 08/19/16

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole
Date Sampled: 08/03/16
Date Received: 08/04/16

Date Extracted: 08/10/16
Date Analyzed: 08/18/16 16:41
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 20.0

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	5.0	87 B

Reported in $\mu\text{g/L}$ (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	94.4%
----------------------	-------


ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: P-2F
SAMPLE

Lab Sample ID: BEG9G

LIMS ID: 16-11622

Matrix: Water

Data Release Authorized: 

Reported: 08/18/16

QC Report No: BEG9-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 08/03/16

Date Received: 08/04/16

Date Extracted: 08/10/16

Date Analyzed: 08/18/16 13:28

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	0.89 BP


Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	98.4%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: 5-B
SAMPLE

Lab Sample ID: BEG9H
LIMS ID: 16-11623
Matrix: Water
Data Release Authorized: 
Reported: 08/18/16

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: 08/03/16
Date Received: 08/04/16

Date Extracted: 08/10/16
Date Analyzed: 08/18/16 13:44
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	1.4 B


Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	87.6%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1

Sample ID: 5-A
SAMPLE

Lab Sample ID: BEG9I
LIMS ID: 16-11624
Matrix: Water
Data Release Authorized: 
Reported: 08/18/16

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: 08/03/16
Date Received: 08/04/16

Date Extracted: 08/10/16
Date Analyzed: 08/18/16 14:00
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	500 ESB

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	51.6%
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ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1



Sample ID: 5-A
DILUTION

Lab Sample ID: BEG9I
LIMS ID: 16-11624
Matrix: Water
Data Release Authorized: *MW*
Reported: 08/19/16

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: 08/03/16
Date Received: 08/04/16

Date Extracted: 08/10/16
Date Analyzed: 08/18/16 16:57
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 100

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	25	350 B

Reported in $\mu\text{g/L}$ (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	D
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SW8041 CHLOROPHENOLICS SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

<u>Client ID</u>	<u>TBP</u>	<u>TOT OUT</u>
MB-081016	76.4%	0
LCS-081016	82.4%	0
GM-4	84.8%	0
GM-4 DL	92.4%	0
15-A	68.0%	0
EW-1	80.4%	0
EW-1 DL	89.2%	0
P-4	68.4%	0
P-4 DL	D	0
P-4D	72.8%	0
P-4D DL	D	0
P-2	86.4%	0
P-2 DL	94.4%	0
P-2F	98.4%	0
5-B	87.6%	0
5-A	51.6%	0
5-A DL	D	0

QC LIMITS

(TBP) = 2,4,6-Tribromophenol

(26-120)

Prep Method: SW3510C
Log Number Range: 16-11616 to 16-11624

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Page 1 of 1

Sample ID: LCS-081016
LAB CONTROL

Lab Sample ID: LCS-081016
LIMS ID: 16-11616
Matrix: Water
Data Release Authorized: *[Signature]*
Reported: 08/18/16

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: 08/03/16
Date Received: 08/04/16

Date Extracted: 08/10/16
Date Analyzed: 08/18/16 11:36
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

Analyte	Lab Control	Spike Added	Recovery
Pentachlorophenol	2.06 B	2.50	82.4%

Chlorophenols Surrogate Recovery

2,4,6-Tribromophenol	82.4%
----------------------	-------

Results reported in µg/L

SW8041 CHLOROPHENOLICS SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

<u>Client ID</u>	<u>TBP</u>	<u>TOT OUT</u>
MB-081016	76.4%	0
LCS-081016	82.4%	0
GM-4	84.8%	0
15-A	68.0%	0
EW-1	80.4%	0
P-4	68.4%	0
P-4D	72.8%	0
P-2	86.4%	0
P-2F	98.4%	0
5-B	87.6%	0
5-A	51.6%	0

QC LIMITS

(TBP) = 2,4,6-Tribromophenol

(26-120)

Prep Method: SW3510C
Log Number Range: 16-11616 to 16-11624

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1



Sample ID: MB-081016
METHOD BLANK

Lab Sample ID: MB-081016
LIMS ID: 16-11616
Matrix: Water
Data Release Authorized: *[Signature]*
Reported: 08/18/16

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: NA
Date Received: NA

Date Extracted: 08/10/16
Date Analyzed: 08/18/16 11:20
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	1.3

Reported in $\mu\text{g/L}$ (ppb)


Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	76.4%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1



Sample ID: P-2F
REEXTRACT

Lab Sample ID: BEG9G
LIMS ID: 16-11622
Matrix: Water
Data Release Authorized: 
Reported: 08/23/16

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: 08/03/16
Date Received: 08/04/16

Date Extracted: 08/19/16
Date Analyzed: 08/22/16 16:18
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	94.4%
----------------------	-------

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1




Sample ID: 5-B
REEXTRACT

Lab Sample ID: BEG9H

LIMS ID: 16-11623

Matrix: Water

Data Release Authorized: 

Reported: 08/23/16

QC Report No: BEG9-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 08/03/16

Date Received: 08/04/16

Date Extracted: 08/19/16

Date Analyzed: 08/22/16 16:34

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	2.8

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	115%
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SW8041 CHLOROPHENOLICS SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

<u>Client ID</u>	<u>TBP</u>	<u>TOT OUT</u>
MB-081916	94.8%	0
LCS-081916	106%	0
P-2F	98.4%	0
P-2F RE	94.4%	0
5-B	87.6%	0
5-B RE	115%	0

QC LIMITS

(TBP) = 2,4,6-Tribromophenol

(26-120)

Prep Method: SW3510C
Log Number Range: 16-11622 to 16-11623

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Page 1 of 1



Sample ID: LCS-081916
LAB CONTROL

Lab Sample ID: LCS-081916

LIMS ID: 16-11622

Matrix: Water

Data Release Authorized: *[Signature]*

Reported: 08/23/16

QC Report No: BEG9-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: 08/03/16

Date Received: 08/04/16

Date Extracted: 08/19/16

Date Analyzed: 08/22/16 16:02

Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL

Final Extract Volume: 50 mL

Dilution Factor: 1.00

Analyte	Lab Control	Spike Added	Recovery
Pentachlorophenol	1.62	2.50	64.8%

Chlorophenols Surrogate Recovery

2,4,6-Tribromophenol	106%
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Results reported in µg/L

ORGANICS ANALYSIS DATA SHEET
PCP by GC/ECD Method SW8041
Extraction Method: SW3510C
Page 1 of 1



Sample ID: MB-081916
METHOD BLANK

Lab Sample ID: MB-081916
LIMS ID: 16-11622
Matrix: Water
Data Release Authorized: *[Signature]*
Reported: 08/23/16

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

Date Sampled: NA
Date Received: NA

Date Extracted: 08/19/16
Date Analyzed: 08/22/16 15:46
Instrument/Analyst: ECD8/YZ

Sample Amount: 500 mL
Final Extract Volume: 50 mL
Dilution Factor: 1.00

CAS Number	Analyte	RL	Result
87-86-5	Pentachlorophenol	0.25	< 0.25 U

Reported in µg/L (ppb)

Chlorophenol Surrogate Recovery

2,4,6-Tribromophenol	94.8%
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**ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS**

NWTPHD by GC/FID
Extraction Method: SW3510C
Page 1 of 2

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

Matrix: Water

Date Received: 08/04/16


Data Release Authorized: 
Reported: 08/17/16

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
MB-081016 16-11616	Method Blank HC ID: ---	08/10/16	08/16/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	< 0.10 U < 0.20 U 85.0%
BEG9A 16-11616	GM-4 HC ID: DRO	08/10/16	08/16/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.20 < 0.20 U 77.8%
BEG9B 16-11617	15-A HC ID: DIESEL	08/10/16	08/16/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.60 < 0.20 U 80.4%
BEG9C 16-11618	EW-1 HC ID: DIESEL	08/10/16	08/16/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.89 < 0.20 U 83.7%
BEG9D 16-11619	P-4 HC ID: DIESEL/RRO	08/10/16	08/16/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	2.2 0.21 79.7%
BEG9E 16-11620	P-4D HC ID: DIESEL/RRO	08/10/16	08/16/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	1.2 < 0.20 U 72.9%
BEG9F 16-11621	P-2 HC ID: DIESEL/RRO	08/10/16	08/16/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	0.47 < 0.20 U 88.6%
BEG9G 16-11622	P-2F HC ID: ---	08/10/16	08/17/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	< 0.10 U < 0.20 U 87.6%
BEG9H 16-11623	5-B HC ID: ---	08/10/16	08/17/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	< 0.10 U < 0.20 U 95.1%
BEG9I 16-11624	5-A HC ID: DIESEL/RRO	08/10/16	08/17/16 FID4A	1.00 1.0	Diesel Range Motor Oil Range o-Terphenyl	0.10 0.20	10 E 2.6 80.3%
BEG9I DL 16-11624	5-A HC ID: DIESEL/RRO	08/10/16	08/17/16 FID4A	1.00 10	Diesel Range Motor Oil Range o-Terphenyl	1.0 2.0	9.8 4.9 70.9%

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONSNWTPHD by GC/FID
Extraction Method: SW3510C
Page 2 of 2QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

Matrix: Water

Date Received: 08/04/16

Data Release Authorized: 
Reported: 08/17/16

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
--------	-----------	--------------------	------------------	-----------	-----------------	----	--------

Reported in mg/L (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicates results of organics or additional hydrocarbons in
ranges are not identifiable.

ORGANICS ANALYSIS DATA SHEET

NWTPHD by GC/FID

Page 1 of 1

Sample ID: LCS-081016

LAB CONTROL

Lab Sample ID: LCS-081016

LIMS ID: 16-11616

Matrix: Water

Data Release Authorized:

Reported: 08/17/16

QC Report No: BEG9-Hydrometrics Inc.

Project: Idaho Pole

Date Sampled: NA

Date Received: NA

Date Extracted: 08/10/16

Date Analyzed: 08/16/16 19:06

Instrument/Analyst: FID4A/ML

Sample Amount: 500 mL

Final Extract Volume: 1.0 mL

Dilution Factor: 1.00

Range	Lab Control	Spike Added	Recovery
Diesel	2.44	3.00	81.3%

TPHD Surrogate Recovery

o-Terphenyl	88.8%
-------------	-------

Results reported in mg/L

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Water
Date Received: 08/04/16

ARI Job: BEG9
Project: Idaho Pole

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
16-11616-081016MB1	Method Blank	500 mL	1.00 mL	08/10/16
16-11616-081016LCS1	Lab Control	500 mL	1.00 mL	08/10/16
16-11616-BEG9A	GM-4	500 mL	1.00 mL	08/10/16
16-11617-BEG9B	15-A	500 mL	1.00 mL	08/10/16
16-11618-BEG9C	EW-1	500 mL	1.00 mL	08/10/16
16-11619-BEG9D	P-4	500 mL	1.00 mL	08/10/16
16-11620-BEG9E	P-4D	500 mL	1.00 mL	08/10/16
16-11621-BEG9F	P-2	500 mL	1.00 mL	08/10/16
16-11622-BEG9G	P-2F	500 mL	1.00 mL	08/10/16
16-11623-BEG9H	5-B	500 mL	1.00 mL	08/10/16
16-11624-BEG9I	5-A	500 mL	1.00 mL	08/10/16

TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: BEG9-Hydrometrics Inc.
Project: Idaho Pole

<u>Client ID</u>	<u>OTER</u>	<u>TOT OUT</u>
MB-081016	85.0%	0
LCS-081016	88.8%	0
GM-4	77.8%	0
15-A	80.4%	0
EW-1	83.7%	0
P-4	79.7%	0
P-4D	72.9%	0
P-2	88.6%	0
P-2F	87.6%	0
5-B	95.1%	0
5-A	80.3%	0
5-A DL	70.9%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3510C
Log Number Range: 16-11616 to 16-11624

Date : 16-AUG-2016 18:42

Client ID: BEF4MBW1

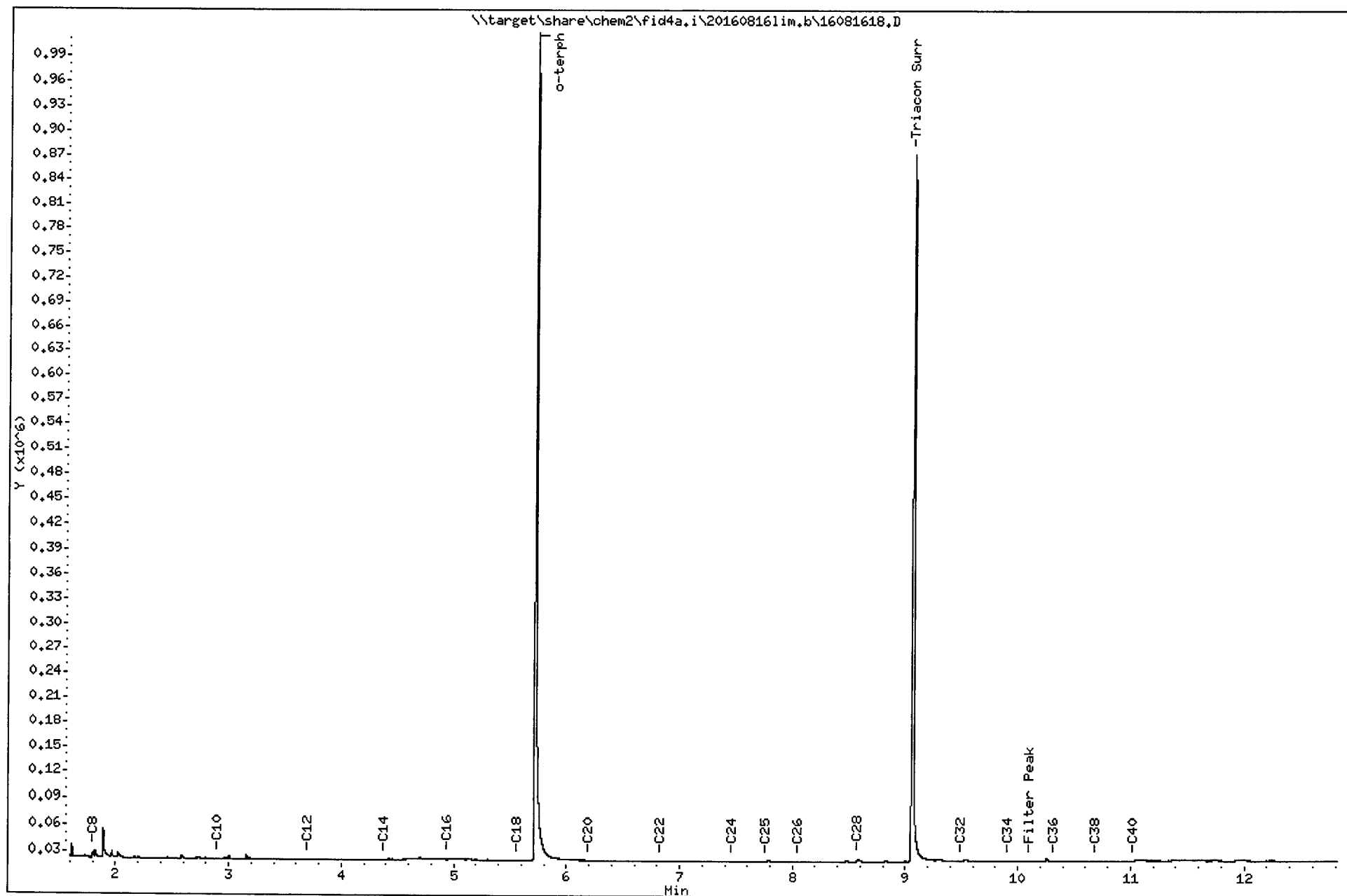
Sample Info: BEF4MBW1

Instrument: fid4a.i

Operator: ML

Column diameter: 0.25

Column phase: RTX-1

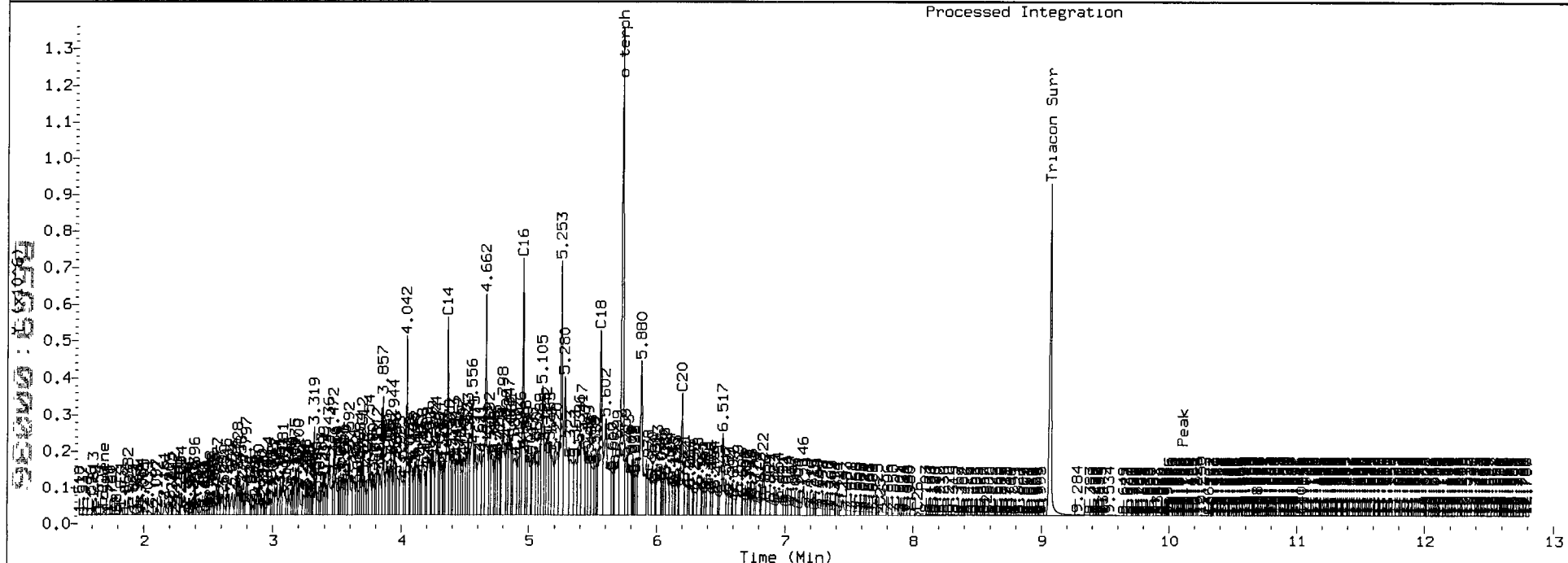
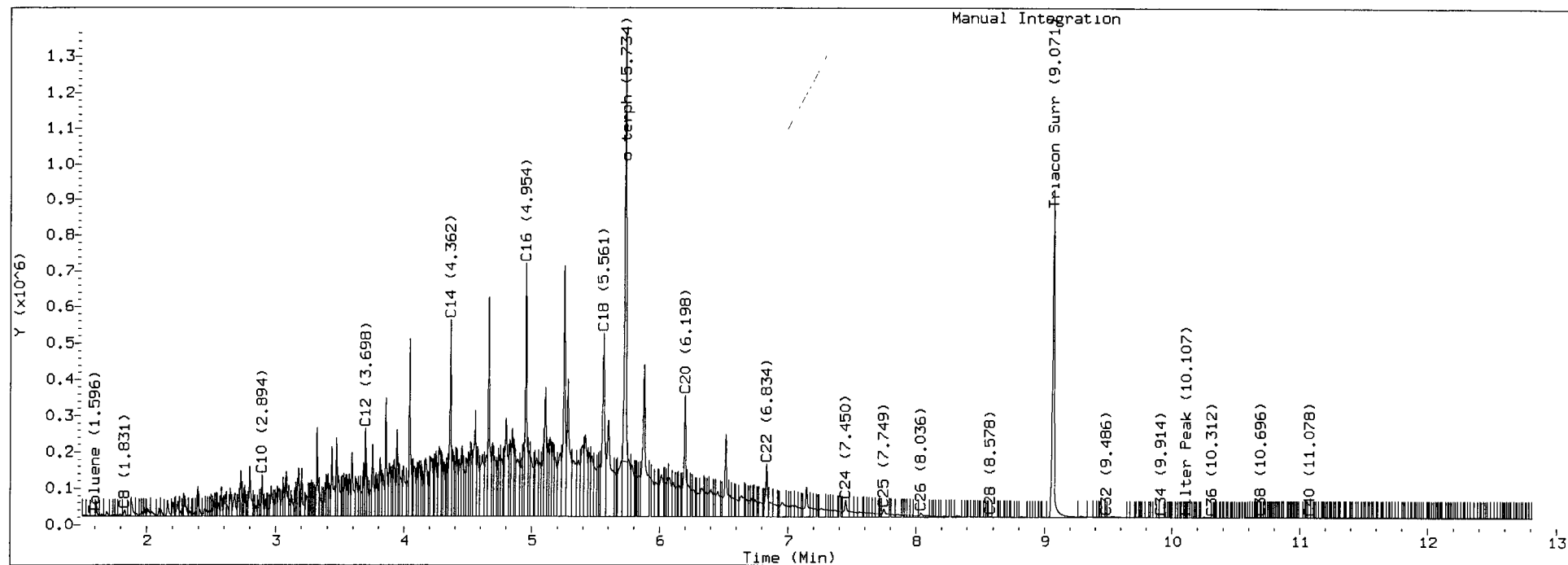


55000:6339

TPH Manual Integrations Report

Datafile: FID4A, 20160816lim.b/16081619.D Injection: 16-AUG-2016 19:06

Lab ID:BEF4LCSW1



Date : 16-AUG-2016 19:06

Client ID: BEF4LCSW1

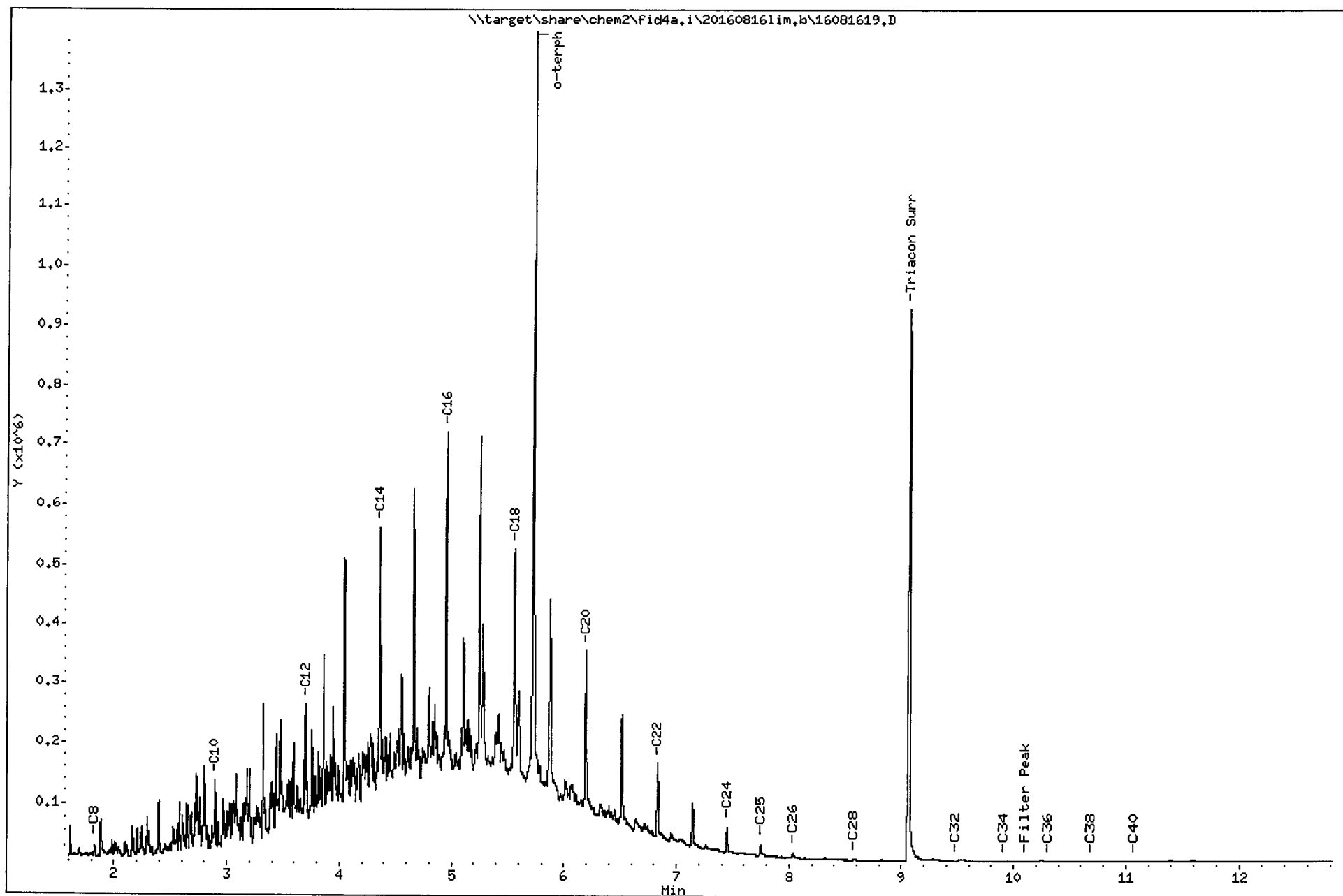
Sample Info: BEF4LCSW1

Instrument: fid4a.i

Operator: ML

Column diameter: 0,25

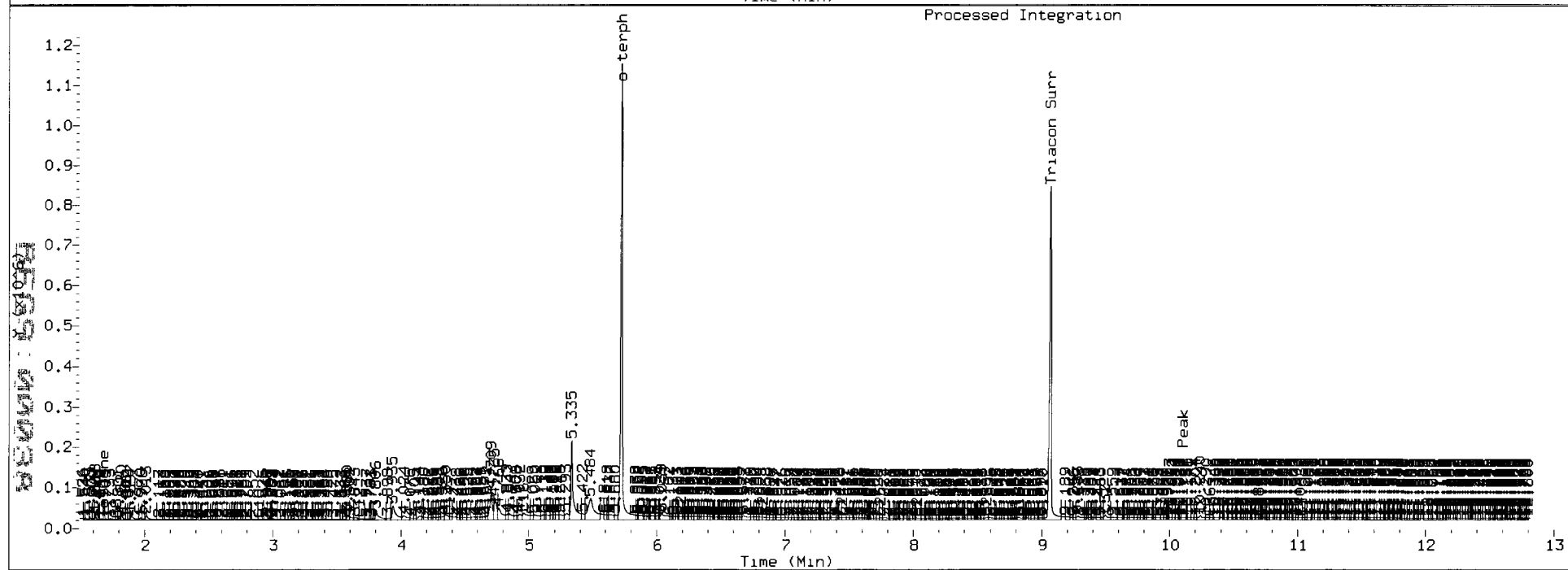
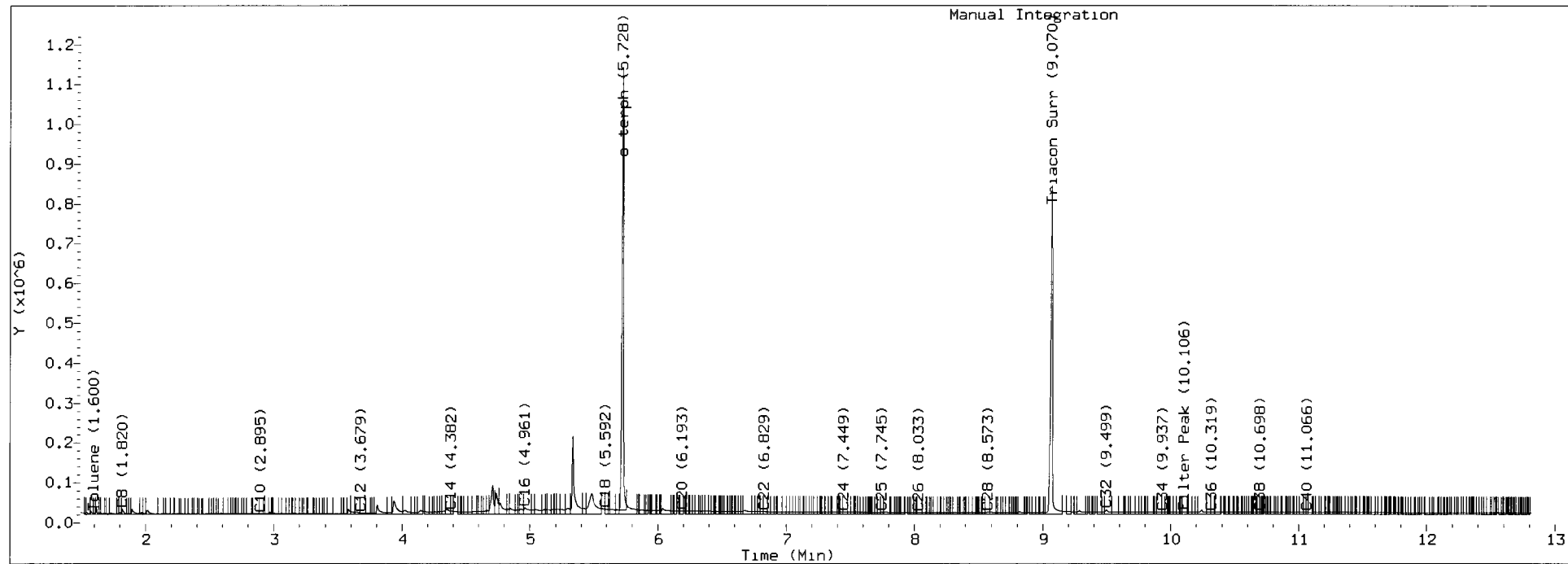
Column phase: RTX-1



TPH Manual Integrations Report

Datafile: FID4A, 20160816lim.b/16081624.D Injection: 16-AUG-2016 20:59

Lab ID: BEG9A



Date : 16-AUG-2016 20:59

Client ID: GM-4

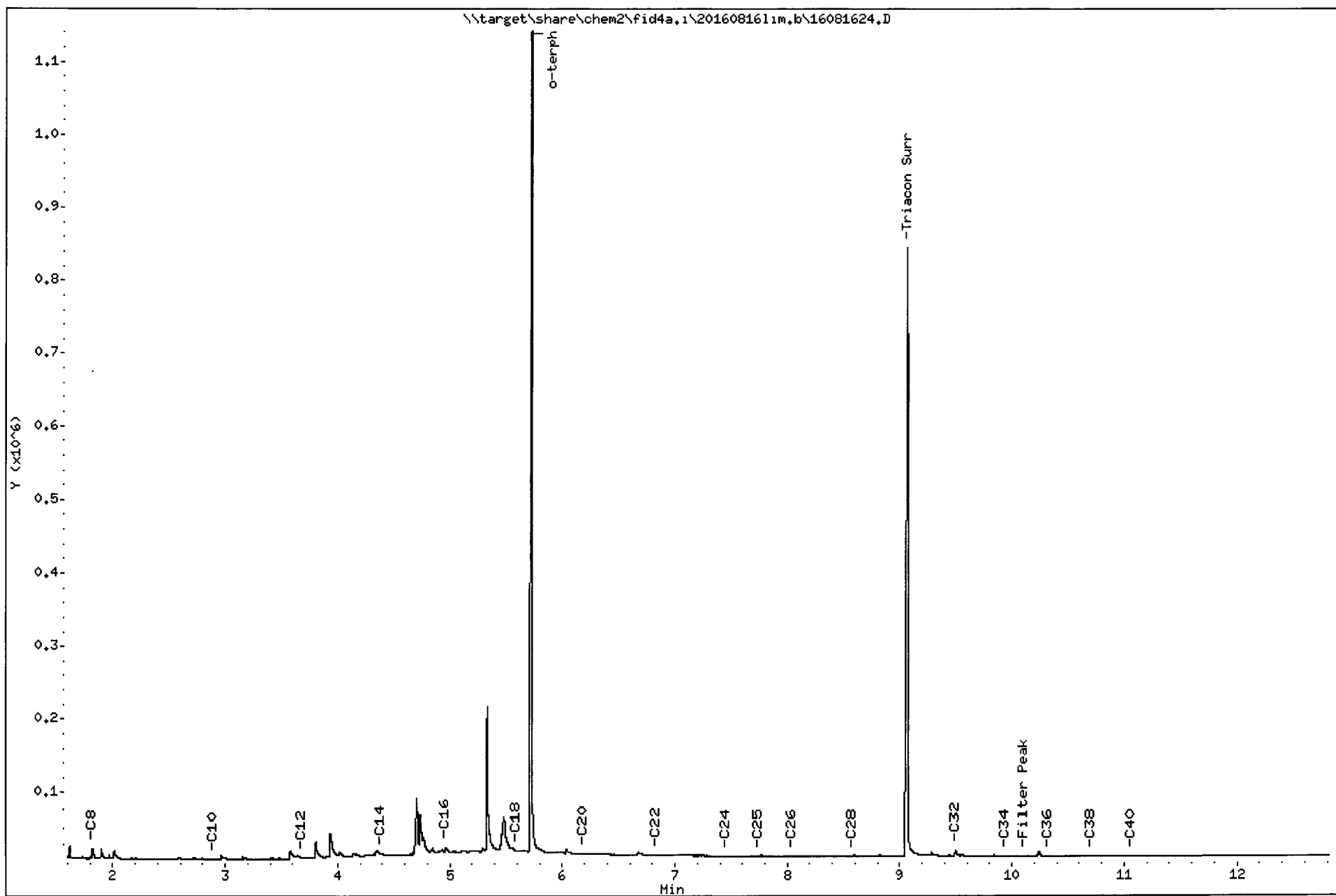
Sample Info: BEG9A

Instrument: fid4a.i

Operator: ML

Column diameter: 0.25

Column phase: RTX-1

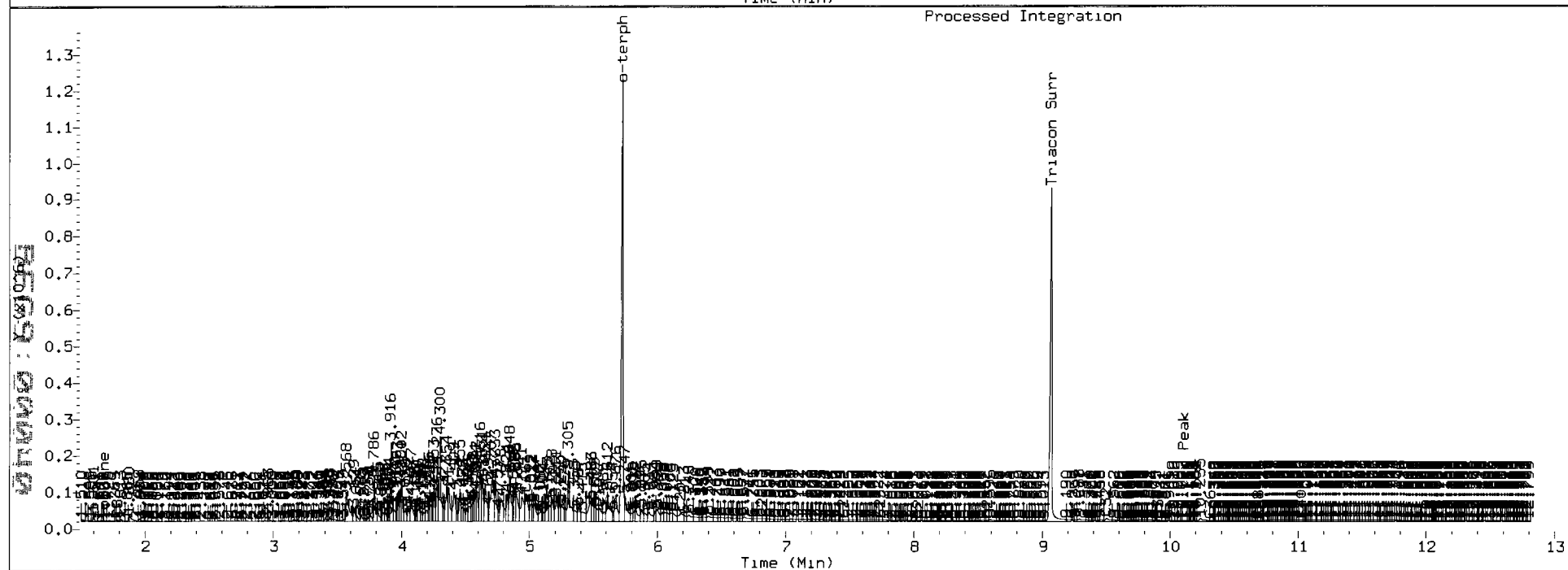
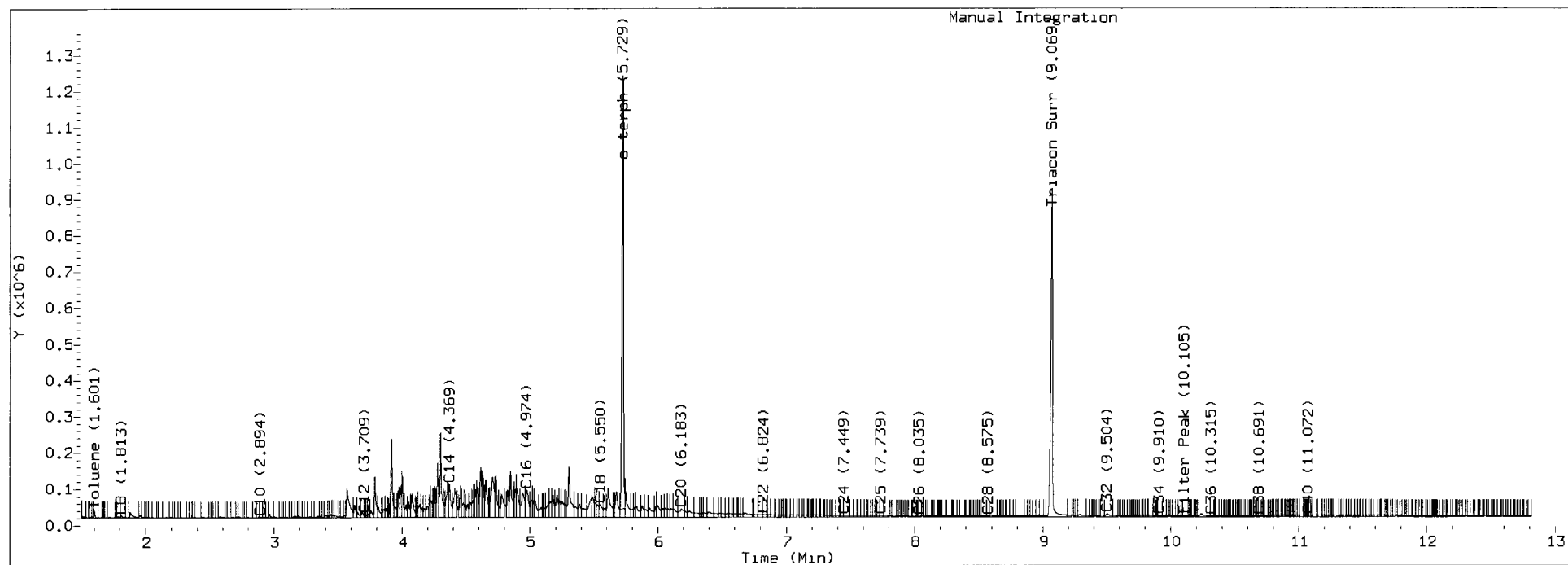


