Attachment 1:

Kalispell Rail Project Vicinity Map

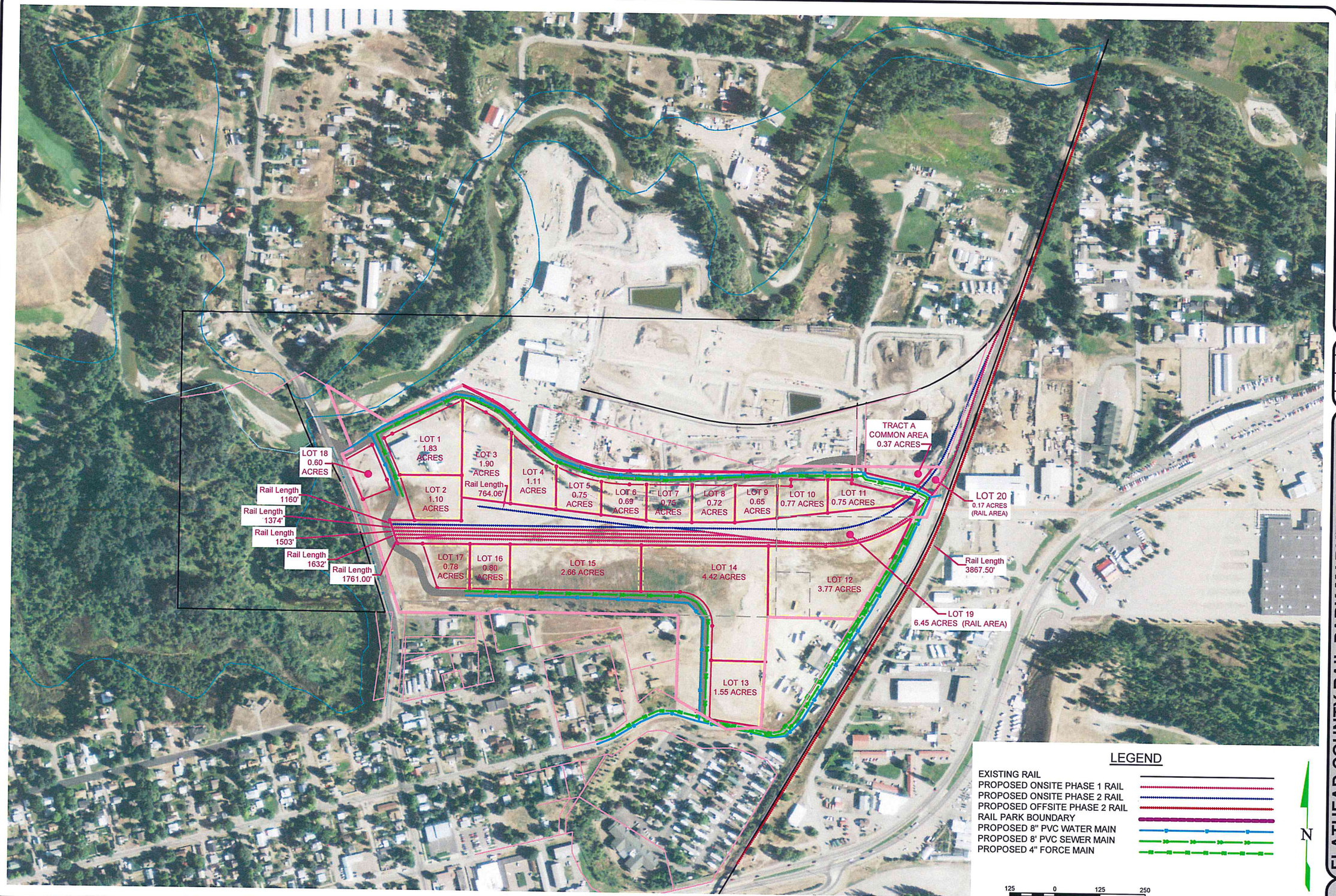
Kalispell Rail Park

Proposal Vicinity Map

Flathead County, Montana

Attachment 2:

Kalispell Rail Project Site Plan



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NO.	DATE	REVISION

DRAFTED
REVIEWED
PROJECT NUMBER
4612020
ISSUE DATE
DATE

FLATHEAD COUNTY RAIL PARK MARKET ANALYSIS

FLATHEAD COUNTY ECONOMIC DEVELOPMENT AUTHORITY
KALISPELL, MONTANA

EXHIBIT A

SHEET

Mar 20, 2014 - 5:14pm - J:\municipal\15414004_FCEDA_Subd\Survey\CADD\15414004_prelim_plat18.dwg

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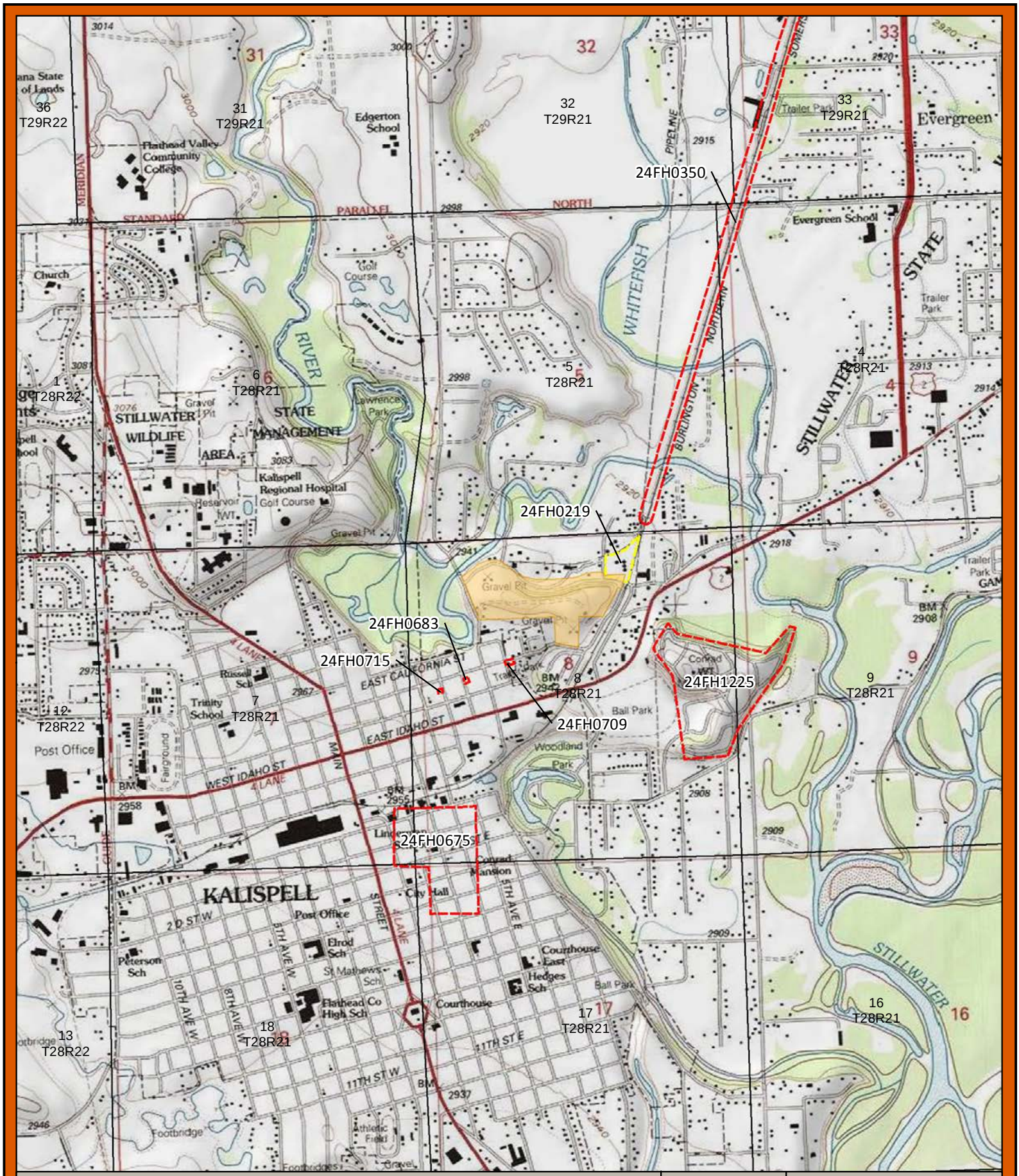
Attachment 3:

Kalispell Rail Project

Cultural Resource Site Map



Kalispell Rail Park Topographic Map

Scale 1:24,000

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

Meters 0 500

Feet 0 1,000

N

Eligible

Unevaluated

Rail Park Boundary

Attachment 4:

Kalispell Rail Project

Traffic Study

Traffic Impact Study

Flathead County Rail Park
Kalispell, Montana

Prepared for
Flathead County Economic Development Association

Prepared by
KLJ
July 2013

KLJ Project # 15413003

CERTIFICATION

I hereby certify that this traffic impact study for the Flathead County Rail Park in Kalispell, MT was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of Montana.

This document was originally issued and sealed by Robert Shannon Registration Number PE-16861 on 7/XX/13 and the original document is stored at KLJ in Bismarck, ND.

Robert Shannon P.E. Date

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EXECUTIVE SUMMARY

The purpose of this report is to document the results of a traffic impact study conducted for the proposed Rail Park in Kalispell, MT. The proposed development will be located on Montclair Drive immediately south of the existing rail park. The main access to the state highway system will be through the intersection of Montclair Drive and US-2/Idaho Street. In general, the property within the vicinity of the proposed site is largely light industrial with some residential uses south of the Rail Park.

The traffic study will consider the following scenarios: 2013 Background, 2013 Background Plus Site, which adds traffic from the rail park development. The study recommendations are made for each analysis period in terms of safety, access and capacity for the study area.

Findings:

- 2013 Background Scenario
    - The intersection of Flathead Drive and US-2/Idaho Street currently meets MUTCD traffic signal warrants 1, 2, and 4.
    - With existing geometry LOS C is met for all movements and intersections overall, except for eastbound left turns from Montclair Drive onto US-2/Idaho Street, which is LOS F.
- 2013 Background Plus Site Scenario
    - With site development the intersection of Montclair Drive and US-2/Idaho Street experiences LOS F. Installing a signal is recommended.
    - With below recommended improvements all intersections achieve LOS A.
    - For safe railroad crossing and to avoid vehicles on the railroad, lights, gates, and bells should be added to the new railroad spur at-grade railroad crossing on Montclair Drive.

Recommendations:

- Install an actuated coordinated traffic signal at intersection of Flathead Drive and US-2/Idaho Street.
    - Include an eastbound/westbound protected left turn phase at the signal.
    - Construct northbound left and through travel lane to allow for those movements
- Revise stop control to yield control on Montclair Drive at the railroad crossing and add advance railroad crossing signing on Montclair Drive, Oregon Lane, and Flathead Drive
- Widen the approximately 24 feet for pavement at the existing railroad crossing on Montclair Drive to approximately 40 feet.
- Move intersection of Montclair Drive and US-2/Idaho Street approximately 100 feet further south.
    - Construct eastbound right turn lane with 100 feet of full width turn bay length, plus an 8:1 taper.
- Install an actuated coordinated traffic signal at intersection of Montclair Drive and US-2/Idaho Street.
- Install railroad crossing on Montclair Drive for three new spurs with full complement of lights, gates, and bells.

1.0 INTRODUCTION AND OBJECTIVE

The purpose of this report is to document the results of a traffic impact study conducted for the proposed Flathead County Rail Park expansion in Kalispell, MT. The goals of this study are to assess the traffic impacts associated with the development and identify the level of off-site access and traffic control improvements required to service the project, provide a technically sound basis to identify/negotiate mitigation requirements in response to off-site traffic impacts and to provide the site engineer input on the proposed access plan, internal site circulation and truck access.

The proposed development will be located at Flathead County Rail Park south of the access road between Whitefish Stage and the BNSF rail line. The site includes Northwest Drywall with a railroad spur north of the access road, and CHS grain elevators plus four additional railroad spurs south of the access road. Access to CHS will be provided via a driveway on Oregon Lane with a secondary access on the west side of the site also on Oregon Lane. The following intersections will be studied due to their proximity to the proposed development:

- Montclair Drive and US 2/Idaho Street
- Flathead Drive and US 2/Idaho Street
- Montclair Drive and Flathead Drive
- Montclair Drive and Oregon Lane
- Montclair Drive and site access road
- Whitefish Stage and site access road

The traffic study will consider the following scenarios: 2013 Background, 2013 Background Plus Site, 2018 (5 year growth) Background, 2018 Background Plus Site. The study recommendations are made for each analysis period in terms of safety, access and capacity for the study area.

Existing roadways and the proposed development location can be found in ***Figure 1, Project Location Map. Figure 2, Site Plan*** shows the layout of development and rail lines associated with the rail park development. Capacity analysis conducted at study intersections were based on the "Highway Capacity Manual" (HCM 2010) published by the Transportation Research Board (TRB). Site trips were generated according to the methods outlined in the "Trip Generation 8th Edition" and "Trip Generation Handbook 2nd Edition" both published by the Institute of Transportation Engineers (ITE). Synchro 8 was the capacity software used in the analysis.