BE09000:60339

TPH Manual Integrations Report

Datafile: FID4A, 20160816lim.b/16081625.D Injection: 16-AUG-2016 21:23

Lab ID: BEG9B



Date : 16-AUG-2016 21:23

Client ID: 15-A

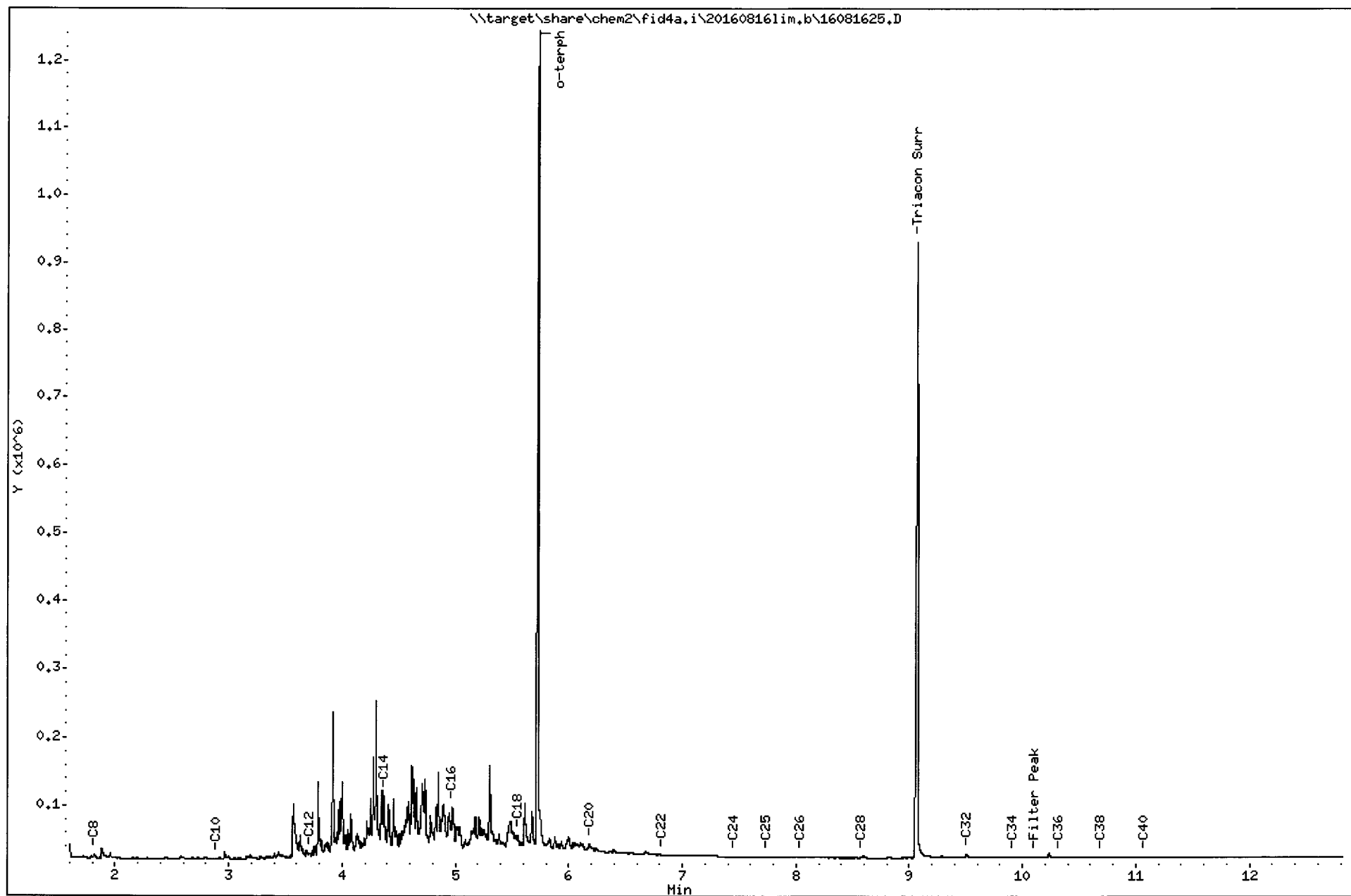
Sample Info: BEG9B

Instrument: fid4a.1

Operator: ML

Column diameter: 0.25

Column phase: RTX-1

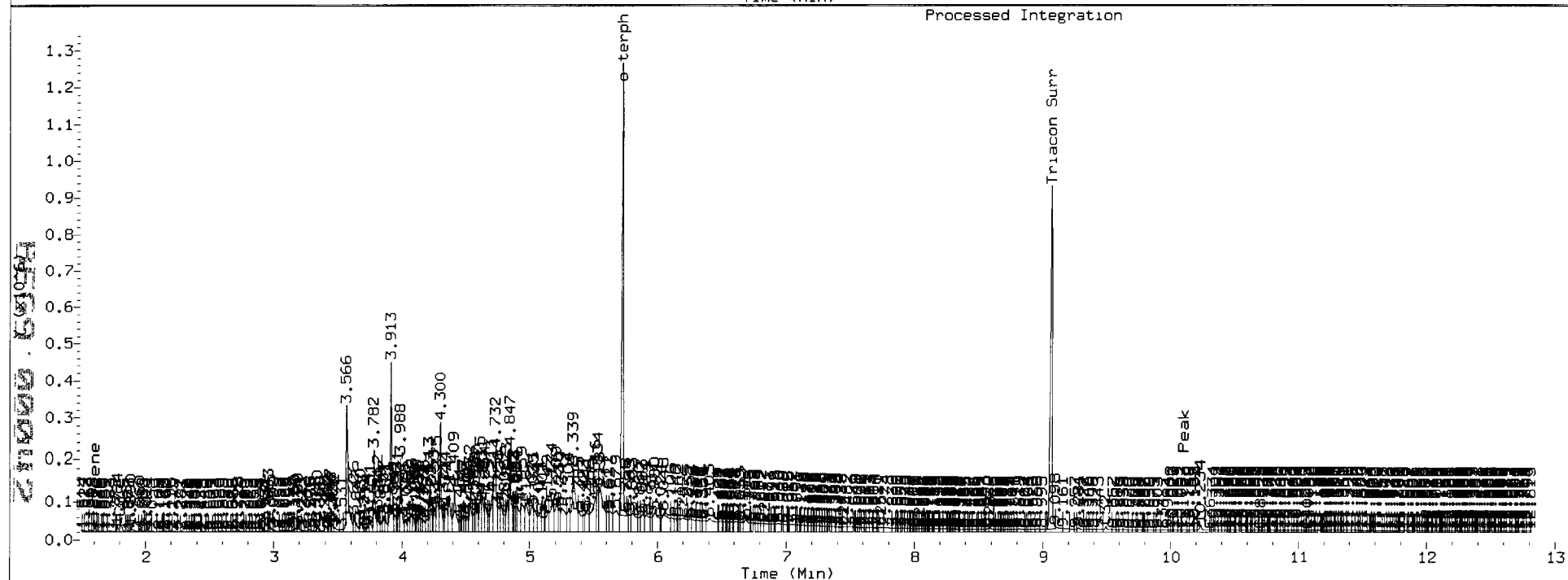
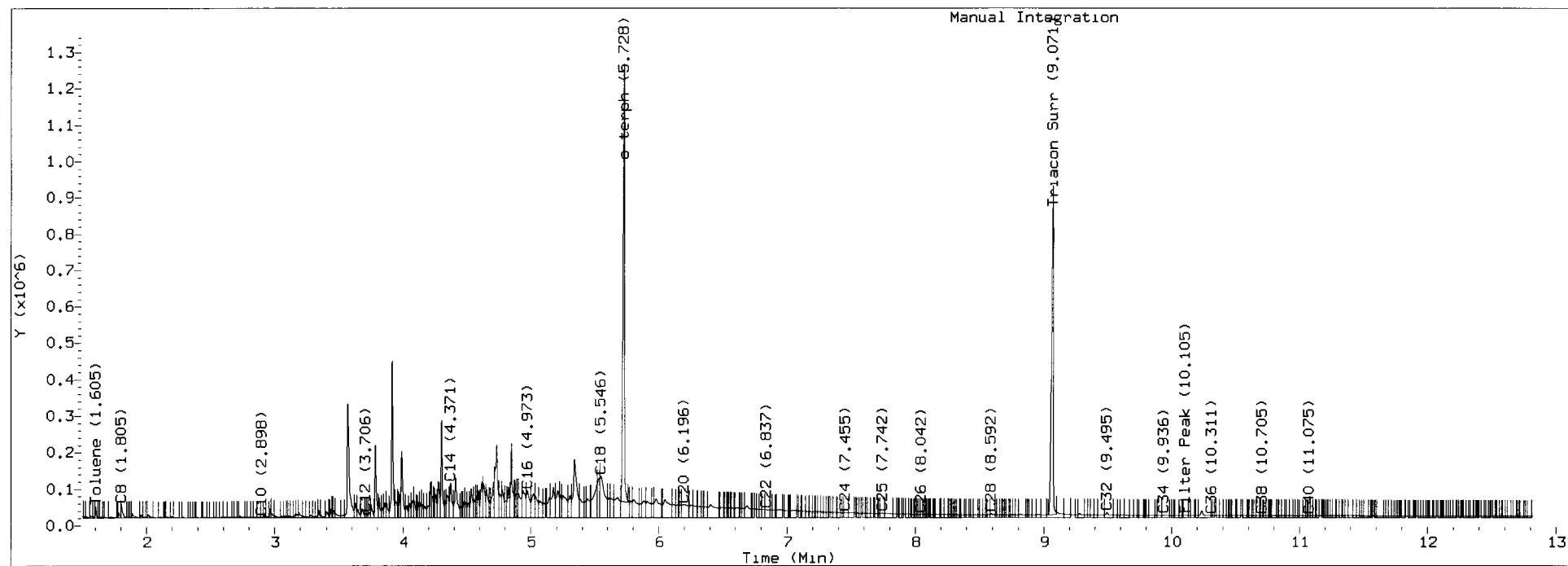


16081625.D

TPH Manual Integrations Report

Datafile: FID4A, 20160816lim.b/16081626.D Injection: 16-AUG-2016 21:46

Lab ID: BEG9C



Date : 16-AUG-2016 21:46

Client ID: EW-1

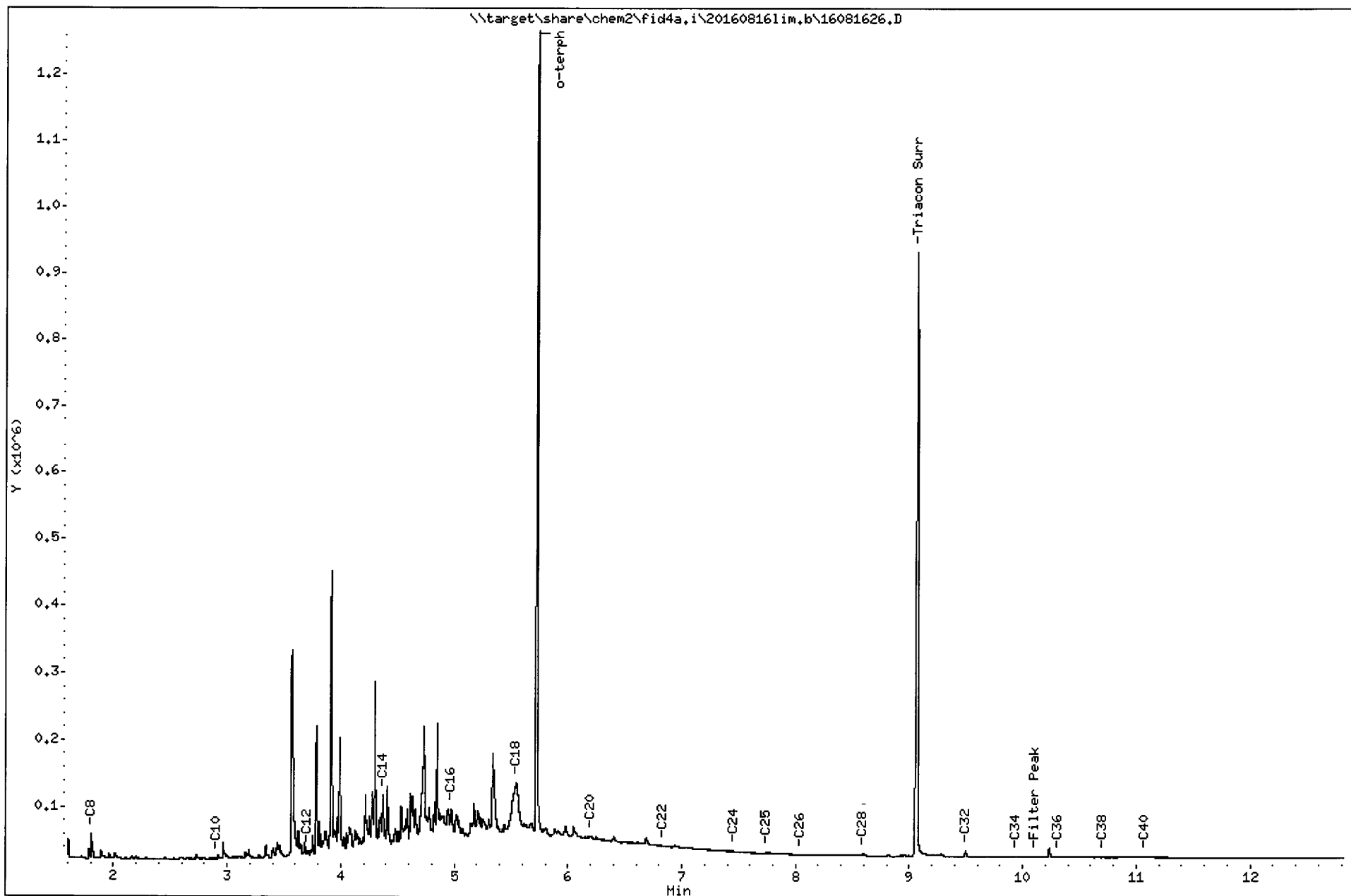
Sample Info: BEG9C

Instrument: fid4a.1

Operator: ML

Column diameter: 0.25

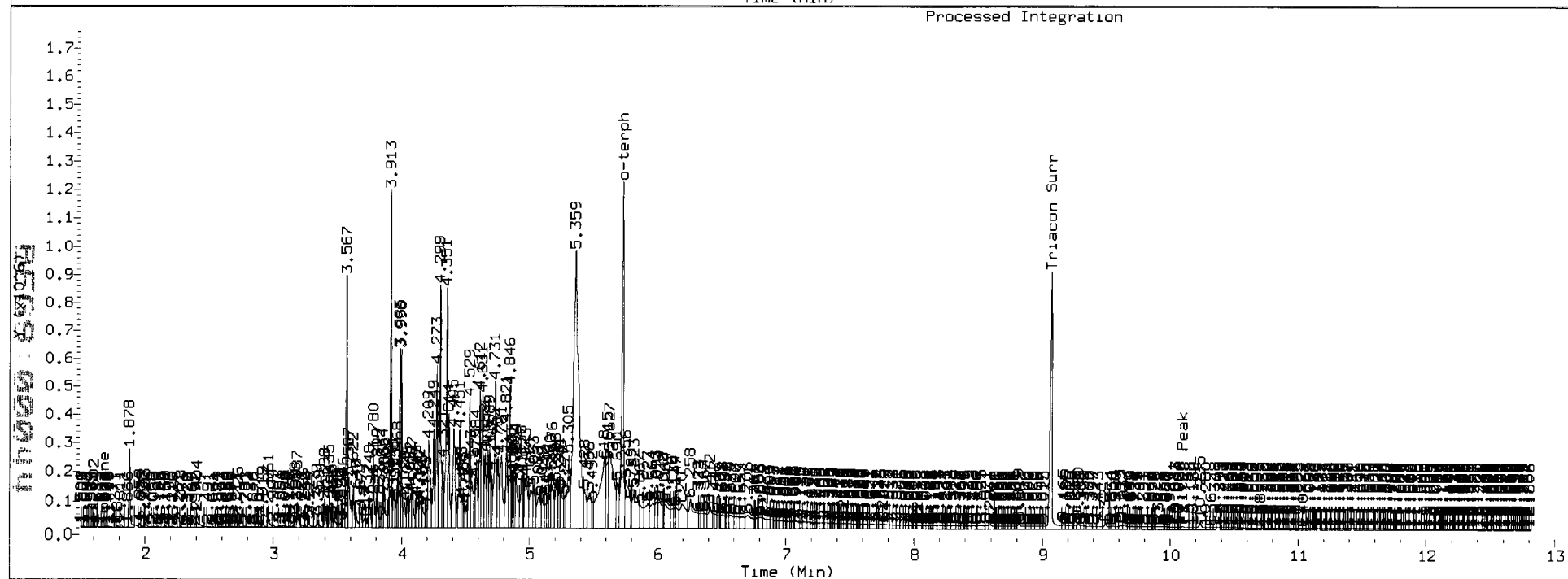
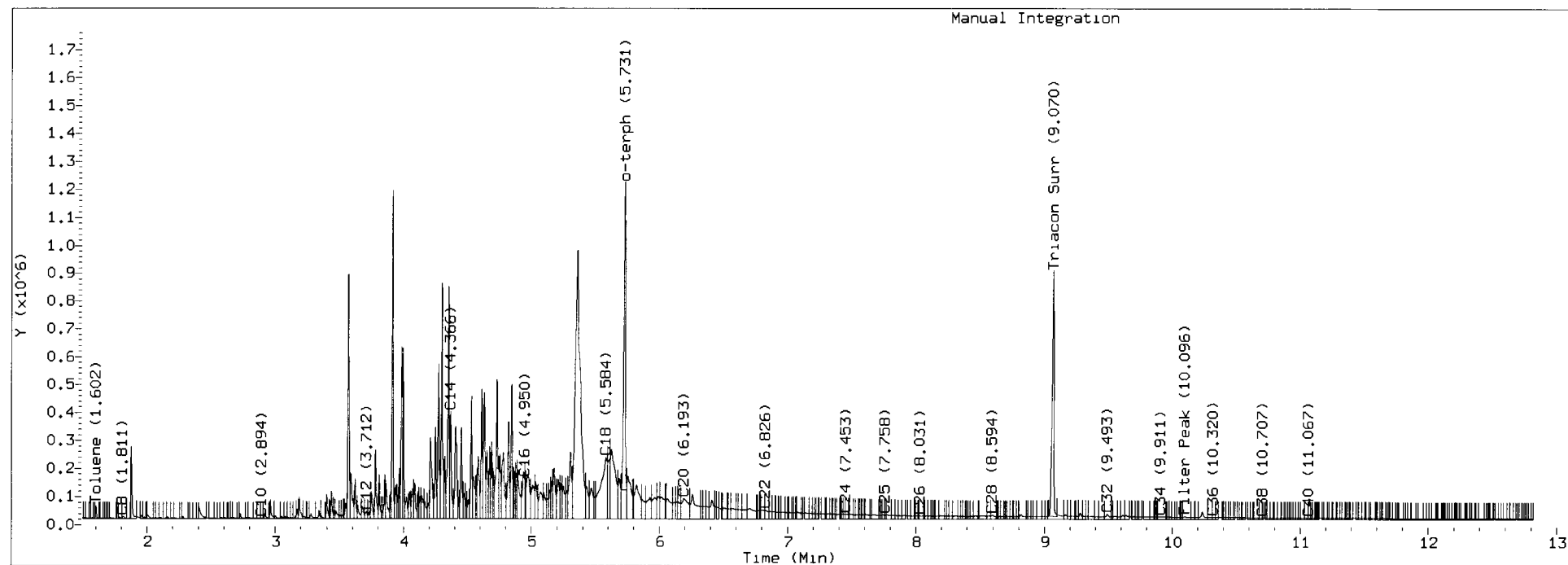
Column phase: RTX-1



TPH Manual Integrations Report

Datafile: FID4A, 20160816lim.b/16081627.D Injection: 16-AUG-2016 22:08

Lab ID: BEG9D



Data File: \\target\share\chem2\fid4a.i\20160816lim.b\16081627.D

Page 1

Date : 16-AUG-2016 22:08

Client ID: P-4

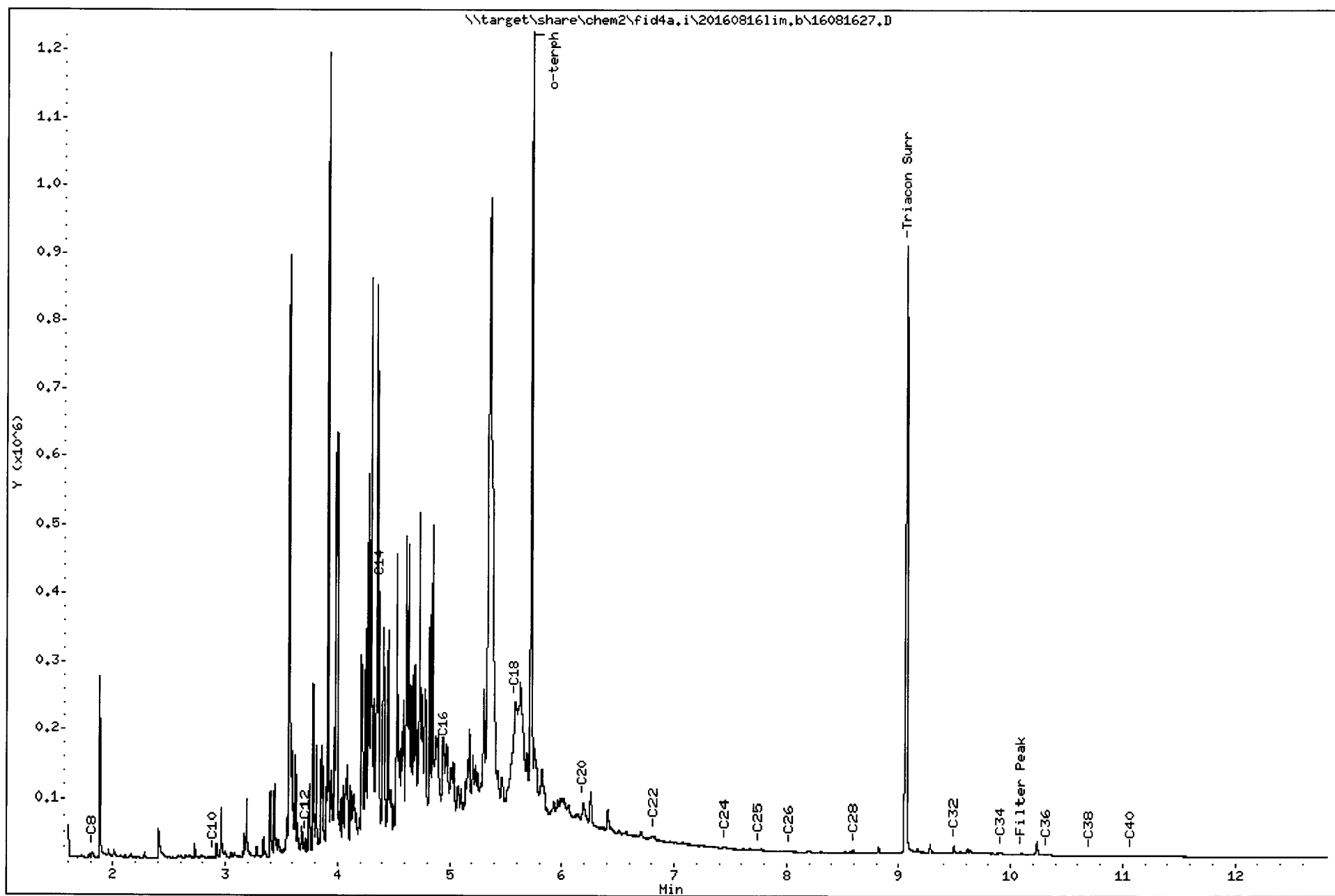
Sample Info: BEG9D

Instrument: fid4a.i

Operator: ML

Column diameter: 0.25

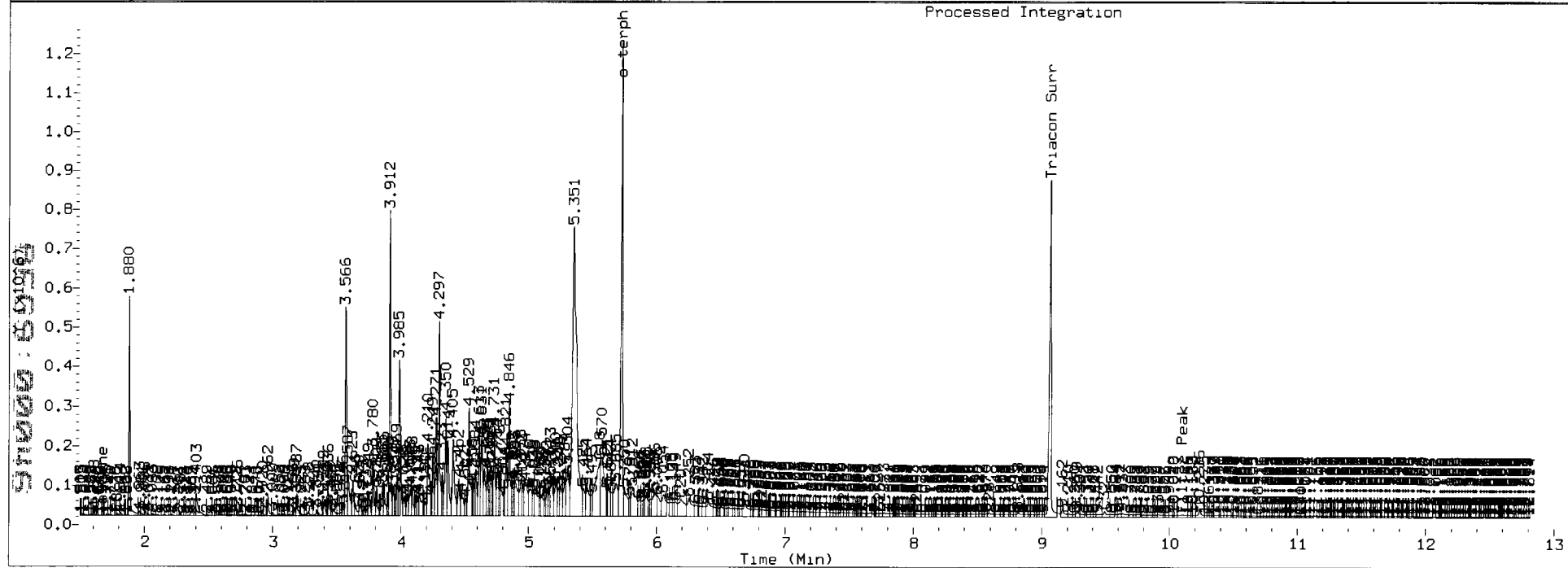
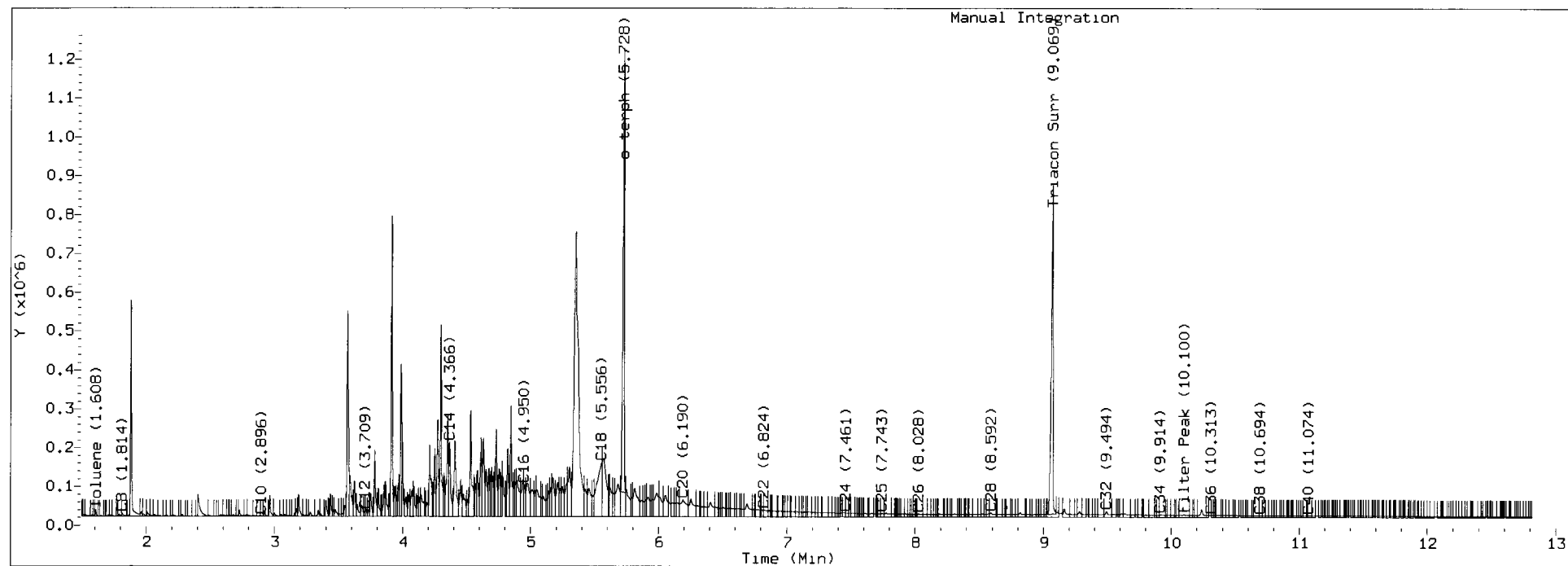
Column phase: RTX-1



TPH Manual Integrations Report

Datafile: FID4A, 20160816lim.b/16081628.D Injection: 16-AUG-2016 22:31

Lab ID: BEG9E



Date : 16-AUG-2016 22:31

Client ID: P-4D

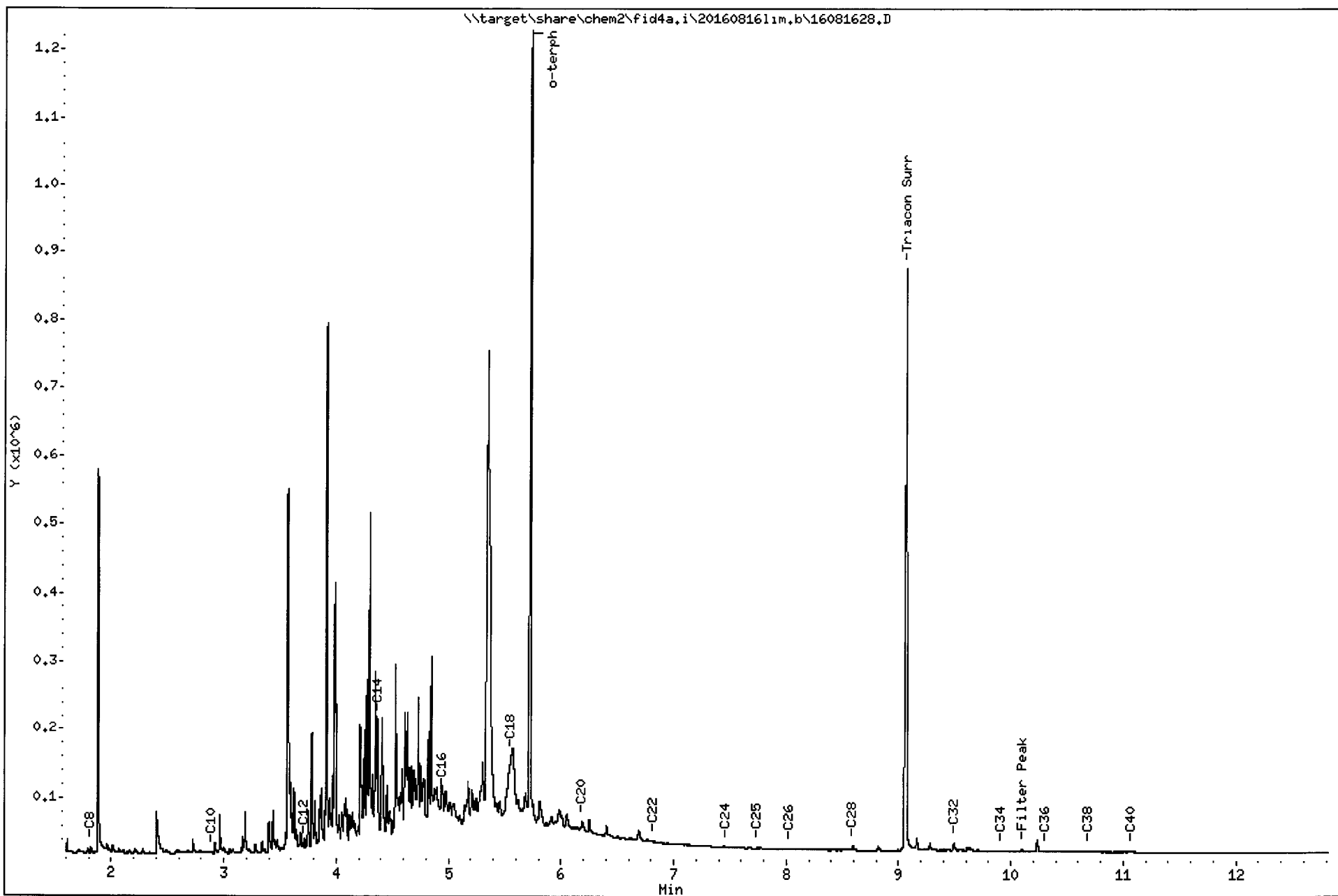
Sample Info: BEG9E

Instrument: fid4a.1

Operator: ML

Column diameter: 0.25

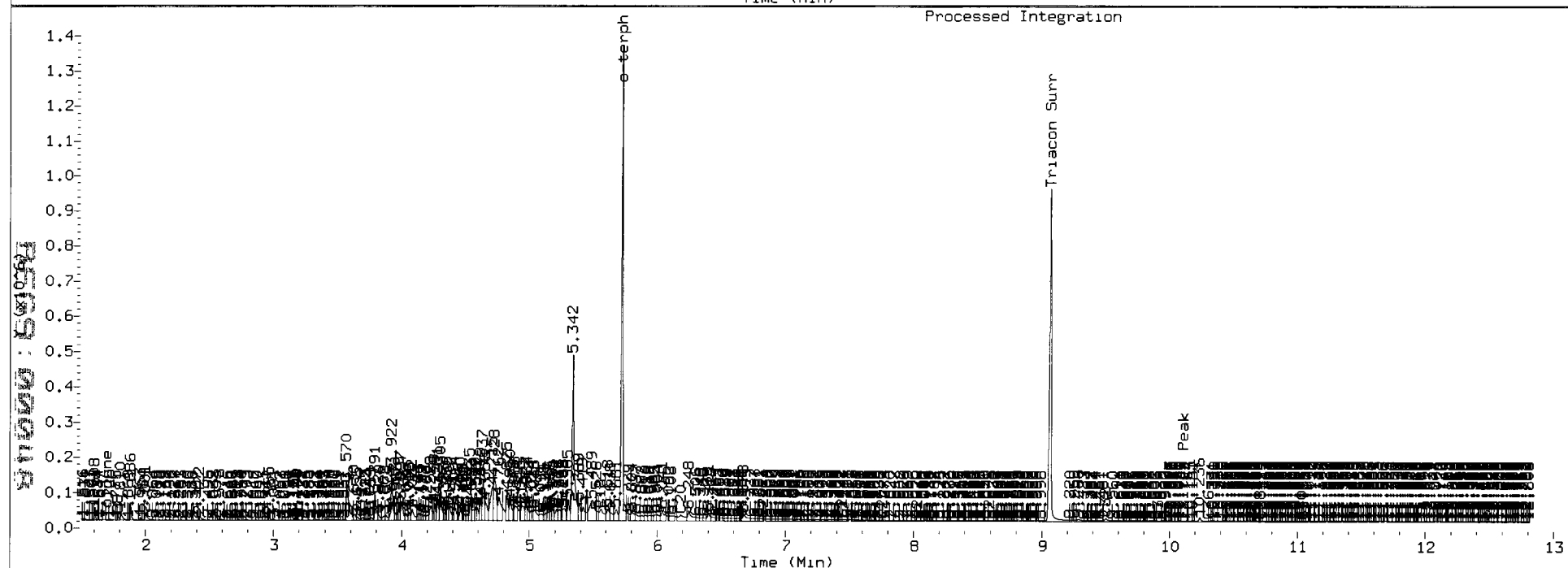
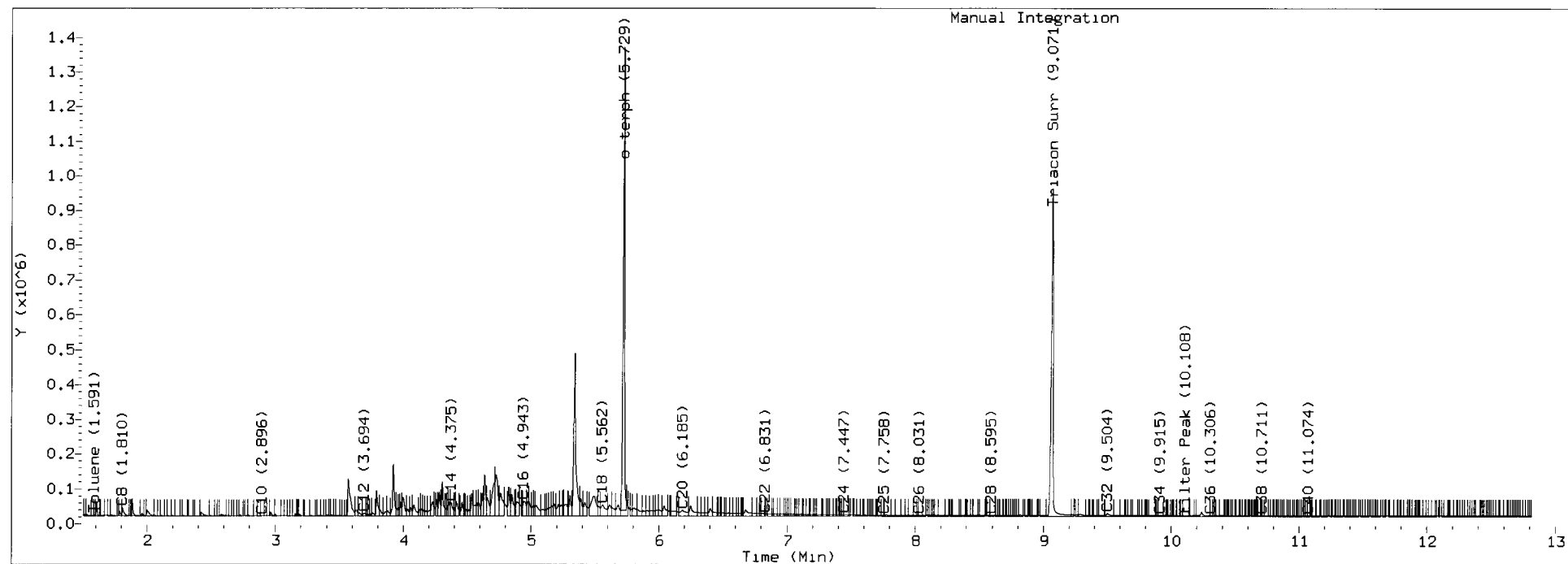
Column phase: RTX-1



TPH Manual Integrations Report

Datafile: FID4A, 20160816lim.b/16081629.D Injection: 16-AUG-2016 22:54

Lab ID: BEG9F



Date : 16-AUG-2016 22:54

Client ID: P-2

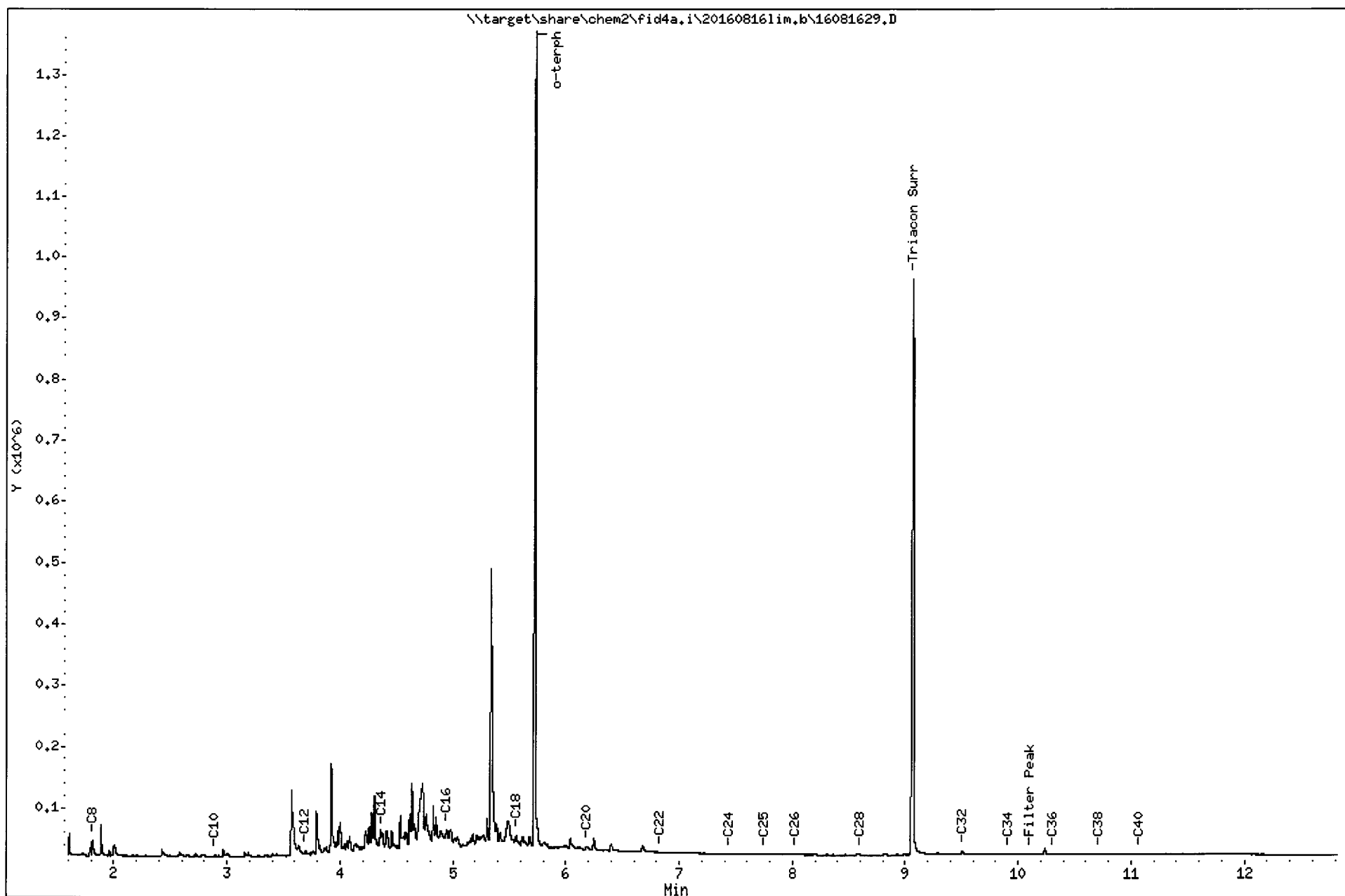
Sample Info: BEG9F

Instrument: fid4a.i

Operator: ML

Column diameter: 0.25

Column phase: RTX-1



Date : 17-AUG-2016 00:00

Client ID: P-2F

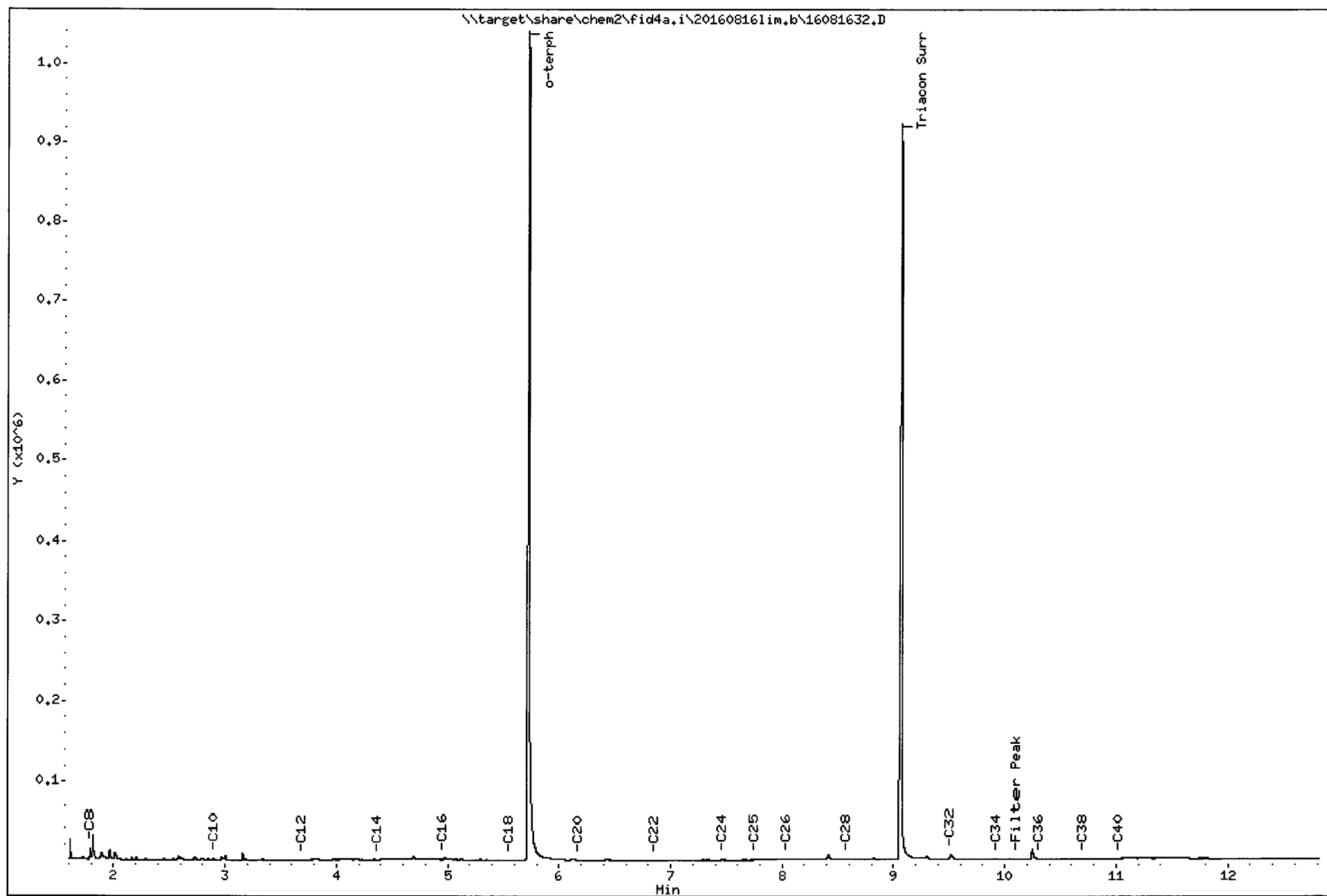
Sample Info: BEG9C

Instrument: fid4a.i

Operator: ML

Column diameter: 0.25

Column phase: RTX-1



Date : 17-AUG-2016 00:24

Client ID: 5-B

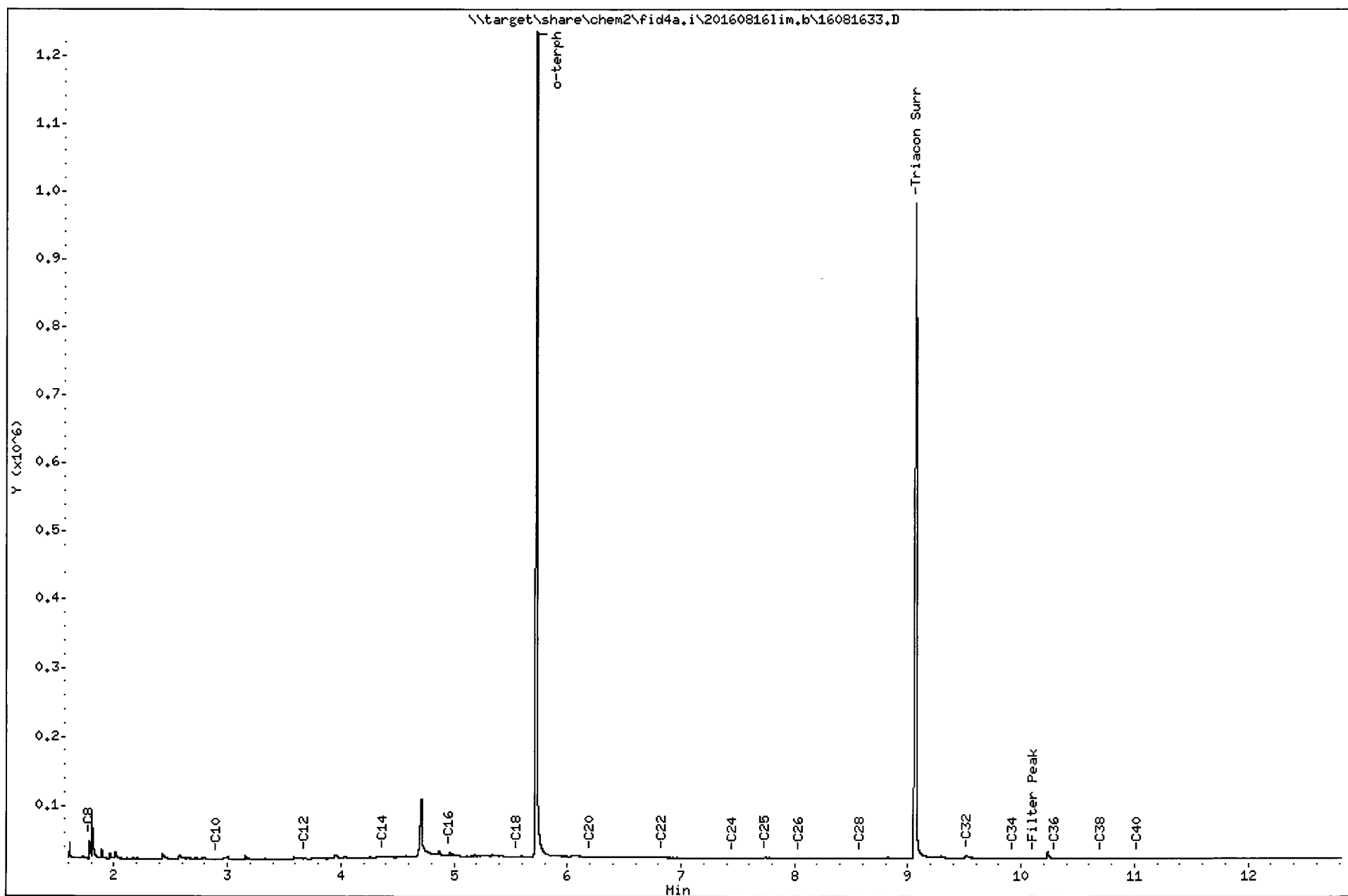
Sample Info: BEG9H

Instrument: fid4a.i

Operator: ML

Column diameter: 0.25

Column phase: RTX-1

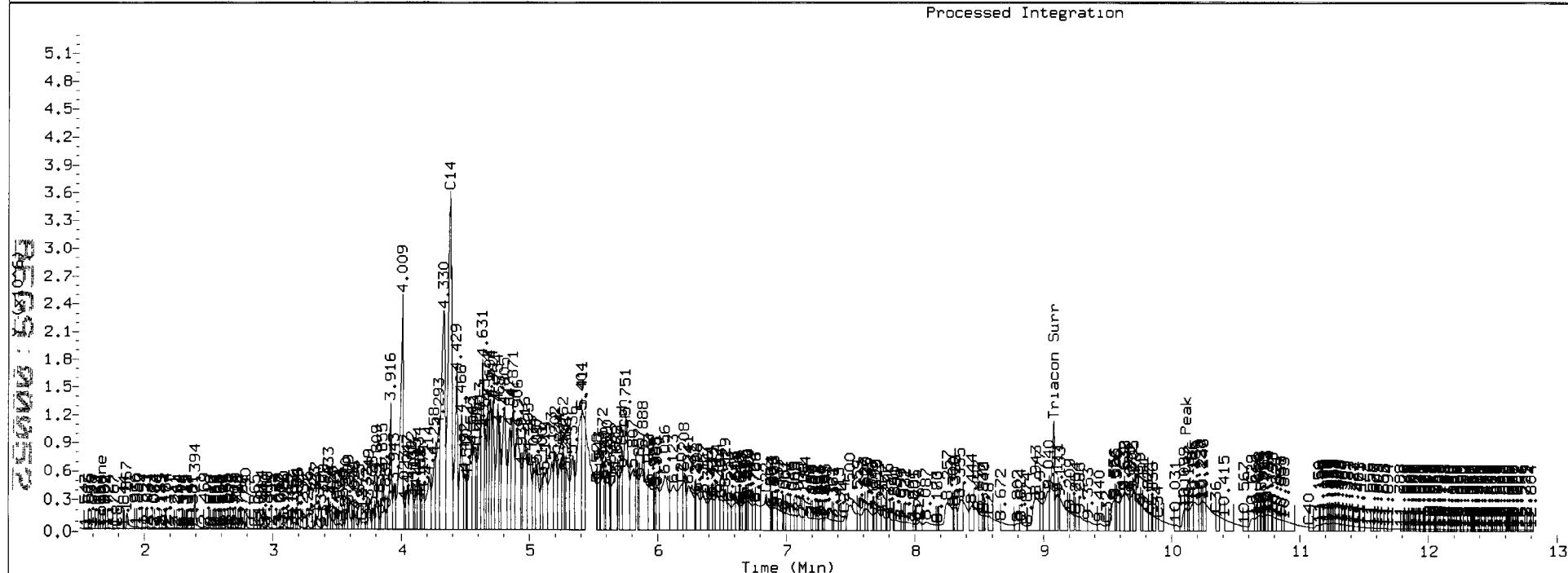
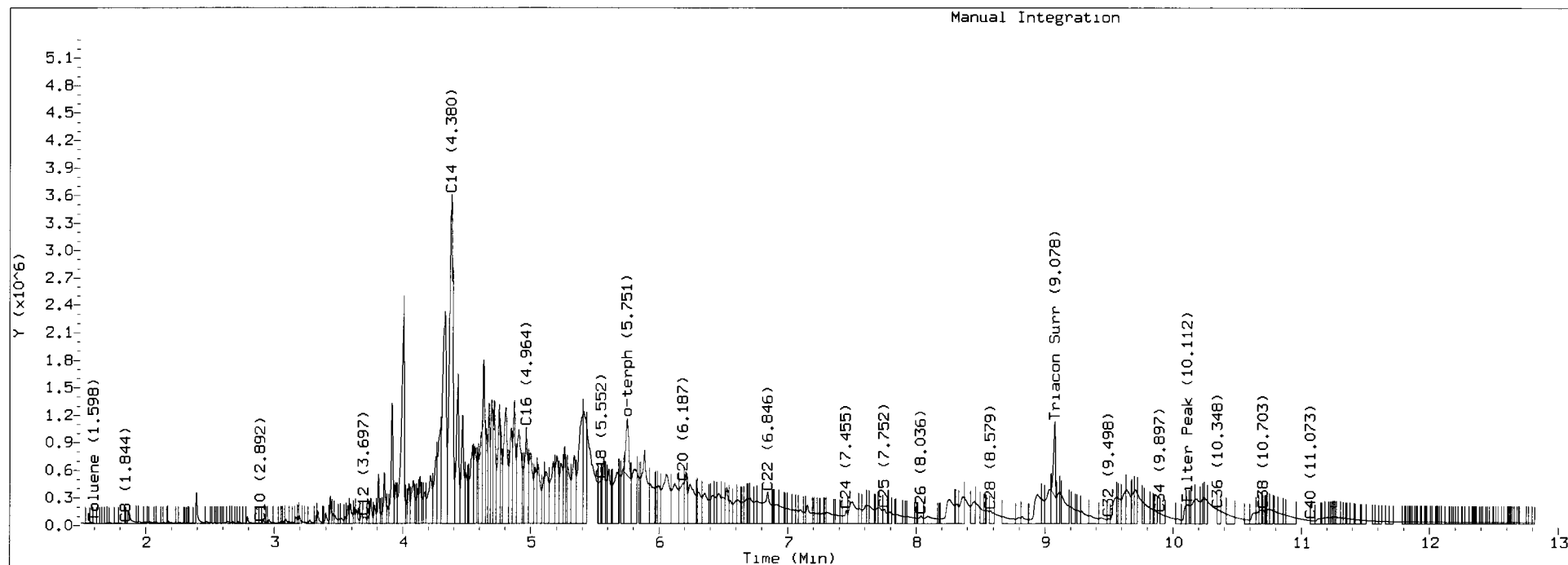


15000:5938

TPH Manual Integrations Report

Datafile: FID4A, 20160816lim.b/16081634.D Injection: 17-AUG-2016 00:45

Lab ID: BEG9I



Date : 17-AUG-2016 00:45

Client ID: 5-A

Sample Info: BEG9I

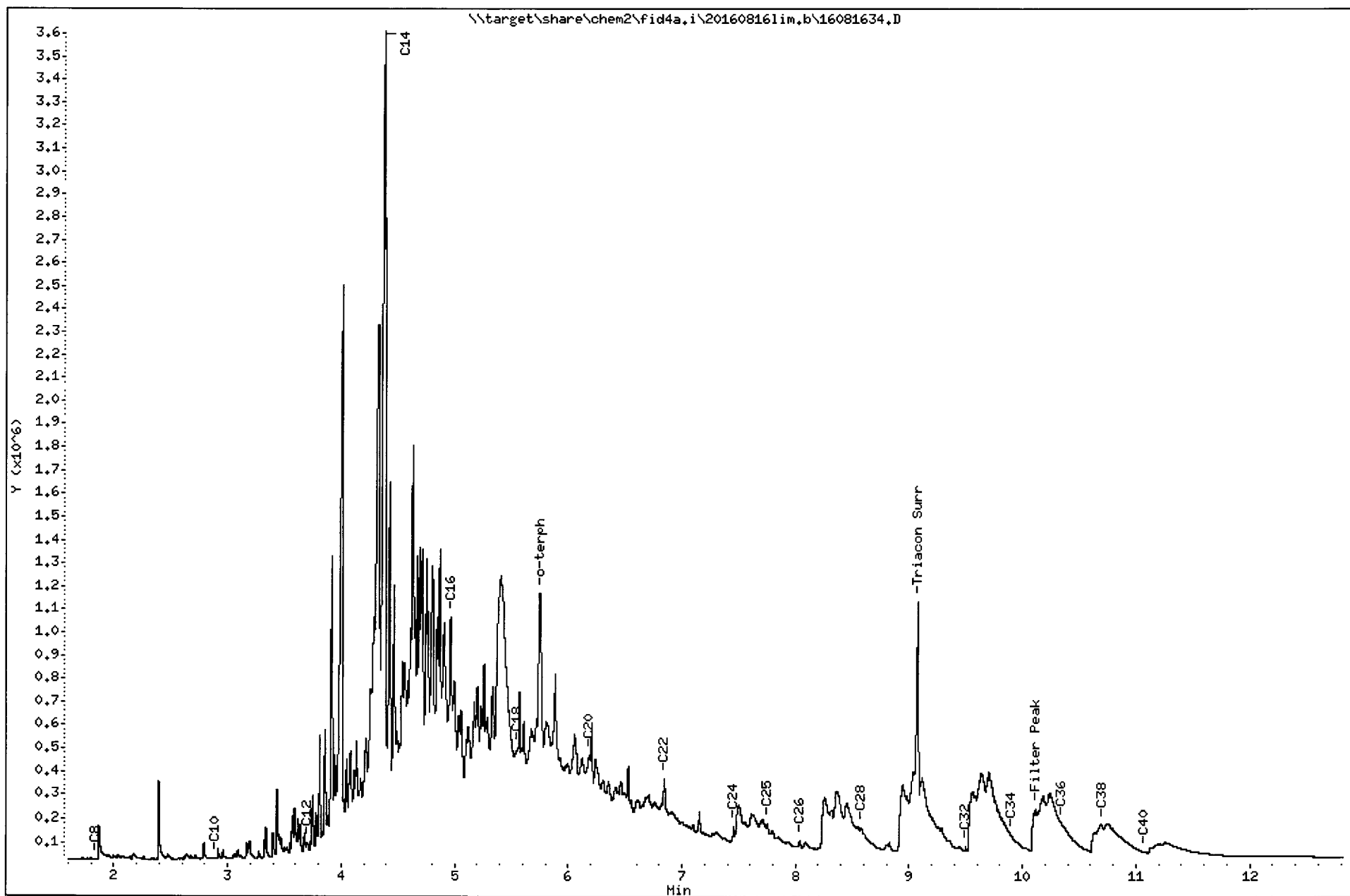
Instrument: fid4a.i

Operator: ML

Column diameter: 0.25

Column phase: RTX-1

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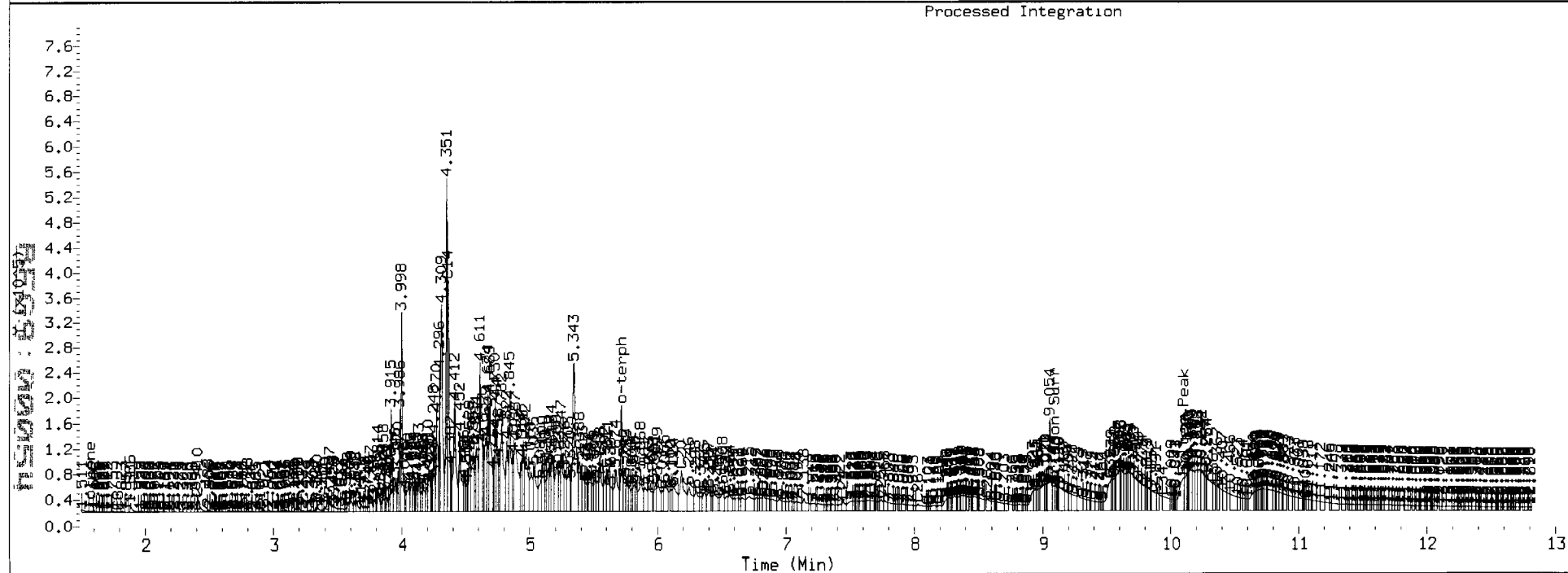
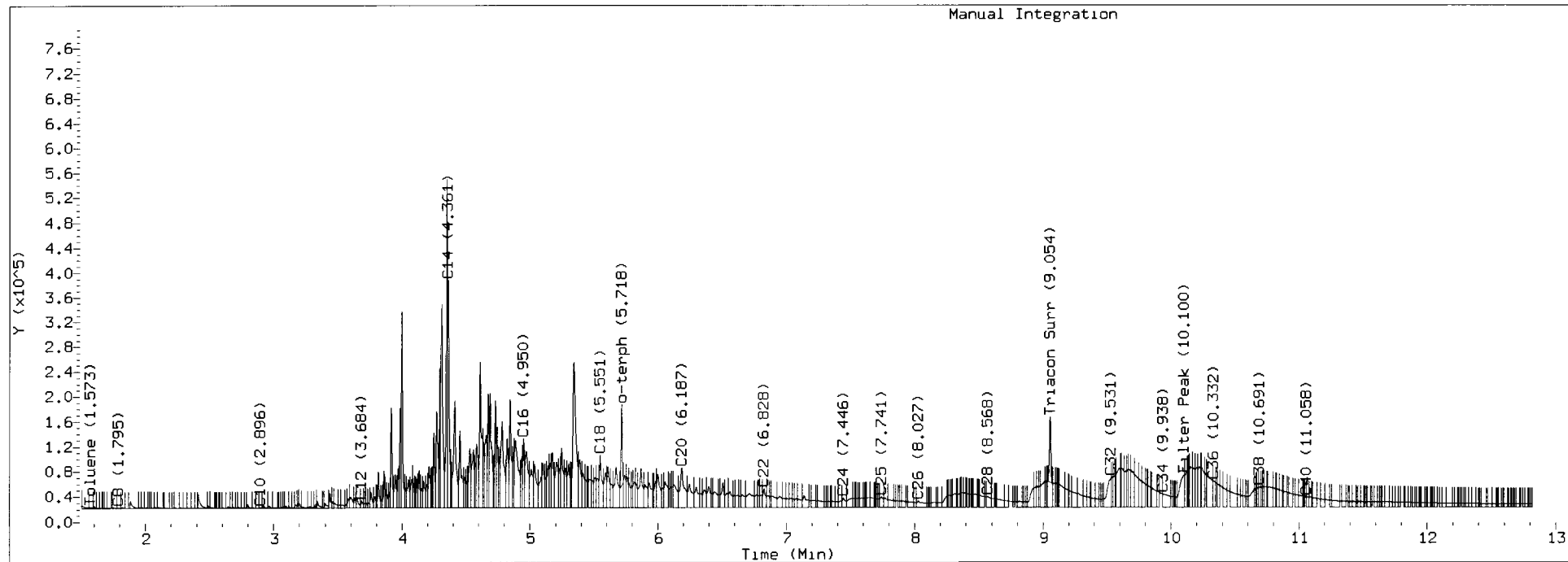


ESM000 : 60.19

TPH Manual Integrations Report

Datafile: FID4A, 20160817.b/16081707.D Injection: 17-AUG-2016 15:08

Lab ID: BEG9I



Date : 17-AUG-2016 15:08

Client ID: 5-A

Sample Info: BEG9I,10

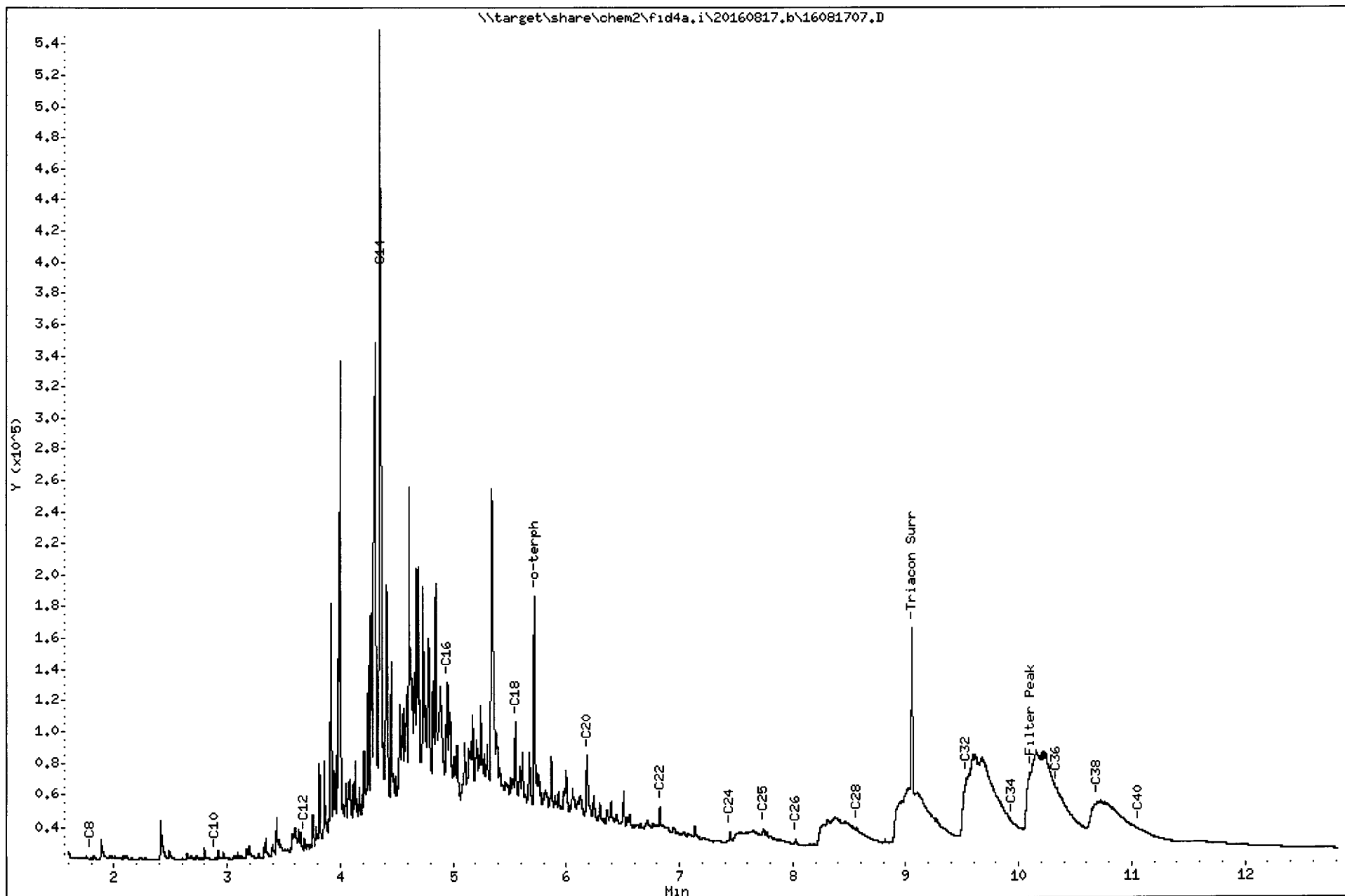
Instrument: fid4a.i

Operator: ML

Column diameter: 0.25

Column phase: RTX-1

\\target\share\chem2\fid4a.i\20160817.b\16081707.D



20160817 16081707.D



Analytical Resources, Incorporated
Analytical Chemists and Consultants

13 October 2016

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

RE: Idaho Pole

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
16H0244

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Mark Harris, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 16170244		Turn-around Requested: Normal		Page: 1 of 1																			
ARI Client Company: Hydrometrics		Phone:		Date: 8/25/16	Ice Present? no																		
Client Contact: Heidi Kauer				No. of Coolers: 1	Cooler Temps: 3.3																		
Client Project Name: Idaho Polo		<table border="1"> <thead> <tr> <th colspan="8">Analysis Requested</th> <th>Notes/Comments</th> </tr> </thead> <tbody> <tr> <td>15</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td> <td></td> </tr> </tbody> </table>				Analysis Requested								Notes/Comments	15	2	2	2	2	2	2	2	
Analysis Requested								Notes/Comments															
15	2	2	2	2	2	2	2																
Client Project #:		Samplers: Rebecca Fabich																					
Sample ID	Date	Time	Matrix	No. Containers																			
9-A	8/25/16	919	H2O	1	X																		
9-B		904		1	X																		
9-D		904		1	X																		
12-A		940		1	X																		
11-A		954		1	X																		
GM-5		1025		1	X																		
GM-4		1041		1	X																		
P-8		1059		1	X																		
P-7		1113		1	X																		
P-6	✓	1130	✓	1	X																		
Comments/Special Instructions	Relinquished by: (Signature) Rebecca Fabich		Received by: (Signature) Justin Meyer		Relinquished by: (Signature)		Received by: (Signature)																
	Printed Name: Rebecca Fabich		Printed Name: Justin Meyer		Printed Name:		Printed Name:																
	Company: Idaho Polo		Company: ARI		Company:		Company:																
	Date & Time: 8/25/16 1300		Date & Time: 8-26-16 10:20		Date & Time:		Date & Time:																



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 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)
 www.arilabs.com

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Hydromedix

Project Name: Idaho Pole

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 16H 0244

Tracking No: 0215809700201077 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES ☐ NO ☒

Were custody papers included with the cooler? _____

YES ☒ NO ☐

Were custody papers properly filled out (ink, signed, etc.) _____

YES ☒ NO ☐

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time: 33

If cooler temperature is out of compliance fill out form 00070F

Cooler Accepted by: JM Date: 8-26-16 Time: 6:20 Temp Gun ID#: 0005276

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES ☐ NO ☒

What kind of packing material was used? ... Bubble Wrap ☒ Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? _____

NA ☒ YES ☐ NO ☐

Were all bottles sealed in individual plastic bags? _____

YES ☒ NO ☐

Did all bottles arrive in good condition (unbroken)? _____

YES ☒ NO ☐

Were all bottle labels complete and legible? _____

YES ☒ NO ☐

Did the number of containers listed on COC match with the number of containers received? _____

YES ☒ NO ☐

Did all bottle labels and tags agree with custody papers? _____

YES ☒ NO ☐

Were all bottles used correct for the requested analyses? _____

YES ☒ NO ☐

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

YES ☒ NO ☐

Were all VOC vials free of air bubbles? _____

NA ☒ YES ☐ NO ☐

Was sufficient amount of sample sent in each bottle? _____

YES ☒ NO ☐

Date VOC Trip Blank was made at ARI: _____

NA ☒

Was Sample Split by ARI: ☒ YES ☐ Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JM Date: 8-26-16 Time: 1020

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____ Date: _____

Small Air Bubbles - 2mm 	Peabubbles 2-4 mm 	LARGE Air Bubbles > 4 mm 	Small → "sm" (< 2 mm) Peabubbles → "pb" (2 to < 4 mm) Large → "lg" (4 to < 6 mm) Headspace → "hs" (> 6 mm)
---------------------------------------	---------------------------------	--	---



WORK ORDER

16H0244

Client: Hydrometrics, Inc.

Project Manager: Mark Harris

Project: Idaho Pole

Project Number: Idaho Pole

Preservation Confirmation

Container ID	Container Type	pH	
16H0244-01 A	Small OJ, 500 mL, 9N H2SO4	✓2	pass
16H0244-02 A	Small OJ, 500 mL, 9N H2SO4	✓2	pass
16H0244-03 A	Small OJ, 500 mL, 9N H2SO4	✓2	pass
16H0244-04 A	Small OJ, 500 mL, 9N H2SO4	✓2	pass
16H0244-05 A	Small OJ, 500 mL, 9N H2SO4	✓2	pass
16H0244-06 A	Small OJ, 500 mL, 9N H2SO4	✓2	pass
16H0244-07 A	Small OJ, 500 mL, 9N H2SO4	✓2	pass
16H0244-08 A	Small OJ, 500 mL, 9N H2SO4	✓2	pass
16H0244-09 A	Small OJ, 500 mL, 9N H2SO4	✓2	pass
16H0244-10 A	Small OJ, 500 mL, 9N H2SO4	✓2	pass

SM

Preservation Confirmed By

8-26-16

Date

SM

8-26-16

Reviewed By

Date



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
9-A	16H0244-01	Water	25-Aug-2016 09:19	26-Aug-2016 10:20
9-B	16H0244-02	Water	25-Aug-2016 09:04	26-Aug-2016 10:20
9-D	16H0244-03	Water	25-Aug-2016 09:04	26-Aug-2016 10:20
12-A	16H0244-04	Water	25-Aug-2016 09:40	26-Aug-2016 10:20
11-A	16H0244-05	Water	25-Aug-2016 09:54	26-Aug-2016 10:20
GM-5	16H0244-06	Water	25-Aug-2016 10:25	26-Aug-2016 10:20
GM-4	16H0244-07	Water	25-Aug-2016 10:41	26-Aug-2016 10:20
P-8	16H0244-08	Water	25-Aug-2016 10:59	26-Aug-2016 10:20
P-7	16H0244-09	Water	25-Aug-2016 11:13	26-Aug-2016 10:20
P-6	16H0244-10	Water	25-Aug-2016 11:30	26-Aug-2016 10:20



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

Case Narrative

CASE NARRATIVE

Client: Hydrometrics, Inc.
Project: Idaho Pole
Workorder: 16H0244

Sample receipt

10 samples were received 26-Aug-2016 10:20 under ARI workorder 16H0244. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Wet Chemistry

The samples were prepared and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

9-A
16H0244-01 (Water)

Wet Chemistry

Method: EPA 350.3

Instrument: LACHAT1

Analyzed: 12-Sep-2016 17:11

Sample Preparation:

Preparation Method: No Prep Wet Chem

Preparation Batch: BEI0273

Prepared: 12-Sep-2016

Sample Size: 10 mL

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.054	mg-N/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

9-A
16H0244-01 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 15:45

Sample Preparation:

Preparation Method: No Prep Wet Chem

Preparation Batch: BEH0558

Prepared: 26-Aug-2016

Sample Size: 10 mL

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.036	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

9-B
16H0244-02 (Water)

Wet Chemistry

Method: EPA 350.3

Instrument: LACHAT1

Analyzed: 12-Sep-2016 17:16

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEI0273 Sample Size: 10 mL
Prepared: 12-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.209	mg-N/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

9-B
16H0244-02RE1 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 16:11

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEH0558 Sample Size: 10 mL
Prepared: 26-Aug-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		2	0.020	1.93	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

9-D
16H0244-03 (Water)

Wet Chemistry

Method: EPA 350.3

Instrument: LACHAT1

Analyzed: 12-Sep-2016 17:17

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEI0273 Sample Size: 10 mL
Prepared: 12-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.183	mg-N/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

9-D
16H0244-03RE1 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 16:12

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEH0558 Sample Size: 10 mL
Prepared: 26-Aug-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		5	0.050	2.14	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

12-A
16H0244-04 (Water)

Wet Chemistry

Method: EPA 350.3

Instrument: LACHAT1

Analyzed: 12-Sep-2016 18:03

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEI0273 Sample Size: 10 mL
Prepared: 12-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	ND	mg-N/L	U



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

12-A
16H0244-04RE1 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 16:13

Sample Preparation:

Preparation Method: No Prep Wet Chem

Preparation Batch: BEH0558

Prepared: 26-Aug-2016

Sample Size: 10 mL

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		10	0.100	12.5	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

12-A
16H0244-04RE2 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 16:53

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEH0558 Sample Size: 10 mL
Prepared: 26-Aug-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		20	0.200	12.6	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

11-A
16H0244-05 (Water)

Wet Chemistry

Method: EPA 350.3

Instrument: LACHAT1

Analyzed: 12-Sep-2016 18:04

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEI0273 Sample Size: 10 mL
Prepared: 12-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.058	mg-N/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

11-A
16H0244-05RE1 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 16:14

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEH0558 Sample Size: 10 mL
Prepared: 26-Aug-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		10	0.100	8.69	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

GM-5
16H0244-06 (Water)

Wet Chemistry

Method: EPA 350.3

Instrument: LACHAT1

Analyzed: 12-Sep-2016 18:05

Sample Preparation:

Preparation Method: No Prep Wet Chem

Preparation Batch: BEI0273

Prepared: 12-Sep-2016

Sample Size: 10 mL

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.593	mg-N/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

GM-5
16H0244-06RE1 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 16:15

Sample Preparation:

Preparation Method: No Prep Wet Chem

Preparation Batch: BEH0558

Prepared: 26-Aug-2016

Sample Size: 10 mL

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		2	0.020	1.49	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

GM-4
16H0244-07 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 15:52

Sample Preparation:

Preparation Method: No Prep Wet Chem

Preparation Batch: BEH0558

Prepared: 26-Aug-2016

Sample Size: 10 mL

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		1	0.010	0.327	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

GM-4DL
16H0244-07RE1 (Water)

Wet Chemistry

Method: EPA 350.3

Instrument: LCHAT1

Analyzed: 12-Sep-2016 18:29

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEI0273 Sample Size: 10 mL
Prepared: 12-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.216	mg-N/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

P-8
16H0244-08 (Water)

Wet Chemistry

Method: EPA 350.3

Instrument: LACHAT1

Analyzed: 12-Sep-2016 18:08

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEI0273 Sample Size: 10 mL
Prepared: 12-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.721	mg-N/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

P-8
16H0244-08RE1 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 16:17

Sample Preparation:

Preparation Method: No Prep Wet Chem

Preparation Batch: BEH0558

Prepared: 26-Aug-2016

Sample Size: 10 mL

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		5	0.050	4.29	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

P-7
16H0244-09 (Water)

Wet Chemistry

Method: EPA 350.3

Instrument: LACHAT1

Analyzed: 12-Sep-2016 18:09

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEI0273 Sample Size: 10 mL
Prepared: 12-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	1	0.040	0.080	mg-N/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

P-7
16H0244-09RE2 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 16:37

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEH0558 Sample Size: 10 mL
Prepared: 26-Aug-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		20	0.200	15.0	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

P-6
16H0244-10RE1 (Water)

Wet Chemistry

Method: EPA 350.3

Instrument: LACHAT1

Analyzed: 12-Sep-2016 18:30

Sample Preparation: Preparation Method: No Prep Wet Chem
Preparation Batch: BEI0273 Sample Size: 10 mL
Prepared: 12-Sep-2016 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Ammonia-N	7664-41-7	5	0.200	2.71	mg-N/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

P-6
16H0244-10RE2 (Water)

Wet Chemistry

Method: EPA 353.2

Instrument: LACHAT2

Analyzed: 26-Aug-2016 16:38

Sample Preparation:

Preparation Method: No Prep Wet Chem

Preparation Batch: BEH0558

Prepared: 26-Aug-2016

Sample Size: 10 mL

Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Nitrate + Nitrite as N		20	0.200	11.7	mg/L	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

Wet Chemistry - Quality Control

Batch BEH0558 - No Prep Wet Chem

Instrument: LACHAT2

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEH0558-BLK1)		Prepared: 26-Aug-2016 Analyzed: 26-Aug-2016 15:24								
Nitrate + Nitrite as N	ND	0.010	mg/L							U
LCS (BEH0558-BS1)		Prepared: 26-Aug-2016 Analyzed: 26-Aug-2016 15:26								
Nitrate + Nitrite as N	0.521	0.010	mg/L	0.500		104	90-110			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

Wet Chemistry - Quality Control

Batch BEI0273 - No Prep Wet Chem

Instrument: LACHAT1

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
DL (BEI0273-BLK3) Prepared: 12-Sep-2016 Analyzed: 12-Sep-2016 17:43										
Ammonia-N	ND	0.040	mg-N/L							U
DL (BEI0273-BS2) Prepared: 12-Sep-2016 Analyzed: 12-Sep-2016 17:45										
Ammonia-N	0.532	0.040	mg-N/L	0.500		106	90-110			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

Certified Analyses included in this Report

Analyte	Certifications
EPA 353.2 in Water	
Nitrate + Nitrite as N	NELAP, DoD-ELAP, WADOE
Nitrite-N	NELAP, DoD-ELAP
Nitrate-N	NELAP, DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
13-Oct-2016 15:16

Notes and Definitions

U	This analyte is not detected above the applicable reporting or detection limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

25 October 2016

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

RE: Idaho Pole

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
1610124

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Mark Harris, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 162024	Turn-around Requested: Normal
ARI Client Company: Hydrometric	Phone:
Client Contact: Heidi Kauer	
Client Project Name: Idaho Pole	
Client Project #:	Samplers: Rebecca Fabich

Page: 1	of 3
Date: 9/7/16	Ice Present? yes
No. of Coolers: 4	Cooler Temps: 2.3-4.6



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)
 www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested								Notes/Comments
IP-0409-339	9/6/16	933	H ₂ O	2	X								
GM-8		950		2	X								
Res 8		1005		2	X								
27-B		1021		2	X								
16-B		1053		2	X								
25-B		1111		2	X								
25-A		1128		2	X								
26-C		1157		2	X								
26-B		1211		2	X								
26-A		1225		2	X								
Comments/Special Instructions	Relinquished by: (Signature) Rebecca Fabich		Received by: (Signature) Justin Meyer		Relinquished by: (Signature)				Received by: (Signature)				
	Printed Name: Rebecca Fabich		Printed Name: Justin Meyer		Printed Name:				Printed Name:				
	Company: Idaho Pole		Company: 9-8-16		Company:				Company:				
	Date & Time: 9/7/16 1500		Date & Time: 9-8-16 1040		Date & Time:				Date & Time:				

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 1640124		Turn-around Requested: Normal		Page: 2 of 3	
ARI Client Company: Hydrometric		Phone:		Date: 9/7/16	Ice Present? yes
Client Contact: Heidi Kauer		No. of Coolers: 4		Cooler Temps: 23-4.6	
Client Project Name: Idaho Pole		Analysis Requested			
Client Project #:		Samplers: Rebecca Fabich			
Sample ID	Date	Time	Matrix	No. Containers	Notes/Comments
9-C	9/6/16	1244	H ₂ O	2	
9-B		1256		4	
9-A	✓	1309		4	
23-B	9/7/16	819		4	
23-A		832		4	
24-B		853		2	
11-A		918		2	
11-D		918		2	
GM-6		939		4	
GM-4		958	✓	6	
Comments/Special Instructions		Relinquished by: (Signature) Rebecca Fabich		Received by: (Signature) Justin Meyer	
		Printed Name: Rebecca Fabich		Printed Name: Justin Meyer	
		Company: Idaho Pole		Company: ARI	
		Date & Time: 9/7/16 1500		Date & Time: 9-8-16 1040	



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)
 www.arilabs.com

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 1620124	Turn-around Requested: Normal	Page: 3 of 3
ARI Client Company: Hydrometric	Phone:	Date: 9/7/16
Client Contact: Heidi Kaur	No. of Coolers: 4	Ice Present? y
Client Project Name: Idaho Pole	Cooler Temps: 2.3-4.6	



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 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)
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Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested				Notes/Comments
					PCP 8040	PAH 8370	TPH-DRO		
GM-5	9/7/16	1019	H2O	4	X	X			
P-1		1059		2	X				
P-ID		1059		2	X				
22		1120		4	X	X			
15-A	✓	1142	✓	6	X	X	X		
Comments/Special Instructions	Relinquished by: (Signature) Rebecca Fabich		Received by: (Signature) Justin Meyer		Relinquished by: (Signature)		Received by: (Signature)		
	Printed Name: Rebecca Fabich		Printed Name: Justin Meyer		Printed Name:		Printed Name:		
	Company: Idaho Pole		Company: ARI		Company:		Company:		
	Date & Time: 9/7/16 1500		Date & Time: 9-8-16 1040		Date & Time:		Date & Time:		

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Hydrometries

Project Name: Idaho Pole

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 1670124

Tracking No: 784025221499 / 174025221477 NA
8047 00201088 / 784625221488

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES ☒ NO ☐

Were custody papers included with the cooler? YES ☒ NO ☐

Were custody papers properly filled out (ink, signed, etc.) YES ☒ NO ☐

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 2.3 4.6 3.3 4.3

Time: _____ Temp Gun ID#: 0005276

If cooler temperature is out of compliance fill out form 00070F

Cooler Accepted by: JM Date: 9-8-16 Time: 10:40

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES ☐ NO ☒

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA ☒ YES ☐ NO ☐

Were all bottles sealed in individual plastic bags? YES ☒ NO ☐

Did all bottles arrive in good condition (unbroken)? YES ☒ NO ☐

Were all bottle labels complete and legible? YES ☒ NO ☐

Did the number of containers listed on COC match with the number of containers received? YES ☒ NO ☐

Did all bottle labels and tags agree with custody papers? YES ☒ NO ☐

Were all bottles used correct for the requested analyses? YES ☒ NO ☐

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA ☒ YES ☐ NO ☐

Were all VOC vials free of air bubbles? NA ☒ YES ☐ NO ☐

Was sufficient amount of sample sent in each bottle? YES ☒ NO ☐

Date VOC Trip Blank was made at ARI: NA ☒

Was Sample Split by ARI: ☒ YES ☐ NO Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JM Date: 9-8-16 Time: 1130

** Notify Project Manager of discrepancies or concerns **

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions: Multiple bottles had unscrewed lids, with low volume remaining in bottles. The bottles include: 25A, 9-H
9-B, a bottle was received shattered.

By: JM Date: 9-7-16

Small Air Bubbles ~2mm 	Peabubbles 2-4 mm 	LARGE Air Bubbles > 4 mm 	Small → "sm" (< 2 mm) Peabubbles → "pb" (2 to < 4 mm) Large → "lg" (4 to < 6 mm) Headspace → "hs" (> 6 mm)
--------------------------------------	---------------------------------	--	---



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
IP-0409-339	16I0124-01	Water	06-Sep-2016 09:33	08-Sep-2016 10:40
GM-8	16I0124-02	Water	06-Sep-2016 09:50	08-Sep-2016 10:40
Res 8	16I0124-03	Water	06-Sep-2016 10:05	08-Sep-2016 10:40
27-B	16I0124-04	Water	06-Sep-2016 10:21	08-Sep-2016 10:40
16-B	16I0124-05	Water	06-Sep-2016 10:53	08-Sep-2016 10:40
25-B	16I0124-06	Water	06-Sep-2016 11:11	08-Sep-2016 10:40
25-A	16I0124-07	Water	06-Sep-2016 11:28	08-Sep-2016 10:40
26-C	16I0124-08	Water	06-Sep-2016 11:57	08-Sep-2016 10:40
26-B	16I0124-09	Water	06-Sep-2016 12:11	08-Sep-2016 10:40
26-A	16I0124-10	Water	06-Sep-2016 12:25	08-Sep-2016 10:40
9-C	16I0124-11	Water	06-Sep-2016 12:44	08-Sep-2016 10:40
9-B	16I0124-12	Water	06-Sep-2016 12:56	08-Sep-2016 10:40
9-A	16I0124-13	Water	06-Sep-2016 13:09	08-Sep-2016 10:40
23-B	16I0124-15	Water	07-Sep-2016 08:19	08-Sep-2016 10:40
23-A	16I0124-16	Water	07-Sep-2016 08:32	08-Sep-2016 10:40
24-B	16I0124-17	Water	07-Sep-2016 08:53	08-Sep-2016 10:40
11-A	16I0124-18	Water	07-Sep-2016 09:18	08-Sep-2016 10:40
11-D	16I0124-19	Water	07-Sep-2016 09:18	08-Sep-2016 10:40
GM-6	16I0124-20	Water	07-Sep-2016 09:39	08-Sep-2016 10:40
GM-4	16I0124-21	Water	07-Sep-2016 09:58	08-Sep-2016 10:40
GM-5	16I0124-22	Water	07-Sep-2016 10:19	08-Sep-2016 10:40
P-1	16I0124-23	Water	07-Sep-2016 10:59	08-Sep-2016 10:40
P-1D	16I0124-24	Water	07-Sep-2016 10:59	08-Sep-2016 10:40
22	16I0124-25	Water	07-Sep-2016 11:20	08-Sep-2016 10:40
15-A	16I0124-26	Water	07-Sep-2016 11:42	08-Sep-2016 10:40



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

Case Narrative

CASE NARRATIVE

Client: Hydrometrics, Inc.
Project: Idaho Pole
Workorder: 16I0124

Sample receipt

26 samples were received 08-Sep-2016 10:40 under ARI workorder 16I0124. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The percent recoveries for all surrogates were within established QC limits.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270D-SIM

These samples were extracted and analyzed within the recommended holding times.