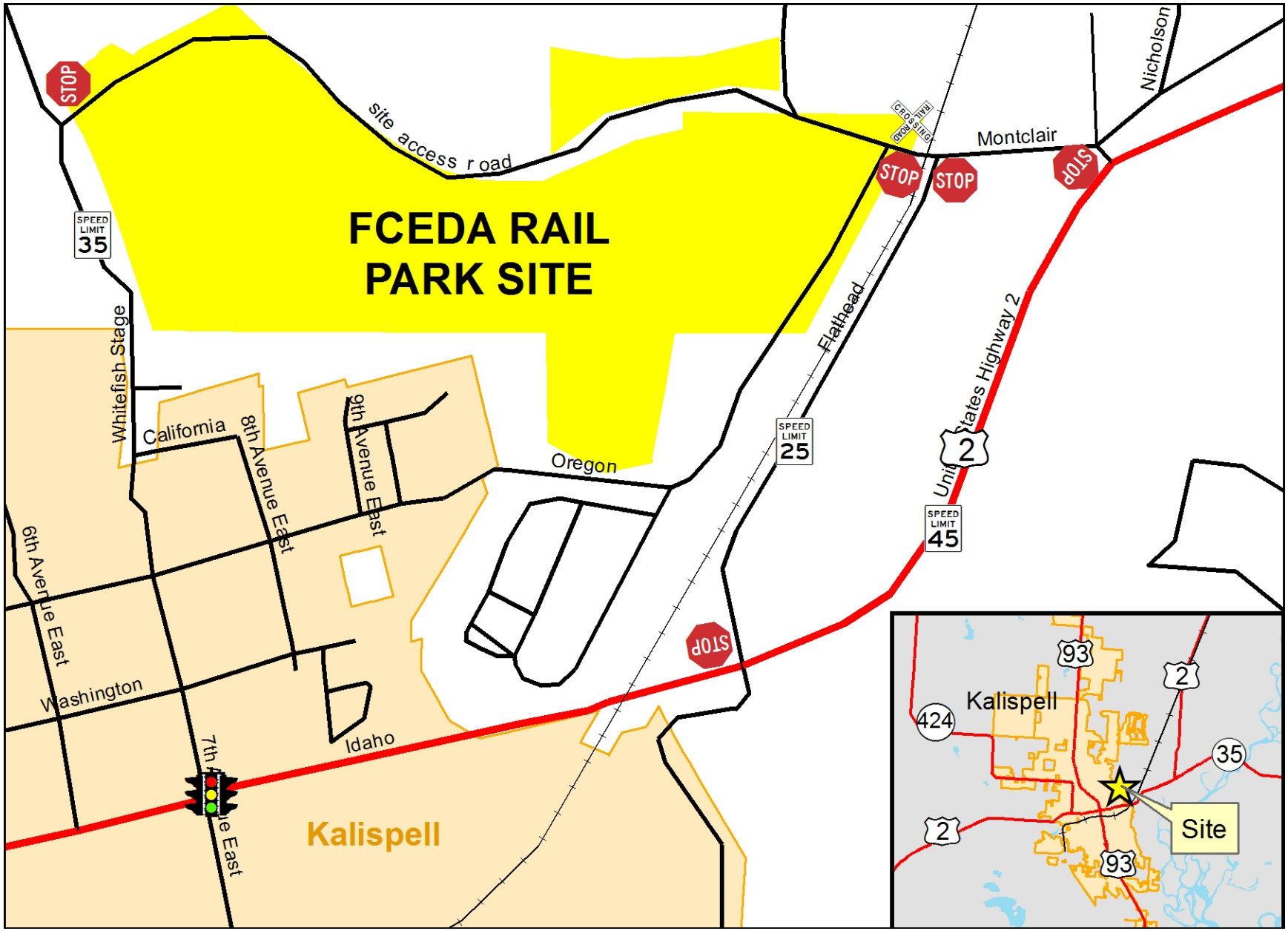


Figure 1: Project Location Map

Figure 2: Site Plan

2.0 2013 BASE CONDITIONS

The 2013 base condition will analyze the existing roadway network, background traffic and the surrounding area adjacent to the development to provide a basis of comparison to the build alternative.

2.1 Existing Roadways

Montclair Drive is an east-west local street north of the proposed site. The two-way road consists of a 24-foot paved 2-lane section with no striping or painted markings. Montclair Drive has an existing at-grade railroad crossing with stop signs (shown below) between Flathead Drive and Oregon Lane. Montclair Drive is the main point of access off of US Highway 2 for the existing rail park. The speed limit on Montclair Drive is 25 MPH.

Figure 3: Montclair Drive looking east at the railroad crossing

US Highway 2 or Idaho Street is an east-west principal arterial east and south of the rail park site. The street has a 4-lane cross-section with a grass center median and left turn lanes at intersections. There are street lights and curb and gutter on the approximately 100 feet of right-of-way. The posted speed limit is 45 mph through the project area. The intersections on Montclair Drive and Flathead Drive are two-way stops with free movements on US Highway 2.

Figure 4: US-2 @ Flathead Drive looking west

Flathead Drive and Oregon Lane are parallel north-south streets east of the proposed development. They run on either side of the elevated BNSF rail line. Both are paved streets with approximately 24 feet of pavement with no striping. The posted speed limit on both streets is 25 mph. The secondary access point for the FCEDA rail park site is on Oregon Lane.

Whitefish Stage is a local north-south street on the west of the rail park site. It is a paved road with 2-3 foot shoulders and no curb. It has approximately 30 feet of striped pavement with no turn lanes. The posted speed limit is 35 mph. The site access road connects through the site to Whitefish Stage.

The site access road for lack of a proper name is a dirt and gravel road that runs east-west through the property connecting to Whitefish Stage and Montclair Drive. This dirt road is approximately 30 feet wide and includes a few speed bumps. There are currently a few businesses that use the road to access their facilities including Klingler Lumber.

A summary of the existing lane configurations at the study intersections is provided in **Table 1, Existing Lane Configuration**. Included are the full width turn bay lengths when turn lanes are present.

Table 1
Existing Lane Configuration

Intersection	Intersection Approach				Traffic Control
	Eastbound	Westbound	Northbound	Southbound	
Montclair Drive and US 2/Idaho Street	LTR	LTR	L(75'), T,T,TR(250')	L(75'), T,TR	EB/WB Stop
Flathead Drive and US 2/Idaho Street	L(75'), T,TR	L(175'), T,TR	R	LTR	NB/SB Stop
Montclair Drive and Flathead Drive	LTR	LTR	LTR	-	NB Stop
Montclair Drive and Oregon Lane	LTR	LTR	LTR	-	NB Stop
Montclair Drive and site access road	LTR	-	LTR	LTR	EB Stop
Whitefish Stage and site access road	-	LTR	LTR	LTR	WB Stop

Notes: (1) L= Left-turn lane; T = Through lane; R = Right-turn lane; LT, LR, TR, LTR = Shared lanes
(2) (xxx') = Full width turn bay length

2.2 Background Traffic Volumes

To evaluate the current traffic volumes on the area roadways, the most recent AADT (Annual Average Daily Traffic) was compiled from the Montana Department of Transportation (MDT) traffic volume maps and from PM peak hour movement counts collected in April 2013. See ***Figure 5, 2013 Background Peak Hour Turning Movement Counts*** for the 2013 peak hour turning movements. See ***Appendix A*** for the 2013 background traffic volume worksheets.

2.3 2013 Background Capacity Analysis

The study intersections were analyzed using existing geometry, existing traffic control and the 2013 peak hour volumes. A LOS (Level of Service) was determined for each study intersection to assess how the intersections are currently operating in terms of capacity.

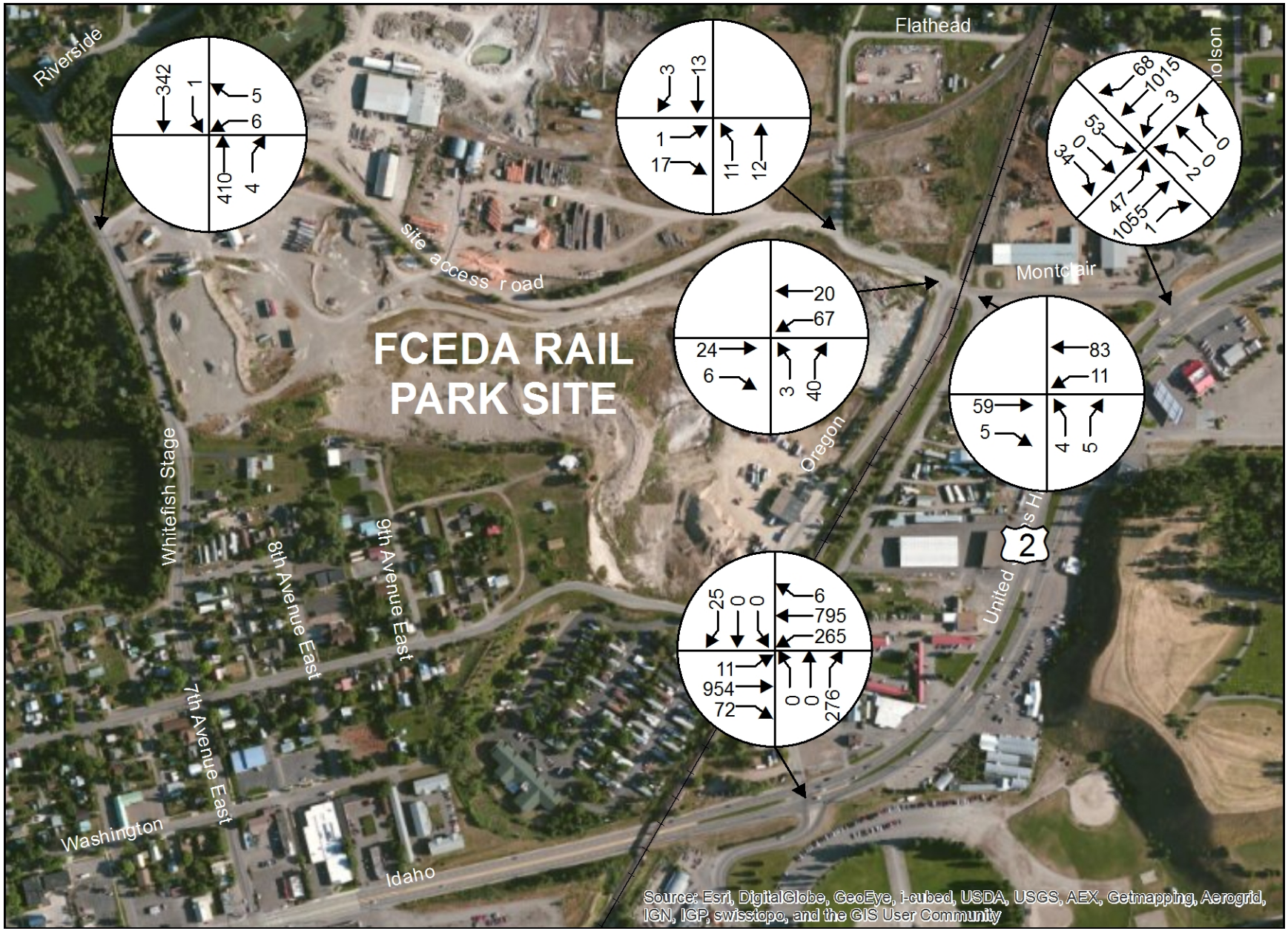


Figure 5: 2013 Background Peak Hour Turning Movement Counts

LOS (Level of Service) Concepts[1]

LOS for an AWSC (all-way stop-controlled) or a TWSC (two-way stop-controlled) intersection is determined by the computed or measured control delay. LOS for an AWSC intersection is defined for each approach as well as for the intersection as a whole. LOS for a TWSC intersection is defined for each minor movement and is not defined for the intersection as a whole. The LOS criteria for stop-controlled intersections and unsignalized intersections are somewhat different from the criteria for signalized intersections primarily because different transportation facilities create different driver perceptions. The expectation is that a signalized intersection is designed to carry higher traffic volumes and experience greater delay than an unsignalized intersection. Please refer to ***Table 2, Level of Service Control Delay*** for a control delay range expressed as seconds of delay per vehicle and the corresponding LOS letter grade.

Table 2
Level of Service Control Delay

LOS	Signalized Intersections (s/veh)	AWSC/TWSC Intersections (s/veh)
A	0-10	0-10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

None of the six intersections analyzed are signalized. The following is a summary of the 2013 capacity analysis results for each study intersection. Please refer to ***Table 3, 2013 Background Traffic Capacity Results*** for the LOS at each approach and for the intersection overall. See **Appendix B** for the 2013 background traffic capacity analysis worksheets.

Table 3
2013 Background Traffic Capacity Results

Intersection	Lane Geometry	Traffic Control	Level Of Service/ Delay (seconds)				
			Overall	Intersection Approach			
				EB	WB	NB	SB
Montclair Drive and US 2/Idaho Street	Existing	EB/WB Stop	B 11.7	F 296.8	F 100.6	-	-
Flathead Drive and US 2/Idaho Street	Existing	NB/SB Stop	A 4.4	-	- 3.9	C 22.3	B 11.6
Montclair Drive and Flathead Drive	Existing	NB Stop	A 1.0	-	-	A 9.1	-
Montclair Drive and Oregon Lane	Existing	NB Stop	A 5.5	-	-	A 8.8	-
Montclair Drive and site access road	Existing	EB Stop	A -	-	-	-	-
Whitefish Stage and site access road	Existing	WB Stop	A 0.2	-	C 15.3	-	-

Montclair Drive and US 2/Idaho Street

While this intersection operates at an overall LOS B it experiences significant delay at the eastbound and westbound approaches, both are LOS F, with 53 eastbound left turns in the PM peak experiencing on average almost 300 seconds of delay.

[1] Discussion in the Level of Service Concepts section is taken from: "Highway Capacity Manual", Transportation Research Board, 2000, Chapters 10, 17.

Flathead Drive and US 2/Idaho Street
This intersection is unique in that the northbound approach has only a right out option, forcing all 276 northbound vehicles in the peak hour to turn right. This reduces the delay the northbound approach experiences which operates at a LOS C. It is also virtually impossible for a southbound vehicle to make any movement other than turn right. No southbound left turns or through movements were observed during peak hour counts.

Montclair Drive and Flathead Drive
At this T-intersection, only the northbound approach is stop controlled and currently operates at a LOS A. There are only a few northbound left-turns in the peak hour and it is in the middle of the LOS A range.

Montclair Drive and Oregon Lane and Railroad Crossing
At this T-intersection, only the northbound approach is stop controlled and currently operates at a LOS A. However, there are stop signs at the railroad crossing. Many vehicle observe this stop sign and come to a complete stop before crossing the railroad, others do not. There are no gates, bells, or lights at this at-grade railroad crossing. Eastbound vehicles observing this stop sign block this intersection to all movements, which is not ideal.

Part of this planned rail park project is to remove trains from this existing railroad line through Kalispell. The track will be removed south of US-2. It will not be removed across Montclair Drive and this section may still be used for train car storage. It is anticipated that this section of the track will rarely be used and never during peak traffic hours. These changes mean that there will be virtually no conflicts between trains and vehicles at this crossing, therefore, no additional safety improvements like lights and gates will be necessary. Removing the stop signs and widening the railroad crossing will allow for larger trucks with higher turning radius to maneuver from Oregon Lane to Montclair. All approaches currently operate at or above LOS A with existing traffic and existing traffic control devices.

Recommended Changes to Geometry: Remove railroad stop control and widen at-grade crossing to accommodate trucks with a high turning radius.

Montclair Drive and site access road
The site access road serves few PM peak hour trips. Most trips are employees leaving the rail park. This intersection has such low peak hour volumes that no delay is measurable. It operates at a LOS A for all approaches.

Whitefish Stage and site access road
Whitefish stage provides an important north south connection between US-2/Idaho Street and West Reserve Drive. Whitefish Stage carries a considerable number of vehicles in the PM peak hour; however the site access road serves few vehicles therefore this intersection experiences little delay. It operates at a LOS A overall and LOC for the westbound approach.

Signal Warrant Analysis
Signal Warrant analysis was considered at the above mentioned intersections, however only the two intersections on US-2 at Montclair Drive and Flathead Drive have traffic volumes high enough to meet warrants and analysis was performed for those intersections using existing traffic data and guidance from the 2009 MUTCD. The analysis was conducted to determine whether installation of a new traffic control signal is currently justified. The satisfaction of a traffic signal warrant or warrants does not necessitate that a traffic control signal

be installed. If additional data were required, reasonable judgment was used to determine the estimated volumes. See ***Appendix C*** for the 2013 background signal warrant analysis worksheets. The following warrants from the MUTCD were analyzed:

Warrant 1 – Eight-Hour Vehicular Volume
Warrant 2 – Four-Hour Vehicular Volume
Warrant 3 – Peak Hour
Warrant 4 – Pedestrian Volume
Warrant 5 – School Crossing
Warrant 6 – Coordinated Signal System
Warrant 7 – Crash Experience
Warrant 8 – Roadway Network
Warrant 9 – Intersection Near a Grade Crossing

The intersection of Flathead Drive and US-2/Idaho Street currently meets signal warrants. It meets warrants 1, 2, and 3 based on eight hour, four hour, and peak hour vehicular volume with the northbound right turns from Woodland Park Drive (See Appendix C). However, there is a free-flow right turn lane for Woodland Park Drive traffic therefore, the right turns should not be considered in the signal warrant. Additionally the 265 peak hour westbound left turns conflict with the 1026 eastbound through and right turn movements.

Signal warrant analysis often excludes right turns on the minor street as the vehicles making these turn movements may not be subject to the delay caused by waiting for gaps in the major street traffic. This intersection is unique in that all northbound approach vehicles are forced to turn right. Still, if we remove all right turn vehicles from the minor street, the intersection still meets signal warrant 3. However, MUTCD does allow you to consider the westbound left turns as the minor approach and the eastbound opposing traffic would be the total to use as the major street traffic. The high number of westbound left turn conflicting with the eastbound vehicles is enough to meet signal warrants. See ***Figure 6*** for the signal warrant 3 graph with all minor street traffic removed. **Recommended Changes to Geometry: Install an actuated traffic signal at the intersection of Flathead Drive and US-2/Idaho Street.**

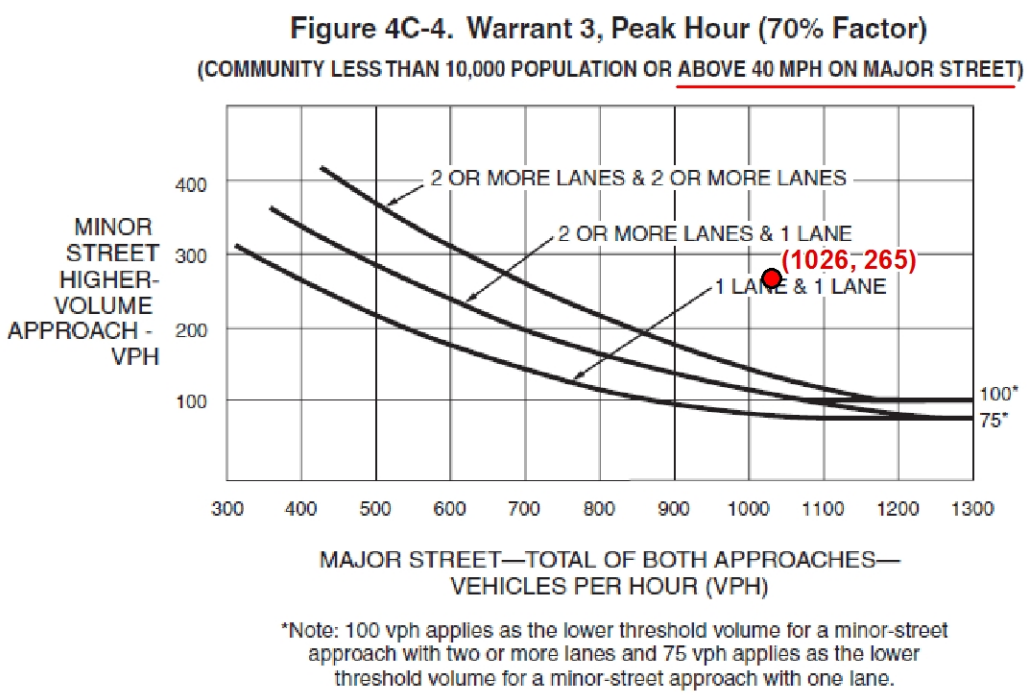


Figure 6: Signal Warrant 3 Graph with Data Point for Flathead Drive and US-2/Idaho Street reflecting westbound left turns as the minor street

It should be noted even with the extreme proximity to the at-grade railroad crossing at both intersections of Montclair Drive and Flathead Drive and Montclair Drive and Oregon Lane that signal warrant 9 does not apply. The MUTCD states, *"The Intersection Near a Grade Crossing signal warrant is intended for use at a location where none of the conditions described in the other eight traffic signal warrants are met, but the proximity to the intersection of a grade crossing on an intersection approach controlled by a STOP or YIELD sign is the principal reason to consider installing a traffic control signal."*

In this case, the intersection of the at-grade crossing on Montclair Drive is not controlled by a stop or yield sign, therefore signal warrant 9 does not apply to these intersections. Widening the existing at-grade railroad crossing is recommended to accommodate large trucks turning through the railroad crossing.

2.4 Crash Analysis

A 3-year crash history was analyzed from January 1, 2010 to December 31, 2012 for the study area to determine any crash patterns and possible countermeasures. See ***Table 4, Summary of Crashes*** for a summary of crashes at each intersection where a crash occurred. A crash rate per million entering vehicles (MEV) was calculated for any intersection where a crash occurred.

Table 4
Summary of Crashes

Location	Number of Collisions	Crash Rate (MEV)	Collision Type[1]							Collision Severity[2]			
			HO	RA	RE	SS - Same	SS - Opp	LT	O	Fatal	InjA	InjB	PDO
Montclair Drive and US 2/Idaho Street	17	0.61	2	7	6	-	-	-	2	1	1	3	12
Flathead Drive and US 2/Idaho Street	11	0.37	1	-	10	-	-	-	-	-	2	2	7
Montclair Drive and Flathead Drive	0	0.00	-	-	-	-	-	-	-	-	-	-	-
Montclair Drive and Oregon Lane	0	0.00	-	-	-	-	-	-	-	-	-	-	-
Montclair Drive and site access road	0	0.00	-	-	-	-	-	-	-	-	-	-	-
Whitefish Stage and site access road	0	0.00	-	-	-	-	-	-	-	-	-	-	-

Collision Type[1]: HO - Head On, RA - Right Angle, RE - Rear End, SS-Same - Sideswipe Same Direction,
SS-Opp - Sideswipe Opposite Direction, LT - Left Turn, O – Other
Collision Severity[2]: Fatal - Fatality, InjA - Incapacitating Injury, InjB - Non-Incapacitating Injury, PDO - Property Damage Only

A crash rate (MEV) above 1.0 usually indicates a crash issue. All of the intersections had a score lower than 1.0. There were only crashes at the two intersections on US-2/Idaho Street. The intersection of Montclair Drive and US-2/Idaho Street had 17 crashes in the three years from January 1, 2010 to December 31, 2012. One of those crashes was a fatal pedestrian crash that occurred at night. This intersection averages over 5 crashes per year, however it is not above the threshold to meet traffic signal warrant 7 because rear end crashes are not susceptible to correction with a signal. Also no known safety alternatives have been tried to reduce crashes at this intersection, therefore the signal warrant 7 is not met.

The intersection of Flathead Drive and US-2/Idaho Street had 11 crashes and no fatalities in the three years from January 1, 2010 to December 31, 2012. There were four rear-end crashes that resulted in eight injuries. None of the crashes indicated a problem with sight distance or geometry at the study intersections.

Figure 7, 2010-2012 Crash Locations is a map with a red dot indicating each crash on the map.

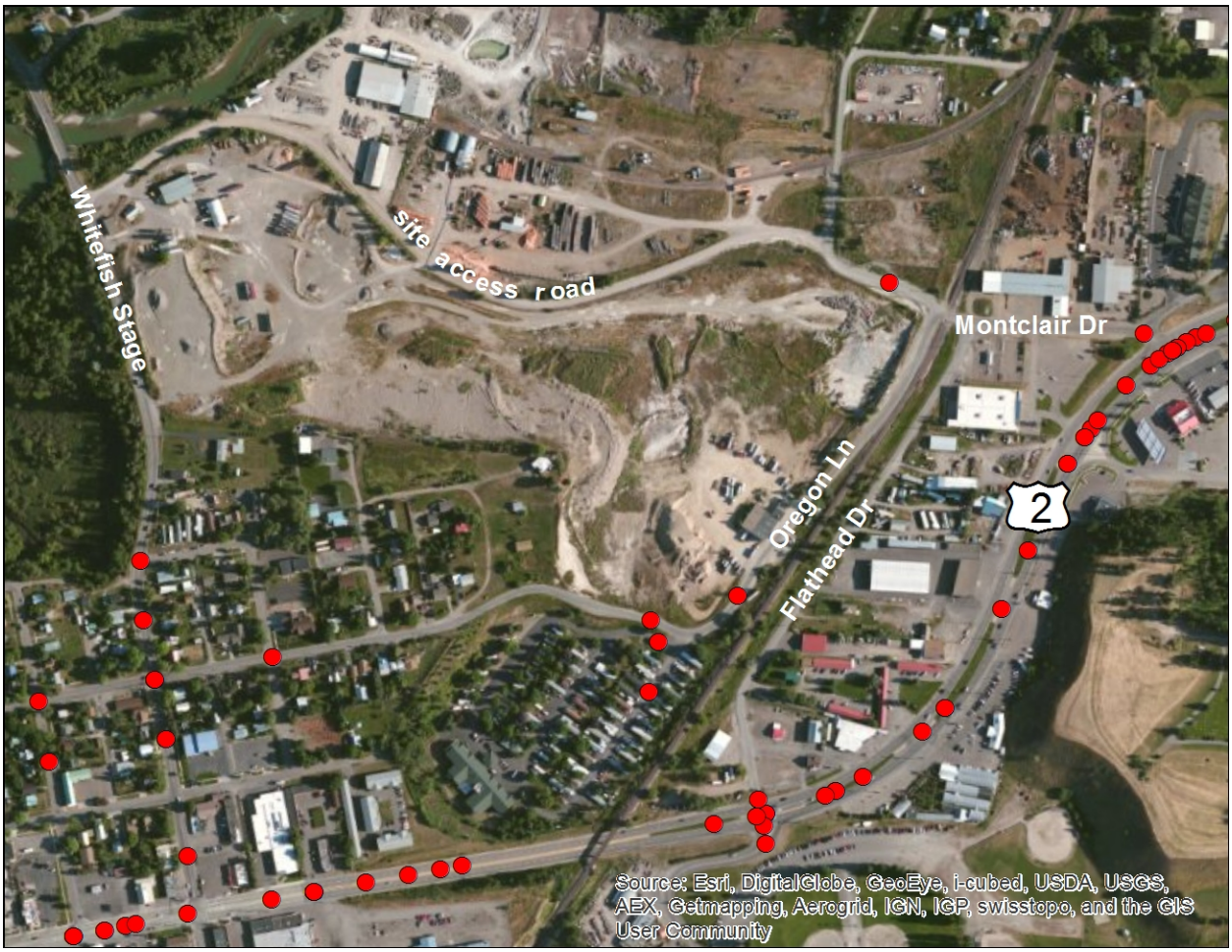


Figure 7: 2010-2012 Crash Locations

3.0 2013 BASE PLUS SITE CONDITIONS

The 2013 background plus site (or full-build) condition includes the traffic generated by the proposed FCEDA Rail Park development. The development would consist of two light industrial operations, Northwest Drywall on 3 acres and CHS with grain elevators on an additional 6.6 acres.