All initial calibrations were within method requirements.

The percent differences (%Ds) for dibenzo(a,h)anthracene and the surrogate, d14-dibenzo(a,h)anthracene, were high for the CCAL that bracketed the analyses of these samples. All positive results for this compound and this surrogate have been qualified with a "Q" to denote the high %Ds.

The areas for all internal standards were within acceptable QC limits.

The percent recoveries for all surrogates were within established QC limits.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.



Hydrometrics, Inc.
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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
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Reported:
25-Oct-2016 08:41

Pentachlorophenol - EPA Method SW8041A

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The percent recoveries for the surrogate, 2,4,6-tribromophenol, were high for one column following the analyses of several of these samples. The percent recoveries for 2,4,6-tribromophenol were within acceptable QC limits for the secondary column. The secondary column only was used to quantitate 2,4,6-tribromophenol for these samples.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCSs.



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

IP-0409-339
16I0124-01 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 12:53

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0252 Sample Size: 500 mL
Prepared: 12-Sep-2016 Final Volume: 5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.025	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			10-181 %	59.2	%	
Surrogate: 2,4,6-Tribromophenol [2C]			10-181 %	47.3	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

GM-8
16I0124-02 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 17:14

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	115	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	86.5	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

Res 8
16I0124-03 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 17:30

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	102	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	78.2	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

27-B
16I0124-04 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 17:46

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	120	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	82.6	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

16-B
16I0124-05 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 18:02

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	24.5	ug/L	E
Surrogate: 2,4,6-Tribromophenol			26-120 %	121	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	92.9	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

16-B
16I0124-05RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 11:33

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	10	2.50	19.5	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	100	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	95.5	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

25-B
16I0124-06 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 18:18

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	118	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	86.5	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

25-A
16I0124-07 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 18:34

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	22.6	ug/L	E
Surrogate: 2,4,6-Tribromophenol			26-120 %	119	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	87.0	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

25-A
16I0124-07RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 11:49

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	10	2.50	20.3	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	113	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	111	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
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Reported:
25-Oct-2016 08:41

26-C
16I0124-08 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 18:50

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	123	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	86.4	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

26-B
16I0124-09 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 19:06

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	116	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	95.0	%	



Hydrometrics, Inc.
5602 Hesper Rd.
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Project: Idaho Pole
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Reported:
25-Oct-2016 08:41

26-A
16I0124-10 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 19:22

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	1.37	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	118	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	98.6	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

9-C
16I0124-11 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 19:54

Sample Preparation:

Preparation Method: EPA 3510C SepF

Preparation Batch: BEI0251

Prepared: 13-Sep-2016

Sample Size: 500 mL

Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	121	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	86.4	%	



Hydrometrics, Inc.
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Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

9-B
16I0124-12 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 20:10

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	9.69	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	126	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	88.2	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

9-B
16I0124-12 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 14-Sep-2016 21:10

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0295 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.131	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	105	%	



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5602 Hesper Rd.
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Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

9-A
16I0124-13 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 20:26

Sample Preparation:

Preparation Method: EPA 3510C SepF

Preparation Batch: BEI0251

Prepared: 13-Sep-2016

Sample Size: 500 mL

Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	2.88	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	124	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	85.7	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

9-A
16I0124-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 14-Sep-2016 21:33

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0295 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	1.08	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	0.782	mg/L	
HC ID: RRO						
Surrogate: o-Terphenyl			50-150 %	104	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

23-B
1610124-15 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 20-Sep-2016 19:09

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0301 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0184 Initial Volume: 0.5 mL
Cleaned: 19-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	57.9	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	41.8	%	Q
Surrogate: Fluoranthene-d10			46-121 %	80.7	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

23-B
16I0124-15 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 20:42

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	116	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	81.2	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

23-A
1610124-16 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 20-Sep-2016 19:35

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0301 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0184 Initial Volume: 0.5 mL
Cleaned: 19-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	61.2	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	76.5	%	Q
Surrogate: Fluoranthene-d10			46-121 %	83.7	%	



Hydrometrics, Inc.
5602 Hesper Rd.
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Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

23-A
16I0124-16 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 20:58

Sample Preparation:

Preparation Method: EPA 3510C SepF

Preparation Batch: BEI0251

Prepared: 13-Sep-2016

Sample Size: 500 mL

Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	2.03	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	125	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	86.6	%	



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Project: Idaho Pole
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Reported:
25-Oct-2016 08:41

24-B
16I0124-17 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 21:14

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	4.31	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	137	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	92.7	%	



Hydrometrics, Inc.
5602 Hesper Rd.
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Project: Idaho Pole
Project Number: Idaho Pole
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Reported:
25-Oct-2016 08:41

11-A
16I0124-18 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 21:30

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	0.91	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	114	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	76.7	%	



Hydrometrics, Inc.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

11-D
1610124-19 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 21:46

Sample Preparation:

Preparation Method: EPA 3510C SepF

Preparation Batch: BEI0251

Prepared: 13-Sep-2016

Sample Size: 500 mL

Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	0.81	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	114	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	76.5	%	



Hydrometrics, Inc.
5602 Hesper Rd.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

GM-6
1610124-20 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 20-Sep-2016 20:01

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0301 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0184 Initial Volume: 0.5 mL
Cleaned: 19-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	56.5	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	35.7	%	Q
Surrogate: Fluoranthene-d10			46-121 %	84.3	%	



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Project: Idaho Pole
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Reported:
25-Oct-2016 08:41

GM-6
16I0124-20 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 22:02

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	2.80	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	118	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	76.0	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

GM-4
1610124-21 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 20-Sep-2016 20:27

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0301 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0184 Initial Volume: 0.5 mL
Cleaned: 19-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	63.0	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	75.9	%	Q
Surrogate: Fluoranthene-d10			46-121 %	88.3	%	



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Project: Idaho Pole
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Reported:
25-Oct-2016 08:41

GM-4
16I0124-21 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 22:18

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	58.7	ug/L	E
Surrogate: 2,4,6-Tribromophenol			26-120 %	130	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	85.1	%	



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Project: Idaho Pole
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Reported:
25-Oct-2016 08:41

GM-4
16I0124-21 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 14-Sep-2016 21:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0295 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.382	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	100	%	



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Project: Idaho Pole
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Reported:
25-Oct-2016 08:41

GM-4
16I0124-21RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 12:05

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0251 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	20	5.00	79.8	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	104	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	115	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

GM-5
1610124-22 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 20-Sep-2016 20:52

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0301 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0184 Initial Volume: 0.5 mL
Cleaned: 19-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	0.45	ug/L	
Acenaphthylene	208-96-8	1	0.10	0.11	ug/L	
Acenaphthene	83-32-9	1	0.10	2.01	ug/L	
Fluorene	86-73-7	1	0.10	1.67	ug/L	
Phenanthrene	85-01-8	1	0.10	0.70	ug/L	
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	59.2	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	26.9	%	Q
Surrogate: Fluoranthene-d10			46-121 %	73.3	%	



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Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

GM-5
16I0124-22 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 23:38

Sample Preparation:

Preparation Method: EPA 3510C SepF

Preparation Batch: BEI0221

Prepared: 12-Sep-2016

Sample Size: 500 mL

Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	120	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	74.8	%	



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Reported:
25-Oct-2016 08:41

P-1
16I0124-23 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 16-Sep-2016 23:53

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0221 Sample Size: 500 mL
Prepared: 12-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	121	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	77.8	%	



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Reported:
25-Oct-2016 08:41

P-1D
16I0124-24 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 17-Sep-2016 00:09

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0221 Sample Size: 500 mL
Prepared: 12-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	7.48	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	129	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	80.8	%	



Hydrometrics, Inc.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

22
1610124-25 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 20-Sep-2016 21:18

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0301 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0184 Initial Volume: 0.5 mL
Cleaned: 19-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	53.6	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	96.0	%	Q
Surrogate: Fluoranthene-d10			46-121 %	83.7	%	



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Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

22
16I0124-25 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 17-Sep-2016 00:25

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0221 Sample Size: 500 mL
Prepared: 12-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	116	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	71.2	%	



Hydrometrics, Inc.
5602 Hesper Rd.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

15-A
1610124-26 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 20-Sep-2016 21:44

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0301 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0184 Initial Volume: 0.5 mL
Cleaned: 19-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	0.39	ug/L	
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	0.77	ug/L	
Fluorene	86-73-7	1	0.10	0.63	ug/L	
Phenanthrene	85-01-8	1	0.10	0.79	ug/L	
Anthracene	120-12-7	1	0.10	0.40	ug/L	
Fluoranthene	206-44-0	1	0.10	0.30	ug/L	
Pyrene	129-00-0	1	0.10	0.26	ug/L	
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	57.6	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	96.2	%	Q
Surrogate: Fluoranthene-d10			46-121 %	84.4	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

15-A
16I0124-26 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 17-Sep-2016 00:41

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0221 Sample Size: 500 mL
Prepared: 12-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	0.66	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	109	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	65.7	%	



Hydrometrics, Inc.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

15-A
16I0124-26 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 14-Sep-2016 22:16

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0295 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.618	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	103	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

Semivolatile Organic Compounds - Quality Control

Batch BEI0301 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0301-BLK1)		Prepared: 13-Sep-2016 Analyzed: 20-Sep-2016 17:52								
Naphthalene	ND	0.10	ug/L							U
Acenaphthylene	ND	0.10	ug/L							U
Acenaphthene	ND	0.10	ug/L							U
Fluorene	ND	0.10	ug/L							U
Phenanthrene	ND	0.10	ug/L							U
Anthracene	ND	0.10	ug/L							U
Fluoranthene	ND	0.10	ug/L							U
Pyrene	ND	0.10	ug/L							U
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(b)fluoranthene	ND	0.10	ug/L							U
Benzo(k)fluoranthene	ND	0.10	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Benzo(g,h,i)perylene	ND	0.10	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.20	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	1.64		ug/L	3.00		54.5	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.46		ug/L	3.00		82.1	10-125			Q
Surrogate: Fluoranthene-d10	2.74		ug/L	3.00		91.5	46-121			
LCS (BEI0301-BS1)		Prepared: 13-Sep-2016 Analyzed: 20-Sep-2016 18:18								
Naphthalene	1.56	0.10	ug/L	3.00		51.9	33-120			
Acenaphthylene	1.77	0.10	ug/L	3.00		58.8	32-120			
Acenaphthene	1.78	0.10	ug/L	3.00		59.4	38-120			
Fluorene	1.74	0.10	ug/L	3.00		58.1	41-120			
Phenanthrene	2.09	0.10	ug/L	3.00		69.8	49-120			
Anthracene	2.12	0.10	ug/L	3.00		70.5	39-120			
Fluoranthene	2.47	0.10	ug/L	3.00		82.5	48-120			
Pyrene	1.69	0.10	ug/L	3.00		56.3	48-120			
Benzo(a)anthracene	2.29	0.10	ug/L	3.00		76.2	37-120			
Chrysene	2.32	0.10	ug/L	3.00		77.4	48-120			
Benzo(b)fluoranthene	2.40	0.10	ug/L	3.00		80.1	38-128			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

Semivolatile Organic Compounds - Quality Control

Batch BEI0301 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BEI0301-BS1)		Prepared: 13-Sep-2016 Analyzed: 20-Sep-2016 18:18							
Benzo(k)fluoranthene	2.38	0.10	ug/L	3.00		79.4	36-130		
Benzo(a)pyrene	2.15	0.10	ug/L	3.00		71.7	25-120		
Indeno(1,2,3-cd)pyrene	2.40	0.10	ug/L	3.00		80.1	32-120		
Dibenzo(a,h)anthracene	2.45	0.10	ug/L	3.00		81.6	21-120		Q
Benzo(g,h,i)perylene	2.36	0.10	ug/L	3.00		78.6	28-120		
Benzo(a)fluoranthene, Total	7.27	0.20	ug/L	9.00		80.8	46-120		
Surrogate: 2-Methylnaphthalene-d10		1.63	ug/L	3.00		54.2	31-120		
Surrogate: Dibenzo[a,h]anthracene-d14		2.53	ug/L	3.00		84.4	10-125		Q
Surrogate: Fluoranthene-d10		2.59	ug/L	3.00		86.2	46-121		



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

Phenols - Quality Control

Batch BEI0221 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0221-BLK1) Prepared: 12-Sep-2016 Analyzed: 16-Sep-2016 22:50									
Pentachlorophenol	ND	0.25	ug/L						U
Surrogate: 2,4,6-Tribromophenol	2.33		ug/L	2.50		93.2	26-120		
Surrogate: 2,4,6-Tribromophenol [2C]	1.54		ug/L	2.50		61.4	26-120		
LCS (BEI0221-BS1) Prepared: 12-Sep-2016 Analyzed: 16-Sep-2016 23:06									
Pentachlorophenol	1.51	0.25	ug/L	2.50		60.4	48-120		
Surrogate: 2,4,6-Tribromophenol	3.07		ug/L	2.50		123*	26-120		*
Surrogate: 2,4,6-Tribromophenol [2C]	2.00		ug/L	2.50		80.2	26-120		



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

Phenols - Quality Control

Batch BEI0251 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0251-BLK1)		Prepared: 13-Sep-2016 Analyzed: 16-Sep-2016 16:42								
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol		1.53	ug/L	2.50		61.3	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]		1.18	ug/L	2.50		47.3	26-120			
LCS (BEI0251-BS1)		Prepared: 13-Sep-2016 Analyzed: 16-Sep-2016 16:58								
Pentachlorophenol	1.23	0.25	ug/L	2.50		49.0	48-120			
Surrogate: 2,4,6-Tribromophenol		2.19	ug/L	2.50		87.6	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]		1.74	ug/L	2.50		69.6	26-120			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

Phenols - Quality Control

Batch BEI0252 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0252-BLK1)									
Prepared: 12-Sep-2016 Analyzed: 21-Sep-2016 12:21									
Pentachlorophenol	ND	0.025	ug/L						U
Surrogate: 2,4,6-Tribromophenol	0.139		ug/L	0.250		55.7	10-181		
Surrogate: 2,4,6-Tribromophenol [2C]	0.112		ug/L	0.250		45.0	10-181		
LCS (BEI0252-BS1)									
Prepared: 12-Sep-2016 Analyzed: 21-Sep-2016 12:37									
Pentachlorophenol	0.165	0.025	ug/L	0.250		66.1	36-159		
Surrogate: 2,4,6-Tribromophenol	0.158		ug/L	0.250		63.4	10-181		
Surrogate: 2,4,6-Tribromophenol [2C]	0.138		ug/L	0.250		55.3	10-181		



Hydrometrics, Inc.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

Petroleum Hydrocarbons - Quality Control

Batch BEI0295 - EPA 3510C SepF

Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0295-BLK1) Prepared: 13-Sep-2016 Analyzed: 14-Sep-2016 20:26									
Diesel Range Organics (C12-C24)	ND	0.100	mg/L						U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L						U
Surrogate: o-Terphenyl	0.0922		mg/L	0.0900		102	50-150		
LCS (BEI0295-BS1) Prepared: 13-Sep-2016 Analyzed: 14-Sep-2016 20:49									
Diesel Range Organics (C12-C24)	2.50	0.100	mg/L	3.00		83.5	70-120		
Surrogate: o-Terphenyl	0.0904		mg/L	0.0900		100	50-150		



Hydrometrics, Inc.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

Certified Analyses included in this Report

Analyte	Certifications
NWTPH-Dx in Water	
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 08:41

Notes and Definitions

U	This analyte is not detected above the applicable reporting or detection limit.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
J	Estimated concentration value detected below the reporting limit.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D1	Surrogate was not detected due to sample extract dilution
D	The reported value is from a dilution
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

26 October 2016

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

RE: Idaho Pole

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
1610147

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Mark Harris, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: **16T0147** Turn-around Requested: **Normal**

ARI Client Company: **Hydrometric** Phone: _____

Client Contact: **Heidi Kauer**

Client Project Name: **Idaho Pole**

Client Project #: _____ Samplers: **Rebecca Fabich**

Page: **1** of **1**

Date: **9/8/16** Ice Present? **yes**

No. of Coolers: **2** Cooler Temps: **0.3-2.3**



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested								Notes/Comments	
					PCP 8040	PAH 8070	OTHER 8080							
EW-1	9/7/16	1433	H ₂ O	4	X		X							
P-4	↓	1452		4	X		X							
P-2	9/8/16	811		4	X		X							
5-C		832		2	X									
5-D		832		2	X									
5-B		848		2	X									
5-A		902		6	X	X	X							
1W-3		934		2	X									
1W-2		959		2	X									
1W-1	↓	1019	↓	2	X									

Comments/Special Instructions	Relinquished by: (Signature) <i>Rebecca Fabich</i>	Received by: (Signature) <i>Justin Meyer</i>	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: Rebecca Fabich	Printed Name: Justin Meyer	Printed Name:	Printed Name:
	Company: Idaho Pole	Company: ARR	Company:	Company:
	Date & Time: 9/8/16 1400	Date & Time: 9-9-16 11:00	Date & Time:	Date & Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

ARI Assigned Number: 1610147		Turn-around Requested: Normal		Page: 1 of 1											
ARI Client Company: Hydrometris		Phone:		Date: 9/8/16	Ice Present? yes										
Client Contact: Heidi Kaiser				No. of Coolers: 2	Cooler Temps: 2.3-0.3										
Client Project Name: Idaho Pole - GRS		Analysis Requested													
Client Project #:		Samplers: Rebecca Fabich													
Sample ID	Date	Time	Matrix	No. Containers	PCP 8040	PAH 8200	SIM 8200								
BFEG (SP-2)	9/8/16	1105	H ₂ O	4	X	X									
SP-7	↓	1140	↓	2			X								
Comments/Special Instructions		Relinquished by: (Signature) Rebecca Fabich		Received by: (Signature) Justin Meyer		Relinquished by: (Signature)		Received by: (Signature)							
		Printed Name: Rebecca Fabich		Printed Name: Justin Meyer		Printed Name:		Printed Name:							
		Company: Idaho Pole		Company: ARI		Company:		Company:							
		Date & Time: 9/8/16 1400		Date & Time: 9-9-16 1100		Date & Time:		Date & Time:							

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Hydrometries

Project Name: Idaho Pole

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: _____

Tracking No: 784037029866 807700201169 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES NO

Were custody papers included with the cooler? _____

YES NO

Were custody papers properly filled out (ink, signed, etc.) _____

YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time: 0.3 2.3

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 025276

Cooler Accepted by: Jim Date: 9-9-16 Time: 1100

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? _____

NA YES NO

Were all bottles sealed in individual plastic bags? _____

YES NO

Did all bottles arrive in good condition (unbroken)? _____

YES NO

Were all bottle labels complete and legible? _____

YES NO

Did the number of containers listed on COC match with the number of containers received? _____

YES NO

Did all bottle labels and tags agree with custody papers? _____

YES NO

Were all bottles used correct for the requested analyses? _____

YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

NA YES NO

Were all VOC vials free of air bubbles? _____

NA YES NO

Was sufficient amount of sample sent in each bottle? _____

YES NO

Date VOC Trip Blank was made at ARI: _____

NA

Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: TR Date: 9-9-16 Time: 1154

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
<u>IW-3</u>	<u>IW-1</u>		

Additional Notes, Discrepancies, & Resolutions:

Matched incorrect bottles against time and date
sampled to correctly I.D.

By: TR Date: 9-9-16

Small Air Bubbles - 2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm	Small → "sm" (< 2 mm)
			Peabubbles → "pb" (2 to < 4 mm)
			Large → "lg" (4 to < 6 mm)
			Headspace → "hs" (> 6 mm)



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
26-Oct-2016 11:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EW-1	16I0147-01	Water	07-Sep-2016 14:33	09-Sep-2016 11:00
P-4	16I0147-02	Water	07-Sep-2016 14:52	09-Sep-2016 11:00
P-2	16I0147-03	Water	08-Sep-2016 08:11	09-Sep-2016 11:00
5-C	16I0147-04	Water	08-Sep-2016 08:32	09-Sep-2016 11:00
5-D	16I0147-05	Water	08-Sep-2016 08:32	09-Sep-2016 11:00
5-B	16I0147-06	Water	08-Sep-2016 08:48	09-Sep-2016 11:00
5-A	16I0147-07	Water	08-Sep-2016 09:02	09-Sep-2016 11:00
IW-3	16I0147-08	Water	08-Sep-2016 09:34	09-Sep-2016 11:00
IW-2	16I0147-09	Water	08-Sep-2016 09:59	09-Sep-2016 11:00
IW-1	16I0147-10	Water	08-Sep-2016 10:19	09-Sep-2016 11:00
BFEG (SP-2)	16I0147-11	Water	08-Sep-2016 11:05	09-Sep-2016 11:00
SP-7	16I0147-12	Water	08-Sep-2016 11:40	09-Sep-2016 11:00



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
26-Oct-2016 11:36

Case Narrative

CASE NARRATIVE

Client: Hydrometrics, Inc.
Project: Idaho Pole
Workorder: 16I0147

Sample receipt

12 samples were received 09-Sep-2016 11:00 under ARI workorder 16I0147. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The percent recoveries for all surrogates were within established QC limits.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270D-SIM

These samples were extracted and analyzed within the recommended holding times.

All initial calibrations were within method requirements.

The percent differences (%Ds) for benzo(g,h,i)perylene, dibenzo(a,h)anthracene and/or the surrogate, d14-dibenzo(a,h)anthracene, were high for the CCALs that bracketed the analyses of these samples. All positive results for these compounds and this surrogate have been qualified with a "Q" to denote the high %Ds.

The areas for all internal standards were within acceptable QC limits.

The percent recover for the surrogate, d14-dibenzo(a,h)anthracene was high following the analysis of sample 5-A.



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No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.

Pentachlorophenol - EPA Method SW8041A

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The percent recoveries for the surrogate, 2,4,6-tribromophenol, were high for one column following the analyses of sample 5-D and the corresponding method blank. The percent recoveries for 2,4,6-tribromophenol were within acceptable QC limits for the secondary column. The secondary column only was used to quantitate 2,4,6-tribromophenol for these samples.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.



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Project Manager: Heidi Kaiser

Reported:
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EW-1
16I0147-01 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 13:57

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	502	ug/L	P1, E
Surrogate: 2,4,6-Tribromophenol			26-120 %	115	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	98.3	%	



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Reported:
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EW-1
16I0147-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 16-Sep-2016 20:25

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0311 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.692	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	77.8	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
26-Oct-2016 11:36

EW-1
16I0147-01RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 23-Sep-2016 14:04

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	100	25.0	400	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %		DI	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		DI	D1



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Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
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P-4
16I0147-02 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 14:13

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	509	ug/L	P1, E
Surrogate: 2,4,6-Tribromophenol			26-120 %	100	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	75.1	%	



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Reported:
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P-4
16I0147-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 16-Sep-2016 20:50

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0311 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	1.23	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	58.4	%	



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Reported:
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P-4
16I0147-02RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 23-Sep-2016 14:20

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	100	25.0	377	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %		DI	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		DI	D1



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Reported:
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P-2
16I0147-03 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 14:29

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	297	ug/L	P1, E
Surrogate: 2,4,6-Tribromophenol			26-120 %	111	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	89.5	%	



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Reported:
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P-2
16I0147-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 16-Sep-2016 21:14

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0311 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.459	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	93.6	%	



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Reported:
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P-2
16I0147-03RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 23-Sep-2016 14:36

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	50	12.5	139	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Reported:
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5-C
16I0147-04 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 14:45

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	0.57	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	119	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	80.7	%	



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Reported:
26-Oct-2016 11:36

5-D
16I0147-05 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 15:01

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	124	%	*
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	84.4	%	



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Reported:
26-Oct-2016 11:36

5-B
16I0147-06 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 15:17

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	6.93	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	118	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	88.4	%	



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Reported:
26-Oct-2016 11:36

5-A
1610147-07 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 21-Sep-2016 14:16

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0301 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0184 Initial Volume: 0.5 mL
Cleaned: 19-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	10	1.00	8.92	ug/L	D
Acenaphthylene	208-96-8	10	1.00	13.4	ug/L	D
Acenaphthene	83-32-9	10	1.00	85.1	ug/L	D
Fluorene	86-73-7	10	1.00	37.7	ug/L	D
Phenanthrene	85-01-8	10	1.00	87.3	ug/L	D
Anthracene	120-12-7	10	1.00	22.0	ug/L	D
Fluoranthene	206-44-0	10	1.00	51.3	ug/L	D
Pyrene	129-00-0	10	1.00	40.1	ug/L	D
Benzo(a)anthracene	56-55-3	10	1.00	15.0	ug/L	D
Chrysene	218-01-9	10	1.00	16.9	ug/L	D
Benzo(b)fluoranthene	205-99-2	10	1.00	7.73	ug/L	D
Benzo(k)fluoranthene	207-08-9	10	1.00	4.23	ug/L	D
Benzo(a)pyrene	50-32-8	10	1.00	7.69	ug/L	D
Indeno(1,2,3-cd)pyrene	193-39-5	10	1.00	1.47	ug/L	D
Dibenzo(a,h)anthracene	53-70-3	10	1.00	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	10	1.00	ND	ug/L	Q, U
Benzo(a)fluoranthene, Total		10	2.00	16.1	ug/L	D
Surrogate: 2-Methylnaphthalene-d10			31-120 %	100	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	32.2	%	
Surrogate: Fluoranthene-d10			46-121 %	155	%	*



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Reported:
26-Oct-2016 11:36

5-A
16I0147-07 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 15:33

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	685	ug/L	E
Surrogate: 2,4,6-Tribromophenol			26-120 %	98.6	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	69.2	%	



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Reported:
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5-A
16I0147-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 16-Sep-2016 21:38

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0311 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	56.6	mg/L	E
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	4.07	mg/L	
Surrogate: o-Terphenyl			50-150 %		NRS	NRS, U



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Reported:
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5-A
16I0147-07RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 23-Sep-2016 14:52

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	200	50.0	1450	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Reported:
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5-A
16I0147-07RE1 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID3

Analyzed: 19-Sep-2016 15:22

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0311 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		50	5.00	54.2	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		50	10.0	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %		D1	D1, U



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Reported:
26-Oct-2016 11:36

IW-3
16I0147-08 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 15:49

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	7.27	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	86.6	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	51.5	%	



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Reported:
26-Oct-2016 11:36

IW-2
16I0147-09 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 16:05

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	5.48	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	118	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	81.2	%	



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Reported:
26-Oct-2016 11:36

IW-1
1610147-10 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 16:21

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	153	ug/L	P1, E
Surrogate: 2,4,6-Tribromophenol			26-120 %	116	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	86.1	%	



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Reported:
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IW-1
16I0147-10RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 23-Sep-2016 15:08

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	50	12.5	114	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
26-Oct-2016 11:36

BFEG (SP-2)
16I0147-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 20-Sep-2016 22:35

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0301 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0184 Initial Volume: 0.5 mL
Cleaned: 19-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	0.50	ug/L	
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	0.27	ug/L	
Pyrene	129-00-0	1	0.10	0.34	ug/L	
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	70.9	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	99.3	%	Q
Surrogate: Fluoranthene-d10			46-121 %	93.9	%	



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Project Manager: Heidi Kaiser

Reported:
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BFEG (SP-2)
16I0147-11 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Sep-2016 16:37

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEI0310 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	7.41	ug/L	P1
Surrogate: 2,4,6-Tribromophenol			26-120 %	112	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	78.0	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
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SP-7
16I0147-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 20-Sep-2016 23:01

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEI0301 Sample Size: 500 mL
Prepared: 13-Sep-2016 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel
Cleanup Batch: CEI0184 Initial Volume: 0.5 mL
Cleaned: 19-Sep-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	ND	ug/L	U
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	ND	ug/L	U
Pyrene	129-00-0	1	0.10	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	56.3	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	45.6	%	Q
Surrogate: Fluoranthene-d10			46-121 %	86.5	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
26-Oct-2016 11:36

Semivolatile Organic Compounds - Quality Control

Batch BEI0301 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0301-BLK1)		Prepared: 13-Sep-2016 Analyzed: 20-Sep-2016 17:52								
Naphthalene	ND	0.10	ug/L							U
Acenaphthylene	ND	0.10	ug/L							U
Acenaphthene	ND	0.10	ug/L							U
Fluorene	ND	0.10	ug/L							U
Phenanthrene	ND	0.10	ug/L							U
Anthracene	ND	0.10	ug/L							U
Fluoranthene	ND	0.10	ug/L							U
Pyrene	ND	0.10	ug/L							U
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(b)fluoranthene	ND	0.10	ug/L							U
Benzo(k)fluoranthene	ND	0.10	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Benzo(g,h,i)perylene	ND	0.10	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.20	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	1.64		ug/L	3.00		54.5	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.46		ug/L	3.00		82.1	10-125			Q
Surrogate: Fluoranthene-d10	2.74		ug/L	3.00		91.5	46-121			
LCS (BEI0301-BS1)		Prepared: 13-Sep-2016 Analyzed: 20-Sep-2016 18:18								
Naphthalene	1.56	0.10	ug/L	3.00		51.9	33-120			
Acenaphthylene	1.77	0.10	ug/L	3.00		58.8	32-120			
Acenaphthene	1.78	0.10	ug/L	3.00		59.4	38-120			
Fluorene	1.74	0.10	ug/L	3.00		58.1	41-120			
Phenanthrene	2.09	0.10	ug/L	3.00		69.8	49-120			
Anthracene	2.12	0.10	ug/L	3.00		70.5	39-120			
Fluoranthene	2.47	0.10	ug/L	3.00		82.5	48-120			
Pyrene	1.69	0.10	ug/L	3.00		56.3	48-120			
Benzo(a)anthracene	2.29	0.10	ug/L	3.00		76.2	37-120			
Chrysene	2.32	0.10	ug/L	3.00		77.4	48-120			
Benzo(b)fluoranthene	2.40	0.10	ug/L	3.00		80.1	38-128			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
26-Oct-2016 11:36

Semivolatile Organic Compounds - Quality Control

Batch BEI0301 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEI0301-BS1)		Prepared: 13-Sep-2016 Analyzed: 20-Sep-2016 18:18								
Benzo(k)fluoranthene	2.38	0.10	ug/L	3.00		79.4	36-130			
Benzo(a)pyrene	2.15	0.10	ug/L	3.00		71.7	25-120			
Indeno(1,2,3-cd)pyrene	2.40	0.10	ug/L	3.00		80.1	32-120			
Dibenzo(a,h)anthracene	2.45	0.10	ug/L	3.00		81.6	21-120			Q
Benzo(g,h,i)perylene	2.36	0.10	ug/L	3.00		78.6	28-120			
Benzo(a)fluoranthene, Total	7.27	0.20	ug/L	9.00		80.8	46-120			
Surrogate: 2-Methylnaphthalene-d10		1.63	ug/L	3.00		54.2	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14		2.53	ug/L	3.00		84.4	10-125			Q
Surrogate: Fluoranthene-d10		2.59	ug/L	3.00		86.2	46-121			



Hydrometrics, Inc.
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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
26-Oct-2016 11:36

Phenols - Quality Control

Batch BEI0310 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0310-BLK1)		Prepared: 13-Sep-2016 Analyzed: 21-Sep-2016 13:25								
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol	3.07		ug/L	2.50		123	26-120			*
Surrogate: 2,4,6-Tribromophenol [2C]	2.32		ug/L	2.50		93.0	26-120			
LCS (BEI0310-BS1)		Prepared: 13-Sep-2016 Analyzed: 21-Sep-2016 13:41								
Pentachlorophenol	1.95	0.25	ug/L	2.50		78.0	48-120			
Surrogate: 2,4,6-Tribromophenol	2.82		ug/L	2.50		113	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	2.27		ug/L	2.50		90.8	26-120			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
26-Oct-2016 11:36

Petroleum Hydrocarbons - Quality Control

Batch BEI0311 - EPA 3510C SepF

Instrument: FID3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BEI0311-BLK1) Prepared: 13-Sep-2016 Analyzed: 16-Sep-2016 19:36									
Diesel Range Organics (C12-C24)	ND	0.100	mg/L						U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L						U
Surrogate: o-Terphenyl		0.0818	mg/L	0.0900		90.9	50-150		
LCS (BEI0311-BS1) Prepared: 13-Sep-2016 Analyzed: 16-Sep-2016 20:01									
Diesel Range Organics (C12-C24)	2.19	0.100	mg/L	3.00		73.1	70-120		
Surrogate: o-Terphenyl		0.0758	mg/L	0.0900		84.2	50-150		



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Project Manager: Heidi Kaiser

Reported:
26-Oct-2016 11:36

Certified Analyses included in this Report

Analyte	Certifications
NWTPH-Dx in Water	
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
26-Oct-2016 11:36

Notes and Definitions

U	This analyte is not detected above the applicable reporting or detection limit.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
P1	The reported value is greater than 40% RPD between the concentrations determined on two GC columns where applicable.
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
NRS	This surrogate not reported due to chromatographic interference
J	Estimated concentration value detected below the reporting limit.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D1	Surrogate was not detected due to sample extract dilution
D	The reported value is from a dilution
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

25 October 2016

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

RE: Idaho Pole

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)

16J0117

Associated SDG ID(s)

N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Mark Harris, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

ARI Assigned Number: 1650117	Turn-around Requested: Normal	Page: 2 of 2
ARI Client Company: Hydrometric	Phone:	Date: 10/6/16 Ice Present? yes
Client Contact: Heidi Kawan	No. of Coolers: 3	Cooler Temps: 4-7, 5.4

Client Project Name: Idaho POB					Analysis Requested								Notes/Comments
Client Project #:	Samplers: Rebecca Fabich				PCP 8040	PAH-DRD	PAH 8270	SIM 8270					
Sample ID	Date	Time	Matrix	No. Containers									
P-ID	10/6/16	1248	H₂O	4	X	X							
SP-7		805		2				X					
SP-2	↓	815	↓	4	X		X						
Comments/Special Instructions	Relinquished by: (Signature) Rebecca Fabich		Received by: (Signature) Tyler Rankin		Relinquished by: (Signature)				Received by: (Signature)				
	Printed Name: Rebecca Fabich		Printed Name: Tyler Rankin		Printed Name:				Printed Name:				
	Company: Idaho POB		Company: ARI		Company:				Company:				
	Date & Time: 10/6/16 1450		Date & Time: 10-7-16 @ 1000		Date & Time:				Date & Time:				

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 1650117	Turn-around Requested: Normal	Page: 1 of 2
ARI Client Company: Hydrometric	Phone:	Date: 10/6/16
Client Contact: Heidi Kauer	No. of Coolers: 3	Ice Present? yes
Client Project Name: Idaho Pol	Cooler Temps: 4.7, 5.4	



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)
 www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested								Notes/Comments	
					PCP	8040	TPH	DRO						
9-B	10/6/16	919	H ₂ O	4	X	X								
9-A		934		4	X	X								
12-A		1002		4	X	X								
11-A		1020		4	X	X								
GM-4		1041		4	X	X								
EW-1		1106		4	X	X								
P-4		1121		4	X	X								
P-2		1145		4	X	X								
5-A		1205		4	X	X								
P-1		1248		4	X	X								

Comments/Special Instructions	Relinquished by: (Signature) Rebecca Fabich	Received by: [Signature] (Signature)	Relinquished by:	Received by:
	Printed Name: Rebecca Fabich	Printed Name: Tyler Rankin	(Signature)	(Signature)
	Company: Idaho Pol	Company: ARI	Printed Name:	Printed Name:
	Date & Time: 10/6/16 1450	Date & Time: 10-7-16 1000	Company:	Company:
			Date & Time:	Date & Time:

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Hydrometrics

COC No(s): _____ NA

Assigned ARI Job No: 165017

Preliminary Examination Phase:

Project Name: Idaho Pole

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: 8097 0020 1103
7842 8489 9501 NA

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES NO

Were custody papers included with the cooler? _____

YES NO

Were custody papers properly filled out (ink, signed, etc.) _____

YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time: _____

4.7 5.4

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D005276

Cooler Accepted by: TR Date: 10-7-16 Time: 1000

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? _____

NA YES NO

Were all bottles sealed in individual plastic bags? _____

YES NO

Did all bottles arrive in good condition (unbroken)? _____

YES NO

Were all bottle labels complete and legible? _____

YES NO

Did the number of containers listed on COC match with the number of containers received? _____

YES NO

Did all bottle labels and tags agree with custody papers? _____

YES NO

Were all bottles used correct for the requested analyses? _____

YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

NA YES NO

Were all VOC vials free of air bubbles? _____

NA YES NO

Was sufficient amount of sample sent in each bottle? _____

YES NO

Date VOC Trip Blank was made at ARI: _____

NA

Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____

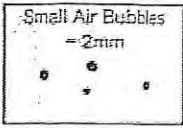
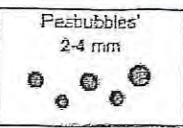
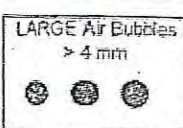
Samples Logged by: JM Date: 10-7-16 Time: 1055

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions: 9-B, 9-A, 12-A, 11-A, and 2 bottles of GM4 not received with other samples.

By: JM Date: 10-7-16

 Small Air Bubbles = 2mm	 Peabubbles 2-4 mm	 LARGE Air Bubbles > 4 mm	Small → "sm" (< 2 mm)
			Peabubbles → "pb" (2 to < 4 mm)
			Large → "lg" (4 to < 6 mm)
			Headspace → "hs" (> 6 mm)



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
9-B	16J0117-01	Water	06-Oct-2016 09:19	07-Oct-2016 10:00
9-A	16J0117-02	Water	06-Oct-2016 09:34	07-Oct-2016 10:00
12-A	16J0117-03	Water	06-Oct-2016 10:02	07-Oct-2016 10:00
11-A	16J0117-04	Water	06-Oct-2016 10:20	07-Oct-2016 10:00
GM-4	16J0117-05	Water	06-Oct-2016 10:41	07-Oct-2016 10:00
EW-1	16J0117-06	Water	06-Oct-2016 11:06	07-Oct-2016 10:00
P-4	16J0117-07	Water	06-Oct-2016 11:21	07-Oct-2016 10:00
P-2	16J0117-08	Water	06-Oct-2016 11:45	07-Oct-2016 10:00
5-A	16J0117-09	Water	06-Oct-2016 12:05	07-Oct-2016 10:00
P-1D	16J0117-10	Water	06-Oct-2016 12:48	07-Oct-2016 10:00
SP-7	16J0117-11	Water	06-Oct-2016 08:05	07-Oct-2016 10:00
SP-2	16J0117-12	Water	06-Oct-2016 08:15	07-Oct-2016 10:00
P-1	16J0117-13	Water	06-Oct-2016 12:48	07-Oct-2016 10:00



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

Case Narrative

CASE NARRATIVE

Client: Hydrometrics, Inc.
Project: Idaho Pole
Workorder: 16J0117

Sample receipt

13 samples were received 07-Oct-2016 10:00 under ARI workorder 16J0117. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The percent recoveries for all surrogates were within established QC limits.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270D-SIM

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The areas for all internal standards were within acceptable QC limits.

The percent recoveries for all surrogates were within established QC limits.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.

Polynuclear Aromatic Hydrocarbons (PAH) + PCP - EPA Method SW8270D-SIM

These samples were extracted and analyzed within the recommended holding times.



Hydrometrics, Inc.
5602 Hesper Rd.
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Project: Idaho Pole
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Reported:
25-Oct-2016 07:20

All initial calibrations were within method requirements.

The percent differences (%Ds) for two surrogates were high for the CCAL that bracketed the analyses of these samples. All positive results for these surrogates have been flagged with a "Q" qualifier to denote the high %Ds.

The areas for all internal standards were within acceptable QC limits.

The percent recoveries for all surrogates were within established QC limits.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.

Pentachlorophenol - EPA Method SW8041A

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The percent recoveries for all surrogates were within established QC limits.