3.1 Assigned Trip Calculations

Traffic volumes for the study intersections under the 2013 background plus site scenario were developed using the following method. The existing 2013 traffic was established as the background traffic near the development. Traffic generated by the proposed development was estimated using the 2008 Institute of Transportation Engineers (ITE) Trip Generation 8th Edition. This resource was used to estimate the peak hourly trips. The ITE development type, independent variable, number of trips and directional distribution of said trips can be found in ***Table 5, ITE Trip Generation.***

Table 5
ITE Trip Generation

PM Peak Hour Trip Generation								Trip Distribution		Total Primary Trips	
ITE Code	**Land Use**	**Ind. Variable (Acres)**	**Peak Hr Trip Gen. Avg. Rate**	**Total Peak Hr Trips**	**Internal % /Trips**	**Passby % /Trips**	**Primary Trips (new)**	**Enter**	**Exit**	**Enter**	**Exit**
110	General Light Industrial Northwest Drywall	3.0	7.26	22	0% /0	0% /0	22	22%	78%	5	17
110	General Light Industrial CHS	6.6	7.26	48	0% /0	0% /0	48	22%	78%	11	37
									TOTAL	**16**	**54**

The trips generated from the ITE manual are the total number of peak hour trips that would access the site. No portion of these would be internal trips (generated trips that do not access the major street system), pass-by trips (pulled existing traffic off the adjacent road between the origin and destination of the original trip) or diverted trips (attracted from traffic on roadways within the vicinity of the generator but require a diversion from that roadway to another roadway to gain access to the site due to the nature of the businesses).

The total number of trips generated was compared to the information gathered from the planned facilities. Both Northwest Drywall and CHS provided some information pertaining to the number of trips their sites will generate as well as the number of trucks estimated to access their sites. Both companies anticipate 10-20 PM peak hour trips, with an additional two to five trucks in the peak hour. Again, this information is consistent with the ITE trip generation rates used.

Trip distribution was based on existing traffic on each road as well as logical routes to access US-2/Idaho Street. The existing traffic on routes to and from the new rail park site influenced which roads the traffic generated

from the site would use to access the site. Many new trips will use Montclair, as existing trips do, to access US-2/Idaho Street and then travel to their final destination.

The macro level traffic distribution was converted to turning movement percentages at each study intersection in order to apply the new trips generated by the proposed development onto the existing roadway network. These trips were added onto the baseline traffic to create the 2013 Background Plus Site Traffic volumes that were used in the analysis. See ***Figure 8, 2013 Background Plus Site Total Peak Hour Trips*** for the estimated 2013 traffic upon full build of the proposed development.

The exception to the trip generation rates occurs during the peak harvest season. The CHS facility and grain elevators average 20 to 30 trucks per day throughout most of the year; however during the peak harvest season the number swells to 550 to 700 trucks per day that will need to access the site. This is a large increase in the number of trips entering and exiting the site. While most of these trucks will try to avoid PM peak hour times, there will certainly some added peak hour truck trips in the harvest peak season. Most of the trucks will be entering Kalispell via State Highway 35 and then US-2, but some will be entering through US-93 and then on US-2.

See ***Figure 9, 2013 Background Plus Site Total Peak Hour Harvest Trips*** for the estimated 2013 traffic upon full build of the proposed development during the peak harvest season.

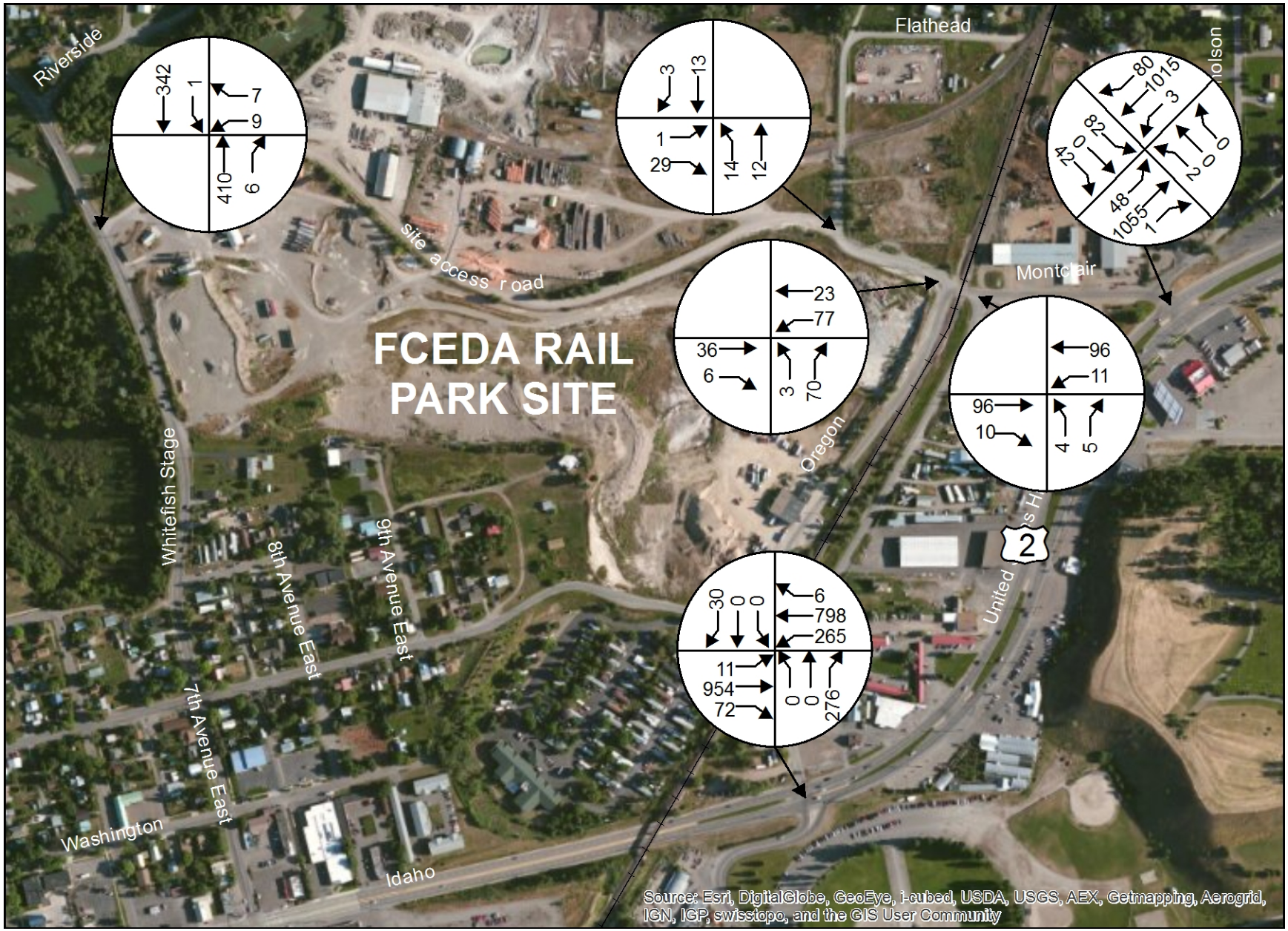


Figure 8: 2013 Background Plus Site Total Peak Hour Trips

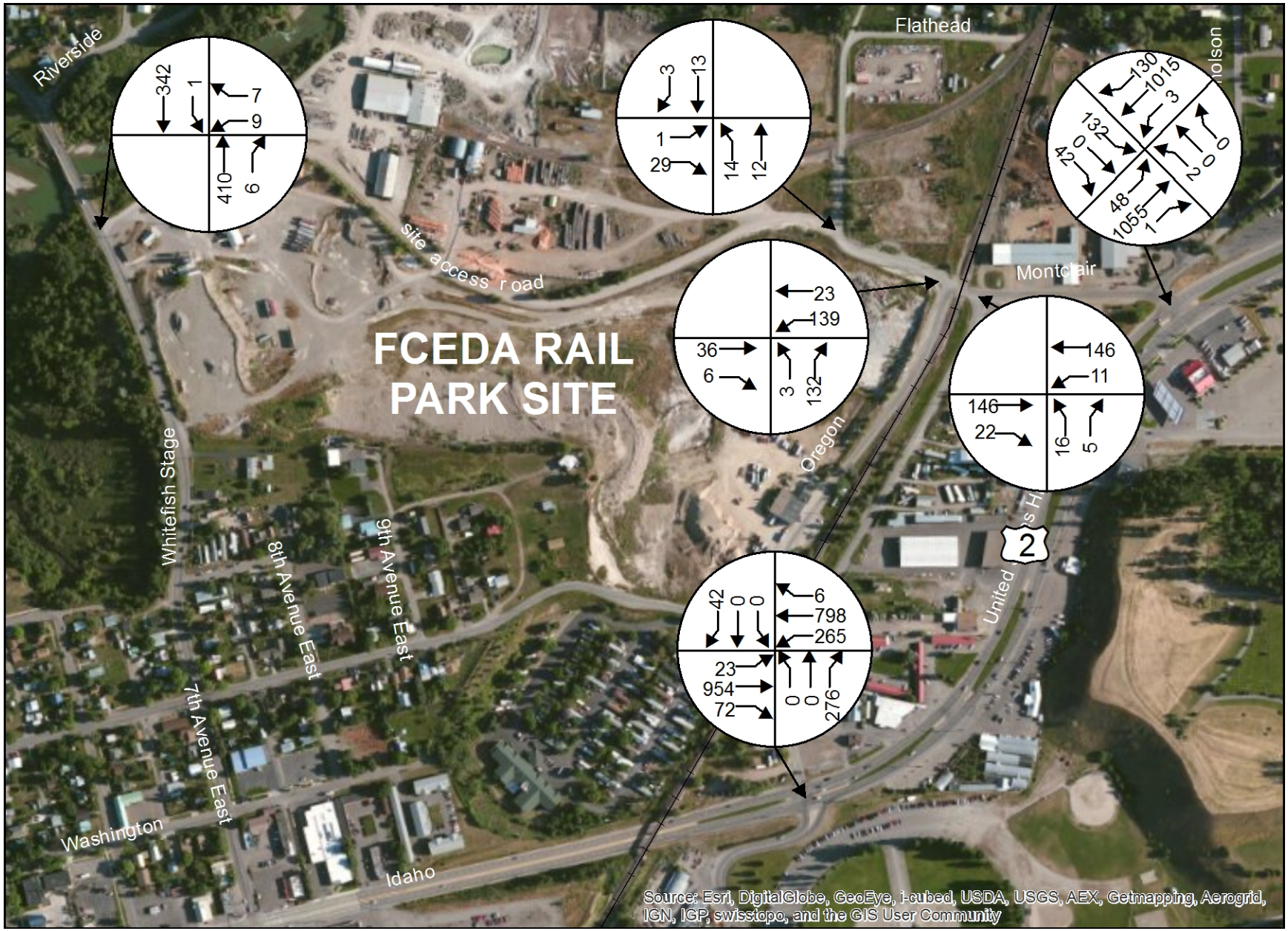


Figure 9: 2013 Background Plus Site Total Peak Hour Harvest Trips

3.2 2013 Background Plus Site Capacity Analysis

The study intersections were analyzed with the projected 2013 background plus site traffic volumes. The analysis produces the same results, however, when the peak harvest season traffic is assumed. Without geometric improvements, the only intersection that experiences a LOS worse than C is Montclair Drive and US-2/Idaho Street. That intersection experiences LOS F when the proposed development is added to existing geometry and traffic control. In fact, the delay on the eastbound approach is so great that the Synchro software cannot calculate the delay.

The following is a summary of the 2013 background plus site capacity analysis results without improvement for each study intersection. Please refer to ***Table 6, 2013 Background Plus Site without Improvements Traffic Capacity Results*** for the LOS at each approach and for the intersection overall. See **Appendix D** for the 2013 background plus site capacity analysis worksheets.

Table 6
2013 Background Plus Site without Improvements Traffic Capacity Results

Intersection	Lane Geometry	Traffic Control	Level Of Service/ Delay (seconds)				
			Overall	Intersection Approach			
				EB	WB	NB	SB
Montclair Drive and US 2/Idaho Street	Existing	EB/WB Stop	F 533.0	F error	F 107.5	-	-
Flathead Drive and US 2/Idaho Street	Existing	NB/SB Stop	A 4.5	-	- 3.9	C 22.3	B 11.7
Montclair Drive and Flathead Drive	Existing	NB Stop	A 0.8	-	-	A 9.9	-
Montclair Drive and Oregon Lane	Existing	NB Stop	A 6.0	-	-	A 9.4	-
Montclair Drive and site access road	Existing	EB Stop	A -	-	-	-	-
Whitefish Stage and site access road	Existing	WB Stop	A 0.3	-	C 15.6	-	-

Geometric and traffic control device improvements were developed for the intersection of Montclair Drive and US-2/Idaho Street until a LOS C was attained. The full width turn bay length for each auxiliary lane was set as the 95th percentile storage length for either the turn lane or the adjacent through lane, whichever was longer.

A traffic signal was also proposed at the intersection of Flathead Drive and US-2/Idaho Street. This intersection meets warrants today. While adding a signal will not reduce the overall intersection delay or improve the already LOS A, it will reduce the delay for some westbound left turns and northbound and southbound approaches improve to LOS A, while still maintaining a LOS A for the overall intersection. The geometric changes at this intersection also included adding a shared left/through lane to the northbound approach, which would change some trips from right turns (the only movement currently allowed) to through or left turns.

The following is a summary of the 2013 background plus site capacity analysis results for each study intersection. Please refer to ***Table 7, 2013 Background Plus Site with Improvements Traffic Capacity***

Results for the LOS at each approach and for the intersection overall. See **Appendix D** for the 2013 background plus site capacity analysis worksheets.