No target compounds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

9-B
16J0117-01 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 20:28

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362
Prepared: 12-Oct-2016

Sample Size: 500 mL
Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	11.9	ug/L	E
Surrogate: 2,4,6-Tribromophenol			26-120 %	45.2	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	34.6	%	



Hydrometrics, Inc.
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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

9-B
16J0117-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 14:12

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	90.7	%	



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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

9-B
16J0117-01RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Oct-2016 17:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	2	0.50	12.4	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	55.2	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	37.5	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

9-A
16J0117-02 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 20:46

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	3.45	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	66.3	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	42.0	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

9-A
16J0117-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 14:32

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	84.4	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

12-A
16J0117-03 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 21:04

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	64.3	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	41.9	%	



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Reported:
25-Oct-2016 07:20

12-A
16J0117-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 14:52

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	85.1	%	



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Reported:
25-Oct-2016 07:20

11-A
16J0117-04 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 21:40

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	1.55	ug/L	P1
Surrogate: 2,4,6-Tribromophenol			26-120 %	54.9	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	42.4	%	



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Reported:
25-Oct-2016 07:20

11-A
16J0117-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 15:12

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	84.2	%	



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Reported:
25-Oct-2016 07:20

GM-4
16J0117-05 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 21:58

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	97.2	ug/L	E
Surrogate: 2,4,6-Tribromophenol			26-120 %	74.0	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	42.6	%	



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Reported:
25-Oct-2016 07:20

GM-4
16J0117-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 15:32

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.353	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	77.1	%	



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Reported:
25-Oct-2016 07:20

GM-4
16J0117-05RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Oct-2016 17:57

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	20	5.00	199	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Reported:
25-Oct-2016 07:20

EW-1
16J0117-06 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 22:15

Sample Preparation:

Preparation Method: EPA 3510C SepF

Preparation Batch: BEJ0362

Prepared: 12-Oct-2016

Sample Size: 500 mL

Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	62.0	ug/L	E
Surrogate: 2,4,6-Tribromophenol			26-120 %	68.7	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	45.1	%	



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Project: Idaho Pole
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Reported:
25-Oct-2016 07:20

EW-1
16J0117-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 15:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.732	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	83.8	%	



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Reported:
25-Oct-2016 07:20

EW-1
16J0117-06RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Oct-2016 18:15

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	20	5.00	103	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Reported:
25-Oct-2016 07:20

P-4
16J0117-07 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 22:33

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	541	ug/L	E
Surrogate: 2,4,6-Tribromophenol			26-120 %	75.0	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	36.9	%	



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Reported:
25-Oct-2016 07:20

P-4
16J0117-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 16:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	1.74	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	79.3	%	



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Reported:
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P-4
16J0117-07RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Oct-2016 18:33

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	100	25.0	416	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Reported:
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P-2
16J0117-08 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 22:51

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	340	ug/L	P1, E
Surrogate: 2,4,6-Tribromophenol			26-120 %	69.1	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	45.0	%	



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Reported:
25-Oct-2016 07:20

P-2
16J0117-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 17:14

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.472	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	76.7	%	



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Reported:
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P-2
16J0117-08RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Oct-2016 18:51

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	100	25.0	190	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Reported:
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5-A
16J0117-09 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 23:09

Sample Preparation:

Preparation Method: EPA 3510C SepF

Preparation Batch: BEJ0362

Prepared: 12-Oct-2016

Sample Size: 500 mL

Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	10	2.50	1920	ug/L	E
Surrogate: 2,4,6-Tribromophenol			26-120 %		NRS	NRS
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	39.5	%	



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Reported:
25-Oct-2016 07:20

5-A
16J0117-09 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 18-Oct-2016 16:10

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		10	1.00	226	mg/L	E
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		10	2.00	11.5	mg/L	
HC ID: RRO						
Surrogate: o-Terphenyl			50-150 %		NRS	NRS, U



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Reported:
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5-A
16J0117-09RE1 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Oct-2016 19:09

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	500	125	1350	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Reported:
25-Oct-2016 07:20

5-A
16J0117-09RE1 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 17:34

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		100	10.0	238	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		100	20.0	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %		D1	D1, U



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Reported:
25-Oct-2016 07:20

P-1D
16J0117-10 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 23:27

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	0.53	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	56.9	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	44.7	%	



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Reported:
25-Oct-2016 07:20

P-1D
16J0117-10 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 17:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	87.3	%	



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Project: Idaho Pole
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Reported:
25-Oct-2016 07:20

SP-7
16J0117-11 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT11

Analyzed: 17-Oct-2016 19:59

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEJ0373 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.100	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.100	ND	ug/L	U
Acenaphthene	83-32-9	1	0.100	ND	ug/L	U
Fluorene	86-73-7	1	0.100	ND	ug/L	U
Phenanthrene	85-01-8	1	0.100	ND	ug/L	U
Anthracene	120-12-7	1	0.100	ND	ug/L	U
Fluoranthene	206-44-0	1	0.100	ND	ug/L	U
Pyrene	129-00-0	1	0.100	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.100	ND	ug/L	U
Chrysene	218-01-9	1	0.100	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.100	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.100	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.100	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.100	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.100	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.100	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.500	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.100	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			33-120 %	47.2	%	
Surrogate: Dibenzo[a,h]anthracene-d14			22-133 %	84.9	%	Q
Surrogate: Fluoranthene-d10			30-160 %	63.0	%	
Surrogate: 2,4,6-Tribromophenol			30-160 %	119	%	Q



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Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

SP-2
16J0117-12 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM

Instrument: NT8

Analyzed: 18-Oct-2016 12:44

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEJ0372 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	0.50	ug/L	
Fluorene	86-73-7	1	0.10	ND	ug/L	U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	0.18	ug/L	
Pyrene	129-00-0	1	0.10	0.30	ug/L	
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	74.8	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	76.0	%	
Surrogate: Fluoranthene-d10			46-121 %	83.4	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

SP-2
16J0117-12 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 20-Oct-2016 23:45

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	5.04	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	58.2	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	32.4	%	



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5602 Hesper Rd.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

P-1
16J0117-13 (Water)

Phenols

Method: EPA 8041A

Instrument: ECD8

Analyzed: 21-Oct-2016 00:03

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0362 Sample Size: 500 mL
Prepared: 12-Oct-2016 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	59.0	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	45.5	%	



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5602 Hesper Rd.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

P-1
16J0117-13 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx

Instrument: FID4

Analyzed: 19-Oct-2016 18:14

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEJ0367 Sample Size: 500 mL
Prepared: 13-Oct-2016 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	71.6	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

Semivolatile Organic Compounds - Quality Control

Batch BEJ0372 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEJ0372-BLK1)		Prepared: 13-Oct-2016 Analyzed: 18-Oct-2016 11:51								
Naphthalene	ND	0.10	ug/L							U
Acenaphthylene	ND	0.10	ug/L							U
Acenaphthene	ND	0.10	ug/L							U
Fluorene	ND	0.10	ug/L							U
Phenanthrene	ND	0.10	ug/L							U
Anthracene	ND	0.10	ug/L							U
Fluoranthene	ND	0.10	ug/L							U
Pyrene	ND	0.10	ug/L							U
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(b)fluoranthene	ND	0.10	ug/L							U
Benzo(k)fluoranthene	ND	0.10	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Benzo(g,h,i)perylene	ND	0.10	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.20	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	2.14		ug/L	3.00		71.3	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.45		ug/L	3.00		81.7	10-125			
Surrogate: Fluoranthene-d10	2.55		ug/L	3.00		84.9	46-121			
LCS (BEJ0372-BS1)		Prepared: 13-Oct-2016 Analyzed: 18-Oct-2016 12:17								
Naphthalene	2.04	0.10	ug/L	3.00		68.1	33-120			
Acenaphthylene	2.15	0.10	ug/L	3.00		71.7	32-120			
Acenaphthene	2.34	0.10	ug/L	3.00		78.0	38-120			
Fluorene	2.40	0.10	ug/L	3.00		80.0	41-120			
Phenanthrene	2.59	0.10	ug/L	3.00		86.4	49-120			
Anthracene	2.54	0.10	ug/L	3.00		84.7	39-120			
Fluoranthene	2.73	0.10	ug/L	3.00		91.0	48-120			
Pyrene	2.77	0.10	ug/L	3.00		92.4	48-120			
Benzo(a)anthracene	2.76	0.10	ug/L	3.00		92.0	37-120			
Chrysene	2.66	0.10	ug/L	3.00		88.6	48-120			
Benzo(b)fluoranthene	2.73	0.10	ug/L	3.00		90.8	38-128			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

Semivolatile Organic Compounds - Quality Control

Batch BEJ0372 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
LCS (BEJ0372-BS1) Prepared: 13-Oct-2016 Analyzed: 18-Oct-2016 12:17									
Benzo(k)fluoranthene	2.74	0.10	ug/L	3.00		91.2	36-130		
Benzo(a)pyrene	2.48	0.10	ug/L	3.00		82.8	25-120		
Indeno(1,2,3-cd)pyrene	2.45	0.10	ug/L	3.00		81.8	32-120		
Dibenzo(a,h)anthracene	2.15	0.10	ug/L	3.00		71.7	21-120		
Benzo(g,h,i)perylene	2.29	0.10	ug/L	3.00		76.5	28-120		
Benzo(a)fluoranthene, Total	8.32	0.20	ug/L	9.00		92.4	46-120		
Surrogate: 2-Methylnaphthalene-d10		2.15	ug/L	3.00		71.6	31-120		
Surrogate: Dibenzo[a,h]anthracene-d14		2.36	ug/L	3.00		78.5	10-125		
Surrogate: Fluoranthene-d10		2.65	ug/L	3.00		88.2	46-121		



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

Semivolatile Organic Compounds - Quality Control

Batch BEJ0373 - EPA 3520C (Liq Liq)

Instrument: NT11

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEJ0373-BLK1)										
Prepared: 13-Oct-2016 Analyzed: 17-Oct-2016 19:09										
Naphthalene	ND	0.100	ug/L							U
Acenaphthylene	ND	0.100	ug/L							U
Acenaphthene	ND	0.100	ug/L							U
Fluorene	ND	0.100	ug/L							U
Phenanthrene	ND	0.100	ug/L							U
Anthracene	ND	0.100	ug/L							U
Fluoranthene	ND	0.100	ug/L							U
Pyrene	ND	0.100	ug/L							U
Benzo(a)anthracene	ND	0.100	ug/L							U
Chrysene	ND	0.100	ug/L							U
Benzo(b)fluoranthene	ND	0.100	ug/L							U
Benzo(k)fluoranthene	ND	0.100	ug/L							U
Benzo(a)pyrene	ND	0.100	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.100	ug/L							U
Dibenzo(a,h)anthracene	ND	0.100	ug/L							U
Benzo(g,h,i)perylene	ND	0.100	ug/L							U
Pentachlorophenol	ND	0.500	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.100	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	1.52		ug/L	3.00		50.8	33-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.84		ug/L	3.00		94.6	22-133			Q
Surrogate: Fluoranthene-d10	2.12		ug/L	3.00		70.7	30-160			
Surrogate: 2,4,6-Tribromophenol	18.3		ug/L	15.0		122	30-160			Q
LCS (BEJ0373-BS1)										
Prepared: 13-Oct-2016 Analyzed: 17-Oct-2016 19:34										
Naphthalene	1.54	0.100	ug/L	3.00		51.4	39-120			
Acenaphthylene	1.75	0.100	ug/L	3.00		58.5	37-120			
Acenaphthene	1.83	0.100	ug/L	3.00		60.8	42-120			
Fluorene	1.81	0.100	ug/L	3.00		60.5	49-120			
Phenanthrene	2.10	0.100	ug/L	3.00		70.1	55-120			
Anthracene	2.14	0.100	ug/L	3.00		71.4	47-120			
Fluoranthene	2.18	0.100	ug/L	3.00		72.7	60-120			
Pyrene	2.39	0.100	ug/L	3.00		79.7	55-120			
Benzo(a)anthracene	2.31	0.100	ug/L	3.00		77.1	56-120			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

Semivolatile Organic Compounds - Quality Control

Batch BEJ0373 - EPA 3520C (Liq Liq)

Instrument: NT11

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEJ0373-BS1)		Prepared: 13-Oct-2016 Analyzed: 17-Oct-2016 19:34								
Chrysene	2.32	0.100	ug/L	3.00		77.2	58-120			
Benzo(b)fluoranthene	2.21	0.100	ug/L	3.00		73.7	30-160			
Benzo(k)fluoranthene	2.32	0.100	ug/L	3.00		77.5	30-160			
Benzo(a)pyrene	1.98	0.100	ug/L	3.00		66.1	32-120			
Indeno(1,2,3-cd)pyrene	2.29	0.100	ug/L	3.00		76.4	50-120			
Dibenzo(a,h)anthracene	2.58	0.100	ug/L	3.00		85.9	42-121			
Benzo(g,h,i)perylene	2.43	0.100	ug/L	3.00		81.0	50-120			
Pentachlorophenol	2.01	0.500	ug/L	3.00		66.9	30-160			
Benzo(a)fluoranthene, Total	6.58	0.100	ug/L	9.00		73.1	30-160			
Surrogate: 2-Methylnaphthalene-d10	1.41		ug/L	3.00		46.9	33-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.87		ug/L	3.00		95.5	22-133			Q
Surrogate: Fluoranthene-d10	2.07		ug/L	3.00		69.0	30-160			
Surrogate: 2,4,6-Tribromophenol	17.4		ug/L	15.0		116	30-160			Q



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

Phenols - Quality Control

Batch BEJ0362 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BEJ0362-BLK1) Prepared: 12-Oct-2016 Analyzed: 20-Oct-2016 19:53									
Pentachlorophenol	ND	0.25	ug/L						U
Surrogate: 2,4,6-Tribromophenol	1.04		ug/L	2.50		41.6	26-120		
Surrogate: 2,4,6-Tribromophenol [2C]	0.874		ug/L	2.50		34.9	26-120		
LCS (BEJ0362-BS1) Prepared: 12-Oct-2016 Analyzed: 20-Oct-2016 20:10									
Pentachlorophenol	1.46	0.25	ug/L	2.50		58.6	48-120		
Surrogate: 2,4,6-Tribromophenol	1.23		ug/L	2.50		49.2	26-120		
Surrogate: 2,4,6-Tribromophenol [2C]	0.940		ug/L	2.50		37.6	26-120		



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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
25-Oct-2016 07:20

Petroleum Hydrocarbons - Quality Control

Batch BEJ0367 - EPA 3510C SepF

Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
Blank (BEJ0367-BLK1) Prepared: 13-Oct-2016 Analyzed: 19-Oct-2016 13:32									
Diesel Range Organics (C12-C24)	ND	0.100	mg/L						U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L						U
Surrogate: o-Terphenyl		0.0808	mg/L	0.0900		89.8	50-150		
LCS (BEJ0367-BS1) Prepared: 13-Oct-2016 Analyzed: 19-Oct-2016 13:52									
Diesel Range Organics (C12-C24)	2.43	0.100	mg/L	3.00		80.9	70-120		
Surrogate: o-Terphenyl		0.0734	mg/L	0.0900		81.6	50-150		



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Certified Analyses included in this Report

Analyte	Certifications
EPA 8270D-SIM in Water	
Naphthalene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
2-Methylnaphthalene	NELAP,CALAP,ADEC,DoD-ELAP
1-Methylnaphthalene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Biphenyl	NELAP
Acenaphthylene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Acenaphthene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Dibenzofuran	NELAP,CALAP,ADEC,DoD-ELAP
Fluorene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Phenanthrene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Anthracene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Carbazole	NELAP
Fluoranthene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Pyrene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Benzo(a)anthracene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Chrysene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Benzo(b)fluoranthene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Benzo(k)fluoranthene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Benzo(j)fluoranthene	NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Perylene	NELAP,CALAP,ADEC,WADOE
Indeno(1,2,3-cd)pyrene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Dibenzo(a,h)anthracene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Benzo(g,h,i)perylene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
NWTPH-Dx in Water	
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE



Hydrometrics, Inc.
5602 Hesper Rd.
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Project: Idaho Pole
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Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
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Reported:
25-Oct-2016 07:20

Notes and Definitions

U	This analyte is not detected above the applicable reporting or detection limit.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
P1	The reported value is greater than 40% RPD between the concentrations determined on two GC columns where applicable.
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
NRS	This surrogate not reported due to chromatographic interference
J	Estimated concentration value detected below the reporting limit.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D1	Surrogate was not detected due to sample extract dilution
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

30 November 2016

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

RE: Idaho Pole

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
16K0143

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Mark Harris, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 16K043	Turn-around Requested: Normal	Page: 1 of 1
ARI Client Company: Hydrometric	Phone:	Date: 11/9/16 Ice Present? yes
Client Contact: Nicki Kauer		No. of Coolers: 2 Cooler Temps: 3.4-4.6



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)
 www.arilabs.com

Client Project Name: Idaho Pole					Analysis Requested								Notes/Comments	
Client Project #:	Samplers: Rebecca Fabich				PIC 8040	TPH-DRO	PAH 8070	SIM 8070						
Sample ID	Date	Time	Matrix	No. Containers										
9-B	11/9/16	845	1420	4	X	X								
9-A		901		4	X	X								
GM-4		1004		4	X	X								
EW-1		1036		4	X	X								
P-4		1057		4	X	X								
P-2		1119		4	X	X								
5-A		1142		4	X	X								
SP-7		1210		2				X						
SP-2		1230		4	X		X							
Comments/Special Instructions	Relinquished by: (Signature) Rebecca Fabich				Received by: (Signature) Justin Meyer				Relinquished by: (Signature)				Received by: (Signature)	
	Printed Name: Rebecca Fabich				Printed Name: Justin Meyer				Printed Name:				Printed Name:	
	Company: Idaho Pole				Company: ARR				Company:				Company:	
	Date & Time: 11/9/16 1330				Date & Time: 11/10/16 9:40				Date & Time:				Date & Time:	

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Hydrometries

COC No(s): _____ NA

Assigned ARI Job No: 16K0143

Project Name: Idaho Pale

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: 80970020114 AND 784598950162 NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES ☐ NO ☒

Were custody papers included with the cooler? _____

YES ☒ NO ☐

Were custody papers properly filled out (ink, signed, etc.) _____

YES ☒ NO ☐

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time: _____

4.6 3.4

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 0005276

Cooler Accepted by: JM

Date: 11/10/16

Time: 9:40

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES ☐ NO ☒

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? _____

NA ☒ YES ☐ NO ☐

Were all bottles sealed in individual plastic bags? _____

YES ☒ NO ☐

Did all bottles arrive in good condition (unbroken)? _____

YES ☒ NO ☐

Were all bottle labels complete and legible? _____

YES ☒ NO ☐

Did the number of containers listed on COC match with the number of containers received? _____

YES ☒ NO ☐

Did all bottle labels and tags agree with custody papers? _____

YES ☒ NO ☐

Were all bottles used correct for the requested analyses? _____

YES ☒ NO ☐

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

NA ☒ YES ☐ NO ☐

Were all VOC vials free of air bubbles? _____

NA ☒ YES ☐ NO ☐

Was sufficient amount of sample sent in each bottle? _____

YES ☒ NO ☐

Date VOC Trip Blank was made at ARI: _____

NA ☒

Was Sample Split by ARI: NA

YES

Date/Time: _____

Equipment: _____

Split by: _____

Samples Logged by: JM

Date: 11/10/16

Time: 1007

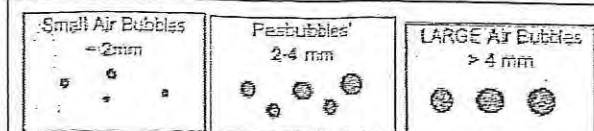
**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: _____

Date: _____



Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
9-B	16K0143-01	Water	09-Nov-2016 08:45	10-Nov-2016 09:40
9-A	16K0143-02	Water	09-Nov-2016 09:01	10-Nov-2016 09:40
GM-4	16K0143-03	Water	09-Nov-2016 10:04	10-Nov-2016 09:40
EW-1	16K0143-04	Water	09-Nov-2016 10:36	10-Nov-2016 09:40
P-4	16K0143-05	Water	09-Nov-2016 10:57	10-Nov-2016 09:40
P-2	16K0143-06	Water	09-Nov-2016 11:19	10-Nov-2016 09:40
5-A	16K0143-07	Water	09-Nov-2016 11:42	10-Nov-2016 09:40
SP-7	16K0143-08	Water	09-Nov-2016 12:10	10-Nov-2016 09:40
SP-2	16K0143-09	Water	09-Nov-2016 12:30	10-Nov-2016 09:40



Hydrometrics, Inc.
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Billings, MT 59106

Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

Case Narrative

CASE NARRATIVE

Client: Hydrometrics, Inc.
Project: Idaho Pole
Workorder: 16K0143

Sample receipt

9 samples were received 10-Nov-2016 09:40 under ARI workorder 16K0143. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Pentachlorophenol - EPA Method SW8041A

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The percent recoveries for all surrogates were within established QC limits.

No target comopunds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The percent recoveries for all surrogates were within acceptable QC limits.

No target comopunds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within acceptable QC limits for the LCS.

Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270D-SIM

This sample was extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The areas for all internal standards were within acceptable QC limits.



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The percent recoveries for all surrogates were within established QC limits.

No target comopunds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.

Polynuclear Aromatic Hydrocarbons (PAH)+Pentachlorophenol (PCP) - EPA Method SW8270D-SIM

This sample was extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The areas for all internal standards were within acceptable QC limits.

The percent recoveries for all surrogates were within established QC limits.

No target comopunds were detected in the method blank above the LOQs.

The percent recoveries for all compounds were within established QC limits for the LCS.



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

9-B
16K0143-01 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 08:45
Analyzed: 11/18/2016 12:23

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	2.11	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	62.1	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	45.7	%	



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Project: Idaho Pole
Project Number: Idaho Pole
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Reported:
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9-B
16K0143-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 11/09/2016 08:45
Analyzed: 11/17/2016 16:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0336 Sample Size: 500 mL
Prepared: 11/15/2016 14:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.215	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	85.1	%	



Hydrometrics, Inc.
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Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
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9-A
16K0143-02 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 09:01
Analyzed: 11/18/2016 12:41

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	57.5	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	42.2	%	



Hydrometrics, Inc.
5602 Hesper Rd.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
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9-A
16K0143-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 11/09/2016 09:01
Analyzed: 11/17/2016 17:03

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0336 Sample Size: 500 mL
Prepared: 11/15/2016 14:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	84.0	%	



Hydrometrics, Inc.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

GM-4
16K0143-03 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 10:04
Analyzed: 11/18/2016 12:59

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	9.51	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	58.2	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	42.4	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

GM-4
16K0143-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 11/09/2016 10:04
Analyzed: 11/17/2016 17:28

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0336 Sample Size: 500 mL
Prepared: 11/15/2016 14:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.143	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	72.7	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
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EW-1
16K0143-04 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 10:36
Analyzed: 11/18/2016 16:21

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	2	0.50	14.8	ug/L	D
Surrogate: 2,4,6-Tribromophenol			26-120 %	60.4	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	42.8	%	



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5602 Hesper Rd.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

EW-1
16K0143-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 11/09/2016 10:36
Analyzed: 11/17/2016 17:52

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0336 Sample Size: 500 mL
Prepared: 11/15/2016 14:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.656	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	83.3	%	



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Reported:
30-Nov-2016 08:35

P-4
16K0143-05 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 10:57
Analyzed: 11/18/2016 13:34

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	536	ug/L	E
Surrogate: 2,4,6-Tribromophenol			26-120 %	66.2	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	42.4	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

P-4
16K0143-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 11/09/2016 10:57
Analyzed: 11/17/2016 18:16

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0336 Sample Size: 500 mL
Prepared: 11/15/2016 14:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	1.30	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	82.7	%	



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Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
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P-4
16K0143-05RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 10:57
Analyzed: 11/21/2016 13:59

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	100	25.0	314	ug/L	D
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Project: Idaho Pole
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Reported:
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P-2
16K0143-06 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 11:19
Analyzed: 11/18/2016 13:52

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	374	ug/L	P1, E
Surrogate: 2,4,6-Tribromophenol			26-120 %	70.0	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	48.2	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
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P-2
16K0143-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 11/09/2016 11:19
Analyzed: 11/17/2016 18:40

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0336 Sample Size: 500 mL
Prepared: 11/15/2016 14:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.908	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	81.8	%	



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Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
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P-2
16K0143-06RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 11:19
Analyzed: 11/21/2016 14:17

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	100	25.0	164	ug/L	D
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Reported:
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5-A
16K0143-07 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 11:42
Analyzed: 11/18/2016 14:10

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	10	2.50	991	ug/L	D, E
Surrogate: 2,4,6-Tribromophenol			26-120 %	34.6	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	35.2	%	



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Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

5-A
16K0143-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 11/09/2016 11:42
Analyzed: 11/17/2016 15:27

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0336 Sample Size: 500 mL
Prepared: 11/15/2016 14:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DIESEL		1	0.100	174	mg/L	E
Motor Oil Range Organics (C24-C38) HC ID: RRO		1	0.200	15.6	mg/L	E
Surrogate: o-Terphenyl			50-150 %		NRS	NRS, U



Hydrometrics, Inc.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
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5-A
16K0143-07RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 11:42
Analyzed: 11/18/2016 17:15

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	200	50.0	832	ug/L	D
Surrogate: 2,4,6-Tribromophenol			26-120 %		D1	D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %		D1	D1



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Reported:
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5-A
16K0143-07RE1 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID3

Sampled: 11/09/2016 11:42
Analyzed: 11/17/2016 16:15

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0336 Sample Size: 500 mL
Prepared: 11/15/2016 14:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DIESEL		50	5.00	182	mg/L	D
Motor Oil Range Organics (C24-C38) HC ID: RRO		50	10.0	10.4	mg/L	D
Surrogate: o-Terphenyl			50-150 %		DI	D1, U



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
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SP-7
16K0143-08 (Water)

Semivolatiles Organic Compounds

Method: EPA 8270D-SIM
Instrument: NT11

Sampled: 11/09/2016 12:10
Analyzed: 11/22/2016 18:27

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEK0310 Sample Size: 500 mL
Prepared: 11/16/2016 16:45 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.100	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.100	ND	ug/L	U
Acenaphthene	83-32-9	1	0.100	ND	ug/L	U
Fluorene	86-73-7	1	0.100	ND	ug/L	U
Phenanthrene	85-01-8	1	0.100	ND	ug/L	U
Anthracene	120-12-7	1	0.100	ND	ug/L	U
Fluoranthene	206-44-0	1	0.100	ND	ug/L	U
Pyrene	129-00-0	1	0.100	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.100	ND	ug/L	U
Chrysene	218-01-9	1	0.100	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.100	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.100	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.100	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.100	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.100	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.100	ND	ug/L	U
Pentachlorophenol	87-86-5	1	0.500	ND	ug/L	U
Benzofluoranthenes, Total		1	0.100	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			33-120 %	50.2	%	
Surrogate: Dibenzo[a,h]anthracene-d14			22-133 %	86.8	%	
Surrogate: Fluoranthene-d10			30-160 %	78.2	%	
Surrogate: 2,4,6-Tribromophenol			30-160 %	64.4	%	



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5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

SP-2
16K0143-09 (Water)

Semivolatile Organic Compounds

Method: EPA 8270D-SIM
Instrument: NT8

Sampled: 11/09/2016 12:30
Analyzed: 11/17/2016 18:32

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)
Preparation Batch: BEK0345 Sample Size: 500 mL
Prepared: 11/16/2016 16:45 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.10	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.10	ND	ug/L	U
Acenaphthene	83-32-9	1	0.10	0.43	ug/L	
Fluorene	86-73-7	1	0.10	ND	ug/L	M, U
Phenanthrene	85-01-8	1	0.10	ND	ug/L	U
Anthracene	120-12-7	1	0.10	ND	ug/L	U
Fluoranthene	206-44-0	1	0.10	0.16	ug/L	
Pyrene	129-00-0	1	0.10	0.28	ug/L	
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(b)fluoranthene	205-99-2	1	0.10	ND	ug/L	U
Benzo(k)fluoranthene	207-08-9	1	0.10	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	63.0	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	74.0	%	
<i>Surrogate: Fluoranthene-d10</i>			46-121 %	75.5	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
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Reported:
30-Nov-2016 08:35

SP-2
16K0143-09 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 11/09/2016 12:30
Analyzed: 11/18/2016 14:28

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEK0308 Sample Size: 500 mL
Prepared: 11/11/2016 16:35 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	3.67	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	64.9	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	46.7	%	



Hydrometrics, Inc.
5602 Hesper Rd.
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Project: Idaho Pole
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Reported:
30-Nov-2016 08:35

Semivolatile Organic Compounds - Quality Control

Batch BEK0310 - EPA 3520C (Liq Liq)

Instrument: NT11

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEK0310-BLK1)		Prepared: 16-Nov-2016 Analyzed: 22-Nov-2016 16:47								
Naphthalene	ND	0.100	ug/L							U
Acenaphthylene	ND	0.100	ug/L							U
Acenaphthene	ND	0.100	ug/L							U
Fluorene	ND	0.100	ug/L							U
Phenanthrene	ND	0.100	ug/L							U
Anthracene	ND	0.100	ug/L							U
Fluoranthene	ND	0.100	ug/L							U
Pyrene	ND	0.100	ug/L							U
Benzo(a)anthracene	ND	0.100	ug/L							U
Chrysene	ND	0.100	ug/L							U
Benzo(b)fluoranthene	ND	0.100	ug/L							U
Benzo(k)fluoranthene	ND	0.100	ug/L							U
Benzo(a)pyrene	ND	0.100	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.100	ug/L							U
Dibenzo(a,h)anthracene	ND	0.100	ug/L							U
Benzo(g,h,i)perylene	ND	0.100	ug/L							U
Pentachlorophenol	ND	0.500	ug/L							U
Benzofluoranthenes, Total	ND	0.100	ug/L							U
Surrogate: 2-Methylnaphthalene-d10		1.84	ug/L	3.00		61.2	33-120			
Surrogate: Dibenzo[a,h]anthracene-d14		2.61	ug/L	3.00		86.9	22-133			
Surrogate: Fluoranthene-d10		2.46	ug/L	3.00		82.1	30-160			
Surrogate: 2,4,6-Tribromophenol		10.2	ug/L	15.0		68.0	30-160			
LCS (BEK0310-BS1)		Prepared: 16-Nov-2016 Analyzed: 22-Nov-2016 17:12								
Naphthalene	1.67	0.100	ug/L	3.00		55.5	39-120			
Acenaphthylene	1.82	0.100	ug/L	3.00		60.6	37-120			
Acenaphthene	1.91	0.100	ug/L	3.00		63.8	42-120			
Fluorene	2.00	0.100	ug/L	3.00		66.5	49-120			
Phenanthrene	2.37	0.100	ug/L	3.00		78.9	55-120			
Anthracene	2.23	0.100	ug/L	3.00		74.5	47-120			
Fluoranthene	2.54	0.100	ug/L	3.00		84.8	60-120			
Pyrene	2.52	0.100	ug/L	3.00		83.8	55-120			
Benzo(a)anthracene	2.55	0.100	ug/L	3.00		85.1	56-120			
Chrysene	2.53	0.100	ug/L	3.00		84.3	58-120			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

Semivolatile Organic Compounds - Quality Control

Batch BEK0310 - EPA 3520C (Liq Liq)

Instrument: NT11

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEK0310-BS1)		Prepared: 16-Nov-2016 Analyzed: 22-Nov-2016 17:12								
Benzo(b)fluoranthene	3.04	0.100	ug/L	3.00		101	30-160			
Benzo(k)fluoranthene	2.38	0.100	ug/L	3.00		79.5	30-160			
Benzo(a)pyrene	2.54	0.100	ug/L	3.00		84.5	32-120			
Indeno(1,2,3-cd)pyrene	2.65	0.100	ug/L	3.00		88.4	50-120			
Dibenzo(a,h)anthracene	2.77	0.100	ug/L	3.00		92.3	42-121			
Benzo(g,h,i)perylene	2.69	0.100	ug/L	3.00		89.6	50-120			
Pentachlorophenol	1.81	0.500	ug/L	3.00		60.4	30-160			
Benzo(a)fluoranthenes, Total	7.95	0.100	ug/L	9.00		88.3	30-160			
Surrogate: 2-Methylnaphthalene-d10	1.59		ug/L	3.00		53.2	33-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.51		ug/L	3.00		83.5	22-133			
Surrogate: Fluoranthene-d10	2.27		ug/L	3.00		75.8	30-160			
Surrogate: 2,4,6-Tribromophenol	9.76		ug/L	15.0		65.1	30-160			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
30-Nov-2016 08:35

Semivolatile Organic Compounds - Quality Control

Batch BEK0345 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEK0345-BLK1)		Prepared: 16-Nov-2016 Analyzed: 17-Nov-2016 17:39								
Naphthalene	ND	0.10	ug/L							U
Acenaphthylene	ND	0.10	ug/L							U
Acenaphthene	ND	0.10	ug/L							U
Fluorene	ND	0.10	ug/L							U
Phenanthrene	ND	0.10	ug/L							U
Anthracene	ND	0.10	ug/L							U
Fluoranthene	ND	0.10	ug/L							U
Pyrene	ND	0.10	ug/L							U
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(b)fluoranthene	ND	0.10	ug/L							U
Benzo(k)fluoranthene	ND	0.10	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Benzo(g,h,i)perylene	ND	0.10	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.20	ug/L							U
<hr/>										
Surrogate: 2-Methylnaphthalene-d10		1.90	ug/L	3.00		63.4	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14		1.95	ug/L	3.00		65.0	10-125			
Surrogate: Fluoranthene-d10		2.21	ug/L	3.00		73.7	46-121			

LCS (BEK0345-BS1)

		Prepared: 16-Nov-2016 Analyzed: 17-Nov-2016 18:06								
Naphthalene	2.09	0.10	ug/L	3.00		69.7	33-120			
Acenaphthylene	2.22	0.10	ug/L	3.00		74.0	32-120			
Acenaphthene	2.32	0.10	ug/L	3.00		77.4	38-120			
Fluorene	2.35	0.10	ug/L	3.00		78.5	41-120			
Phenanthrene	2.31	0.10	ug/L	3.00		76.9	49-120			
Anthracene	2.43	0.10	ug/L	3.00		80.9	39-120			
Fluoranthene	2.46	0.10	ug/L	3.00		81.9	48-120			
Pyrene	2.54	0.10	ug/L	3.00		84.7	48-120			
Benzo(a)anthracene	2.50	0.10	ug/L	3.00		83.3	37-120			
Chrysene	2.47	0.10	ug/L	3.00		82.5	48-120			
Benzo(b)fluoranthene	2.60	0.10	ug/L	3.00		86.7	38-128			
Benzo(k)fluoranthene	2.51	0.10	ug/L	3.00		83.6	36-130			



Hydrometrics, Inc.
5602 Hesper Rd.
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Project: Idaho Pole
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Reported:
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Semivolatile Organic Compounds - Quality Control

Batch BEK0345 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BEK0345-BS1)		Prepared: 16-Nov-2016 Analyzed: 17-Nov-2016 18:06								
Benzo(a)pyrene	2.30	0.10	ug/L	3.00		76.8	25-120			
Indeno(1,2,3-cd)pyrene	2.46	0.10	ug/L	3.00		81.9	32-120			
Dibenzo(a,h)anthracene	2.50	0.10	ug/L	3.00		83.3	21-120			
Benzo(g,h,i)perylene	2.32	0.10	ug/L	3.00		77.4	28-120			
Benzofluoranthenes, Total	7.55	0.20	ug/L	9.00		83.9	46-120			
Surrogate: 2-Methylnaphthalene-d10		2.02	ug/L	3.00		67.3	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14		2.21	ug/L	3.00		73.8	10-125			
Surrogate: Fluoranthene-d10		2.28	ug/L	3.00		76.1	46-121			



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Reported:
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Phenols - Quality Control

Batch BEK0308 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEK0308-BLK1)		Prepared: 11-Nov-2016 Analyzed: 21-Nov-2016 13:41								
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol	0.913		ug/L	2.50		36.5	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	0.698		ug/L	2.50		27.9	26-120			
LCS (BEK0308-BS1)		Prepared: 11-Nov-2016 Analyzed: 18-Nov-2016 11:29								
Pentachlorophenol	1.88	0.25	ug/L	2.50		75.1	48-120			
Surrogate: 2,4,6-Tribromophenol	1.73		ug/L	2.50		69.0	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.29		ug/L	2.50		51.6	26-120			



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Billings, MT 59106

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Reported:
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Petroleum Hydrocarbons - Quality Control

Batch BEK0336 - EPA 3510C SepF

Instrument: FID3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEK0336-BLK1)		Prepared: 15-Nov-2016 Analyzed: 17-Nov-2016 19:03								
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.0672		mg/L	0.0900		74.7	50-150			
LCS (BEK0336-BS1)		Prepared: 15-Nov-2016 Analyzed: 17-Nov-2016 19:27								
Diesel Range Organics (C12-C24)	2.47	0.100	mg/L	3.00		82.2	56-120			
Surrogate: o-Terphenyl	0.0674		mg/L	0.0900		74.9	50-150			



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Certified Analyses included in this Report

Analyte	Certifications
EPA 8270D-SIM in Water	
Naphthalene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
2-Methylnaphthalene	NELAP,CALAP,ADEC,DoD-ELAP
1-Methylnaphthalene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Biphenyl	NELAP
Acenaphthylene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Acenaphthene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Dibenzofuran	NELAP,CALAP,ADEC,DoD-ELAP
Fluorene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Phenanthrene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Anthracene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Carbazole	NELAP
Fluoranthene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Pyrene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Benzo(a)anthracene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Chrysene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Benzo(b)fluoranthene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Benzo(k)fluoranthene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Benzo(j)fluoranthene	NELAP,WADOE
Benzo(e)pyrene	NELAP
Benzo(a)pyrene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Perylene	NELAP,CALAP,ADEC,WADOE
Indeno(1,2,3-cd)pyrene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Dibenzo(a,h)anthracene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
Benzo(g,h,i)perylene	NELAP,CALAP,ADEC,DoD-ELAP,WADOE
NWTPH-Dx in Water	
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE



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Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017



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Notes and Definitions

U	This analyte is not detected above the applicable reporting or detection limit.
P1	The reported value is greater than 40% RPD between the concentrations determined on two GC columns where applicable.
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
NRS	This surrogate not reported due to chromatographic interference
M	Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
J	Estimated concentration value detected below the reporting limit.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D1	Surrogate was not detected due to sample extract dilution
D	The reported value is from a dilution
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

29 December 2016

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

RE: Idaho Pole

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
16L0159

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Amanda Volgardsen For Mark Harris, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 1660159	Turn-around Requested: Normal
ARI Client Company: Hydrometric	Phone:
Client Contact: Heidi Kaiser	
Client Project Name: Idaho Pole	
Client Project #:	Samplers: Rebecca Fabich

Page: 1	of 1
Date: 12/8/16	Ice Present? yo
No. of Coolers: 2	Cooler Temps: 3.6, 5.8



Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested								Notes/Comments	
					REP	STAT	TPH	DPH						
GM-4	12/8/16	1015	H2O	4	X	X								
GM-4F		1015		4	X	X								
EW-1		1038		4	X	X								
EW-D		1038		4	X	X								
P-4		1056		4	X	X								
P-2		1114		4	X	X								
S-B		1134		4	X	X								
S-A		1155		4	X	X								
Comments/Special Instructions	Relinquished by: (Signature) Rebecca Fabich		Received by: (Signature) Tyler Rankin		Relinquished by: (Signature)				Received by: (Signature)					
	Printed Name: Rebecca Fabich		Printed Name: Tyler Rankin		Printed Name:				Printed Name:					
	Company: Idaho Pole		Company: ARI		Company:				Company:					
	Date & Time: 12/8/16 1320		Date & Time: 12-12-16 1105		Date & Time:				Date & Time:					

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Hydrometrics

Project Name: Idaho Pole

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 16L0159

Tracking No: 7849 1845 2511 NA

Preliminary Examination Phase:

8097 0020 1125

Were intact, properly signed and dated custody seals attached to the outside of to cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 3.6 5.8

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: D003276

Cooler Accepted by: JM Date: 12/19/16 Time: 12:30

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? NA YES NO

Were all bottles sealed in individual plastic bags? YES NO

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI: NA

Was Sample Split by ARI: NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: TR Date: 12-12-16 Time: 1230

**** Notify Project Manager of discrepancies or concerns ****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC
<u>EW-ID</u>	<u>EW-ID</u>		

Additional Notes, Discrepancies, & Resolutions: One cooler was received at 12:30 with no COC. Other cooler arrived 12/12/16 @ 1105.

By: TR Date: 12-12-16

<p>Small Air Bubbles ~2mm</p>	<p>Peabubbles 2-4 mm</p>	<p>LARGE Air Bubbles > 4 mm</p>	<p>Small → "sm" (< 2 mm)</p> <p>Peabubbles → "pb" (2 to < 4 mm)</p> <p>Large → "lg" (4 to < 6 mm)</p> <p>Headspace → "hs" (> 6 mm)</p>
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Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
29-Dec-2016 14:38

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GM-4	16L0159-01	Water	08-Dec-2016 10:15	12-Dec-2016 11:05
GM-4F	16L0159-02	Water	08-Dec-2016 10:15	12-Dec-2016 11:05
EW-1	16L0159-03	Water	08-Dec-2016 10:38	12-Dec-2016 11:05
EW-D	16L0159-04	Water	08-Dec-2016 10:38	12-Dec-2016 11:05
P-4	16L0159-05	Water	08-Dec-2016 10:56	12-Dec-2016 11:05
P-2	16L0159-06	Water	08-Dec-2016 11:14	12-Dec-2016 11:05
5-B	16L0159-07	Water	08-Dec-2016 11:34	12-Dec-2016 11:05
5-A	16L0159-08	Water	08-Dec-2016 11:55	12-Dec-2016 11:05



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Reported:
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Case Narrative

CASE NARRATIVE

Client: Hydrometrics, Inc.
Project: Idaho Pole
Workorder: 16L0159

Sample receipt

Eight samples were received December 12, 2016 under ARI workorder 16L0159. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Pentachlorophenol - EPA Method SW8041A

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.

Diesel Range Organics - WA-Ecology Method NW-TPHD

The sample(s) were extracted and analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The LCS percent recoveries were within control limits.



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5602 Hesper Rd.
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Project: Idaho Pole
Project Number: Idaho Pole
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Reported:
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GM-4
16L0159-01 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 12/08/2016 10:15
Analyzed: 12/27/2016 12:12

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0345 Sample Size: 500 mL
Prepared: 12/15/2016 14:10 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	10	2.50	52.1	ug/L	D
Surrogate: 2,4,6-Tribromophenol			26-120 %	60.5	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	43.4	%	



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Reported:
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GM-4
16L0159-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 12/08/2016 10:15
Analyzed: 12/21/2016 14:53

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0354 Sample Size: 500 mL
Prepared: 12/15/2016 12:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.371	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	72.0	%	



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Reported:
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GM-4F
16L0159-02 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 12/08/2016 10:15
Analyzed: 12/27/2016 12:30

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0345 Sample Size: 500 mL
Prepared: 12/15/2016 14:10 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	99.5 %		P1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	63.5 %		P1



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Reported:
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GM-4F
16L0159-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 12/08/2016 10:15
Analyzed: 12/21/2016 15:19

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0354 Sample Size: 500 mL
Prepared: 12/15/2016 12:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	60.2	%	



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Reported:
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EW-1
16L0159-03 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 12/08/2016 10:38
Analyzed: 12/27/2016 12:47

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0345 Sample Size: 500 mL
Prepared: 12/15/2016 14:10 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	9.98	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	81.5	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	56.4	%	



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5602 Hesper Rd.
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Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
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EW-1
16L0159-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 12/08/2016 10:38
Analyzed: 12/21/2016 15:45

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0354 Sample Size: 500 mL
Prepared: 12/15/2016 12:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.535	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	74.0	%	



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Reported:
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EW-D
16L0159-04 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 12/08/2016 10:38
Analyzed: 12/27/2016 13:05

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0345 Sample Size: 500 mL
Prepared: 12/15/2016 14:10 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	9.65	ug/L	
Surrogate: 2,4,6-Tribromophenol			26-120 %	95.3 %		P1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	52.1 %		P1



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Billings, MT 59106

Project: Idaho Pole
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Project Manager: Heidi Kaiser

Reported:
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EW-D
16L0159-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 12/08/2016 10:38
Analyzed: 12/21/2016 16:10

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0354 Sample Size: 500 mL
Prepared: 12/15/2016 12:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.482	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	74.7	%	



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Reported:
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P-4
16L0159-05 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 12/08/2016 10:56
Analyzed: 12/27/2016 13:23

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0345 Sample Size: 500 mL
Prepared: 12/15/2016 14:10 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	10	2.50	551	ug/L	D, E
Surrogate: 2,4,6-Tribromophenol			26-120 %			NRS
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	76.8	%	



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Reported:
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P-4
16L0159-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 12/08/2016 10:56
Analyzed: 12/21/2016 16:35

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0354 Sample Size: 500 mL
Prepared: 12/15/2016 12:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.997	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	78.9	%	



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Reported:
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P-4
16L0159-05RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 12/08/2016 10:56
Analyzed: 12/27/2016 14:35

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0345 Sample Size: 500 mL
Prepared: 12/15/2016 14:10 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	200	50.0	498	ug/L	D
Surrogate: 2,4,6-Tribromophenol			26-120 %			D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %			D1



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Reported:
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P-2
16L0159-06 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 12/08/2016 11:14
Analyzed: 12/27/2016 13:41

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0345 Sample Size: 500 mL
Prepared: 12/15/2016 14:10 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	20	5.00	100	ug/L	D
Surrogate: 2,4,6-Tribromophenol			26-120 %	95.9 %		P1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	63.5 %		P1



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Reported:
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P-2
16L0159-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 12/08/2016 11:14
Analyzed: 12/21/2016 17:01

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0354 Sample Size: 500 mL
Prepared: 12/15/2016 12:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.654	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	76.9	%	



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Project Number: Idaho Pole
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Reported:
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5-B
16L0159-07 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 12/08/2016 11:34
Analyzed: 12/27/2016 13:59

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0345 Sample Size: 500 mL
Prepared: 12/15/2016 14:10 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	83.8 %		P1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	54.9 %		P1



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
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5-B
16L0159-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 12/08/2016 11:34
Analyzed: 12/21/2016 17:26

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0354 Sample Size: 500 mL
Prepared: 12/15/2016 12:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.245	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	58.4	%	



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Reported:
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5-A
16L0159-08 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 12/08/2016 11:55
Analyzed: 12/27/2016 14:17

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0345 Sample Size: 500 mL
Prepared: 12/15/2016 14:10 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	10	2.50	3680	ug/L	P1, D, E
Surrogate: 2,4,6-Tribromophenol			26-120 %			NRS
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	38.7	%	



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Reported:
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5-A
16L0159-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 12/08/2016 11:55
Analyzed: 12/21/2016 17:50

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0354 Sample Size: 500 mL
Prepared: 12/15/2016 12:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		50	5.00	142	mg/L	D
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		50	10.0	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %			D1



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Reported:
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5-A
16L0159-08RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 12/08/2016 11:55
Analyzed: 12/27/2016 14:52

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0345 Sample Size: 500 mL
Prepared: 12/15/2016 14:10 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	200	50.0	1670	ug/L	D
Surrogate: 2,4,6-Tribromophenol			26-120 %			D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %			D1



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Reported:
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5-A
16L0159-08RE1 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 12/08/2016 11:55
Analyzed: 12/23/2016 22:38

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BEL0354 Sample Size: 500 mL
Prepared: 12/15/2016 12:05 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Motor Oil Range Organics (C24-C38)		20	4.00	10.5	mg/L	D
HC ID: RRO						
Surrogate: o-Terphenyl			50-150 %			D1



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Reported:
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Phenols - Quality Control

Batch BEL0345 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0345-BLK1)		Prepared: 15-Dec-2016 Analyzed: 27-Dec-2016 11:18								
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol	2.11		ug/L	2.50		84.4	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.38		ug/L	2.50		55.4	26-120			
LCS (BEL0345-BS1)		Prepared: 15-Dec-2016 Analyzed: 27-Dec-2016 11:36								
Pentachlorophenol	2.81	0.25	ug/L	2.50		112	48-120			
Surrogate: 2,4,6-Tribromophenol	2.56		ug/L	2.50		102	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.70		ug/L	2.50		68.0	26-120			



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Reported:
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Petroleum Hydrocarbons - Quality Control

Batch BEL0354 - EPA 3510C SepF

Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BEL0354-BLK1)			Prepared: 15-Dec-2016 Analyzed: 21-Dec-2016 13:10							
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl	0.0722		mg/L	0.0900		80.2	50-150			
LCS (BEL0354-BS1)			Prepared: 15-Dec-2016 Analyzed: 21-Dec-2016 13:36							
Diesel Range Organics (C12-C24)	2.08	0.100	mg/L	3.00		69.3	56-120			
Surrogate: o-Terphenyl	0.0676		mg/L	0.0900		75.1	50-150			



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Certified Analyses included in this Report

Analyte	Certifications
NWTPH-Dx in Water	
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
29-Dec-2016 14:38

Notes and Definitions

U	This analyte is not detected above the applicable reporting or detection limit.
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
NRS	This surrogate not reported due to chromatographic interference
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
D1	Surrogate was not detected due to sample extract dilution
D	The reported value is from a dilution
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.



Analytical Resources, Incorporated
Analytical Chemists and Consultants

14 February 2017

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

RE: Idaho Pole

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)
17A0213

Associated SDG ID(s)
N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.

Mark Harris, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 17A0213	Turn-around Requested: Normal
ARI Client Company: Hydrometris	Phone:
Client Contact: Heidi Kauer	
Client Project Name: Idaho P06	
Client Project #:	Samplers: Rebecca Fabich

Page: 1	of 1
Date: 1/18/17	Ice Present? YES
No. of Coolers: 2	Cooler Temps:



Analytical Resources, Incorporated
 Analytical Chemists and Consultants
 4611 South 134th Place, Suite 100
 Tukwila, WA 98168
 206-695-6200 206-695-6201 (fax)
 www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested								Notes/Comments
					POP 8040	TPH-D20							
GM-4	1/18/17	858	H ₂ O	4	X	X							
GM-4F		858		4	X	X							
EW-1		934		4	X	X							
EW-1D		934		4	X	X							
BE-2		957		4	X	X							
P-4		1024		4	X	X							
P-2		1047		4	X	X							
S-A		1112		4	X	X							
Comments/Special Instructions					Relinquished by: (Signature) Rebecca Fabich		Received by: (Signature) Paul Mark		Relinquished by: (Signature)		Received by: (Signature)		
					Printed Name: Rebecca Fabich		Printed Name: Paul Mark		Printed Name:		Printed Name:		
					Company: Idaho P06		Company: ARI		Company:		Company:		
					Date & Time: 1/18/17 1330		Date & Time: 1/19/2017 10:35		Date & Time:		Date & Time:		

Limits of Liability: ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, notwithstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.



Cooler Receipt Form

ARI Client: Hydrometrics

COC No(s): _____ (NA)

Assigned ARI Job No: 17A0213

Preliminary Examination Phase:

Project Name: Idaho Pole

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Tracking No: 8097 0020 1147/7853 5534 8841 NA

Were intact, properly signed and dated custody seals attached to the outside of to cooler? _____

YES ☐ NO ☒

Were custody papers included with the cooler? _____

YES ☒ NO ☐

Were custody papers properly filled out (ink, signed, etc.) _____

YES ☒ NO ☐

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time: _____

5.9 10.5

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: DM5276

Cooler Accepted by: PM

Date: 01/19/2017

Time: 10:35

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? _____

YES ☐ NO ☒

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: N/A

Was sufficient ice used (if appropriate)? _____

NA ☒ YES ☐ NO ☐

Were all bottles sealed in individual plastic bags? _____

YES ☒ NO ☐

Did all bottles arrive in good condition (unbroken)? _____

YES ☒ NO ☐

Were all bottle labels complete and legible? _____

YES ☒ NO ☐

Did the number of containers listed on COC match with the number of containers received? _____

YES ☒ NO ☐

Did all bottle labels and tags agree with custody papers? _____

YES ☒ NO ☐

Were all bottles used correct for the requested analyses? _____

YES ☒ NO ☐

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...

YES ☒ NO ☐

Were all VOC vials free of air bubbles? _____

YES ☒ NO ☐

Was sufficient amount of sample sent in each bottle? _____

YES ☒ NO ☐

Date VOC Trip Blank was made at ARI: _____

YES ☒ NO ☐

Was Sample Split by ARI: ☒ YES ☐ NO ☐

Date/Time: _____

Equipment: _____

Split by: _____

Samples Logged by: AV

Date: 1/19/17

Time: 1304

** Notify Project Manager of discrepancies or concerns **

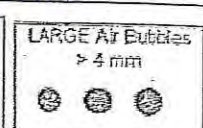
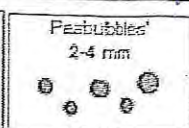
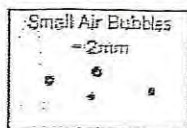
Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

Multiple bottles had loose caps, no sample volume was lost.

By: AV

Date: 1/19/17



Small → "sm" (< 2 mm)

Peabubbles → "pb" (2 to < 4 mm)

Large → "lg" (4 to < 6 mm)

Headspace → "hs" (> 6 mm)



Cooler Temperature Compliance Form

Cooler#:	2	Temperature(°C):	10.0
Sample ID	Bottle Count	Bottle Type	
Samples were above 6°C			
Gm-4	4	500ml amber glass	
Gm-4F	4	500ml amber glass	
EW-1	4	500ml amber glass	
EW-1D	4	500ml amber glass	
P-4	2	500ml amber glass	

Cooler#:		Temperature(°C):	
Sample ID	Bottle Count	Bottle Type	

Cooler#:		Temperature(°C):	
Sample ID	Bottle Count	Bottle Type	

Cooler#:		Temperature(°C):	
Sample ID	Bottle Count	Bottle Type	

Completed by: pm / AV Date: 01/19/2017 Time: 11:00 / 1303



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GM-4	17A0213-01	Water	18-Jan-2017 08:58	19-Jan-2017 10:35
GM-4F	17A0213-02	Water	18-Jan-2017 08:58	19-Jan-2017 10:35
EW-1	17A0213-03	Water	18-Jan-2017 09:34	19-Jan-2017 10:35
EW-1D	17A0213-04	Water	18-Jan-2017 09:34	19-Jan-2017 10:35
BE-2	17A0213-05	Water	18-Jan-2017 09:57	19-Jan-2017 10:35
P-4	17A0213-06	Water	18-Jan-2017 10:24	19-Jan-2017 10:35
P-2	17A0213-07	Water	18-Jan-2017 10:47	19-Jan-2017 10:35
5-A	17A0213-08	Water	18-Jan-2017 11:12	19-Jan-2017 10:35



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

Case Narrative

Client: Hydrometrics, Inc.

Project: Idaho Pole

Workorder: 17A0213

Sample receipt

8 samples were received 19-Jan-2017 10:35 under ARI work order 17A0213. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Pentachlorophenol (PCP)- EPA Method SW8041A

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The percent recoveries for all surrogates were within established QC limits.

A small amount of PCP was detected in the method blank associated with these samples. PCP was detected in all samples except 'GM-4F'. Since the concentrations of PCP measured in all other samples were significantly greater than the amount found in the blank, no corrective actions were taken.

The percent recovery for PCP was slightly low following the analysis of the LCS associated with these samples. Since the percent recovery for the surrogate, 2,4,6-tribromophenol, was within established QC limits for the LCS, and the holding time had expired, no corrective actions were taken.

Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

These samples were extracted and analyzed within the recommended holding times.

All initial and continuing calibrations were within method requirements.

The percent recoveries for all surrogates were within acceptable QC limits for all samples except '5-A'. The surrogate, 2,4,6-tribromophenol, was diluted out of this sample.

No target compounds were detected in the method blank above the LOQs.

The percent recovery for diesel was within acceptable QC limits for the LCS.



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

GM-4
17A0213-01 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 08:58
Analyzed: 01/27/2017 14:03

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	18.0	ug/L	B, E
Surrogate: 2,4,6-Tribromophenol			26-120 %	41.4	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	51.7	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

GM-4
17A0213-01 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 01/18/2017 08:58
Analyzed: 01/26/2017 20:54

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0345 Sample Size: 500 mL
Prepared: 01/20/2017 16:55 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.482	mg/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	85.6	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

GM-4
17A0213-01RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 08:58
Analyzed: 01/30/2017 16:04

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	2	0.50	18.8	ug/L	D, B
Surrogate: 2,4,6-Tribromophenol			26-120 %	43.3	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	56.6	%	



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5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

GM-4F
17A0213-02 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 08:58
Analyzed: 01/27/2017 14:21

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
Surrogate: 2,4,6-Tribromophenol			26-120 %	74.0	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	39.2	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

GM-4F
17A0213-02 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 01/18/2017 08:58
Analyzed: 01/26/2017 21:21

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0345 Sample Size: 500 mL
Prepared: 01/20/2017 16:55 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	ND	mg/L	U
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	52.7	%	



Hydrometrics, Inc.
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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

EW-1
17A0213-03 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 09:34
Analyzed: 01/27/2017 14:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	80.6	ug/L	E, B
Surrogate: 2,4,6-Tribromophenol			26-120 %	43.9	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	55.5	%	



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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

EW-1
17A0213-03 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 01/18/2017 09:34
Analyzed: 01/26/2017 21:49

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0345 Sample Size: 500 mL
Prepared: 01/20/2017 16:55 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.975	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	84.4	%	



Hydrometrics, Inc.
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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

EW-1
17A0213-03RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 09:34
Analyzed: 01/30/2017 16:21

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	10	2.50	66.5	ug/L	D, B
Surrogate: 2,4,6-Tribromophenol			26-120 %			NRS
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	63.8 %		



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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

EW-1D
17A0213-04 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 09:34
Analyzed: 01/27/2017 14:57

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	76.6	ug/L	E, B
Surrogate: 2,4,6-Tribromophenol			26-120 %	59.2	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	52.9	%	



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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

EW-1D
17A0213-04 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 01/18/2017 09:34
Analyzed: 01/26/2017 22:14

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0345 Sample Size: 500 mL
Prepared: 01/20/2017 16:55 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.889	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	81.1	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

EW-1D
17A0213-04RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 09:34
Analyzed: 01/30/2017 16:39

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	10	2.50	65.9	ug/L	D, B
Surrogate: 2,4,6-Tribromophenol			26-120 %	66.6	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	67.2	%	



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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

BE-2
17A0213-05 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 09:57
Analyzed: 01/27/2017 15:14

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	4.35	ug/L	B
Surrogate: 2,4,6-Tribromophenol			26-120 %	62.5	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	57.4	%	



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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

BE-2
17A0213-05 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 01/18/2017 09:57
Analyzed: 01/26/2017 22:42

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0345 Sample Size: 500 mL
Prepared: 01/20/2017 16:55 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.445	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	79.3	%	



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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

P-4
17A0213-06 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 10:24
Analyzed: 01/27/2017 15:32

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	467	ug/L	E, B
Surrogate: 2,4,6-Tribromophenol			26-120 %	42.1	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	54.3	%	



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5602 Hesper Rd.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

P-4
17A0213-06 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 01/18/2017 10:24
Analyzed: 01/27/2017 00:02

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0345 Sample Size: 500 mL
Prepared: 01/20/2017 16:55 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DIESEL		1	0.100	2.14	mg/L	
Motor Oil Range Organics (C24-C38) HC ID: RRO		1	0.200	0.201	mg/L	
Surrogate: o-Terphenyl			50-150 %	79.6	%	



Hydrometrics, Inc.
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Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

P-4
17A0213-06RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 10:24
Analyzed: 01/30/2017 16:57

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	200	50.0	904	ug/L	D, B
Surrogate: 2,4,6-Tribromophenol			26-120 %			D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %			D1



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

P-2
17A0213-07 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 10:47
Analyzed: 01/27/2017 15:50

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	289	ug/L	P1, B, E
Surrogate: 2,4,6-Tribromophenol			26-120 %	50.6	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	54.4	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

P-2
17A0213-07 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 01/18/2017 10:47
Analyzed: 01/27/2017 00:29

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0345 Sample Size: 500 mL
Prepared: 01/20/2017 16:55 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		1	0.100	0.989	mg/L	
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		1	0.200	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %	81.8	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

P-2
17A0213-07RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 10:47
Analyzed: 01/30/2017 17:15

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	100	25.0	166	ug/L	D, B
Surrogate: 2,4,6-Tribromophenol			26-120 %			D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %			D1



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

5-A
17A0213-08 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 11:12
Analyzed: 01/27/2017 16:08

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	557	ug/L	B, E
Surrogate: 2,4,6-Tribromophenol			26-120 %	72.0	%	
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %	53.5	%	



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

5-A
17A0213-08 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 01/18/2017 11:12
Analyzed: 01/27/2017 00:55

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0345 Sample Size: 500 mL
Prepared: 01/20/2017 16:55 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO		1	0.100	125	mg/L	E
Motor Oil Range Organics (C24-C38) HC ID: RRO		1	0.200	7.85	mg/L	
Surrogate: o-Terphenyl			50-150 %			NRS



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

5-A
17A0213-08RE1 (Water)

Phenols

Method: EPA 8041A
Instrument: ECD8

Sampled: 01/18/2017 11:12
Analyzed: 01/31/2017 15:37

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0395 Sample Size: 500 mL
Prepared: 01/25/2017 15:45 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	300	75.0	1910	ug/L	D, B
Surrogate: 2,4,6-Tribromophenol			26-120 %			D1
Surrogate: 2,4,6-Tribromophenol [2C]			26-120 %			D1



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

5-A
17A0213-08RE1 (Water)

Petroleum Hydrocarbons

Method: NWTPH-Dx
Instrument: FID4

Sampled: 01/18/2017 11:12
Analyzed: 01/27/2017 13:05

Sample Preparation: Preparation Method: EPA 3510C SepF
Preparation Batch: BFA0345 Sample Size: 500 mL
Prepared: 01/20/2017 16:55 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)		50	5.00	123	mg/L	D
HC ID: DIESEL						
Motor Oil Range Organics (C24-C38)		50	10.0	ND	mg/L	U
Surrogate: o-Terphenyl			50-150 %			D1



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

Phenols - Quality Control

Batch BFA0395 - EPA 3510C SepF

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BFA0395-BLK1)				Prepared: 25-Jan-2017 Analyzed: 27-Jan-2017 13:27						
Pentachlorophenol	0.44	0.25	ug/L							
Surrogate: 2,4,6-Tribromophenol	0.728		ug/L	2.50		29.1 %	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	0.951		ug/L	2.50		38.0 %	26-120			
LCS (BFA0395-BS1)				Prepared: 25-Jan-2017 Analyzed: 27-Jan-2017 13:45						
Pentachlorophenol	1.08	0.25	ug/L	2.50		43.0 %	48-120			*, B
Surrogate: 2,4,6-Tribromophenol	0.923		ug/L	2.50		36.9 %	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.18		ug/L	2.50		47.2 %	26-120			



Hydrometrics, Inc.
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Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

Petroleum Hydrocarbons - Quality Control

Batch BFA0345 - EPA 3510C SepF

Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BFA0345-BLK1)				Prepared: 20-Jan-2017 Analyzed: 26-Jan-2017 14:54						
Diesel Range Organics (C12-C24)	ND	0.100	mg/L							U
Motor Oil Range Organics (C24-C38)	ND	0.200	mg/L							U
Surrogate: o-Terphenyl		0.0774	mg/L	0.0900		86.0 %	50-150			
LCS (BFA0345-BS1)				Prepared: 20-Jan-2017 Analyzed: 26-Jan-2017 15:22						
Diesel Range Organics (C12-C24)	2.31	0.100	mg/L	3.00		76.8 %	56-120			



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

Certified Analyses included in this Report

Analyte	Certifications
NWTPH-Dx in Water	
Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	UST-033	05/06/2017
CALAP	California Department of Public Health CAELAP	2748	02/28/2018
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	03/30/2017
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006	05/11/2017
WADOE	WA Dept of Ecology	C558	06/30/2017
WA-DW	Ecology - Drinking Water	C558	06/30/2017



Hydrometrics, Inc.
5602 Hesper Rd.
Billings, MT 59106

Project: Idaho Pole
Project Number: Idaho Pole
Project Manager: Heidi Kaiser

Reported:
14-Feb-2017 09:23

Notes and Definitions

*	Flagged value is not within established control limits.
B	This analyte was detected in the method blank.
D	The reported value is from a dilution
D1	Surrogate was not detected due to sample extract dilution
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
NRS	This surrogate not reported due to chromatographic interference
P1	The reported value is greater than 40% difference between the concentrations determined on two GC columns where applicable.
U	This analyte is not detected above the applicable reporting or detection limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

APPENDIX B
ALS LABORATORY REPORTS



August 08, 2016

Service Request No:E1600720

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Road
Billings, MT 59106

Laboratory Results for: Idaho Pole

Dear Heidi,

Enclosed are the results of the sample(s) submitted to our laboratory July 15, 2016
For your reference, these analyses have been assigned our service request number **E1600720**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2279. You may also contact me via email at Arthi.Kodur@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Arthi Kodur
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 713 266 1599 | FAX +1 713 266 0130
ALS Group USA, Corp.
dba ALS Environmental



Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request No.: E1600720
Date Received: 7/15/16

ALS ENVIRONMENTAL NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Three water samples were received for analysis at ALS Environmental – Houston HRMS on 7/15/16.

The samples were received at 13.0°C in good condition and is consistent with the accompanying chain of custody form. The samples were received out of temperature range of 0-6 degree C. The client was contacted and allowed the continuation of the analysis. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Custody seals were present on the cooler upon arrival at the laboratory.

Data Validation Notes and Discussion

The Method Blank EQ1600321-01 contained low levels of various analytes above the EDL, but below the Method Reporting Limit (MRL).

The associated compounds in the samples are flagged with 'B' flags where the sample result is less than ten times the level detected in the method blank.

Precision and Accuracy

EQ1600321: Laboratory Control Spike (LCS) sample was analyzed and reported in lieu of an MS/DMS for this extraction batch. The batch quality control criteria were met. Batch precision (MS/DMS) measurements were determined on a sample unrelated to this Service Request. The MS/DMS results are not included in this report.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Y flags – Labeled Standards

Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

The TEQ Summary results for each sample have been calculated by ALS ENVIRONMENTAL/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: Hydrometrics, Inc.
Project: Idaho Pole

Service Request:E1600720

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
E1600720-001	P-2	7/14/2016	1419
E1600720-002	P-2F	7/14/2016	1419
E1600720-003	5-B	7/14/2016	1440

Service Request Summary

Folder #: E1600720
Client Name: Hydrometrics, Inc.
Project Name: Idaho Pole
Project Number:

Report To: Heidi Kaiser
 Hydrometrics, Inc.
 5602 Hesper Road
 Billings, MT 59106
 USA
Phone Number: 406-656-1172
Cell Number:
Fax Number:
E-mail: hkaiser@hydrometrics.com

Project Chemist: Arthi Kodur
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 07/15/16
Internal Due Date: 8/3/2016
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number:
EDD: No EDD Specified

6 1000 ml-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 8B, E-Disposed
Pressure Gas:

				HOUSTON
				PCDD PCDF/8290A
Lab Samp No.	Client Samp No	Matrix	Collected	
E1600720-001	P-2	Water	07/14/16 1419	II
E1600720-002	P-2F	Water	07/14/16 1419	II
E1600720-003	5-B	Water	07/14/16 1440	II

Service Request Summary

Folder #: E1600720
Client Name: Hydrometrics, Inc.
Project Name: Idaho Pole
Project Number:

Report To: Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Road
Billings, MT 59106
USA
Phone Number: 406-656-1172
Cell Number:
Fax Number:
E-mail: hkaiser@hydrometrics.com

Project Chemist: Arthi Kodur
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 07/15/16
Internal Due Date: 8/3/2016
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number:
EDD: No EDD Specified

6 1000 ml-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 8B, E-Disposed
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	PCDD PCDF/8290A	3	full list (ak 7/16/16)

Data Qualifiers

HRMS Qualifier Set

- B Indicates the associated analyte was found in the method blank at >1/10th the reported value.
- E Estimated value. The reported concentration is above the calibration range of the instrument.
- H Sample extracted and/or analyzed out of suggested holding time.
- J Estimated value. The reported concentration is below the MRL.
- K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. The concentration of this analyte should be considered as an estimate.
- P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
- Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.
- S Signal saturated detector. Result reported from dilution.
- U Compound was analyzed for, but was not detected (ND).
- X See Case Narrative.
- Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-noise ratios are greater than 10:1, making the recoveries acceptable.
- i The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCetration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2017
Arizona Department of Health Services	AZ0793	5/27/2017
Arkansas Department of Environmental Quality	14-038-0	6/16/2017
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2017
Hawaii Department of Health	TX02694	4/30/2017
Illinois Environmental Protection Agency	200057	10/6/2016
Louisiana Department of Health and Hospitals	LA150026	12/31/2016
Maine Center for Disease Control and Prevention	2014019	6/5/2018
Maryland Department of the Environment	343	6/30/2017
Minnesota Department of Health	840911	12/31/2016
New Jersey Department of Environmental Protection	NLC140001	6/30/2017
New Mexico Environment Department	TX02694	4/17/2017
New York Department of Health	11707	4/1/2017
Oklahoma Department of Environmental Quality	2014 124	8/31/2016
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2017
Pennsylvania Department of Environmental Protection	68-03441	6/30/2017
Tennessee Department of Environment and Conservation	04016	6/30/2017
Texas Commission on Environmental Quality	TX104704216-14-5	6/30/2017
United States Department of Agriculture	P330-14-00067	2/21/2017
Washington Department of Health	c819	11/14/2016
West Virginia Department of Environmental Protection	347	8/31/2016

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID

E1600720

DB-5MSUI

SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:

08/05/16

Analyst:

jc

Samples:

001-003

Second Level - Data Review – to be filled by person doing peer review

Date:

08/06/16

Analyst:

LM

Samples:

001-003



Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com



10450 Stancliff Road, Suite 210, Houston, TX 77099 | 713.266.1599 | alsusa.hrms@alsglobal.com | www.alsglobal.com

7/14/16

OF

Report to: Heidi Kausen

Analysis Request

Number of Containers

8290
1613B
1613 TCDD only
1668 WHO
1668 Full List

REMARKS / SAMPLE LOCATION

5

Hydrometrics, Inc.
Dioxin/Furan in Groundwater

Sampler's Signature

DISTRIBUTION: WHITE - Laboratory Copy; YELLOW - Client Copy

Cooler Receipt Form

Project Chemist AK

Client/Project Hydrometrics

Thermometer ID SMO 4

Date/Time Received: 7/15/16 8:40

Initials: AL

Date/Time Logged in: 7/15/16

Initials AL

1. Method of delivery: ☐ US Mail ☒ Fed Ex ☐ UPS ☐ DHL ☐ Courier ☐ Client

2. Samples received in: ☒ Cooler ☐ Box ☐ Envelope ☐ Other

3. Were custody seals on coolers? ☒ Yes ☐ No

If yes, how many and where?

1 Seal

Were they intact? ☒ Yes ☐ No ☐ N/A

Were they signed and dated? ☒ Yes ☐ No ☐ N/A

4. Packing Material: ☐ Inserts ☒ Baggies ☐ Bubble Wrap ☐ Gel Packs ☒ Wet Ice ☐ Sleeves ☐ Other

5. Foreign or Regulated Soil?

☐ Yes ☒ No

Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
<u>8097 0020 1044</u>		<u>7/15/16</u>	<u>11:39</u>	<u>AL</u>	<u>13.0/13.0</u>	<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>

6. Were custody papers properly filled out (ink, signed, dated, etc)?

☒ Yes ☐ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)?

☒ Yes ☐ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)?

☒ Yes ☐ No

9. Were appropriate bottles/containers and volumes received for the requested tests?

☒ Yes ☐ No

10. Did sample labels and tags agree with custody documents?

☒ Yes ☐ No

Notes, Discrepancies, & Resolutions:

Samples received out of temp. AL 7/15/16

Service request Label:

E1600720
5

Hydrometrics, Inc.
Dioxin/Furan in Groundwater




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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sample. The COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6°C.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10°C.
- ✓ Air samples are shipped and stored cold, at 0 to 6°C
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report



Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 266592
Team: Semivoa GCMS/JPHAN

Prep Workflow: OrgExtDioxAq-30
Prep Method: EPA 3510C

Status: Prepped
Prep Date/Time: 7/20/16 12:00 PM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1600700-001	Waste-RO-10-IDW-160707	.01	8290/PCDD PCDF	7	x	Water	968mL	Cloudy Gray Liquid
2	E1600700-002	Waste-RO-11-IDW-160707	.01	8290/PCDD PCDF	7	x	Water	943mL	Cloudy Tan Liquid
3	E1600702-001	SRTTP-OOOPS	.05	8290/PCDD PCDF	7	x	Water	960mL	Clear Colorless Liquid
4	E1600715-001	GW-13	.01	8290A/PCDD PCDF	5	x	Ground Water	1042mL	Clear Colorless Liquid
5	E1600715-002	GW-12	.01	8290A/PCDD PCDF	5	x	Ground Water	1045mL	Clear Colorless Liquid
6	E1600715-003	GW-09	.01	8290A/PCDD PCDF	6	x	Ground Water	1042mL	Clear Colorless Liquid
7	E1600715-004	GW-11	.01	8290A/PCDD PCDF	6	x	Ground Water	1047mL	Clear Colorless Liquid
8	E1600715-005	GW-10	.02	8290A/PCDD PCDF	7	x	Ground Water	1024mL	Clear Colorless Liquid
9	E1600720-001	P-2	.01	8290A/PCDD PCDF	7	x	Water	1045mL	Clear Colorless Liquid
10	E1600720-002	P-2F	.01	8290A/PCDD PCDF	5	x	Water	1049mL	Clear Colorless Liquid
11	E1600720-003	5-B	.01	8290A/PCDD PCDF	7	x	Water	1052mL	Clear Colorless Liquid
12	E1600721-001	GP RCRA NPDES	.01	8290/PCDD PCDF	7	x	Water	992mL	Clear Colorless Liquid
13	E1600729-001	FC-PCD-SW01-071816	.01	8290A/PCDD PCDF	7	x	Water	1024mL	Turbid Brown Liquid w/ Plants
14	EQ1600321-01	MB		8290A/PCDD PCDF	5	x	Liquid	1000mL	
15	EQ1600321-02	LCS		8290A/PCDD PCDF	5	x	Liquid	1000mL	
16	EQ1600321-03	SRTTP-OOOPS MS	.06	8290/PCDD PCDF	7	x	Liquid	943mL	
17	EQ1600321-04	SRTTP-OOOPS DMS	.07	8290/PCDD PCDF	7	x	Liquid	935mL	
18	EQ1600321-05	SRTTP-OOOPS DUP	.08	8290/PCDD PCDF	7	x	Liquid	1052mL	
19	R1607104-004	1607060802 600-HWTL-09	.01	8290A/PCDD PCDF	5	x	Water	1052mL	Clear Colorless Liquid

CID 7/25/16

Preparation Information Benchsheet

Prep Run#: 266592
Team: Semivoa GCMS/JPHAN

Prep WorkFlow: OrgExtDioxAq-30
Prep Method: EPA 3510C

Status: Prepped
Prep Date/Time: 7/20/16 12:00 PM

Spiking Solutions

Name:	8290/1613B Cleanup Working Standard			Inventory ID	174208	Logbook Ref:	174208 7/19/16 CID EXT			Expires On:	11/12/2016
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E1600700-001	100.00µL	E1600700-002	100.00µL	E1600702-001	100.00µL	E1600715-001	100.00µL	E1600715-002	100.00µL	E1600715-003	100.00µL
E1600715-004	100.00µL	E1600715-005	100.00µL	E1600720-001	100.00µL	E1600720-002	100.00µL	E1600720-003	100.00µL	E1600721-001	100.00µL
E1600729-001	100.00µL	EQ1600321-01	100.00µL	EQ1600321-01	100.00µL	EQ1600321-02	100.00µL	EQ1600321-02	100.00µL	EQ1600321-03	100.00µL
EQ1600321-04	100.00µL	EQ1600321-05	100.00µL	R1607104-004	100.00µL						

Name:	1613B Matrix Working Standard			Inventory ID	174238	Logbook Ref:	JP 174238 7/20/16 2-20 ng/mL			Expires On:	01/16/2017
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EQ1600321-02	100.00µL	EQ1600321-02	100.00µL	EQ1600321-03	100.00µL	EQ1600321-04	100.00µL
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Name:	1613B Labeled Working Standard			Inventory ID	174239	Logbook Ref:	JP 174239 7/20/16 2-4 ng/mL			Expires On:	01/10/2017
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E1600700-001	1,000.00µL	E1600700-002	1,000.00µL	E1600702-001	1,000.00µL	E1600715-001	1,000.00µL	E1600715-002	1,000.00µL	E1600715-003	1,000.00µL
E1600715-004	1,000.00µL	E1600715-005	1,000.00µL	E1600720-001	1,000.00µL	E1600720-002	1,000.00µL	E1600720-003	1,000.00µL	E1600721-001	1,000.00µL
E1600729-001	1,000.00µL	EQ1600321-01	1,000.00µL	EQ1600321-01	1,000.00µL	EQ1600321-02	1,000.00µL	EQ1600321-02	1,000.00µL	EQ1600321-03	1,000.00µL
EQ1600321-04	1,000.00µL	EQ1600321-05	1,000.00µL	R1607104-004	1,000.00µL						

Preparation Materials

Sensafe Free Chlorine WTR CHK	LM 3/19/15 (79756)	Carbon, High Purity	CID 7/15/16 (174178)	Ethyl Acetate 99.9% Minimum EtOAc	CID 7/21/16 (174255)
Glass Wool	CID 06/28/2019 (173659)	Hexanes 95%	CID 7/1/16 (173771)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	JP 5/11/16 (172330)
Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)	Sodium Hydroxide Reagent Grade NaOH	CID 5/23/2016 (172624)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 06/28/16 (173644)
Tridecane (n-Tridecane)	JP 7-12-16 (173994)	ColorpHast pH-Indicator Strips	DE 11/11/15 (85766)	Silica Gel	CID 7/21/16 (174254)
sulfuric acid	CID 7/11/16 (173960)	Toluene 99.9% Minimum	CID 7/12/16 (174033)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	7/20/16 12:00	Started:	7/20/16 08:05	Started:	7/21/16 08:00	Started:	7/21/16 15:00
Finished:	7/20/16 18:30	Finished:	7/20/16 08:07	Finished:	7/21/16 09:20	Finished:	7/21/16 15:25
By:	JPHAN	By:	CDIAZ	By:	CDIAZ	By:	CDIAZ
Comments		Comments		Comments		Comments	

Comments: _____

Preparation Information Benchsheet

Prep Run#: 266592
Team: Semivoa GCMS/JPHAN

Prep WorkFlow: OrgExtDioxAq-30
Prep Method: EPA 3510C

Status: Prepped
Prep Date/Time: 7/20/16 12:00 PM

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____	Date: _____	<u>Extracts Examined</u>
Received By: _____	Date: _____	Yes No



Analytical Results

ALS Environmental - Houston HRMS
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ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:19
Date Received: 07/15/16 08:40

Sample Name: P-2
Lab Code: E1600720-001

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1045mL

Data File Name: P505288
ICAL Date: 07/10/16

Date Analyzed: 08/03/16 03:27
Date Extracted: 7/20/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P505280

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.551	4.78			1
1,2,3,7,8-PeCDD	1.73J		0.456	23.9	1.61	1.001	1
1,2,3,6,7,8-HxCDD	5.72J		0.219	23.9	1.33	1.001	1
1,2,3,4,7,8-HxCDD	1.72J		0.215	23.9	1.28	1.001	1
1,2,3,7,8,9-HxCDD	2.19JK		0.203	23.9	1.03	1.009	1
1,2,3,4,6,7,8-HpCDD	90.2B		1.14	23.9	1.01	1.000	1
OCDD	615		1.96	47.8	0.88	1.000	1
2,3,7,8-TCDF	ND	U	0.365	4.78			1
1,2,3,7,8-PeCDF	1.13JK		0.610	23.9	1.31	1.001	1
2,3,4,7,8-PeCDF	2.04J		0.622	23.9	1.67	1.001	1
1,2,3,6,7,8-HxCDF	1.08JK		0.238	23.9	0.76	1.001	1
1,2,3,7,8,9-HxCDF	1.74JK		0.301	23.9	1.44	1.000	1
1,2,3,4,7,8-HxCDF	2.42JK		0.255	23.9	1.02	1.000	1
2,3,4,6,7,8-HxCDF	1.92J		0.256	23.9	1.09	1.000	1
1,2,3,4,6,7,8-HpCDF	16.5BJ		0.816	23.9	1.09	1.000	1
1,2,3,4,7,8,9-HpCDF	2.35J		0.973	23.9	1.01	1.000	1
OCDF	74.9B		1.65	47.8	0.94	1.003	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:19
Date Received: 07/15/16 08:40

Sample Name: P-2
Lab Code: E1600720-001

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1045mL

Date Analyzed: 08/03/16 03:27
Date Extracted: 7/20/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P505280

Data File Name: P505288
ICAL Date: 07/10/16

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.551	4.78			1
Total Penta-Dioxins	1.73J		0.456	23.9	1.61		1
Total Hexa-Dioxins	17.4J		0.213	23.9	1.33		1
Total Hepta-Dioxins	164		1.14	23.9	1.04		1
Total Tetra-Furans	0.807J		0.365	4.78	0.77		1
Total Penta-Furans	3.12J		0.616	23.9	1.44		1
Total Hexa-Furans	27.2		0.261	23.9	1.10		1
Total Hepta-Furans	77.7		0.891	23.9	1.09		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:19
Date Received: 07/15/16 08:40

Sample Name: P-2
Lab Code: E1600720-001

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1045mL

Date Analyzed: 08/03/16 03:27
Date Extracted: 7/20/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P505280

Data File Name: P505288
ICAL Date: 07/10/16

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	818.692	41		40-135	0.79	1.031
13C-1,2,3,7,8-PeCDD	2000	695.232	35	Y	40-135	1.58	1.277
13C-1,2,3,4,7,8-HxCDD	2000	835.023	42		40-135	1.27	0.990
13C-1,2,3,6,7,8-HxCDD	2000	789.911	39	Y	40-135	1.27	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	584.591	29	Y	40-135	1.07	1.083
13C-OCDD	4000	805.231	20	Y	40-135	0.92	1.173
13C-2,3,7,8-TCDF	2000	843.998	42		40-135	0.79	0.989
13C-1,2,3,7,8-PeCDF	2000	789.532	39	Y	40-135	1.57	1.217
13C-2,3,4,7,8-PeCDF	2000	757.822	38	Y	40-135	1.58	1.263
13C-1,2,3,4,7,8-HxCDF	2000	877.360	44		40-135	0.52	0.965
13C-1,2,3,6,7,8-HxCDF	2000	865.047	43		40-135	0.52	0.968
13C-1,2,3,7,8,9-HxCDF	2000	898.939	45		40-135	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	865.273	43		40-135	0.52	0.985
13C-1,2,3,4,6,7,8-HpCDF	2000	578.318	29	Y	40-135	0.45	1.053
13C-1,2,3,4,7,8,9-HpCDF	2000	737.809	37	Y	40-135	0.45	1.097
37Cl-2,3,7,8-TCDD	800	319.114	40		40-135	NA	1.032

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:19
Date Received: 07/15/16 08:40

Sample Name: P-2
Lab Code: E1600720-001

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.551	4.78	1	1	
1,2,3,7,8-PeCDD	1.73	0.456	23.9	1	1	1.73
1,2,3,6,7,8-HxCDD	5.72	0.219	23.9	1	0.1	0.572
1,2,3,4,7,8-HxCDD	1.72	0.215	23.9	1	0.1	0.172
1,2,3,7,8,9-HxCDD	2.19	0.203	23.9	1	0.1	0.219
1,2,3,4,6,7,8-HpCDD	90.2	1.14	23.9	1	0.01	0.902
OCDD	615	1.96	47.8	1	0.0003	0.185
2,3,7,8-TCDF	ND	0.365	4.78	1	0.1	
1,2,3,7,8-PeCDF	1.13	0.610	23.9	1	0.03	0.0339
2,3,4,7,8-PeCDF	2.04	0.622	23.9	1	0.3	0.612
1,2,3,6,7,8-HxCDF	1.08	0.238	23.9	1	0.1	0.108
1,2,3,7,8,9-HxCDF	1.74	0.301	23.9	1	0.1	0.174
1,2,3,4,7,8-HxCDF	2.42	0.255	23.9	1	0.1	0.242
2,3,4,6,7,8-HxCDF	1.92	0.256	23.9	1	0.1	0.192
1,2,3,4,6,7,8-HpCDF	16.5	0.816	23.9	1	0.01	0.165
1,2,3,4,7,8,9-HpCDF	2.35	0.973	23.9	1	0.01	0.0235
OCDF	74.9	1.65	47.8	1	0.0003	0.0225
Total TEQ						5.35

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:19
Date Received: 07/15/16 08:40

Sample Name: P-2F
Lab Code: E1600720-002

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1049mL

Data File Name: P505289
ICAL Date: 07/10/16

Date Analyzed: 08/03/16 04:15
Date Extracted: 7/20/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P505280

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.930	4.77			1
1,2,3,7,8-PeCDD	0.941 JK		0.490	23.8	2.19	1.001	1
1,2,3,6,7,8-HxCDD	2.09 J		0.448	23.8	1.12	1.000	1
1,2,3,4,7,8-HxCDD	1.29 JK		0.445	23.8	1.51	1.001	1
1,2,3,7,8,9-HxCDD	1.09 JK		0.419	23.8	1.65	1.008	1
1,2,3,4,6,7,8-HpCDD	31.0 B		0.736	23.8	0.97	1.000	1
OCDD	183 B		1.45	47.7	0.89	1.001	1
2,3,7,8-TCDF	ND	U	0.487	4.77			1
1,2,3,7,8-PeCDF	1.02 J		0.366	23.8	1.32	1.001	1
2,3,4,7,8-PeCDF	0.786 JK		0.363	23.8	1.04	1.001	1
1,2,3,6,7,8-HxCDF	0.785 JK		0.326	23.8	1.52	1.000	1
1,2,3,7,8,9-HxCDF	0.969 J		0.395	23.8	1.26	1.000	1
1,2,3,4,7,8-HxCDF	1.18 JK		0.349	23.8	1.45	1.000	1
2,3,4,6,7,8-HxCDF	1.08 JK		0.319	23.8	1.84	1.000	1
1,2,3,4,6,7,8-HpCDF	5.99 BJ		0.331	23.8	0.96	1.000	1
1,2,3,4,7,8,9-HpCDF	0.834 JK		0.396	23.8	0.69	1.000	1
OCDF	25.5 BJ		1.89	47.7	1.01	1.004	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:19
Date Received: 07/15/16 08:40

Sample Name: P-2F
Lab Code: E1600720-002

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1049mL

Data File Name: P505289
ICAL Date: 07/10/16

Date Analyzed: 08/03/16 04:15
Date Extracted: 7/20/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P505280

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.930	4.77			1
Total Penta-Dioxins	ND	U	0.490	23.8			1
Total Hexa-Dioxins	3.53J		0.436	23.8	1.27		1
Total Hepta-Dioxins	49.8		0.736	23.8	0.96		1
Total Tetra-Furans	1.21J		0.487	4.77	0.83		1
Total Penta-Furans	1.02J		0.364	23.8	1.32		1
Total Hexa-Furans	4.59J		0.346	23.8	1.21		1
Total Hepta-Furans	23.6J		0.363	23.8	0.96		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:19
Date Received: 07/15/16 08:40

Sample Name: P-2F
Lab Code: E1600720-002

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1049mL

Date Analyzed: 08/03/16 04:15
Date Extracted: 7/20/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P505280

Data File Name: P505289
ICAL Date: 07/10/16

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1373.399	69		40-135	0.80	1.031
13C-1,2,3,7,8-PeCDD	2000	1178.928	59		40-135	1.61	1.276
13C-1,2,3,4,7,8-HxCDD	2000	1537.153	77		40-135	1.27	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1485.763	74		40-135	1.27	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1194.823	60		40-135	1.05	1.083
13C-OCDD	4000	1787.111	45		40-135	0.91	1.172
13C-2,3,7,8-TCDF	2000	1417.703	71		40-135	0.79	0.988
13C-1,2,3,7,8-PeCDF	2000	1341.272	67		40-135	1.58	1.216
13C-2,3,4,7,8-PeCDF	2000	1299.346	65		40-135	1.57	1.262
13C-1,2,3,4,7,8-HxCDF	2000	1556.643	78		40-135	0.51	0.965
13C-1,2,3,6,7,8-HxCDF	2000	1544.802	77		40-135	0.52	0.968
13C-1,2,3,7,8,9-HxCDF	2000	1653.269	83		40-135	0.52	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1628.338	81		40-135	0.52	0.985
13C-1,2,3,4,6,7,8-HpCDF	2000	1149.710	57		40-135	0.44	1.053
13C-1,2,3,4,7,8,9-HpCDF	2000	1492.329	75		40-135	0.44	1.097
37Cl-2,3,7,8-TCDD	800	571.265	71		40-135	NA	1.031

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:19
Date Received: 07/15/16 08:40

Sample Name: P-2F
Lab Code: E1600720-002

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.930	4.77	1	1	
1,2,3,7,8-PeCDD	0.941	0.490	23.8	1	1	0.941
1,2,3,6,7,8-HxCDD	2.09	0.448	23.8	1	0.1	0.209
1,2,3,4,7,8-HxCDD	1.29	0.445	23.8	1	0.1	0.129
1,2,3,7,8,9-HxCDD	1.09	0.419	23.8	1	0.1	0.109
1,2,3,4,6,7,8-HpCDD	31.0	0.736	23.8	1	0.01	0.310
OCDD	183	1.45	47.7	1	0.0003	0.0549
2,3,7,8-TCDF	ND	0.487	4.77	1	0.1	
1,2,3,7,8-PeCDF	1.02	0.366	23.8	1	0.03	0.0306
2,3,4,7,8-PeCDF	0.786	0.363	23.8	1	0.3	0.236
1,2,3,6,7,8-HxCDF	0.785	0.326	23.8	1	0.1	0.0785
1,2,3,7,8,9-HxCDF	0.969	0.395	23.8	1	0.1	0.0969
1,2,3,4,7,8-HxCDF	1.18	0.349	23.8	1	0.1	0.118
2,3,4,6,7,8-HxCDF	1.08	0.319	23.8	1	0.1	0.108
1,2,3,4,6,7,8-HpCDF	5.99	0.331	23.8	1	0.01	0.0599
1,2,3,4,7,8,9-HpCDF	0.834	0.396	23.8	1	0.01	0.00834
OCDF	25.5	1.89	47.7	1	0.0003	0.00765
Total TEQ						2.50

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:40
Date Received: 07/15/16 08:40

Sample Name: 5-B
Lab Code: E1600720-003

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1052mL

Date Analyzed: 08/03/16 05:04
Date Extracted: 7/20/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P505280

Data File Name: P505290
ICAL Date: 07/10/16

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.858	4.75			1
1,2,3,7,8-PeCDD	1.19J		0.577	23.8	1.49	1.001	1
1,2,3,6,7,8-HxCDD	2.65J		0.417	23.8	1.30	1.000	1
1,2,3,4,7,8-HxCDD	0.926JK		0.412	23.8	0.76	1.000	1
1,2,3,7,8,9-HxCDD	1.43JK		0.389	23.8	1.60	1.008	1
1,2,3,4,6,7,8-HpCDD	37.7B		0.639	23.8	1.00	1.000	1
OCDD	223B		1.42	47.5	0.88	1.000	1
2,3,7,8-TCDF	ND	U	0.448	4.75			1
1,2,3,7,8-PeCDF	1.07J		0.372	23.8	1.68	1.000	1
2,3,4,7,8-PeCDF	1.30JK		0.373	23.8	1.82	1.001	1
1,2,3,6,7,8-HxCDF	1.12J		0.319	23.8	1.42	1.001	1
1,2,3,7,8,9-HxCDF	0.477JK		0.366	23.8	3.43	1.001	1
1,2,3,4,7,8-HxCDF	1.15J		0.335	23.8	1.05	1.000	1
2,3,4,6,7,8-HxCDF	0.991JK		0.321	23.8	0.81	1.000	1
1,2,3,4,6,7,8-HpCDF	7.78BJ		0.477	23.8	0.89	1.000	1
1,2,3,4,7,8,9-HpCDF	1.45J		0.559	23.8	1.08	1.000	1
OCDF	ND	U	1.45	47.5			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:40
Date Received: 07/15/16 08:40