Table 7
2013 Background Plus Site with Improvements Traffic Capacity Results

Intersection	Lane Geometry	Traffic Control	Level Of Service/ Delay (seconds)				
			Overall	Intersection Approach			
				EB	WB	NB	SB
Montclair Drive and US 2/Idaho Street	**Revised**	**Signalized**	**A 6.2**	B 15.1	B 12.5	A 5.9	A 5.4
Flathead Drive and US 2/Idaho Street	**Revised**	**Signalized**	A 9.0	B 13.9	A 5.2	A 6.0	A 0.5
Montclair Drive and Flathead Drive	Existing	NB Stop	A 0.8	-	-	A 9.9	-
Montclair Drive and Oregon Lane	Existing	NB Stop	A 6.0	-	-	A 9.4	-
Montclair Drive and site access road	Existing	EB Stop	A -	-	-	-	-
Whitefish Stage and site access road	Existing	WB Stop	A 0.3	-	C 15.6	-	-

<u>Montclair Drive and US-2/Idaho Street</u>
The intersection experiences LOS F with the additional trips from the planned development. Increased traffic to the eastbound approach pushed the LOS above the F threshold and signal warrants 2 and 3 are met. ***Figure 10, Signal Warrant 2 Graph with Data Point of Montclair Drive and US-2/Idaho Street,*** shows that with the rail park development this intersection meets traffic signal warrants. A right turn pocket is also recommended at this intersection and to allow for adequate geometric space for Montclair Drive to be perpendicular at the intersection it is recommended that the location be moved south approximately 100 feet. This will allow for a better connection to Nicholson Drive and for a 100 foot long right turn pocket to be included in the intersection design.

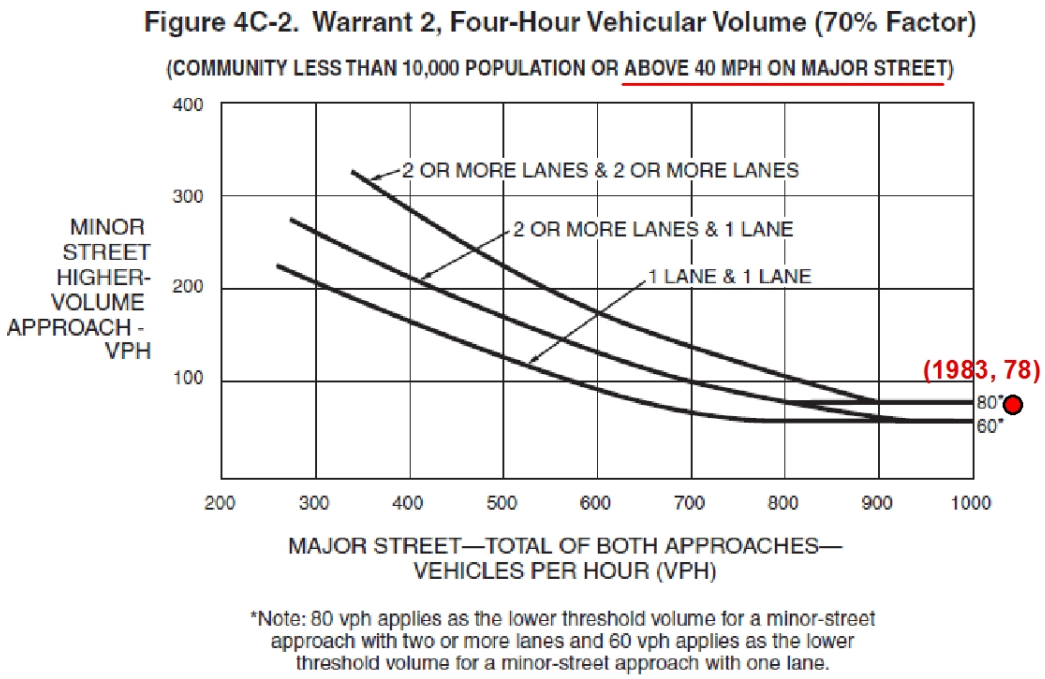


Figure 10: Signal Warrant 2 Graph with Data Point of Montclair Drive and US-2/Idaho Street (with right turns removed)

Recommended Changes to Geometry:

- **Move intersection approximately 100 further south.**
- **Construct eastbound right turn lane with 100' of full width turn bay length.**
- **Install an actuated coordinated traffic signal.**

Figures 11 and 12, Existing and Recommended Geometry of Montclair Drive and US-2/Idaho Street show what the intersection looks like today and what the recommended signalized intersection may look like.

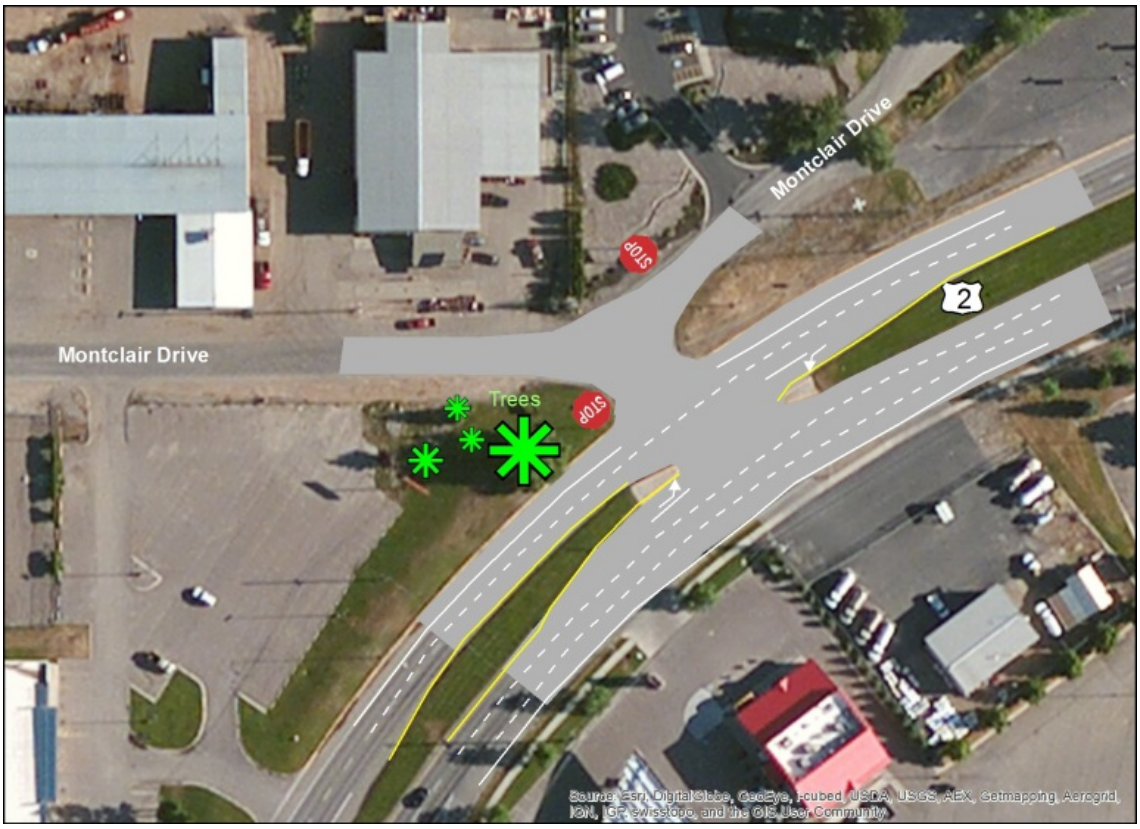


Figure 11: Existing Geometry of Montclair Drive and US-2/Idaho Street

Figure 12: Recommended Geometry of Montclair Drive and US-2/Idaho Street

Flathead Drive and US-2/Idaho Street

The LOS at this intersection would be A with or without a traffic signal. This intersection meets signal warrants today and adding a signal would decrease delay on the northbound and southbound approaches. A traffic signal would also allow for northbound left turn and through movements. With the planned development this intersection would add a few southbound right turns and some of those vehicles will be large trucks. The recommended signal should include protected and permitted left turns on the eastbound and westbound movements. The high volume of westbound left turns will be facilitated by a protected green phase at the signal. It should also be noted that the recommended traffic signals Montclair Drive and Flathead Drive will have more than one half mile spacing between them on US-2/Idaho Street.

Recommended Changes to Geometry:

- **Install an actuated coordinated traffic signal.**
- **Including an eastbound/westbound protected left turn phase at the signal.**
- **Construct northbound left and through travel lane to allow for those movements.**

Figures 13 and 14, Existing and Recommended Geometry of Flathead Drive and US-2/Idaho Street show what the intersection looks like today and what the recommended signalized intersection may look like.

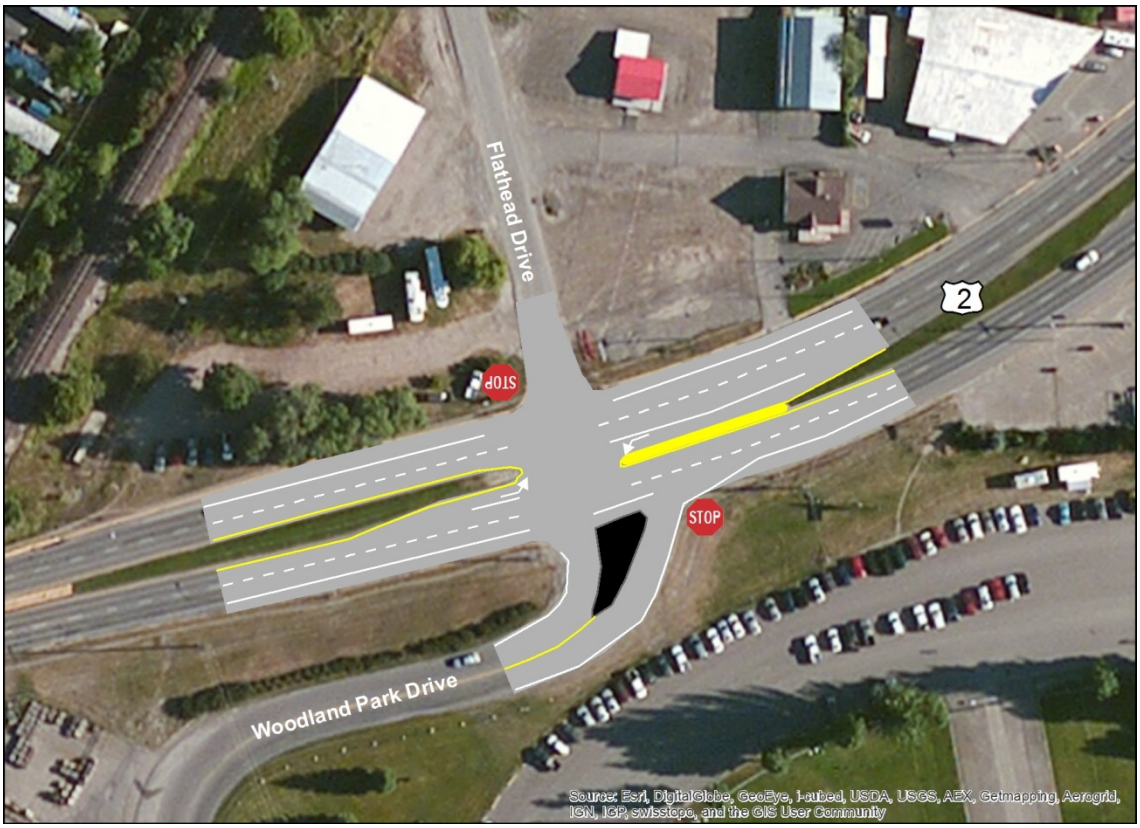


Figure 13: Existing Geometry of Flathead Drive and US-2/Idaho Street

Figure 14: Recommended Geometry of Flathead Drive and US-2/Idaho Street

Other Intersections

The existing geometry is adequate for all other intersection analyzed. **No other intersection improvements are recommended.**

Signal Warrant Analysis

Signal Warrant analysis was performed at the above mentioned intersections using background plus site traffic data and guidance from the 2009 MUTCD. The analysis was conducted to determine whether installation of a new traffic control signal would be justified. The satisfaction of a traffic signal warrant or warrants does not necessitate that a traffic control signal be installed. If additional data were required, reasonable judgment was used to determine the estimated volumes. See ***Appendix E*** for the background plus site signal warrant analysis worksheets.

The intersections of Montclair Drive and US-2/Idaho Street and Flathead Drive and US-2/Idaho Street both meet signal warrants with the proposed development. The intersection of Montclair Drive and US-2/Idaho Street would experience LOS F without the signal and LOS A with the signal as shown in ***Tables 6 and 7***. A traffic signal is shown at this location in ***Figure 12***.

The proposed signal at Flathead Drive and US-2/Idaho Street is warranted even without the traffic associated with the proposed development. MDT and the City of Kalispell are recommended to work toward installing a signal at this location immediately. It may be beneficial to determine a cost sharing agreement between all benefited parties for the cost of the modifications at this intersection.

4.0 RAILROAD CROSSINGS

In 2011 there was a vehicle train crash on the BNSF Railroad line at an at-grade railroad crossing in Flathead County. Reducing the number of at-grade railroad crossings will reduce the train/vehicle conflict point and may help reduce the number of collisions with trains. The rail park development will potentially allow for BNSF to close six existing at-grade railroad crossings in Kalispell.

4.1 Montclair Drive

There is an existing BNSF rail line crossing on Montclair Drive between Flathead Drive and Oregon Lane. This existing railroad crossing is stop controlled. A photo of this railroad crossing is below in ***Figure 15***.

Figure 15: Existing Railroad Crossing on Montclair Drive

Being stop controlled is problematic because vehicles stopping at this railroad crossing will block traffic entering and exiting on both Flathead Drive and Oregon Lane. Therefore, it is recommended that the stop control be removed. Again, signal warrant 9 does not apply to the conditions at this railroad crossing. Recommended traffic control includes replace the STOP signs with YIELD signs, add lights, bells, gates, and advanced warning signs.

A main part of the rail park development is to move the CHS facility with its accompanying rail line from downtown Kalispell to the rail park, thus remove the rail line and several at-grade railroad crossings from Kalispell. The site plan shown in ***Figure 2*** indicates that three new railroad spurs will be added to the rail park to accommodate the CHS rail facility. All three of these railroad spurs will be active and will need to cross Montclair Drive. The existing rail line across Montclair Drive will also be maintained to use as storage down to US-2. This means that there will be four at-grade rail crossings on Montclair Drive in about the space of 150 feet.