Sample Name: 5-B
Lab Code: E1600720-003

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1052mL

Data File Name: P505290
ICAL Date: 07/10/16

Date Analyzed: 08/03/16 05:04
Date Extracted: 7/20/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P505280

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.858	4.75			1
Total Penta-Dioxins	1.19J		0.577	23.8	1.49		1
Total Hexa-Dioxins	6.73J		0.405	23.8	1.14		1
Total Hepta-Dioxins	63.6		0.639	23.8	1.01		1
Total Tetra-Furans	ND	U	0.448	4.75			1
Total Penta-Furans	1.07J		0.373	23.8	1.68		1
Total Hexa-Furans	9.76J		0.335	23.8	1.21		1
Total Hepta-Furans	30.7		0.517	23.8	0.89		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:40
Date Received: 07/15/16 08:40

Sample Name: 5-B
Lab Code: E1600720-003

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1052mL

Date Analyzed: 08/03/16 05:04
Date Extracted: 7/20/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P505280

Data File Name: P505290
ICAL Date: 07/10/16

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1268.541	63		40-135	0.80	1.031
13C-1,2,3,7,8-PeCDD	2000	1160.759	58		40-135	1.60	1.277
13C-1,2,3,4,7,8-HxCDD	2000	1536.955	77		40-135	1.29	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1459.008	73		40-135	1.26	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1275.443	64		40-135	1.06	1.083
13C-OCDD	4000	2140.559	54		40-135	0.90	1.172
13C-2,3,7,8-TCDF	2000	1290.739	65		40-135	0.79	0.989
13C-1,2,3,7,8-PeCDF	2000	1292.514	65		40-135	1.57	1.217
13C-2,3,4,7,8-PeCDF	2000	1265.648	63		40-135	1.57	1.263
13C-1,2,3,4,7,8-HxCDF	2000	1544.493	77		40-135	0.52	0.965
13C-1,2,3,6,7,8-HxCDF	2000	1537.196	77		40-135	0.52	0.968
13C-1,2,3,7,8,9-HxCDF	2000	1718.461	86		40-135	0.51	1.009
13C-2,3,4,6,7,8-HxCDF	2000	1608.119	80		40-135	0.51	0.985
13C-1,2,3,4,6,7,8-HpCDF	2000	1209.958	60		40-135	0.45	1.053
13C-1,2,3,4,7,8,9-HpCDF	2000	1595.694	80		40-135	0.44	1.097
37Cl-2,3,7,8-TCDD	800	525.443	66		40-135	NA	1.032

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: 07/14/16 14:40
Date Received: 07/15/16 08:40

Sample Name: 5-B
Lab Code: E1600720-003

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	0.858	4.75	1	1	
1,2,3,7,8-PeCDD	1.19	0.577	23.8	1	1	1.19
1,2,3,6,7,8-HxCDD	2.65	0.417	23.8	1	0.1	0.265
1,2,3,4,7,8-HxCDD	0.926	0.412	23.8	1	0.1	0.0926
1,2,3,7,8,9-HxCDD	1.43	0.389	23.8	1	0.1	0.143
1,2,3,4,6,7,8-HpCDD	37.7	0.639	23.8	1	0.01	0.377
OCDD	223	1.42	47.5	1	0.0003	0.0669
2,3,7,8-TCDF	ND	0.448	4.75	1	0.1	
1,2,3,7,8-PeCDF	1.07	0.372	23.8	1	0.03	0.0321
2,3,4,7,8-PeCDF	1.30	0.373	23.8	1	0.3	0.390
1,2,3,6,7,8-HxCDF	1.12	0.319	23.8	1	0.1	0.112
1,2,3,7,8,9-HxCDF	0.477	0.366	23.8	1	0.1	0.0477
1,2,3,4,7,8-HxCDF	1.15	0.335	23.8	1	0.1	0.115
2,3,4,6,7,8-HxCDF	0.991	0.321	23.8	1	0.1	0.0991
1,2,3,4,6,7,8-HpCDF	7.78	0.477	23.8	1	0.01	0.0778
1,2,3,4,7,8,9-HpCDF	1.45	0.559	23.8	1	0.01	0.0145
OCDF	ND	1.45	47.5	1	0.0003	
Total TEQ						3.02

2005 WHO TEFs, ND = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: EQ1600321-01

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1000mL

Data File Name: P403846
ICAL Date: 04/28/16

Date Analyzed: 07/26/16 15:18
Date Extracted: 7/20/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P403845

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.29	5.00			1
1,2,3,7,8-PeCDD	ND	U	1.55	25.0			1
1,2,3,6,7,8-HxCDD	ND	U	1.97	25.0			1
1,2,3,4,7,8-HxCDD	ND	U	1.96	25.0			1
1,2,3,7,8,9-HxCDD	ND	U	1.84	25.0			1
1,2,3,4,6,7,8-HpCDD	21.4J		4.80	25.0	1.20	1.000	1
OCDD	49.1J		4.64	50.0	0.80	1.000	1
2,3,7,8-TCDF	ND	U	0.774	5.00			1
1,2,3,7,8-PeCDF	ND	U	1.05	25.0			1
2,3,4,7,8-PeCDF	ND	U	1.13	25.0			1
1,2,3,6,7,8-HxCDF	ND	U	1.24	25.0			1
1,2,3,7,8,9-HxCDF	ND	U	1.70	25.0			1
1,2,3,4,7,8-HxCDF	ND	U	1.33	25.0			1
2,3,4,6,7,8-HxCDF	ND	U	1.31	25.0			1
1,2,3,4,6,7,8-HpCDF	8.75J		2.89	25.0	0.90	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	3.32	25.0			1
OCDF	12.7J		4.12	50.0	0.97	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: EQ1600321-01

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1000mL

Date Analyzed: 07/26/16 15:18
Date Extracted: 7/20/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P403845

Data File Name: P403846
ICAL Date: 04/28/16

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	1.29	5.00			1
Total Penta-Dioxins	ND	U	1.55	25.0			1
Total Hexa-Dioxins	ND	U	1.92	25.0			1
Total Hepta-Dioxins	21.4J		4.80	25.0	1.20		1
Total Tetra-Furans	ND	U	0.774	5.00			1
Total Penta-Furans	ND	U	1.09	25.0			1
Total Hexa-Furans	ND	U	1.38	25.0			1
Total Hepta-Furans	8.75J		3.09	25.0	0.90		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: EQ1600321-01

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1000mL

Date Analyzed: 07/26/16 15:18
Date Extracted: 7/20/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P403845

Data File Name: P403846
ICAL Date: 04/28/16

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1151.929	58		40-135	0.78	1.024
13C-1,2,3,7,8-PeCDD	2000	1109.928	55		40-135	1.61	1.207
13C-1,2,3,4,7,8-HxCDD	2000	1120.657	56		40-135	1.26	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1097.896	55		40-135	1.24	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	864.991	43		40-135	1.05	1.068
13C-OCDD	4000	1498.674	37	Y	40-135	0.89	1.139
13C-2,3,7,8-TCDF	2000	1123.483	56		40-135	0.76	0.991
13C-1,2,3,7,8-PeCDF	2000	1162.241	58		40-135	1.57	1.161
13C-2,3,4,7,8-PeCDF	2000	1116.779	56		40-135	1.59	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1065.058	53		40-135	0.52	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1069.622	53		40-135	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	986.478	49		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1097.860	55		40-135	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	810.155	41		40-135	0.44	1.043
13C-1,2,3,4,7,8,9-HpCDF	2000	871.808	44		40-135	0.43	1.080
37Cl-2,3,7,8-TCDD	800	499.798	62		40-135	NA	1.025



Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Analyzed: 08/02/16
Date Extracted: 07/20/16

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C

Units: pg/L
Basis: NA
Analysis Lot: 508519

Lab Control Sample
EQ1600321-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	984	1000	98	70-130
1,2,3,4,7,8-HxCDD	980	1000	98	70-130
1,2,3,6,7,8-HxCDD	813	1000	81	70-130
1,2,3,7,8,9-HxCDD	904	1000	90	70-130
1,2,3,7,8-PeCDD	980	1000	98	70-130
2,3,7,8-TCDD	165	200	83	70-130
OCDD	2100	2000	105	70-130
1,2,3,4,6,7,8-HpCDF	1010	1000	101	70-130
1,2,3,4,7,8,9-HpCDF	915	1000	91	70-130
1,2,3,4,7,8-HxCDF	992	1000	99	70-130
1,2,3,6,7,8-HxCDF	953	1000	95	70-130
1,2,3,7,8,9-HxCDF	934	1000	93	70-130
1,2,3,7,8-PeCDF	923	1000	92	70-130
2,3,4,6,7,8-HxCDF	957	1000	96	70-130
2,3,4,7,8-PeCDF	997	1000	100	70-130
2,3,7,8-TCDF	169	200	84	70-130
OCDF	1980	2000	99	70-130

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: NA
Date Received: NA

Sample Name: Lab Control Sample
Lab Code: EQ1600321-02

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1000mL

Data File Name: P403968
ICAL Date: 04/28/16

Date Analyzed: 08/02/16 07:24
Date Extracted: 7/20/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P403963

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	165		1.01	5.00	0.72	1.001	1
1,2,3,7,8-PeCDD	980		0.878	25.0	1.57	1.000	1
1,2,3,6,7,8-HxCDD	813		0.405	25.0	1.25	1.000	1
1,2,3,4,7,8-HxCDD	980		0.420	25.0	1.25	1.000	1
1,2,3,7,8,9-HxCDD	904		0.387	25.0	1.30	1.007	1
1,2,3,4,6,7,8-HpCDD	984		1.48	25.0	1.03	1.000	1
OCDD	2100		10.7	50.0	0.87	1.000	1
2,3,7,8-TCDF	169		0.601	5.00	0.76	1.001	1
1,2,3,7,8-PeCDF	923		0.531	25.0	1.51	1.001	1
2,3,4,7,8-PeCDF	997		0.558	25.0	1.56	1.001	1
1,2,3,6,7,8-HxCDF	953		0.387	25.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	934		0.617	25.0	1.21	1.000	1
1,2,3,4,7,8-HxCDF	992		0.414	25.0	1.22	1.000	1
2,3,4,6,7,8-HxCDF	957		0.435	25.0	1.27	1.000	1
1,2,3,4,6,7,8-HpCDF	1010		3.94	25.0	0.99	1.000	1
1,2,3,4,7,8,9-HpCDF	915		4.98	25.0	0.98	1.000	1
OCDF	1980		8.78	50.0	0.91	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: NA
Date Received: NA

Sample Name: Lab Control Sample
Lab Code: EQ1600321-02

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1000mL

Date Analyzed: 08/02/16 07:24
Date Extracted: 7/20/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P403963

Data File Name: P403968
ICAL Date: 04/28/16

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	165		1.01	5.00	0.72		1
Total Penta-Dioxins	982		0.878	25.0	1.57		1
Total Hexa-Dioxins	2700		0.403	25.0	1.25		1
Total Hepta-Dioxins	1010		1.48	25.0	0.92		1
Total Tetra-Furans	171		0.601	5.00	0.76		1
Total Penta-Furans	1920		0.544	25.0	1.51		1
Total Hexa-Furans	3840		0.450	25.0	1.22		1
Total Hepta-Furans	1940		4.42	25.0	0.99		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600720
Date Collected: NA
Date Received: NA

Sample Name: Lab Control Sample
Lab Code: EQ1600321-02

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: EPA 3510C
Sample Amount: 1000mL

Date Analyzed: 08/02/16 07:24
Date Extracted: 7/20/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P403846
Cal Ver. File Name: P403963

Data File Name: P403968
ICAL Date: 04/28/16

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1597.150	80		40-135	0.77	1.024
13C-1,2,3,7,8-PeCDD	2000	1590.241	80		40-135	1.55	1.208
13C-1,2,3,4,7,8-HxCDD	2000	1570.722	79		40-135	1.35	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1546.800	77		40-135	1.18	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1092.033	55		40-135	1.08	1.068
13C-OCDD	4000	1662.618	42		40-135	0.90	1.139
13C-2,3,7,8-TCDF	2000	1533.046	77		40-135	0.76	0.992
13C-1,2,3,7,8-PeCDF	2000	1616.270	81		40-135	1.58	1.161
13C-2,3,4,7,8-PeCDF	2000	1559.398	78		40-135	1.55	1.197
13C-1,2,3,4,7,8-HxCDF	2000	1564.810	78		40-135	0.51	0.970
13C-1,2,3,6,7,8-HxCDF	2000	1658.126	83		40-135	0.51	0.973
13C-1,2,3,7,8,9-HxCDF	2000	1302.781	65		40-135	0.48	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1609.426	80		40-135	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1061.921	53		40-135	0.42	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1082.762	54		40-135	0.41	1.080
37Cl-2,3,7,8-TCDD	800	671.709	84		40-135	NA	1.025



September 12, 2016

Service Request No:E1600804

Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Road
Billings, MT 59106

Laboratory Results for: Idaho Pole

Dear Heidi,

Enclosed are the results of the sample(s) submitted to our laboratory August 05, 2016
For your reference, these analyses have been assigned our service request number **E1600804**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current TNI standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2279. You may also contact me via email at Arthi.Kodur@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Arthi Kodur
Project Manager

ADDRESS 10450 Stancliff Rd., Suite 210, Houston, TX 77099
PHONE +1 713 266 1599 | FAX +1 713 266 0130
ALS Group USA, Corp.
dba ALS Environmental



Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS ENVIRONMENTAL

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request No.: E1600804
Date Received: 8/5/16

ALS ENVIRONMENTAL NARRATIVE

All analyses were performed in adherence to the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Three water samples were received for analysis at ALS Environmental – Houston HRMS on 8/5/16.

The samples were received at 10.5°C in good condition and are consistent with the accompanying chain of custody form. However the samples were received outside the temperature range of 0-6 degree C. This temperature outage was caused by a delivery error by the courier. The error delayed the shipment by an additional day. The client was contacted and allowed the continuation of analysis. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

Method Blank

The Method Blank EQ1600377-01 contained low levels of several analytes above the EDL, but below the Method Reporting Limit (MRL).

The associated compounds in the samples, regardless of concentration, are flagged with 'B' flags, which may be <10 times the concentration in the MB.

Precision and Accuracy

EQ1600377: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. The batch quality control criteria were met.

2378-TCDF

Samples analyzed on the DB-5MSUI column were analyzed under conditions where sufficient separation between 2,3,7,8-TCDF and its closest eluter was achieved. Confirmation of this result was not required.

Y flags – Labeled Standards

Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y' flags on the Labeled Compound summary pages. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

K flags

EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

Detection Limits

Detection limits are calculated for each analyte in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

The TEQ Summary results for each sample have been calculated by ALS ENVIRONMENTAL/Houston to include:

- WHO-2005 TEFs, The 2005 World Health Organization Reevaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-Like Compounds (M. Van den Berg et al., Toxicological Sciences 93(2):223-241, 2006)
- Non-detected compounds are not included in the 'Total'

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and ALS Environmental (ALS) is not responsible for utilization of less than the complete report.

Use of ALS group USA Corp dba ALS Environmental (ALS)'s Name. Client shall not use ALS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to ALS any test result, tolerance or specification derived from ALS's data ("Attribution") without ALS's prior written consent, which may be withheld by ALS for any reason in its sole discretion. To request ALS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If ALS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use ALS's name or trademark in any Materials or Attribution shall be deemed denied. ALS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of ALS's name or trademark may cause ALS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Client: Hydrometrics, Inc.
Project: Idaho Pole

Service Request:E1600804

SAMPLE CROSS-REFERENCE

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
E1600804-001	P-2	8/3/2016	1043
E1600804-002	P-2F	8/3/2016	1043
E1600804-003	5-B	8/3/2016	1106

Service Request Summary

Folder #: E1600804
Client Name: Hydrometrics, Inc.
Project Name: Idaho Pole
Project Number:

Report To: Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Road
Billings, MT 59106
USA
Phone Number: 406-656-1172
Cell Number:
Fax Number:
E-mail: hkaiser@hydrometrics.com

Project Chemist: Arthi Kodur
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 08/05/16
Internal Due Date: 8/26/2016
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number:
EDD: No EDD Specified

6 1000 ml-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 10C, E-Disposed
Pressure Gas:

				HOUSTON
				PCDD PCDF/8290
Lab Samp No.	Client Samp No	Matrix	Collected	
E1600804-001	P-2	Water	08/03/16 1043	II
E1600804-002	P-2F	Water	08/03/16 1043	II
E1600804-003	5-B	Water	08/03/16 1106	II

Folder Comments:

samples out of temp, Fed Ex delayed shipment (ak 8/8/16)

Service Request Summary

Folder #: E1600804
Client Name: Hydrometrics, Inc.
Project Name: Idaho Pole
Project Number:

Report To: Heidi Kaiser
Hydrometrics, Inc.
5602 Hesper Road
Billings, MT 59106
USA
Phone Number: 406-656-1172
Cell Number:
Fax Number:
E-mail: hkaiser@hydrometrics.com

Project Chemist: Arthi Kodur
Originating Lab: HOUSTON
Logged By: ALOPEZ
Date Received: 08/05/16
Internal Due Date: 8/26/2016
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: Y
P.O. Number:
EDD: No EDD Specified

6 1000 ml-Glass Bottle NM AMBER Teflon Liner Unpreserved
Location: EHRMS-WIC 10C, E-Disposed
Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	PCDD PCDF/8290	3	full list (ak 8/8/16)

Data Qualifiers

HRMS Qualifier Set

- B Indicates the associated analyte was found in the method blank at >1/10th the reported value.
- E Estimated value. The reported concentration is above the calibration range of the instrument.
- H Sample extracted and/or analyzed out of suggested holding time.
- J Estimated value. The reported concentration is below the MRL.
- K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. The concentration of this analyte should be considered as an estimate.
- P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.
- Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.
- S Signal saturated detector. Result reported from dilution.
- U Compound was analyzed for, but was not detected (ND).
- X See Case Narrative.
- Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.
- i The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCetration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2017
Arizona Department of Health Services	AZ0793	5/27/2017
Arkansas Department of Environmental Quality	14-038-0	6/16/2017
California Department of Health Services	2452	2/28/2017
Florida Department of Health	E87611	6/30/2017
Hawaii Department of Health	TX02694	4/30/2017
Illinois Environmental Protection Agency	200057	10/6/2016
Louisiana Department of Health and Hospitals	LA150026	12/31/2016
Maine Center for Disease Control and Prevention	2014019	6/5/2018
Maryland Department of the Environment	343	6/30/2017
Minnesota Department of Health	840911	12/31/2016
New Jersey Department of Environmental Protection	NLC140001	6/30/2017
New Mexico Environment Department	TX02694	4/17/2017
New York Department of Health	11707	4/1/2017
Oregon Environmental Laboratory Accreditation Program	TX200002	3/24/2017
Pennsylvania Department of Environmental Protection	68-03441	6/30/2017
Tennessee Department of Environment and Conservation	04016	6/30/2017
Texas Commission on Environmental Quality	TX104704216-14-5	6/30/2017
United States Department of Agriculture	P330-14-00067	2/21/2017
Washington Department of Health	c819	11/14/2016

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID

E1600804

DB-5MSUI

SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:

09/12/16

Analyst:

LC

Samples:

001-003

Second Level - Data Review – to be filled by person doing peer review

Date:

09/12/16

Analyst:

LC

Samples:

001-003



Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com



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DATE 8/3/14 PAGE 1 OF 1

[illegible]

DISTRIBUTION: WHITE - Laboratory Copy; YELLOW - Client Copy

E1600804

Cooler Receipt Form

Project Chemist AY

Client/Project Hydrometrics

Thermometer ID SMO 4

Date/Time Received: 8/5/16 9:15

Initials: AL

Date/Time Logged in: 8/5/16

Initials AL

1. Method of delivery: ☐ US Mail ☒ Fed Ex ☐ UPS ☐ DHL ☐ Courier ☐ Client

2. Samples received in: ☒ Cooler ☐ Box ☐ Envelope ☐ Other

3. Were custody seals on coolers? ☒ Yes ☐ No
Were they intact? ☒ Yes ☐ No ☐ N/A
Were they signed and dated? ☒ Yes ☐ No ☐ N/A

If yes, how many and where?

1 Seal

4. Packing Material: ☒ Inserts ☒ Baggies ☒ Bubble Wrap ☐ Gel Packs ☒ Wet Ice ☐ Sleeves ☐ Other

5. Foreign or Regulated Soil? ☐ Yes ☒ No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
8097 0020 1170		8/5/16	10:33	AL	10.5/10.5	<input checked="" type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>
						<input type="checkbox"/>

6. Were custody papers properly filled out (ink, signed, dated, etc)? ☒ Yes ☐ No
7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ☒ Yes ☐ No
8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ☒ Yes ☐ No
9. Were appropriate bottles/containers and volumes received for the requested tests? ☒ Yes ☐ No
10. Did sample labels and tags agree with custody documents? ☒ Yes ☐ No

Notes, Discrepancies, & Resolutions:

Samples received out of temp AL 8/5/16

Service request Label:

E1600804
5

Hydrometrics, Inc.
Dioxin/Furan in Groundwater




10450 Stancliff Rd., Suite 210
Houston, TX 77099
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F: +1 713 266 1599
www.alsglobal.com

SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sample. The COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6°C.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10°C.
- ✓ Air samples are shipped and stored cold, at 0 to 6°C
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report



Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 268786
Team: Semivoa GCMS/JPHAN

Prep WorkFlow: OrgExtDioxAq-30
Prep Method: EPA 3510C

Status: Prepped
Prep Date/Time: 8/18/16 10:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1600803-001	GW-0934	.01	8290/PCDD PCDF	6	x	Ground Water	1034mL	Clear Colorless Liquid
2	E1600803-002	GW-0933	.01	8290/PCDD PCDF	6	x	Ground Water	1021mL	Clear Colorless Liquid
3	E1600803-003	GW-0925	.01	8290/PCDD PCDF	6	x	Ground Water	992mL	Clear Colorless Liquid
4	E1600803-004	GW-0924	.01	8290/PCDD PCDF	6	x	Ground Water	1023mL	Clear Colorless Liquid
5	E1600803-005	GW-0904	.01	8290/PCDD PCDF	6	x	Ground Water	1048mL	Turbid Yellow Liquid
6	E1600803-006	GW-0903	.01	8290/PCDD PCDF	6	x	Ground Water	1042mL	Clear Colorless Liquid
7	E1600803-007	GW-0932	.01	8290/PCDD PCDF	6	x	Ground Water	1007mL	Clear Colorless Liquid
8	E1600803-008	GW-0931	.01	8290/PCDD PCDF	6	x	Ground Water	995mL	Clear Colorless Liquid
9	E1600804-001	P-2	.01	8290/PCDD PCDF	7	x	Water	1052mL	Clear Colorless Liquid
10	E1600804-002	P-2F	.01	8290/PCDD PCDF	5	x	Water	1048mL	Clear Colorless Liquid
11	E1600804-003	5-B	.01	8290/PCDD PCDF	7	x	Water	1050mL	Clear Colorless Liquid
12	E1600805-001	GW-0930	.01	8290/PCDD PCDF	5	x	Ground Water	1012mL	Clear Colorless Liquid
13	E1600805-002	GW-0927	.01	8290/PCDD PCDF	5	x	Ground Water	997mL	Clear Colorless Liquid
14	E1600805-003	GW-0929	.01	8290/PCDD PCDF	5	x	Ground Water	1009mL	Clear Colorless Liquid
15	E1600805-004	GW-0926	.01	8290/PCDD PCDF	5	x	Ground Water	973mL	Clear Colorless Liquid
16	E1600805-005	GW-0928	.01	8290/PCDD PCDF	5	x	Ground Water	1006mL	Clear Colorless Liquid
17	E1600805-006	GW-0935	.01	8290/PCDD PCDF	5	x	Ground Water	1018mL	Clear Colorless Liquid
18	E1600805-007	GW-0913	.01	8290/PCDD PCDF	5	x	Ground Water	1001mL	Clear Colorless Liquid
19	E1600805-008	GW-0906	.01	8290/PCDD PCDF	5	x	Ground Water	1022mL	Turbid Yellow Liquid
20	EQ1600377-01	MB		8290A/PCDD PCDF	5	x	Liquid	1000mL	
21	EQ1600377-02	LCS		8290A/PCDD PCDF	5	x	Liquid	1000mL	
22	EQ1600377-03	DLCS		8290A/PCDD PCDF	5	x	Liquid	1000mL	
23	K1606883-007	EL1076 TCLP Leachate	.03	8290A/PCDD PCDF	5	x	Liquid	764mL	Clear Colorless Liquid

Preparation Information Benchsheet

Prep Run#: 268786
Team: Semivoa GCMS/JPHAN

Prep WorkFlow: OrgExtDioxAq-30
Prep Method: EPA 3510C

Status: Prepped
Prep Date/Time: 8/18/16 10:00 AM

Spiking Solutions

Name:	1613B Matrix Working Standard	Inventory ID	174747	Logbook Ref:	JP 174747 8/5/16 2-20 ng/mL	Expires On:	02/01/2017
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EQ1600377-02	100.00µL	EQ1600377-02	100.00µL	EQ1600377-03	100.00µL	EQ1600377-03	100.00µL
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Name:	1613B Labeled Working Standard	Inventory ID	175065	Logbook Ref:	JP 175065 8/17/16 2-4 ng/mL	Expires On:	01/22/2017
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E1600803-001	1,000.00µL	E1600803-002	1,000.00µL	E1600803-003	1,000.00µL	E1600803-004	1,000.00µL	E1600803-005	1,000.00µL	E1600803-006	1,000.00µL
E1600803-007	1,000.00µL	E1600803-008	1,000.00µL	E1600804-001	1,000.00µL	E1600804-002	1,000.00µL	E1600804-003	1,000.00µL	E1600805-001	1,000.00µL
E1600805-002	1,000.00µL	E1600805-003	1,000.00µL	E1600805-004	1,000.00µL	E1600805-005	1,000.00µL	E1600805-006	1,000.00µL	E1600805-007	1,000.00µL
E1600805-008	1,000.00µL	EQ1600377-01	1,000.00µL	EQ1600377-01	1,000.00µL	EQ1600377-02	1,000.00µL	EQ1600377-02	1,000.00µL	EQ1600377-03	1,000.00µL
EQ1600377-03	1,000.00µL	K1606883-007	1,000.00µL								

Name:	8290/1613B Cleanup Working Standard	Inventory ID	175068	Logbook Ref:	175068 CID 8/8/18 8.0ng/ml	Expires On:	11/12/2016
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E1600803-001	100.00µL	E1600803-002	100.00µL	E1600803-003	100.00µL	E1600803-004	100.00µL	E1600803-005	100.00µL	E1600803-006	100.00µL
E1600803-007	100.00µL	E1600803-008	100.00µL	E1600804-001	100.00µL	E1600804-002	100.00µL	E1600804-003	100.00µL	E1600805-001	100.00µL
E1600805-002	100.00µL	E1600805-003	100.00µL	E1600805-004	100.00µL	E1600805-005	100.00µL	E1600805-006	100.00µL	E1600805-007	100.00µL
E1600805-008	100.00µL	EQ1600377-01	100.00µL	EQ1600377-01	100.00µL	EQ1600377-02	100.00µL	EQ1600377-02	100.00µL	EQ1600377-03	100.00µL
EQ1600377-03	100.00µL	K1606883-007	100.00µL								

Preparation Materials

Sensafe Free Chlorine WTR	LM 3/19/15 (79756)	Carbon, High Purity	CID 08/17/16 (175033)	Ethyl Acetate 99.9% Minimum	CID 7/21/16 (174255)
CHK				EtOAc	
Glass Wool	CIS 8/19/16 (175084)	Hexanes 95%	CID 8/8/16 (174804)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	CID 7/28/16 (174570)
Sodium Chloride Reagent Grade NaCl	C2-65-5 (38670)	Sodium Hydroxide Reagent Grade NaOH	CID 5/23/2016 (172624)	Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 06/28/16 (173644)
Tridecane (n-Tridecane)	JP 8/11/16 (174903)	ColorpHast pH-Indicator Strips	AL 8/17/16 (175089)	Silica Gel	CID 8/19/16 (175083)
sulfuric acid	CIS 7/26/16 (174326)	Toluene 99.9% Minimum	tw 8/8/16 (174805)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	8/18/16 10:00	Started:	8/22/16 00:00	Started:	8/23/16 09:25	Started:	8/23/16 14:05
Finished:	8/18/16 18:00	Finished:	8/22/16 00:00	Finished:	8/23/16 10:25	Finished:	8/23/16 14:40
By:	JPHAN	By:	CDIAZ	By:	CDIAZ	By:	CDIAZ
Comments		Comments		Comments		Comments	

Preparation Information Benchsheet

Prep Run#: 268786
Team: Semivoa GCMS/JPHAN

Prep WorkFlow: OrgExtDioxAq-30
Prep Method: EPA 3510C

Status: Prepped
Prep Date/Time: 8/18/16 10:00 AM

Comments: _____

Reviewed By: ak Date: 9/12/16

Chain of Custody

Relinquished By: _____	Date: _____	<u>Extracts Examined</u> Yes No
Received By: _____	Date: _____	



Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 10:43
Date Received: 08/05/16 09:15

Sample Name: P-2
Lab Code: E1600804-001

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1052mL

Data File Name: P404450
ICAL Date: 04/28/16

Date Analyzed: 09/09/16 07:37
Date Extracted: 8/18/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P404442

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.86	4.75			1
1,2,3,7,8-PeCDD	ND	U	2.08	23.8			1
1,2,3,4,7,8-HxCDD	ND	U	1.48	23.8			1
1,2,3,6,7,8-HxCDD	2.38	BJK	1.50	23.8	1.52	1.000	1
1,2,3,7,8,9-HxCDD	2.05	BJ	1.40	23.8	1.31	1.008	1
1,2,3,4,6,7,8-HpCDD	49.4	B	2.65	23.8	1.11	1.000	1
OCDD	417		1.16	47.5	0.88	1.000	1
2,3,7,8-TCDF	ND	U	1.63	4.75			1
1,2,3,7,8-PeCDF	ND	U	2.04	23.8			1
2,3,4,7,8-PeCDF	ND	U	2.02	23.8			1
1,2,3,4,7,8-HxCDF	ND	U	1.37	23.8			1
1,2,3,6,7,8-HxCDF	ND	U	1.27	23.8			1
1,2,3,7,8,9-HxCDF	ND	U	1.69	23.8			1
2,3,4,6,7,8-HxCDF	ND	U	1.47	23.8			1
1,2,3,4,6,7,8-HpCDF	9.82	BJ	1.12	23.8	1.15	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	1.20	23.8			1
OCDF	48.8	B	3.89	47.5	0.78	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 10:43
Date Received: 08/05/16 09:15

Sample Name: P-2
Lab Code: E1600804-001

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1052mL

Data File Name: P404450
ICAL Date: 04/28/16

Date Analyzed: 09/09/16 07:37
Date Extracted: 8/18/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P404442

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	1.86	4.75			1
Total Penta-Dioxins	ND	U	2.08	23.8			1
Total Hexa-Dioxins	4.93J		1.46	23.8	1.42		1
Total Hepta-Dioxins	49.4		2.65	23.8	1.11		1
Total Tetra-Furans	ND	U	1.63	4.75			1
Total Penta-Furans	ND	U	2.03	23.8			1
Total Hexa-Furans	13.9J		1.44	23.8	1.15		1
Total Hepta-Furans	47.0		1.16	23.8	1.15		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 10:43
Date Received: 08/05/16 09:15

Sample Name: P-2
Lab Code: E1600804-001

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1052mL

Date Analyzed: 09/09/16 07:37
Date Extracted: 8/18/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P404442

Data File Name: P404450
ICAL Date: 04/28/16

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1426.188	71		40-135	0.77	1.028
13C-1,2,3,7,8-PeCDD	2000	1636.888	82		40-135	1.59	1.235
13C-1,2,3,4,7,8-HxCDD	2000	1655.091	83		40-135	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1628.012	81		40-135	1.28	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1284.849	64		40-135	1.04	1.070
13C-OCDD	4000	1953.976	49		40-135	0.90	1.140
13C-2,3,7,8-TCDF	2000	1404.682	70		40-135	0.78	0.990
13C-1,2,3,7,8-PeCDF	2000	1672.728	84		40-135	1.60	1.183
13C-2,3,4,7,8-PeCDF	2000	1663.677	83		40-135	1.58	1.222
13C-1,2,3,4,7,8-HxCDF	2000	1698.413	85		40-135	0.49	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1744.378	87		40-135	0.50	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1628.850	81		40-135	0.49	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1647.625	82		40-135	0.50	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1250.943	63		40-135	0.44	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1457.580	73		40-135	0.42	1.082
37Cl-2,3,7,8-TCDD	800	696.032	87		40-135	NA	1.030

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 10:43
Date Received: 08/05/16 09:15

Sample Name: P-2
Lab Code: E1600804-001

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	1.86	4.75	1	1	0.930
1,2,3,7,8-PeCDD	ND	2.08	23.8	1	1	1.04
1,2,3,4,7,8-HxCDD	ND	1.48	23.8	1	0.1	0.0740
1,2,3,6,7,8-HxCDD	2.38	1.50	23.8	1	0.1	0.238
1,2,3,7,8,9-HxCDD	2.05	1.40	23.8	1	0.1	0.205
1,2,3,4,6,7,8-HpCDD	49.4	2.65	23.8	1	0.01	0.494
OCDD	417	1.16	47.5	1	0.0003	0.125
2,3,7,8-TCDF	ND	1.63	4.75	1	0.1	0.0815
1,2,3,7,8-PeCDF	ND	2.04	23.8	1	0.03	0.0306
2,3,4,7,8-PeCDF	ND	2.02	23.8	1	0.3	0.303
1,2,3,4,7,8-HxCDF	ND	1.37	23.8	1	0.1	0.0685
1,2,3,6,7,8-HxCDF	ND	1.27	23.8	1	0.1	0.0635
1,2,3,7,8,9-HxCDF	ND	1.69	23.8	1	0.1	0.0845
2,3,4,6,7,8-HxCDF	ND	1.47	23.8	1	0.1	0.0735
1,2,3,4,6,7,8-HpCDF	9.82	1.12	23.8	1	0.01	0.0982
1,2,3,4,7,8,9-HpCDF	ND	1.20	23.8	1	0.01	0.00600
OCDF	48.8	3.89	47.5	1	0.0003	0.0146
Total TEQ						3.93

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 10:43
Date Received: 08/05/16 09:15

Sample Name: P-2F
Lab Code: E1600804-002

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1048mL

Data File Name: P404451
ICAL Date: 04/28/16

Date Analyzed: 09/09/16 08:26
Date Extracted: 8/18/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P404442

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	8.64	8.64			1
1,2,3,7,8-PeCDD	ND	U	5.09	23.9			1
1,2,3,4,7,8-HxCDD	ND	U	2.51	23.9			1
1,2,3,6,7,8-HxCDD	ND	U	2.51	23.9			1
1,2,3,7,8,9-HxCDD	ND	U	2.36	23.9			1
1,2,3,4,6,7,8-HpCDD	ND	U	3.67	23.9			1
OCDD	38.5	BJK	2.67	47.7	1.48	1.001	1
2,3,7,8-TCDF	ND	U	7.46	7.46			1
1,2,3,7,8-PeCDF	ND	U	4.23	23.9			1
2,3,4,7,8-PeCDF	ND	U	4.02	23.9			1
1,2,3,4,7,8-HxCDF	ND	U	2.77	23.9			1
1,2,3,6,7,8-HxCDF	ND	U	2.53	23.9			1
1,2,3,7,8,9-HxCDF	ND	U	3.61	23.9			1
2,3,4,6,7,8-HxCDF	ND	U	2.80	23.9			1
1,2,3,4,6,7,8-HpCDF	ND	U	1.83	23.9			1
1,2,3,4,7,8,9-HpCDF	ND	U	2.09	23.9			1
OCDF	ND	U	8.45	47.7			1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 10:43
Date Received: 08/05/16 09:15

Sample Name: P-2F
Lab Code: E1600804-002

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1048mL

Data File Name: P404451
ICAL Date: 04/28/16

Date Analyzed: 09/09/16 08:26
Date Extracted: 8/18/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P404442

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	8.64	8.64			1
Total Penta-Dioxins	ND	U	5.09	23.9			1
Total Hexa-Dioxins	ND	U	2.46	23.9			1
Total Hepta-Dioxins	ND	U	3.67	23.9			1
Total Tetra-Furans	ND	U	7.46	7.46			1
Total Penta-Furans	ND	U	4.12	23.9			1
Total Hexa-Furans	ND	U	2.88	23.9			1
Total Hepta-Furans	10.3J		1.95	23.9	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 10:43
Date Received: 08/05/16 09:15

Sample Name: P-2F
Lab Code: E1600804-002

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1048mL

Data File Name: P404451
ICAL Date: 04/28/16

Date Analyzed: 09/09/16 08:26
Date Extracted: 8/18/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P404442

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	757.796	38	Y	40-135	0.78	1.028
13C-1,2,3,7,8-PeCDD	2000	900.861	45		40-135	1.50	1.234
13C-1,2,3,4,7,8-HxCDD	2000	835.909	42		40-135	1.23	0.991
13C-1,2,3,6,7,8-HxCDD	2000	890.805	45		40-135	1.32	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	764.722	38	Y	40-135	1.10	1.071
13C-OCDD	4000	1368.459	34	Y	40-135	0.86	1.140
13C-2,3,7,8-TCDF	2000	742.172	37	Y	40-135	0.78	0.991
13C-1,2,3,7,8-PeCDF	2000	882.043	44		40-135	1.61	1.183
13C-2,3,4,7,8-PeCDF	2000	918.338	46		40-135	1.51	1.222
13C-1,2,3,4,7,8-HxCDF	2000	872.766	44		40-135	0.53	0.969
13C-1,2,3,6,7,8-HxCDF	2000	912.884	46		40-135	0.52	0.971
13C-1,2,3,7,8,9-HxCDF	2000	829.948	41		40-135	0.50	1.008
13C-2,3,4,6,7,8-HxCDF	2000	916.073	46		40-135	0.51	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	720.309	36	Y	40-135	0.43	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	794.488	40		40-135	0.46	1.082
37Cl-2,3,7,8-TCDD	800	575.794	72		40-135	NA	1.030

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 10:43
Date Received: 08/05/16 09:15

Sample Name: P-2F
Lab Code: E1600804-002

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	8.64	8.64	1	1	4.32
1,2,3,7,8-PeCDD	ND	5.09	23.9	1	1	2.55
1,2,3,4,7,8-HxCDD	ND	2.51	23.9	1	0.1	0.126
1,2,3,6,7,8-HxCDD	ND	2.51	23.9	1	0.1	0.126
1,2,3,7,8,9-HxCDD	ND	2.36	23.9	1	0.1	0.118
1,2,3,4,6,7,8-HpCDD	ND	3.67	23.9	1	0.01	0.0184
OCDD	38.5	2.67	47.7	1	0.0003	0.0116
2,3,7,8-TCDF	ND	7.46	7.46	1	0.1	0.373
1,2,3,7,8-PeCDF	ND	4.23	23.9	1	0.03	0.0635
2,3,4,7,8-PeCDF	ND	4.02	23.9	1	0.3	0.603
1,2,3,4,7,8-HxCDF	ND	2.77	23.9	1	0.1	0.139
1,2,3,6,7,8-HxCDF	ND	2.53	23.9	1	0.1	0.127
1,2,3,7,8,9-HxCDF	ND	3.61	23.9	1	0.1	0.181
2,3,4,6,7,8-HxCDF	ND	2.80	23.9	1	0.1	0.140
1,2,3,4,6,7,8-HpCDF	ND	1.83	23.9	1	0.01	0.00915
1,2,3,4,7,8,9-HpCDF	ND	2.09	23.9	1	0.01	0.0105
OCDF	ND	8.45	47.7	1	0.0003	0.00127
Total TEQ						8.92

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 11:06
Date Received: 08/05/16 09:15

Sample Name: 5-B
Lab Code: E1600804-003

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1050mL

Data File Name: P404452
ICAL Date: 04/28/16

Date Analyzed: 09/09/16 09:16
Date Extracted: 8/18/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P404442

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	2.14	4.76			1
1,2,3,7,8-PeCDD	ND	U	1.13	23.8			1
1,2,3,4,7,8-HxCDD	ND	U	0.591	23.8			1
1,2,3,6,7,8-HxCDD	8.21	BJK	0.598	23.8	1.84	1.000	1
1,2,3,7,8,9-HxCDD	2.75	BJ	0.558	23.8	1.08	1.007	1
1,2,3,4,6,7,8-HpCDD	242		3.89	23.8	1.04	1.000	1
OCDD	2100		1.63	47.6	0.88	1.000	1
2,3,7,8-TCDF	ND	U	1.55	4.76			1
1,2,3,7,8-PeCDF	ND	U	1.42	23.8			1
2,3,4,7,8-PeCDF	2.79	J	1.39	23.8	1.54	1.001	1
1,2,3,4,7,8-HxCDF	5.59	BJK	0.675	23.8	1.61	1.000	1
1,2,3,6,7,8-HxCDF	ND	U	0.620	23.8			1
1,2,3,7,8,9-HxCDF	2.17	BJK	0.843	23.8	1.91	1.000	1
2,3,4,6,7,8-HxCDF	2.22	BJK	0.693	23.8	0.82	1.000	1
1,2,3,4,6,7,8-HpCDF	55.4		1.80	23.8	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	2.11	23.8			1
OCDF	221		4.69	47.6	0.85	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 11:06
Date Received: 08/05/16 09:15

Sample Name: 5-B
Lab Code: E1600804-003

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1050mL

Data File Name: P404452
ICAL Date: 04/28/16

Date Analyzed: 09/09/16 09:16
Date Extracted: 8/18/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P404442

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	2.14	4.76			1
Total Penta-Dioxins	ND	U	1.13	23.8			1
Total Hexa-Dioxins	7.60J		0.581	23.8	1.14		1
Total Hepta-Dioxins	427		3.89	23.8	1.11		1
Total Tetra-Furans	ND	U	1.55	4.76			1
Total Penta-Furans	19.3J		1.40	23.8	1.32		1
Total Hexa-Furans	84.8		0.699	23.8	1.14		1
Total Hepta-Furans	269		1.95	23.8	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 11:06
Date Received: 08/05/16 09:15

Sample Name: 5-B
Lab Code: E1600804-003

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1050mL

Data File Name: P404452
ICAL Date: 04/28/16

Date Analyzed: 09/09/16 09:16
Date Extracted: 8/18/16
Instrument Name: E-HRMS-06
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P404442

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1288.592	64		40-135	0.77	1.028
13C-1,2,3,7,8-PeCDD	2000	1507.734	75		40-135	1.58	1.234
13C-1,2,3,4,7,8-HxCDD	2000	1602.761	80		40-135	1.27	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1574.134	79		40-135	1.30	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	1293.074	65		40-135	1.03	1.070
13C-OCDD	4000	2101.201	53		40-135	0.89	1.140
13C-2,3,7,8-TCDF	2000	1233.242	62		40-135	0.75	0.990
13C-1,2,3,7,8-PeCDF	2000	1495.039	75		40-135	1.55	1.183
13C-2,3,4,7,8-PeCDF	2000	1504.071	75		40-135	1.56	1.222
13C-1,2,3,4,7,8-HxCDF	2000	1668.706	83		40-135	0.50	0.969
13C-1,2,3,6,7,8-HxCDF	2000	1700.381	85		40-135	0.51	0.972
13C-1,2,3,7,8,9-HxCDF	2000	1519.398	76		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1596.809	80		40-135	0.49	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1241.258	62		40-135	0.45	1.045
13C-1,2,3,4,7,8,9-HpCDF	2000	1331.240	67		40-135	0.43	1.082
37Cl-2,3,7,8-TCDD	800	681.636	85		40-135	NA	1.029

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: 08/03/16 11:06
Date Received: 08/05/16 09:15

Sample Name: 5-B
Lab Code: E1600804-003

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	ND	2.14	4.76	1	1	1.07
1,2,3,7,8-PeCDD	ND	1.13	23.8	1	1	0.565
1,2,3,4,7,8-HxCDD	ND	0.591	23.8	1	0.1	0.0296
1,2,3,6,7,8-HxCDD	8.21	0.598	23.8	1	0.1	0.821
1,2,3,7,8,9-HxCDD	2.75	0.558	23.8	1	0.1	0.275
1,2,3,4,6,7,8-HpCDD	242	3.89	23.8	1	0.01	2.42
OCDD	2100	1.63	47.6	1	0.0003	0.630
2,3,7,8-TCDF	ND	1.55	4.76	1	0.1	0.0775
1,2,3,7,8-PeCDF	ND	1.42	23.8	1	0.03	0.0213
2,3,4,7,8-PeCDF	2.79	1.39	23.8	1	0.3	0.837
1,2,3,4,7,8-HxCDF	5.59	0.675	23.8	1	0.1	0.559
1,2,3,6,7,8-HxCDF	ND	0.620	23.8	1	0.1	0.0310
1,2,3,7,8,9-HxCDF	2.17	0.843	23.8	1	0.1	0.217
2,3,4,6,7,8-HxCDF	2.22	0.693	23.8	1	0.1	0.222
1,2,3,4,6,7,8-HpCDF	55.4	1.80	23.8	1	0.01	0.554
1,2,3,4,7,8,9-HpCDF	ND	2.11	23.8	1	0.01	0.0106
OCDF	221	4.69	47.6	1	0.0003	0.0663
Total TEQ						8.41

2005 WHO TEFs, ND = 0.5*DL

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: EQ1600377-01

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1000mL

Data File Name: P505760
ICAL Date: 07/10/16

Date Analyzed: 09/02/16 17:04
Date Extracted: 8/18/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P505758

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	1.02	5.00			1
1,2,3,7,8-PeCDD	3.03J		1.10	25.0	1.60	1.000	1
1,2,3,4,7,8-HxCDD	2.40JK		0.660	25.0	0.96	1.000	1
1,2,3,6,7,8-HxCDD	2.77JK		0.703	25.0	0.95	1.000	1
1,2,3,7,8,9-HxCDD	2.96J		0.640	25.0	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	5.02JK		1.01	25.0	1.23	1.001	1
OCDD	11.5JK		2.87	50.0	0.67	1.001	1
2,3,7,8-TCDF	ND	U	0.536	5.00			1
1,2,3,7,8-PeCDF	ND	U	0.952	25.0			1
2,3,4,7,8-PeCDF	ND	U	0.915	25.0			1
1,2,3,4,7,8-HxCDF	2.90J		0.509	25.0	1.22	1.000	1
1,2,3,6,7,8-HxCDF	2.67J		0.493	25.0	1.28	1.000	1
1,2,3,7,8,9-HxCDF	3.01JK		0.636	25.0	0.80	1.000	1
2,3,4,6,7,8-HxCDF	2.72JK		0.536	25.0	0.96	1.001	1
1,2,3,4,6,7,8-HpCDF	3.94JK		0.577	25.0	0.86	1.000	1
1,2,3,4,7,8,9-HpCDF	3.84J		0.701	25.0	1.02	1.000	1
OCDF	8.38JK		2.92	50.0	0.73	1.006	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: EQ1600377-01

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1000mL

Data File Name: P505760
ICAL Date: 07/10/16

Date Analyzed: 09/02/16 17:04
Date Extracted: 8/18/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P505758

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	1.02	5.00			1
Total Penta-Dioxins	3.03J		1.10	25.0	1.60		1
Total Hexa-Dioxins	2.96J		0.667	25.0	1.27		1
Total Hepta-Dioxins	3.32J		1.01	25.0	1.15		1
Total Tetra-Furans	ND	U	0.536	5.00			1
Total Penta-Furans	ND	U	0.933	25.0			1
Total Hexa-Furans	5.58J		0.539	25.0	1.22		1
Total Hepta-Furans	3.84J		0.635	25.0	1.02		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: NA
Date Received: NA

Sample Name: Method Blank
Lab Code: EQ1600377-01

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1000mL

Data File Name: P505760
ICAL Date: 07/10/16

Date Analyzed: 09/02/16 17:04
Date Extracted: 8/18/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P505758

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	978.928	49		40-135	0.79	1.018
13C-1,2,3,7,8-PeCDD	2000	970.473	49		40-135	1.55	1.167
13C-1,2,3,4,7,8-HxCDD	2000	1117.100	56		40-135	1.25	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1068.858	53		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	751.026	38		40-135	1.04	1.066
13C-OCDD	4000	844.121	21		40-135	0.91	1.142
13C-2,3,7,8-TCDF	2000	1009.120	50		40-135	0.78	0.994
13C-1,2,3,7,8-PeCDF	2000	981.847	49		40-135	1.57	1.128
13C-2,3,4,7,8-PeCDF	2000	1005.474	50		40-135	1.58	1.158
13C-1,2,3,4,7,8-HxCDF	2000	1078.153	54		40-135	0.52	0.973
13C-1,2,3,6,7,8-HxCDF	2000	1070.087	54		40-135	0.51	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1035.946	52		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1020.299	51		40-135	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	751.972	38		40-135	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	854.690	43		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	462.177	58		40-135	NA	1.019



Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
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ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Analyzed: 09/02/16
Date Extracted: 08/18/16

Duplicate Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C

Units: pg/L
Basis: NA
Analysis Lot: 513534

Lab Control Sample
EQ1600377-02

Duplicate Lab Control Sample
EQ1600377-03

Analyte Name	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,2,3,4,6,7,8-HpCDD	965	1000	97	961	1000	96	70-130	<1	25
1,2,3,4,7,8-HxCDD	1010	1000	101	1040	1000	104	70-130	3	25
1,2,3,6,7,8-HxCDD	996	1000	100	1020	1000	102	70-130	3	25
1,2,3,7,8,9-HxCDD	940	1000	94	966	1000	97	70-130	3	25
1,2,3,7,8-PeCDD	994	1000	99	1010	1000	101	70-130	1	25
2,3,7,8-TCDD	185	200	93	189	200	95	70-130	2	25
OCDD	1940	2000	97	1970	2000	98	70-130	1	25
1,2,3,4,6,7,8-HpCDF	1010	1000	101	1020	1000	102	70-130	1	25
1,2,3,4,7,8,9-HpCDF	960	1000	96	978	1000	98	70-130	2	25
1,2,3,4,7,8-HxCDF	1030	1000	103	1050	1000	105	70-130	2	25
1,2,3,6,7,8-HxCDF	983	1000	98	1010	1000	101	70-130	3	25
1,2,3,7,8,9-HxCDF	976	1000	98	1010	1000	101	70-130	4	25
1,2,3,7,8-PeCDF	946	1000	95	967	1000	97	70-130	2	25
2,3,4,6,7,8-HxCDF	1020	1000	102	1060	1000	106	70-130	3	25
2,3,4,7,8-PeCDF	1020	1000	102	1050	1000	105	70-130	3	25
2,3,7,8-TCDF	197	200	99	201	200	100	70-130	2	25
OCDF	2140	2000	107	2180	2000	109	70-130	2	25

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: NA
Date Received: NA

Sample Name: Lab Control Sample
Lab Code: EQ1600377-02

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1000mL

Data File Name: P505742
ICAL Date: 07/10/16

Date Analyzed: 09/02/16 00:17
Date Extracted: 8/18/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P505733

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	185		0.579	5.00	0.78	1.001	1
1,2,3,7,8-PeCDD	994		0.849	25.0	1.57	1.000	1
1,2,3,4,7,8-HxCDD	1010		0.252	25.0	1.23	1.000	1
1,2,3,6,7,8-HxCDD	996		0.254	25.0	1.24	1.000	1
1,2,3,7,8,9-HxCDD	940		0.237	25.0	1.18	1.007	1
1,2,3,4,6,7,8-HpCDD	965		0.637	25.0	1.05	1.000	1
OCDD	1940		1.85	50.0	0.89	1.000	1
2,3,7,8-TCDF	197		0.461	5.00	0.76	1.001	1
1,2,3,7,8-PeCDF	946		2.68	25.0	1.54	1.001	1
2,3,4,7,8-PeCDF	1020		2.68	25.0	1.53	1.000	1
1,2,3,4,7,8-HxCDF	1030		0.366	25.0	1.25	1.000	1
1,2,3,6,7,8-HxCDF	983		0.330	25.0	1.25	1.000	1
1,2,3,7,8,9-HxCDF	976		0.460	25.0	1.26	1.000	1
2,3,4,6,7,8-HxCDF	1020		0.394	25.0	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	1010		1.85	25.0	1.01	1.000	1
1,2,3,4,7,8,9-HpCDF	960		2.26	25.0	1.02	1.000	1
OCDF	2140		1.95	50.0	0.88	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: NA
Date Received: NA

Sample Name: Lab Control Sample
Lab Code: EQ1600377-02

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1000mL

Date Analyzed: 09/02/16 00:17
Date Extracted: 8/18/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P505733

Data File Name: P505742
ICAL Date: 07/10/16

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	185		0.579	5.00	0.78		1
Total Penta-Dioxins	994		0.849	25.0	1.57		1
Total Hexa-Dioxins	2950		0.248	25.0	1.23		1
Total Hepta-Dioxins	973		0.637	25.0	1.01		1
Total Tetra-Furans	197		0.461	5.00	0.76		1
Total Penta-Furans	1980		2.68	25.0	1.54		1
Total Hexa-Furans	4010		0.382	25.0	1.25		1
Total Hepta-Furans	1970		2.04	25.0	1.01		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: NA
Date Received: NA

Sample Name: Lab Control Sample
Lab Code: EQ1600377-02

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1000mL

Date Analyzed: 09/02/16 00:17
Date Extracted: 8/18/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P505733

Data File Name: P505742
ICAL Date: 07/10/16

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1400.057	70		40-135	0.78	1.018
13C-1,2,3,7,8-PeCDD	2000	1333.457	67		40-135	1.58	1.167
13C-1,2,3,4,7,8-HxCDD	2000	1581.322	79		40-135	1.25	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1631.503	82		40-135	1.26	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1218.006	61		40-135	1.05	1.066
13C-OCDD	4000	1631.658	41		40-135	0.90	1.143
13C-2,3,7,8-TCDF	2000	1337.532	67		40-135	0.79	0.994
13C-1,2,3,7,8-PeCDF	2000	1375.797	69		40-135	1.56	1.128
13C-2,3,4,7,8-PeCDF	2000	1346.705	67		40-135	1.55	1.158
13C-1,2,3,4,7,8-HxCDF	2000	1710.146	86		40-135	0.51	0.973
13C-1,2,3,6,7,8-HxCDF	2000	1767.109	88		40-135	0.52	0.976
13C-1,2,3,7,8,9-HxCDF	2000	1619.022	81		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1606.582	80		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1243.337	62		40-135	0.45	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1412.383	71		40-135	0.44	1.080
37Cl-2,3,7,8-TCDD	800	614.190	77		40-135	NA	1.019

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: NA
Date Received: NA

Sample Name: Duplicate Lab Control Sample
Lab Code: EQ1600377-03

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1000mL

Data File Name: P505743
ICAL Date: 07/10/16

Date Analyzed: 09/02/16 01:05
Date Extracted: 8/18/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P505733

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	189		0.554	5.00	0.78	1.001	1
1,2,3,7,8-PeCDD	1010		0.585	25.0	1.56	1.000	1
1,2,3,4,7,8-HxCDD	1040		0.354	25.0	1.22	1.000	1
1,2,3,6,7,8-HxCDD	1020		0.372	25.0	1.24	1.000	1
1,2,3,7,8,9-HxCDD	966		0.341	25.0	1.27	1.006	1
1,2,3,4,6,7,8-HpCDD	961		0.575	25.0	1.00	1.000	1
OCDD	1970		1.38	50.0	0.88	1.000	1
2,3,7,8-TCDF	201		0.452	5.00	0.78	1.001	1
1,2,3,7,8-PeCDF	967		1.93	25.0	1.54	1.001	1
2,3,4,7,8-PeCDF	1050		1.97	25.0	1.55	1.000	1
1,2,3,4,7,8-HxCDF	1050		0.334	25.0	1.26	1.000	1
1,2,3,6,7,8-HxCDF	1010		0.300	25.0	1.24	1.000	1
1,2,3,7,8,9-HxCDF	1010		0.410	25.0	1.25	1.000	1
2,3,4,6,7,8-HxCDF	1060		0.348	25.0	1.24	1.000	1
1,2,3,4,6,7,8-HpCDF	1020		2.10	25.0	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	978		2.55	25.0	1.03	1.000	1
OCDF	2180		1.68	50.0	0.89	1.005	1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: NA
Date Received: NA

Sample Name: Duplicate Lab Control Sample
Lab Code: EQ1600377-03

Units: pg/L
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1000mL

Date Analyzed: 09/02/16 01:05
Date Extracted: 8/18/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P505733

Data File Name: P505743
ICAL Date: 07/10/16

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	189		0.554	5.00	0.78		1
Total Penta-Dioxins	1010		0.585	25.0	1.56		1
Total Hexa-Dioxins	3030		0.355	25.0	1.22		1
Total Hepta-Dioxins	967		0.575	25.0	1.00		1
Total Tetra-Furans	201		0.452	5.00	0.78		1
Total Penta-Furans	2030		1.95	25.0	1.54		1
Total Hexa-Furans	4140		0.344	25.0	1.26		1
Total Hepta-Furans	2000		2.31	25.0	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Hydrometrics, Inc.
Project: Idaho Pole
Sample Matrix: Water

Service Request: E1600804
Date Collected: NA
Date Received: NA

Sample Name: Duplicate Lab Control Sample
Lab Code: EQ1600377-03

Units: Percent
Basis: NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290
Prep Method: EPA 3510C
Sample Amount: 1000mL

Date Analyzed: 09/02/16 01:05
Date Extracted: 8/18/16
Instrument Name: E-HRMS-07
GC Column: DB-5MSUI
Blank File Name: P505760
Cal Ver. File Name: P505733

Data File Name: P505743
ICAL Date: 07/10/16

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1492.090	75		40-135	0.79	1.018
13C-1,2,3,7,8-PeCDD	2000	1407.344	70		40-135	1.58	1.167
13C-1,2,3,4,7,8-HxCDD	2000	1688.914	84		40-135	1.25	0.992
13C-1,2,3,6,7,8-HxCDD	2000	1609.277	80		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1256.412	63		40-135	1.04	1.066
13C-OCDD	4000	1649.114	41		40-135	0.89	1.143
13C-2,3,7,8-TCDF	2000	1423.745	71		40-135	0.78	0.994
13C-1,2,3,7,8-PeCDF	2000	1442.039	72		40-135	1.55	1.128
13C-2,3,4,7,8-PeCDF	2000	1399.382	70		40-135	1.56	1.158
13C-1,2,3,4,7,8-HxCDF	2000	1748.610	87		40-135	0.52	0.973
13C-1,2,3,6,7,8-HxCDF	2000	1797.285	90		40-135	0.52	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1662.018	83		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1628.431	81		40-135	0.52	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1270.578	64		40-135	0.44	1.041
13C-1,2,3,4,7,8,9-HpCDF	2000	1443.888	72		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	657.442	82		40-135	NA	1.019

APPENDIX C

DATA VALIDATION REPORT

APPENDIX C
ANALYTICAL DATA VERIFICATION CHECKLIST

Project Name: Idaho Pole Company	Laboratory: Analytical Resources, Inc., (ARI), Tukwila, WA
Project Reference: Phase II Pilot Study	Sample Matrix: Groundwater with Water QC
Project No.: 5029	Sample Start Date: 7/14/2016
Verified By/Date Verified: Angela Roddy 03/07/2017	Sample End Date: 1/18/2017

SAMPLES ANALYZED:

MATRIX	SITE CODE	REMARKS	SAMPLE DATE	SAMPLE CODE	LAB PROJECT ID	LAB SAMPLE ID
Groundwater	9-B		7/14/2016	IPC-1607-9-B	BDN0	BDN0A
Groundwater	9-A		7/14/2016	IPC-1607-9-A	BDN0	BDN0B
Groundwater	GM-6		7/14/2016	IPC-1607-GM-6	BDN0	BDN0C
Groundwater	GM-4		7/14/2016	IPC-1607-GM-4	BDN0	BDN0D
Groundwater	GM-5		7/14/2016	IPC-1607-GM-5	BDN0	BDN0E
Groundwater	P-1		7/14/2016	IPC-1607-P-1	BDN0	BDN0F
Groundwater	15-A		7/14/2016	IPC-1607-15-A	BDN0	BDN0G
Groundwater	EW-1		7/14/2016	IPC-1607-EW-1	BDN0	BDN0H
Groundwater	P-4		7/14/2016	IPC-1607-P-4	BDN0	BDN0I
Groundwater	P-4D		7/14/2016	IPC-1607-P-4D	BDN0	BDN0J
Groundwater	P-2		7/14/2016	IPC-1607-P-2	BDN0	BDN0K
DI Water	P-2F	Field Blank	7/14/2016	IPC-1607-P-2F	BDN0	BDN0L
Groundwater	5-B		7/14/2016	IPC-1607-5-B	BDN0	BDN0M
Groundwater	5-A		7/14/2016	IPC-1607-5-A	BDN0	BDN0N
Groundwater	GM-4		8/3/2016	IPC-160803-GM-4	BEG9	BEG9A
Groundwater	15-A		8/3/2016	IPC-160803-15-A	BEG9	BEG9B
Groundwater	EW-1		8/3/2016	IPC-160803-EW-1	BEG9	BEG9C
Groundwater	P-4		8/3/2016	IPC-160803-P-4	BEG9	BEG9D
Groundwater	P-4D	Dup of P-4	8/3/2016	IPC-160803-P-4D	BEG9	BEG9E
Groundwater	P-2		8/3/2016	IPC-160803-P-2	BEG9	BEG9F
Groundwater	P-2F		8/3/2016	IPC-160803-P-2F	BEG9	BEG9G
Groundwater	5-B		8/3/2016	IPC-160803-5-B	BEG9	BEG9H
Groundwater	5-A		8/3/2016	IPC-160803-5-A	BEG9	BEG9I
Groundwater	9-A		8/25/2016	IPC-160825-9-A	16H0244	16H0244-01
Groundwater	9-B		8/25/2016	IPC-160825-9-B	16H0244	16H0244-02
Groundwater	9-D	Dup of 9-B	8/25/2016	IPC-160825-9-D	16H0244	16H0244-03
Groundwater	12-A		8/25/2016	IPC-160825-12-A	16H0244	16H0244-04
Groundwater	11-A		8/25/2016	IPC-160825-11-A	16H0244	16H0244-05
Groundwater	GM-5		8/25/2016	IPC-160825-GM-5	16H0244	16H0244-06
Groundwater	GM-4		8/25/2016	IPC-160825-GM-4	16H0244	16H0244-07
Groundwater	P-8		8/25/2016	IPC-160825-P-8	16H0244	16H0244-08
Groundwater	P-7		8/25/2016	IPC-160825-P-7	16H0244	16H0244-09
Groundwater	P-6		8/25/2016	IPC-160825-P-6	16H0244	16H0244-10
Groundwater	9-A		9/6/2016	IPC-1609-9-A	16I0124	16I0124-13
Groundwater	9-B		9/6/2016	IPC-1609-9-B	16I0124	16I0124-12
Groundwater	9-C		9/6/2016	IPC-1609-9-C	16I0124	16I0124-11
Groundwater	16-B		9/6/2016	IPC-1609-16-B	16I0124	16I0124-05
Groundwater	25-A		9/6/2016	IPC-1609-25-A	16I0124	16I0124-07
Groundwater	25-B		9/6/2016	IPC-1609-25-B	16I0124	16I0124-06
Groundwater	26-A		9/6/2016	IPC-1609-26-A	16I0124	16I0124-10

ANALYTICAL DATA VERIFICATION CHECKLIST (Continued)

MATRIX	SITE CODE	REMARKS	SAMPLE DATE	SAMPLE CODE	LAB PROJECT ID	LAB SAMPLE ID
Untreated GW	26-B		9/6/2016	IPC-1609-26-B	16I0124	16I0124-09
Treated GW	26-C		9/6/2016	IPC-1609-26-C	16I0124	16I0124-08
Groundwater	27-B		9/6/2016	IPC-1609-27-B	16I0124	16I0124-04
Groundwater	GM-8		9/6/2016	IPC-1609-GM-8	16I0124	16I0124-02
Groundwater	11-A		9/7/2016	IPC-1609-11-A	16I0124	16I0124-18
Groundwater	11-D	Dup of 11-A	9/7/2016	IPC-1609-11-D	16I0124	16I0124-19
Groundwater	15-A		9/7/2016	IPC-1609-15-A	16I0124	16I0124-26
Groundwater	22		9/7/2016	IPC-1609-22	16I0124	16I0124-25
Groundwater	23-A		9/7/2016	IPC-1609-23-A	16I0124	16I0124-16
Groundwater	23-B		9/7/2016	IPC-1609-23-B	16I0124	16I0124-15
Groundwater	24-B		9/7/2016	IPC-1609-24-B	16I0124	16I0124-17
Groundwater	EW-1		9/7/2016	IPC-1609-EW-1	16I0147	16I0147-01
Groundwater	GM-4		9/7/2016	IPC-1609-GM-4	16I0124	16I0124-21
Groundwater	GM-5		9/7/2016	IPC-1609-GM-5	16I0124	16I0124-22
Groundwater	GM-6		9/7/2016	IPC-1609-GM-6	16I0124	16I0124-20
Groundwater	P-1		9/7/2016	IPC-1609-P-1	16I0124	16I0124-23
Groundwater	P-1D	Dup of P-1	9/7/2016	IPC-1609-P-1D	16I0124	16I0124-24
Groundwater	P-4		9/7/2016	IPC-1609-P-4	16I0147	16I0147-02RE1
Groundwater	5-A		9/8/2016	IPC-1609-5-A	16I0147	16I0147-07RE1
Groundwater	5-B		9/8/2016	IPC-1609-5-B	16I0147	16I0147-06
Groundwater	5-C		9/8/2016	IPC-1609-5-C	16I0147	16I0147-04
Groundwater	5-D		9/8/2016	IPC-1609-5-D	16I0147	16I0147-05
Groundwater	IW-1		9/8/2016	IPC-1609-IW-1	16I0147	16I0147-10RE1
Groundwater	IW-2		9/8/2016	IPC-1609-IW-2	16I0147	16I0147-09
Groundwater	IW-3		9/8/2016	IPC-1609-IW-3	16I0147	16I0147-08
Groundwater	P-2		9/8/2016	IPC-1609-P-2	16I0147	16I0147-03RE1
Groundwater	9-B		10/6/2016	IPC-1610-9-B	16J0117	16J0117-01
Groundwater	9-A		10/6/2016	IPC-1610-9-A	16J0117	16J0117-02
Groundwater	12-A		10/6/2016	IPC-1610-12-A	16J0117	16J0117-03
Groundwater	11-A		10/6/2016	IPC-1610-11-A	16J0117	16J0117-04
Groundwater	GM-4		10/6/2016	IPC-1610-GM-4	16J0117	16J0117-05
Groundwater	EW-1		10/6/2016	IPC-1610-EW-1	16J0117	16J0117-06
Groundwater	P-4		10/6/2016	IPC-1610-P-4	16J0117	16J0117-07
Groundwater	P-2		10/6/2016	IPC-1610-P-2	16J0117	16J0117-08
Groundwater	5-A		10/6/2016	IPC-1610-5-A	16J0117	16J0117-09
Groundwater	P-1D	Dup of P-1	10/6/2016	IPC-1610-P-1D	16J0117	16J0117-10
Groundwater	P-1		10/6/2016	IPC-1610-P-1	16J0117	16J0117-13
Groundwater	9-B		11/9/2016	IPC-1611-9-B	16K0143	16K0143-01
Groundwater	9-A		11/9/2016	IPC-1611-9-A	16K0143	16K0143-02
Groundwater	GM-4		11/9/2016	IPC-1611-GM-4	16K0143	16K0143-03
Groundwater	EW-1		11/9/2016	IPC-1611-EW-1	16K0143	16K0143-04
Groundwater	P-4		11/9/2016	IPC-1611-P-4	16K0143	16K0143-05
Groundwater	P-2		11/9/2016	IPC-1611-P-2	16K0143	16K0143-06
Groundwater	5-A		11/9/2016	IPC-1611-5-A	16K0143	16K0143-07
Groundwater	GM-4		12/8/2016	IPC-1612-GM-4	16L0159	16L0159-01
Groundwater	GM-4F	Field blank	12/8/2016	IPC-1612-GM-4F	16L0159	16L0159-02
Groundwater	EW-1		12/8/2016	IPC-1612-EW-1	16L0159	16L0159-03
Groundwater	EW-D	Dup of EW-1	12/8/2016	IPC-1612-EW-D	16L0159	16L0159-04
Groundwater	P-4		12/8/2016	IPC-1612-P-4	16L0159	16L0159-05
DI Water	P-2		12/8/2016	IPC-1612-P-2	16L0159	16L0159-06
Groundwater	5-B		12/8/2016	IPC-1612-5-B	16L0159	16L0159-07
Groundwater	5-A		12/8/2016	IPC-1612-5-A	16L0159	16L0159-08

ANALYTICAL DATA VERIFICATION CHECKLIST (Continued)

MATRIX	SITE CODE	REMARKS	SAMPLE DATE	SAMPLE CODE	LAB PROJECT ID	LAB SAMPLE ID
Groundwater	GM-4		1/18/2017	IPC-1701-GM-4	17A0213	17A0213-01
Groundwater	GM-4F	Field blank	1/18/2017	IPC-1701-GM-4F	17A0213	17A0213-02
Groundwater	EW-1		1/18/2017	IPC-1701-EW-1	17A0213	17A0213-03
Groundwater	EW-D	Dup of EW-1	1/18/2017	IPC-1701-EW-D	17A0213	17A0213-04
DI Water	P-4		1/18/2017	IPC-1701-P-4	17A0213	17A0213-06
Groundwater	P-2		1/18/2017	IPC-1701-P-2	17A0213	17A0213-07
Groundwater	5-A		1/18/2017	IPC-1701-5-A	17A0213	17A0213-08

Parameters Verified: PCP Pentachlorophenol by SW-846 GC/ECD Method SW8041; Semi-Volatiles by EPA 8270D-Sim;

Ammonia by EPA 350.1M; Nitrates by EPA 353.2; and Diesel Range Organics and Motor Oil Range Organics by NWTPH-Dx

Laboratory Project IDs: BDN0, BEG9, 16H0244, 16I0124, 16I0147, 16J0117, 16K0143, 16L0159, 17A0213, and 17B0269

PRECISION, ACCURACY, METHOD COMPLIANCE, AND COMPLETENESS ASSESSMENT						
Precision:	X	Acceptable		Unacceptable	AR	Initials
<p>Comments: Precision is the measure of variability of individual sample measurements. Field precision was determined by comparison of field duplicate sample results. Laboratory precision was determined by examination of laboratory duplicate results. Evaluation of field and laboratory duplicates for precision was done using the Relative Percent Difference (RPD). The RPD is defined as the difference between two duplicate samples divided by the mean and expressed as a percent. RPD limits referenced EPA published QC limits or laboratory control charted QC limits. The data that required qualification based on these measurements is listed in the table of Qualified Analytical Results at the end of the report, and overall field and laboratory precision is acceptable. Precision measurements are reviewed in items 17 and 21.</p>						
Accuracy:	X	Acceptable		Unacceptable	AR	Initials
<p>Comments: Field accuracy, a measure of the sampling bias, was determined by reviewing field parameter results for evidence of sample contamination stemming from field activities. Laboratory accuracy, a measure of the system bias, was measured by evaluating standard reference or laboratory control sample and laboratory control sample duplicate (LCS, LCSD), matrix spike (MS), and organic system monitoring compounds (surrogate) percent recoveries (%Rs). Standard reference, LCS, and LCSD %Rs demonstrated the overall performance of the analysis. MS %Rs provided information on sample matrix interferences. System monitoring compound or surrogate recoveries measured system performance and efficiency during organic analysis. These measurements were compared to data validation and laboratory control charted QC limits. Field and laboratory accuracy is acceptable since the data is unqualified. Accuracy measurements are reviewed in items 12, 14, 15, 16, and 20.</p>						
Method Compliance:	X	Acceptable		Unacceptable	AR	Initials
<p>Comments: Method compliance was determined by evaluating sample integrity, holding time, reporting limits, and laboratory blanks against method specified requirements. No data required qualification based on holding time limits and overall method compliance is acceptable based on the supplied data. Method compliance measurements are reviewed in items 4, 6, 8, 11, 13, 18, 19, 20, and 22.</p>						
Completeness:	X	Acceptable		Unacceptable	AR	Initials
<p>Comments: Completeness is the overall ratio of the number of samples planned versus the number of samples with valid analyses. Completeness goals are set at 90-100%. A field blank was planned for but not submitted. Determination of completeness included a review of chain of custody records, laboratory analytical methods and detection limits, and laboratory case narratives. Completeness also included 100% review of the laboratory sample data results and QC summary reports. All of the data received by the laboratory are usable with qualification, and no data were missing or rejected. Completeness of the data is calculated to be 97% and is acceptable.</p>						

ANALYTICAL DATA VERIFICATION CHECKLIST (Continued)

VERIFICATION CRITERIA CHECK						
<p>Laboratory qualifiers used in this review:</p> <p>* – Flagged value is not within established control limits.</p> <p>B- Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.</p> <p>D – The reported value is from a dilution.</p> <p>D1 – Surrogate was not detected due to sample extract dilution.</p> <p>E – Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.</p> <p>NRS – This surrogate is not reported due to chromatographic interference.</p> <p>P/P1 – The reported value is greater than 40% RPD between the concentrations determined on two GC columns where applicable.</p> <p>Q – Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF).</p> <p>S – Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte.</p> <p>U – Indicates that the target analyte was not detected at the reported concentration.</p> <p>Validation qualifier used in this review:</p> <p>J – QC Exceedance, indicates bias.</p> <p>U- Blank Exceedance</p> <p>The following comments identifying sample results requiring qualification are in bold type. The other comments are of interest, but qualification of the sample results is not necessary.</p> <p>Refer to the table of Qualified Analytical Results for a listing of the samples, analytes, and concentrations qualified (attached at the end of this checklist).</p>						
1. Did the laboratory identify any non-conformances related to the analytical results?	X	Yes		No	AR	Initials
Comments: Yes. Any problems with these analyses were noted in the laboratory case narratives. All results for these analyses are considered valid.						
2. Were sample Chain-of-Custody forms complete?	X	Yes		No	AR	Initials
Comments: COC records from field to laboratory were complete, and custody was maintained as evidenced by field and laboratory personnel signatures, dates, and times of receipt.						
3. Were all the analyses requested for the samples on the COCs completed by the laboratory?	X	Yes		No	AR	Initials
Comments: All requested analyses were completed.						
4. Were samples received in good condition and at the appropriate temperature?		Yes	X	No	AR	Initials
Comments: All coolers for work order BDN0, cooler 2 from work order 17A0213, and cooler 2 from work order 17B0269 were above the appropriate temperatures. Sample P-2F from 7/14/2016 was received at the lab with a broken lid and replaced with a new one. Also, many caps from the bottles in 17A0213 were loose upon arrival. Multiple bottles from work order 16I0147 had unscrewed lids with low volume remaining in the bottles, including samples 25-A and 9-A. Also, one of the two bottles for sample 9-B arrived broken; however, there was a sufficient amount of sample for analysis. All other coolers were received at the appropriate temperatures and bottles were in condition.						

ANALYTICAL DATA VERIFICATION CHECKLIST (Continued)

5. Were the requested analytical methods in compliance with WP/QAPP, permit, or COC?	X	Yes		No	AR	Initials
Comments: Reported methods were in compliance with those requested on the COC records or the reported methods are comparable and appropriate for the analysis requested and the sample matrix.						
6. Were detection limits in accordance with WP/QAPP, permit, or method?	X	Yes		No	AR	Initials
Comments: Reported detection limits are achievable by the quoted methods. Some samples required dilution due to high sample concentration. These samples were flagged with laboratory qualifier "E" and then diluted and re-run. These results are then reported as the final result. The reporting limits for diluted results were raised appropriately.						
7. Do the laboratory reports include only those constituents requested to be reported for a specific analytical method?	X	Yes		No	AR	Initials
Comments: The laboratory reports include only those constituents requested.						
8. Were sample holding times met?	X	Yes		No	AR	Initials
Comments: Extraction and/or analytical holding times were met for all samples and analyses for reported results. See individual case summaries for sample information.						
9. Were correct concentration units reported?	X	Yes		No	AR	Initials
Comments: Correct concentration units were reported. For Method SW8041 results were reported as µg/L (ppb).						
10. Were the reporting requirements for flagged data met?	X	Yes		No	AR	Initials
Comments: Data validation qualifiers override any assigned laboratory flags.						
11. Were laboratory blank samples free of target analyte contamination?		Yes	X	No	AR	Initials
Comments: The method blank associated with batch ID BEG9 reported a value greater than the reporting limit for Pentachlorophenol. All associated samples were flagged with laboratory qualifier "B" indicating method blank contamination. A validation qualifier "U" was placed on all samples with values > the reporting limit, indicating high bias. The method blank associated with work order 17A0213 reported a value greater than the reporting limit for Pentachlorophenol. All associated samples were flagged with laboratory qualifier "B" indicating method blank contamination. A validation qualifier was not necessary because all detected values were significantly greater than the method blank value.						
12. Were trip blank, field blank, and/or equipment rinse blank samples free of target analyte contamination?		Yes	X	No	AR	Initials
Comments: Pentachlorophenol was detected in field blank P-2F that was collected on 7/14/2016. A validation qualifier was not necessary because all raw sample values were > the reported blank value. Pentachlorophenol was detected in field blank P-2F that was collected on 8/03/2016, as well as the method blank. A validation qualifier has been placed on all samples with values > the reporting limit.						
13. Were instrument calibrations within method or data validation control limits?	NA	Yes		No	AR	Initials
<i>Comments: Not applicable for this level of data verification – Instrument calibration data was noted in the case summary but overall did not affect the data review.</i>						
14. Were surrogate recoveries within control limits?		Yes	X	No	AR	Initials
Comments: Samples from batches BDN0, BEG9, 16J0117, 16K0143, 16H0147, 17A0213 were flagged with either laboratory qualifier "D" or "D1" indicating the surrogate 2,4,6-Tribromophenol (Method EPA 8041A PCP) recoveries were diluted out; and also "NRS" in some cases indicating the surrogate was not reported due to interference. A validation qualifier was not necessary. Samples 16I0124-05 (16-B), 16I0124-08 (26-C), 16I0124-11 (9-C), 16I0124-12 (9-B), 16I0124-13 (9-A), 16I0124-16 (23-A), 16I0124-17 (24-B), 16I0124-21 (GM-4), 16I0124-23 (P-1),						

ANALYTICAL DATA VERIFICATION CHECKLIST (Continued)

<p>16I0124-24 (P-1D), and 16I0147-05 (5-D) were flagged with laboratory qualifier “*” indicating the surrogate 2,4,6-Tribromophenol (Method EPA 8041A PCP) recoveries were above control limits in the primary column. The recoveries were within acceptable control limits for the secondary column. The secondary column only was used to quantitate the surrogate for these samples. A validation qualifier was not necessary considering this statement in the case summary. Sample 16I0147-07 (5-A) was flagged with laboratory qualifier “*” indicating the surrogate Fluoranthene-d10 (Method EPA 8270D-Sim) recovery was above control limits. A validation qualifier was not necessary because two other surrogates for this method were within control limits. Sample 16I0147-07 (5-A) was also flagged with laboratory qualifiers “NRS, U, D1” indicating the surrogate o-Terphenyl (Method NWTPH-Dx) is not reported due to interference and then diluted out after dilution.</p>						
15. Were laboratory control sample recoveries within control limits?		Yes	X	No	AR	Initials
<p>Comments: The LCS BFA0395-BS1 associated with work order 17A0213 was flagged with laboratory qualifier “*” indicating it recovered below control limits. No validation qualifier was necessary because the surrogate recovered within limits. All other reported LCS and LCSD %Rs for organic analytes were within data validation QC limits of 70-130% for organics and 80-120% for inorganics, and were within laboratory control charted QC limits for all target analytes. Inorganic standard reference %Rs were within data validation QC limits of 80-120%.</p>						
16. Were matrix spike recoveries within control limits?	X	Yes		No	AR	Initials
<p>Comments: Organic matrix spike sample results were not reported, but LCS and LCSD %Rs were used to demonstrate analytical accuracy (see item 15). Inorganic MS %Rs were within data validation QC limits of 75-125% for all reported target analytes.</p>						
17. Were duplicate RPDs and/or serial dilution %Ds within control limits?	NA	Yes		No	AR	Initials
<p>Comments: Duplicate RPDs were within control limits. <i>Serial dilution data is not applicable for the reported methods or for this level of data verification.</i></p>						
18. Were organic system performance criteria met?	NA	Yes		No	AR	Initials
<p><i>Comments: Not applicable for this level of data verification – Organic system performance data was not supplied in analytical laboratory reports and was therefore not included in this data review.</i></p>						
19. Were internal standards within method criteria for GC/MS sample analyses?	NA	Yes		No	AR	Initials
<p><i>Comments: Not applicable for the reported methods or for this level of data verification.</i></p>						
20. Were inorganic system performance criteria met?	NA	Yes		No	AR	Initials
<p><i>Comments: Not applicable for this level of data verification –Inorganic system performance data was not supplied in analytical laboratory reports and was therefore not included in this data review.</i></p>						
21. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.	X	Yes		No	AR	Initials

ANALYTICAL DATA VERIFICATION CHECKLIST (Continued)

Primary Sample No.	P-4 (7/14/2016) P-4 (8/03/2016) 9-B (8/25/2016) 11-A (9/07/2016) P-1(9/07/2016) 5-C (9/08/2016) 28-B (9/14/2016) P-1 (10/6/2016) EW-1 (12/8/2016) EW-1 (1/18/2017)	Duplicate Sample No.	P-4D (7/14/2016) P-4D (8/03/2016) 9-D (8/25/2016) 11-D (9/07/2016) P-1D (9/07/2016) 5-D (9/08/2016) 28-D (9/14/2016) P-1D (10/6/2016) EW-D 12/8/2016) EW-1D (1/18/2017)		
Comments: P-4 and its duplicate had an RPD of 59% for Diesel Range Hydrocarbons and 22% for Pentachlorophenol on 8/3/2016. All samples were flagged with validation qualifier "J" indicating bias. 11-A and 28-B and their duplicates had RPDs within control limits. P-1 and 5-C and their duplicates had RPDs outside of control limits, 181% and 46% respectively. However, the samples associated with P-1 were not flagged with a validation qualifier because there was a duplicate pair within control limits for the date of sampling. A validation qualifier "J" was applied to samples associated with duplicate pair 5-C only, for PCP indicating bias. P-1 and its duplicate had an RPD of 72% for Pentachlorophenol on 10/6/2016. All samples were flagged with validation qualifier "J" indicating bias.					
22. Were qualitative criteria for organic target analyte identification met?	NA	Yes	No	AR	Initials
Comments: Not applicable for this level of data verification – GC quantitation reports and chromatograms were not supplied in analytical laboratory reports and were therefore not included in this data review.					
23. Were 100% of the EDD concentrations and reporting limits compared to the hardcopy data reports?	X	Yes	No	AR	Initials
Comments: All EDD concentrations and reporting limits were compared to the hardcopy data reports.					
24. General Comments: Data were evaluated based on validation criteria set forth in the USEPA Contract Laboratory Program National Functional Guidelines for Organic/Inorganic Data Review, document numbers EPA540/R-014/02 and EPA540/R-13/001 of August 2014), as they applied to the reported methodology.					

ANALYTICAL DATA VERIFICATION CHECKLIST (Continued)

SITE CODE	SAMPLE DATE	LAB ID	METHOD	PARAMETER	RESULT	UNIT	FLAG	COMMENT
GM-4	08/03/16	16-11616-BEG9A	NWTPH-DX	Diesel Range Hydrocarbons	0.20	mg/L	J	Field RPD, bias
15-A	08/03/16	16-11617-BEG9B	NWTPH-DX	Diesel Range Hydrocarbons	0.60	mg/L	J	Field RPD, bias
EW-1	08/03/16	16-11618-BEG9C	NWTPH-DX	Diesel Range Hydrocarbons	0.89	mg/L	J	Field RPD, bias
P-4	08/03/16	16-11619-BEG9D	NWTPH-DX	Diesel Range Hydrocarbons	2.2	mg/L	J	Field RPD, bias
P-2	08/03/16	16-11621-BEG9F	NWTPH-DX	Diesel Range Hydrocarbons	0.47	mg/L	J	Field RPD, bias
5-B	08/03/16	16-11623-BEG9H	NWTPH-DX	Diesel Range Hydrocarbons	< 0.10	mg/L	J	Field RPD, bias
5-A	08/03/16	16-11624-BEG9IDL	NWTPH-DX	Diesel Range Hydrocarbons	9.8	mg/L	J	Field RPD, bias
GM-4	08/03/16	16-11616-BEG9A	EPA 8041A	PENTACHLOROPHENOL	33	ug/L	UJ	Field RPD, Method Blank, bias
15-A	08/03/16	16-11617-BEG9B	EPA 8041A	PENTACHLOROPHENOL	0.74	ug/L	UJ	Field RPD, Method Blank, bias
EW-1	08/03/16	16-11618-BEG9C	EPA 8041A	PENTACHLOROPHENOL	23	ug/L	UJ	Field RPD, Method Blank, bias
P-4	08/03/16	16-11619-BEG9D	EPA 8041A	PENTACHLOROPHENOL	410	ug/L	UJ	Field RPD, Method Blank, bias
P-2	08/03/16	16-11621-BEG9F	EPA 8041A	PENTACHLOROPHENOL	87	ug/L	UJ	Field RPD, Method Blank, bias
5-B	08/03/16	16-11623-BEG9H	EPA 8041A	PENTACHLOROPHENOL	1.4	ug/L	UJ	Field RPD, Method Blank, bias
5-A	08/03/16	16-11624-BEG9IDL	EPA 8041A	PENTACHLOROPHENOL	350	ug/L	UJ	Field RPD, Method Blank, bias
5-A	9/8/2016	16I0147-07	EPA 8041A	PENTACHLOROPHENOL	1450	ug/L	J	Field RPD, bias
5-B	9/8/2016	16I0147-06	EPA 8041A	PENTACHLOROPHENOL	6.93	ug/L	J	Field RPD, bias
5-C	9/8/2016	16I0147-04	EPA 8041A	PENTACHLOROPHENOL	0.57	ug/L	J	Field RPD, bias
IW-1	9/8/2016	16I0147-10	EPA 8041A	PENTACHLOROPHENOL	114	ug/L	J	Field RPD, bias
IW-2	9/8/2016	16I0147-09	EPA 8041A	PENTACHLOROPHENOL	5.48	ug/L	J	Field RPD, bias
IW-3	9/8/2016	16I0147-08	EPA 8041A	PENTACHLOROPHENOL	7.27	ug/L	J	Field RPD, bias
P-2	9/8/2016	16I0147-03	EPA 8041A	PENTACHLOROPHENOL	139	ug/L	J	Field RPD, bias
9-B	10/6/2016	16J0117-01RE1	EPA 8041A	PENTACHLOROPHENOL	12.4	ug/L	J	Field RPD, bias
9-A	10/6/2016	16J0117-02	EPA 8041A	PENTACHLOROPHENOL	3.34	ug/L	J	Field RPD, bias
12-A	10/6/2016	16J0117-03	EPA 8041A	PENTACHLOROPHENOL	< 0.25	ug/L	J	Field RPD, bias
11-A	10/6/2016	16J0117-04	EPA 8041A	PENTACHLOROPHENOL	1.55	ug/L	J	Field RPD, bias
GM-4	10/6/2016	16J0117-05RE1	EPA 8041A	PENTACHLOROPHENOL	199	ug/L	J	Field RPD, bias
EW-1	10/6/2016	16J0117-06RE1	EPA 8041A	PENTACHLOROPHENOL	103	ug/L	J	Field RPD, bias
P-4	10/6/2016	16J0117-07RE1	EPA 8041A	PENTACHLOROPHENOL	416	ug/L	J	Field RPD, bias
P-2	10/6/2016	16J0117-08RE1	EPA 8041A	PENTACHLOROPHENOL	190	ug/L	J	Field RPD, bias
5-A	10/6/2016	16J0117-09RE1	EPA 8041A	PENTACHLOROPHENOL	1350	ug/L	J	Field RPD, bias
P-1	10/6/2016	16J0117-13	EPA 8041A	PENTACHLOROPHENOL	< 0.25	ug/L	J	Field RPD, bias