While there will be four railroad crossings they will all be short spurs used for storage. They will not be active mainline traffic. In fact, the existing line will be used for train car storage very rarely and never is peak traffic times. It shouldn't pose an issue for traffic on Montclair Drive. There is a possibility of trucks

exiting the rail park and doing a virtual "U" turn form northbound Oregon Lane to southbound Flathead Drive. While this will be seldom it is recommended that Montclair Drive at the existing railroad crossing be widened to accommodate this potential truck movement.

Recommended Changes to Geometry:

- **Revise stop control to yield control on Montclair Drive at the railroad crossing**
- **Widen the approximately 24 feet for pavement at the existing railroad crossing on Montclair Drive to approximately 40 feet**
- **Install railroad crossing on Montclair Drive for three new spurs with full complement of lights, gates, crossbucks, and bells.**
- **Install advanced railroad crossing signs on Montclair Drive and Oregon Lane as well as Flathead Drive**

The three planned new railroad spurs immediately west of Oregon Lane will cross Montclair Drive and to help ensure safety at these railroad crossings it is recommended that a full complement of lights, gates, crossbucks, and bells be installed to prevent any vehicles from entering the railroad right-of-way while a train is approaching. The Federal Highway Administration's Railroad-Highway Grade Crossing Handbook (2007) states that automatic gates and lights should be considered any time there is an average of 20 or more trains a day. The three active spurs will most likely total more than 20 train per day at this crossing, therefore gates are recommended. This safety feature can be accommodated west of Oregon Lane and will not prevent vehicles on Montclair Drive from accessing Oregon Lane, which is the major movement at this intersection.

Recommended Changes to Geometry:

- **Install railroad crossing on Montclair Drive for three new spurs with full complement of lights, gates, crossbucks, and bells.**

Figures 16 and 17, Existing and Recommended Geometry of Montclair Drive at-grade railroad crossings show what the area looks like today and what the recommended improvements may looks like.

Figure 16: Existing Geometry of Montclair Drive and Railroad Crossing

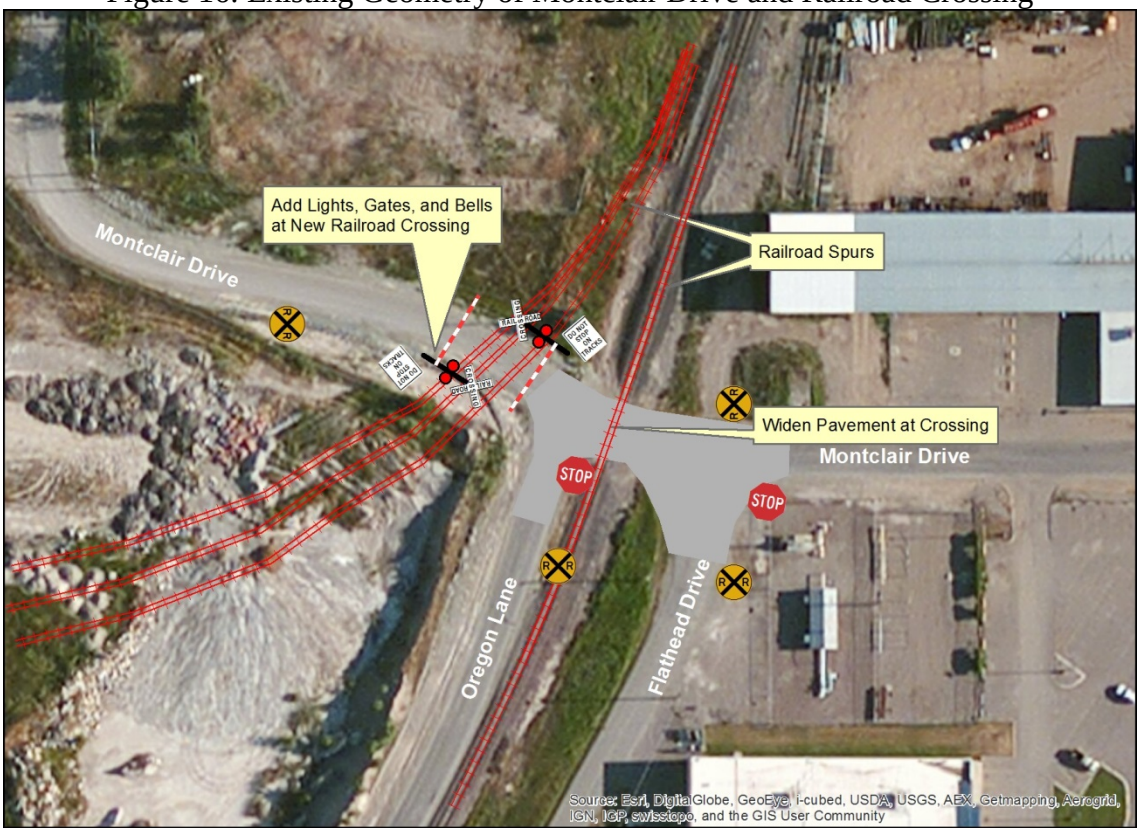


Figure 17: Recommended Geometry of Montclair Drive and Railroad Crossings

Figure 18 is an example photograph of a railroad crossing with lights, gates, crossbucks, and bells installed prevent vehicles from accessing the tracks when a train is approaching.

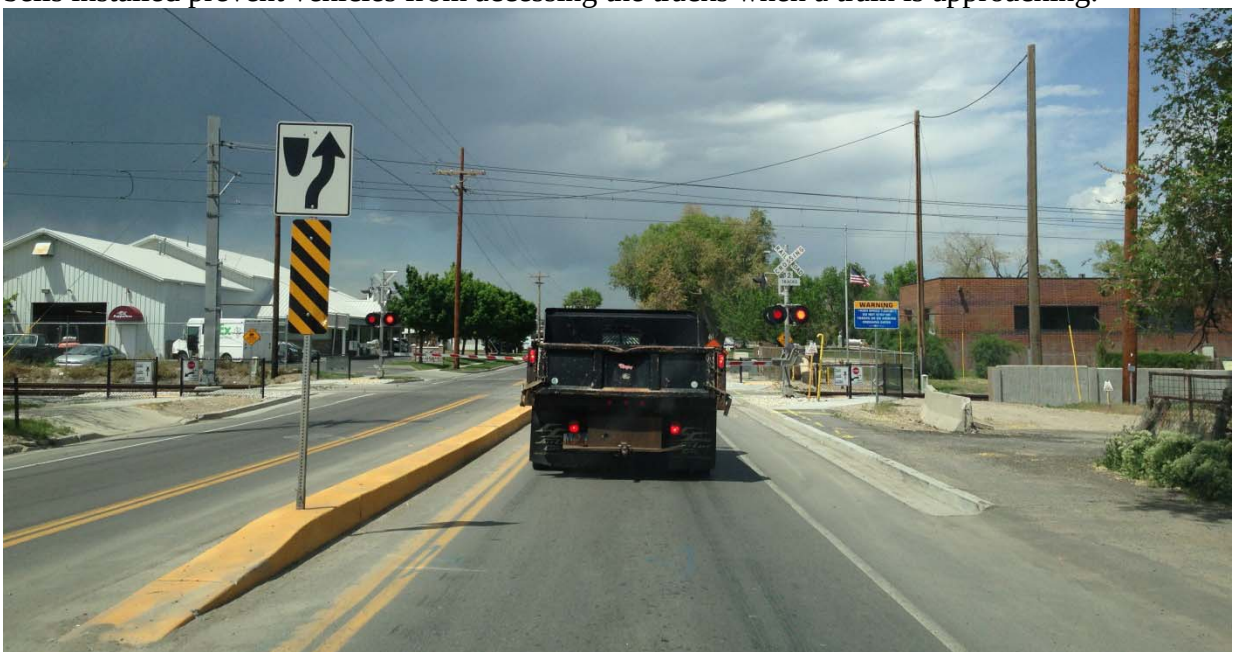


Figure 18: Example of Railroad Crossing with Lights, Gates, Crossbucks, and Bells

5.0 RECOMMENDED IMPROVEMENTS AND COSTS

5.1 Recommended Improvements

There were several recommendations made throughout this report. They are all listed below and can be found in the executive summary at the beginning of this as well.

Recommendations:

- Install an actuated coordinated traffic signal at intersection of Flathead Drive and US-2/Idaho Street.
    - Include an eastbound/westbound protected left turn phase at the signal.
    - Construct northbound left and through travel lane to allow for those movements
- Revise stop control to yield control on Montclair Drive at the railroad crossing and add advance railroad crossing signing on Montclair Drive, Oregon Lane, and Flathead Drive
- Widen the approximately 24 feet for pavement at the existing railroad crossing on Montclair Drive to approximately 40 feet.
- Move intersection of Montclair Drive and US-2/Idaho Street approximately 100 feet further south.
    - Construct eastbound right turn lane with 100 feet of full width turn bay length, plus an 8:1 taper.
- Install an actuated coordinated traffic signal at intersection of Montclair Drive and US-2/Idaho Street.
- Install railroad crossing on Montclair Drive for three new spurs with full complement of lights, gates, and bells.

Figure 19, Recommended Improvements is map of the rail park study area showing recommended improvements.

Figure 19: Recommended Improvements

5.2 Estimated Costs

The objective of this traffic study is to understand the impact the proposed rail park development will have on the surrounding transportation system and to recommend improvements to accommodate the increase in traffic or to lessen the impact.

To better understand the recommended improvements we have included planning level cost estimates. The recommended transportation improvements discussed above have not been survey or designed and the cost estimates do not reflect that level of detail. Rather the cost estimates are a best guess dollar value based on similar projects completed recently. The costs also include a 20% contingency for unforeseen expenditures associated with the improvements. See ***Appendix F*** for planning level cost estimate assumptions.

Table 8
Planning Level Cost Estimates

#	Improvement	Cost
1	*Install signal at Flathead Dr. and US-2	*$300,000
2	Remove Stop control on Montclair Dr at RR	$1,000
3	Widen railroad crossing on Montclair Dr	$10,000
4	Move and realign Montclair Dr and US-2	$270,000
5	Install signal at Montclair Dr. and US-2	$300,000
6	Install lights, gates, bells at new RR crossing	$1,500,000
7	New pavement for site access roads	$450,000
Total		**$2,831,000**
*Not a necessary improvement for the rail park development		
**All Costs are in 2013 US Dollars		

APPENDIX A

2013 Base Traffic Volumes

US-2 / Idaho and Montclair Date 4-16-13

Adjusted

	US-2			Access			US-2			Montclair			
	From North			From East			From South			From West			
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00	13	282	1	0	0	2	1	280	9	17	0	19	624
5:15	23	298	1	0	0	0	0	309	10	11	0	5	657
5:30	17	215	1	0	0	0	0	263	17	0	0	18	531
5:45	13	219	0	0	0	0	0	203	11	6	0	10	462
Total	66	1014	3	0	0	2	1	1055	47	34	0	52	2274

US-2 / Idaho and Montclair Date 4-17-13

Adjusted

	Flathead Dr			US-2			Park Dr			US-2			
	From North			From East			From South			From West			
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00	9	0	0	2	204	57	56	0	0	19	224	3	574
5:15	4	0	0	1	216	78	94	0	0	18	291	3	705
5:30	9	0	0	3	183	65	72	0	0	18	222	4	576
5:45	3	0	0	0	192	65	54	0	0	17	217	1	549
Total	25	0	0	6	795	265	276	0	0	72	954	11	2404

US-2 / Idaho and Montclair Date 4-18-13

Adjusted

	Montclair			Site Access			Montclair			Site Access			
	From North			From East			From South			From West			
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00	1	5	0	0	0	0	0	2	1	6	0	0	15
5:15	0	2	0	0	0	0	0	4	3	4	0	1	14
5:30	1	3	0	0	0	0	0	3	4	3	0	0	14
5:45	1	3	0	0	0	0	0	3	3	4	0	0	14
Total	3	13	0	0	0	0	0	12	11	17	0	1	57

Whitefish Stage and Site Access Date 4-17-13

Adjusted

	Whitefish Stage			Site Access			Whitefish Stage			Site Access			
	From North			From East			From South			From West			
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00	0	84	1	2	0	1	1	104	0	0	0	0	193
5:15	0	87	0	2	0	1	3	101	0	0	0	0	194
5:30	0	84	0	0	0	3	0	104	0	0	0	0	191
5:45	0	87	0	1	0	1	0	101	0	0	0	0	190
Total	0	342	1	5	0	6	4	410	0	0	0	0	768

US-2 / Idaho and Montclair Date 4-17-13

Adjusted

	Flathead Dr			Montclair			Flathead Dr			Montclair			
	From North			From East			From South			From West			
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00	0	0	0	0	15	5	0	0	0	2	17	0	39
5:15	0	0	0	0	24	0	1	0	2	3	14	0	44
5:30	0	0	0	0	22	3	2	0	1	0	14	0	42
5:45	0	0	0	0	22	3	2	0	1	0	14	0	42
Total	0	0	0	0	83	11	5	0	4	5	59	0	167

NOT COUNTED

Adjusted

				Montclair			Oregon			Montclair			
	From North			From East			From South			From West			
Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Total
5:00	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	20	67	40	0	3	6	24	0	160

APPENDIX B

2013 Background Capacity Analysis Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	53	0	34	2	0	0	47	1055	1	3	1015	68
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	87	0	0	2	0	47	1055	1	3	1015	68
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.91	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1734	0	0	1805	0	1805	3618	1615	1805	3618	1615
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			0.0			0.0	3.1	35.0	0.1	0.2	33.7	5.1
Adj Reference Time (s)			0.0			0.0	8.0	39.0	8.0	8.0	37.7	9.1
Permitted Option												
Adj Saturation A (vph)	0	1933		0	1220		120	1809		120	1809	
Reference Time A (s)	0.0	5.4		0.0	0.2		46.9	35.0		3.0	33.7	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	11.5	14.0		8.1	8.1		NA	NA		NA	NA	
Reference Time (s)		5.4			0.2			46.9			33.7	
Adj Reference Time (s)		9.4			8.0			50.9			37.7	
Split Option												
Ref Time Combined (s)	0.0	6.0		0.0	0.1		3.1	35.0		0.2	33.7	
Ref Time Seperate (s)	3.5	0.0		0.1	0.0		3.1	35.0		0.2	33.7	
Reference Time (s)	6.0	6.0		0.1	0.1		35.0	35.0		33.7	33.7	
Adj Reference Time (s)	10.0	10.0		8.0	8.0		39.0	39.0		37.7	37.7	

Summary	EB WB	NE SW	Combined
Protected Option (s)	NA	47.0	
Permitted Option (s)	9.4	50.9	
Split Option (s)	18.0	76.7	
Minimum (s)	9.4	47.0	56.4

Right Turns	NER	SWR
Adj Reference Time (s)	8.0	9.1
Cross Thru Ref Time (s)	9.4	8.0
Oncoming Left Ref Time (s)	8.0	8.0
Combined (s)	25.4	25.1

Intersection Summary			
Intersection Capacity Utilization	47.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	59	5	11	83	4	5
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	64	0	0	94	9	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.99	0.85	0.95	0.99	0.90	0.85
Saturated Flow (vph)	1878	0	0	1889	1703	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	1878		0	690	114	
Reference Time A (s)	4.1		0.0	16.3	9.5	
Adj Saturation B (vph	1878		0	0	NA	
Reference Time B (s)	4.1		8.7	14.0	NA	
Reference Time (s)	4.1			14.0		
Adj Reference Time (s)	8.1			18.0		
Split Option						
Ref Time Combined (s)	4.1		0.0	6.0	0.6	
Ref Time Seperate (s)	3.8		0.7	5.2	0.3	
Reference Time (s)	4.1		6.0	6.0	0.6	
Adj Reference Time (s)	8.1		10.0	10.0	8.0	

Summary	EB WB	NB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	18.0	Err	
Split Option (s)	18.1	8.0	
Minimum (s)	18.0	8.0	26.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	21.6%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	1	17	11	12	13	3
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right				No		No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	18	23	0	16	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.92	0.85	0.93	0.85
Saturated Flow (vph)	0	1895	1751	0	1772	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	0.00		0.00	
Protected Option Allowed		No	No		No	
Reference Time (s)				0.0		0.0
Adj Reference Time (s)				0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1051	1751		118	
Reference Time A (s)	0.0	2.1	1.6		16.3	
Adj Saturation B (vph	0	0	1751		NA	
Reference Time B (s)	8.1	9.1	1.6		NA	
Reference Time (s)		2.1	1.6			
Adj Reference Time (s)		8.0	8.0			
Split Option						
Ref Time Combined (s)	0.0	1.1	1.6		1.1	
Ref Time Seperate (s)	0.1	1.1	0.8		0.9	
Reference Time (s)	1.1	1.1	1.6		1.1	
Adj Reference Time (s)	8.0	8.0	8.0		8.0	

Summary	EB WB	SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	Err	
Split Option (s)	16.0	8.0	
Minimum (s)	8.0	8.0	16.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	24	6	67	20	3	40
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	30	0	0	87	43	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.97	0.85	0.95	0.96	0.86	0.85
Saturated Flow (vph)	1843	0	0	1827	1629	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	1843		0	146	109	
Reference Time A (s)	2.0		0.0	71.3	47.5	
Adj Saturation B (vph	1843		0	0	NA	
Reference Time B (s)	2.0		12.5	13.7	NA	
Reference Time (s)	2.0			13.7		
Adj Reference Time (s)	8.0			17.7		
Split Option						
Ref Time Combined (s)	2.0		0.0	5.7	3.2	
Ref Time Seperate (s)	1.6		4.5	1.3	0.2	
Reference Time (s)	2.0		5.7	5.7	3.2	
Adj Reference Time (s)	8.0		9.7	9.7	8.0	

Summary	EB WB	NB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	17.7	Err	
Split Option (s)	17.7	8.0	
Minimum (s)	17.7	8.0	25.7

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	21.4%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	954	72	265	795	6	0	0	276	0	0	25
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	11	954	72	265	795	6	0	0	276	0	25	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.85	0.85
Saturated Flow (vph)	1805	3618	1615	1805	3618	1615	0	1900	1615	0	1615	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	0.7	31.6	5.3	17.6	26.4	0.4			20.5			0.0
Adj Reference Time (s)	8.0	35.6	9.3	21.6	30.4	8.0			24.5			0.0
Permitted Option												
Adj Saturation A (vph)	120	1809		120	1809		0	1900		0	1615	
Reference Time A (s)	11.0	31.6		264.3	26.4		0.0	0.0		0.0	1.9	
Adj Saturation B (vph	NA	NA		NA	NA		0	1900		0	1615	
Reference Time B (s)	NA	NA		NA	NA		0.0	0.0		0.0	1.9	
Reference Time (s)		31.6			264.3			0.0			1.9	
Adj Reference Time (s)		35.6			268.3			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.7	31.6		17.6	26.4		0.0	0.0		0.0	1.9	
Ref Time Seperate (s)	0.7	31.6		17.6	26.4		0.0	0.0		0.0	0.0	
Reference Time (s)	31.6	31.6		26.4	26.4		0.0	0.0		1.9	1.9	
Adj Reference Time (s)	35.6	35.6		30.4	30.4		0.0	0.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	57.3	NA	
Permitted Option (s)	268.3	8.0	
Split Option (s)	66.0	8.0	
Minimum (s)	57.3	8.0	65.3

Right Turns	EBR	WBR	NBR
Adj Reference Time (s)	9.3	8.0	24.5
Cross Thru Ref Time (s)	8.0	0.0	35.6
Oncoming Left Ref Time (s)	21.6	8.0	8.0
Combined (s)	39.0	16.0	68.2

Intersection Summary			
Intersection Capacity Utilization	56.8%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	9	9	9	9	9	9	9	9	9	9	9
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	27	0	0	27	0	0	27	0	0	27	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.93	0.85	0.95	0.93	0.85	0.95	0.93	0.85	0.95	0.93	0.85
Saturated Flow (vph)	0	1775	0	0	1775	0	0	1775	0	0	1775	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1351		0	1351		0	1351		0	1351	
Reference Time A (s)	0.0	2.4		0.0	2.4		0.0	2.4		0.0	2.4	
Adj Saturation B (vph	0	0		0	0		0	0		0	0	
Reference Time B (s)	8.6	9.8		8.6	9.8		8.6	9.8		8.6	9.8	
Reference Time (s)		2.4			2.4			2.4			2.4	
Adj Reference Time (s)		8.0			8.0			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	1.8		0.0	1.8		0.0	1.8		0.0	1.8	
Ref Time Seperate (s)	0.6	0.6		0.6	0.6		0.6	0.6		0.6	0.6	
Reference Time (s)	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	8.0	
Split Option (s)	16.0	16.0	
Minimum (s)	8.0	8.0	16.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1805	3618	1615	1805	3618	1615	1805	1900	1615	1805	1900	1615
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Permitted Option												
Adj Saturation A (vph)	120	1809		120	1809		120	1900		120	1900	
Reference Time A (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Adj Saturation B (vph	0	3618		0	3618		0	1900		0	1900	
Reference Time B (s)	8.0	0.0		8.0	0.0		8.0	0.0		8.0	0.0	
Reference Time (s)		0.0			0.0			0.0			0.0	
Adj Reference Time (s)		8.0			8.0			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Reference Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Adj Reference Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	16.0	16.0	
Permitted Option (s)	8.0	8.0	
Split Option (s)	0.0	0.0	
Minimum (s)	0.0	0.0	0.0

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	8.0	8.0	8.0	8.0
Cross Thru Ref Time (s)	0.0	0.0	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0	0.0
Combined (s)	0.0	0.0	0.0	0.0

Intersection Summary			
Intersection Capacity Utilization	0.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (vph)	410	4	1	342	6	5
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	414	0	0	343	11	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.91	0.85
Saturated Flow (vph)	1897	0	0	1900	1722	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	1897		0	1825	115	
Reference Time A (s)	26.2		0.0	22.6	11.5	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	26.2			22.6		
Adj Reference Time (s)	30.2			26.6		
Split Option						
Ref Time Combined (s)	26.2		0.0	21.7	0.8	
Ref Time Seperate (s)	25.9		0.1	21.6	0.4	
Reference Time (s)	26.2		21.7	21.7	0.8	
Adj Reference Time (s)	30.2		25.7	25.7	8.0	

Summary	NB SB	SW	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	30.2	Err	
Split Option (s)	55.9	8.0	
Minimum (s)	30.2	8.0	38.2

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	31.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

APPENDIX C

2013 Background Signal Warrant Analysis Worksheets

Warrants Volume

Information

Analyst	Thomas McMurtry	Intersection	
Agency/Co	KLJ	Jurisdiction	
Date Performed	5/13/2013	Units	U.S. Customary
Project ID	FCEDA TIS	Time Period Analyzed	
East/West Street	US 2	North/South Street	Flathead Dr
File Name	Warrant Flathead 2013	Major Street	East-West

Project Description *FCEDA TIS*

Warrant 1

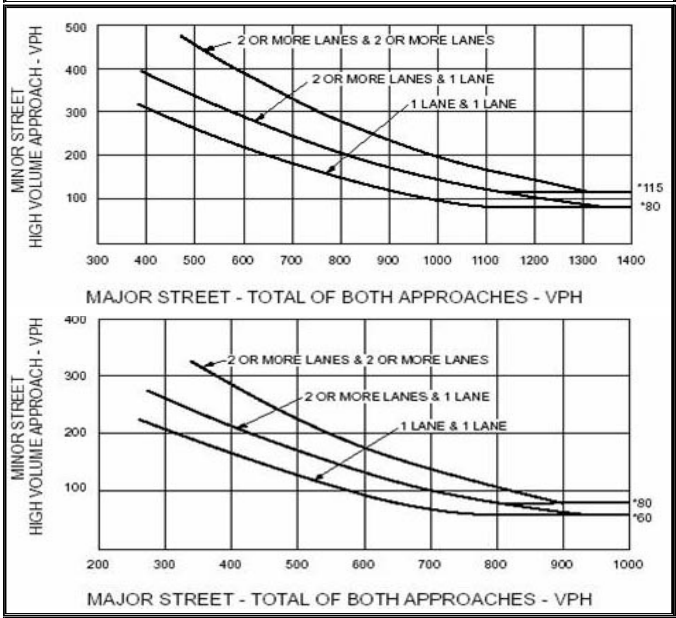
Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

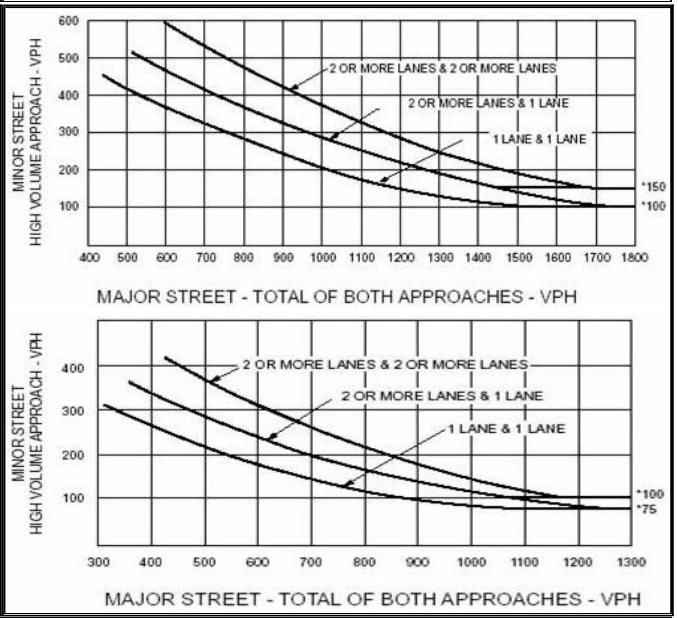
Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 2+ **Minor Street Lanes** 1 **Speed** 45 **Population** 10000+

Hours	Major Volume	Minor Volume	Total Volume	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)
07-08	1180	80	1290	No	No	Yes	Yes	Yes	No	Yes
08-09	1230	90	1350	No	Yes	Yes	Yes	Yes	No	Yes
09-10	1080	80	1190	No	No	Yes	Yes	Yes	No	No
10-11	1200	90	1320	No	Yes	Yes	Yes	Yes	No	Yes
11-12	1420	100	1560	No	Yes	Yes	Yes	Yes	No	Yes
12-13	1630	120	1790	Yes	Yes	Yes	Yes	Yes	No	Yes
13-14	1740	230	1990	Yes	Yes	Yes	Yes	Yes	No	Yes
14-15	1740	230	1990	Yes	Yes	Yes	Yes	Yes	No	Yes
15-16	1960	260	2240	Yes	Yes	Yes	Yes	Yes	No	Yes
16-17	2080	270	2370	Yes	Yes	Yes	Yes	Yes	No	Yes
17-18	2110	280	2410	Yes	Yes	Yes	Yes	Yes	No	Yes
18-19	1640	220	1880	Yes	Yes	Yes	Yes	Yes	No	Yes
Totals	19010	2050	21380	7	10	12	12	12	0	11

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Warrants Summary

Information			
Analyst	Thomas McMurtry	Intersection	
Agency/Co	KLJ	Jurisdiction	
Date Performed	5/13/2013	Units	U.S. Customary
Project ID	FCEDA TIS	Time Period Analyzed	
East/West Street	US 2	North/South Street	Flathead Dr
File Name	Warrant Flathead 2013	Major Street	East-West

Project Description *FCEDA TIS*

General				Roadway Network	
Major Street Speed (mph)	45	☐	Population < 10,000	Two Major Routes	☐
Nearest Signal (ft)	1760	☐	Coordinated Signal System	Weekend Count	☐
Crashes (per year)	4	☐	Adequate Trials of Alternatives	5-yr Growth Factor	0

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	1	2	1	1	2	1	0	0	1	0	1	0
Lane usage	L	T	R	L	T	R			R		LTR	
Vehicle Volume Averages (vph)	5	692	43	162	678	2	0	0	170	0	0	26
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume	☑
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☑
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☑
Warrant 2: Four-Hour Vehicular Volume	☑
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☑
Warrant 3: Peak Hour	☑
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☑
Warrant 4: Pedestrian Volume	☐
4 A. Four Hour Volumes --or--	☐
4 B. One-Hour Volumes	☐
Warrant 5: School Crossing	☐
5. Student Volumes --and--	☐
5. Gaps Same Period	☐
Warrant 6: Coordinated Signal System	☐
6. Degree of Platooning (Predominant direction or both directions)	☐
Warrant 7: Crash Experience	☐
7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☐
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☑

Warrant 8: Roadway Network	☐
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐
Warrant 9: Grade Crossing	☐
9 A. Grade Crossing within 140 ft --and--	☐
9 B. Peak-Hour Vehicular Volumes	☐

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Warrants Volume

Information

Analyst	Thomas McMurtry	Intersection	
Agency/Co	KLJ	Jurisdiction	
Date Performed	5/13/2013	Units	U.S. Customary
Project ID	FCEDA TIS	Time Period Analyzed	
East/West Street	Montclair	North/South Street	US 2
File Name	Warrant Montclair 2013	Major Street	North-South

Project Description *FCEDA TIS*

Warrant 1

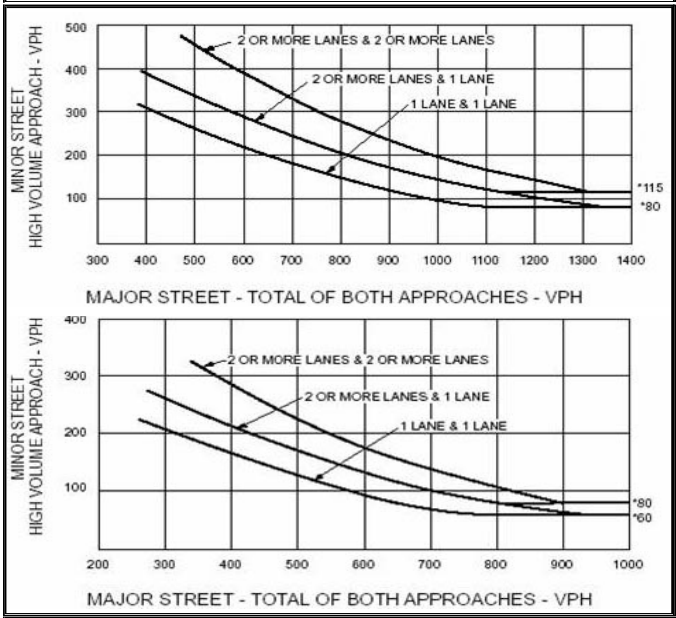
Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

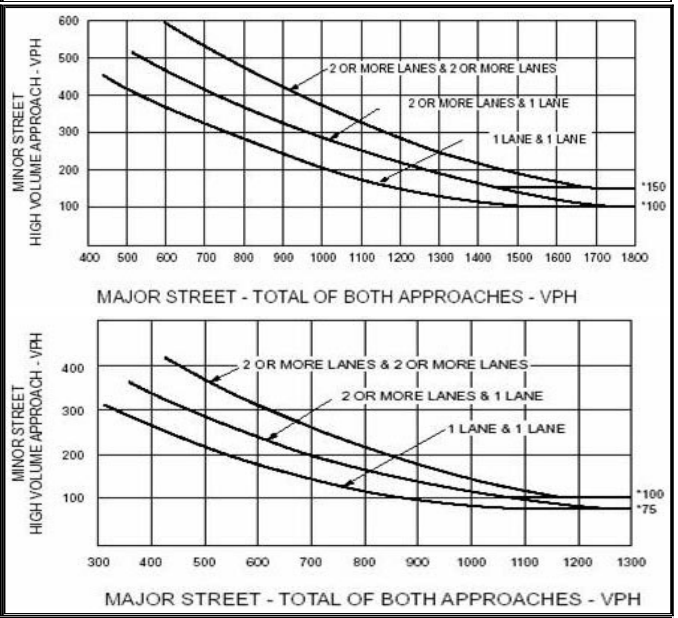
Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 2+ **Minor Street Lanes** 1 **Speed** 45 **Population** 10000+

Hours	Major Volume	Minor Volume	Total Volume	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)
07-08	980	40	1020	No	No	No	No	No	No	No
08-09	1030	40	1070	No	No	No	No	No	No	No
09-10	880	40	920	No	No	No	No	No	No	No
10-11	1010	40	1050	No	No	No	No	No	No	No
11-12	1180	60	1240	No	No	Yes	Yes	No	No	No
12-13	1340	70	1410	No	No	Yes	Yes	Yes	No	No
13-14	1810	70	1880	No	No	Yes	Yes	Yes	No	No
14-15	1810	70	1880	No	No	Yes	Yes	Yes	No	No
15-16	2020	80	2100	No	No	Yes	Yes	Yes	No	Yes
16-17	2160	80	2240	No	No	Yes	Yes	Yes	No	Yes
17-18	2200	80	2280	No	No	Yes	Yes	Yes	No	Yes
18-19	1700	70	1770	No	No	Yes	Yes	Yes	No	No
Totals	18120	740	18860	0	0	8	8	7	0	3

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Warrants Summary

Information			
Analyst	Thomas McMurtry	Intersection	
Agency/Co	KLJ	Jurisdiction	
Date Performed	5/13/2013	Units	U.S. Customary
Project ID	FCEDA TIS	Time Period Analyzed	
East/West Street	Montclair	North/South Street	US 2
File Name	Warrant Montclair 2013	Major Street	North-South

Project Description *FCEDA TIS*

General				Roadway Network	
Major Street Speed (mph)	45	☐	Population < 10,000	Two Major Routes	☐
Nearest Signal (ft)	695	☐	Coordinated Signal System	Weekend Count	☐
Crashes (per year)	6	☐	Adequate Trials of Alternatives	5-yr Growth Factor	0

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	1	0	0	1	0	1	2	1	1	2	1
Lane usage		LTR			LTR		L	T	R	L	T	R
Vehicle Volume Averages (vph)	39	0	22	0	0	0	31	683	0	0	738	56
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume	☑
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☑
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐
Warrant 2: Four-Hour Vehicular Volume	☑
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☑
Warrant 3: Peak Hour	☑
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☑
Warrant 4: Pedestrian Volume	☐
4 A. Four Hour Volumes --or--	☐
4 B. One-Hour Volumes	☐
Warrant 5: School Crossing	☐
5. Student Volumes --and--	☐
5. Gaps Same Period	☐
Warrant 6: Coordinated Signal System	☐
6. Degree of Platooning (Predominant direction or both directions)	☐
Warrant 7: Crash Experience	☐
7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☑
7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☑

Warrant 8: Roadway Network	☐
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐
Warrant 9: Grade Crossing	☐
9 A. Grade Crossing within 140 ft --and--	☐
9 B. Peak-Hour Vehicular Volumes	☐

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APPENDIX D

2013 Background Plus Site Capacity Analysis Worksheets

Intersection Capacity Utilization
2: US 2 & Montclair

7/2/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	82	0	42	2	0	0	48	1055	1	3	1015	80
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	124	0	0	2	0	48	1055	1	3	1015	80
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.92	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1744	0	0	1805	0	1805	3618	1615	1805	3618	1615
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			0.0			0.0	3.2	35.0	0.1	0.2	33.7	5.9
Adj Reference Time (s)			0.0			0.0	8.0	39.0	8.0	8.0	37.7	9.9
Permitted Option												
Adj Saturation A (vph)	0	1935		0	1314		120	1809		120	1809	
Reference Time A (s)	0.0	7.7		0.0	0.2		47.9	35.0		3.0	33.7	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	13.5	16.5		8.1	8.1		NA	NA		NA	NA	
Reference Time (s)		7.7			0.2			47.9			33.7	
Adj Reference Time (s)		11.7			8.0			51.9			37.7	
Split Option												
Ref Time Combined (s)	0.0	8.5		0.0	0.1		3.2	35.0		0.2	33.7	
Ref Time Seperate (s)	5.5	0.0		0.1	0.0		3.2	35.0		0.2	33.7	
Reference Time (s)	8.5	8.5		0.1	0.1		35.0	35.0		33.7	33.7	
Adj Reference Time (s)	12.5	12.5		8.0	8.0		39.0	39.0		37.7	37.7	

Summary	EB WB	NE SW	Combined
Protected Option (s)	NA	47.0	
Permitted Option (s)	11.7	51.9	
Split Option (s)	20.5	76.7	
Minimum (s)	11.7	47.0	58.7

Right Turns	NER	SWR
Adj Reference Time (s)	8.0	9.9
Cross Thru Ref Time (s)	11.7	8.0
Oncoming Left Ref Time (s)	8.0	8.0
Combined (s)	27.7	25.9

Intersection Summary			
Intersection Capacity Utilization	48.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	96	10	11	96	4	5
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	106	0	0	107	9	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.99	0.85	0.95	0.99	0.90	0.85
Saturated Flow (vph)	1873	0	0	1890	1703	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	1873		0	751	114	
Reference Time A (s)	6.8		0.0	17.1	9.5	
Adj Saturation B (vph	1873		0	0	NA	
Reference Time B (s)	6.8		8.7	14.8	NA	
Reference Time (s)	6.8			14.8		
Adj Reference Time (s)	10.8			18.8		
Split Option						
Ref Time Combined (s)	6.8		0.0	6.8	0.6	
Ref Time Seperate (s)	6.2		0.7	6.1	0.3	
Reference Time (s)	6.8		6.8	6.8	0.6	
Adj Reference Time (s)	10.8		10.8	10.8	8.0	

Summary	EB WB	NB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	18.8	Err	
Split Option (s)	21.6	8.0	
Minimum (s)	18.8	8.0	26.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	22.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	1	29	14	12	13	3
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right				No		No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	30	26	0	16	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.93	0.85	0.93	0.85
Saturated Flow (vph)	0	1897	1768	0	1772	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	0.00		0.00	
Protected Option Allowed		No	No		No	
Reference Time (s)				0.0		0.0
Adj Reference Time (s)				0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1285	1768		118	
Reference Time A (s)	0.0	2.8	1.8		16.3	
Adj Saturation B (vph	0	0	1768		NA	
Reference Time B (s)	8.1	9.9	1.8		NA	
Reference Time (s)		2.8	1.8			
Adj Reference Time (s)		8.0	8.0			
Split Option						
Ref Time Combined (s)	0.0	1.9	1.8		1.1	
Ref Time Seperate (s)	0.1	1.8	0.9		0.9	
Reference Time (s)	1.9	1.9	1.8		1.1	
Adj Reference Time (s)	8.0	8.0	8.0		8.0	

Summary	EB WB	SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	Err	
Split Option (s)	16.0	8.0	
Minimum (s)	8.0	8.0	16.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	36	6	77	23	3	70
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	42	0	0	100	73	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.98	0.85	0.95	0.96	0.85	0.85
Saturated Flow (vph)	1859	0	0	1827	1623	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	1859		0	146	108	
Reference Time A (s)	2.7		0.0	81.9	80.9	
Adj Saturation B (vph	1859		0	0	NA	
Reference Time B (s)	2.7		13.1	14.6	NA	
Reference Time (s)	2.7			14.6		
Adj Reference Time (s)	8.0			18.6		
Split Option						
Ref Time Combined (s)	2.7		0.0	6.6	5.4	
Ref Time Seperate (s)	2.3		5.1	1.5	0.2	
Reference Time (s)	2.7		6.6	6.6	5.4	
Adj Reference Time (s)	8.0		10.6	10.6	9.4	

Summary	EB WB	NB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	18.6	Err	
Split Option (s)	18.6	9.4	
Minimum (s)	18.6	9.4	28.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	23.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	954	72	265	795	6	0	0	276	0	0	30
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	11	954	72	265	795	6	0	0	276	0	30	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.85	0.85
Saturated Flow (vph)	1805	3618	1615	1805	3618	1615	0	0	1615	0	1615	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	0.7	31.6	5.3	17.6	26.4	0.4			20.5			0.0
Adj Reference Time (s)	8.0	35.6	9.3	21.6	30.4	8.0			24.5			0.0
Permitted Option												
Adj Saturation A (vph)	120	1809		120	1809		0	0		0	1615	
Reference Time A (s)	11.0	31.6		264.3	26.4		0.0	0.0		0.0	2.2	
Adj Saturation B (vph	NA	NA		NA	NA		0	0		0	1615	
Reference Time B (s)	NA	NA		NA	NA		0.0	0.0		0.0	2.2	
Reference Time (s)		31.6			264.3			0.0			2.2	
Adj Reference Time (s)		35.6			268.3			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.7	31.6		17.6	26.4		0.0	0.0		0.0	2.2	
Ref Time Seperate (s)	0.7	31.6		17.6	26.4		0.0	0.0		0.0	0.0	
Reference Time (s)	31.6	31.6		26.4	26.4		0.0	0.0		2.2	2.2	
Adj Reference Time (s)	35.6	35.6		30.4	30.4		0.0	0.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	57.3	NA	
Permitted Option (s)	268.3	8.0	
Split Option (s)	66.0	8.0	
Minimum (s)	57.3	8.0	65.3

Right Turns	EBR	WBR	NBR
Adj Reference Time (s)	9.3	8.0	24.5
Cross Thru Ref Time (s)	8.0	0.0	35.6
Oncoming Left Ref Time (s)	21.6	8.0	8.0
Combined (s)	39.0	16.0	68.2

Intersection Summary			
Intersection Capacity Utilization	56.8%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	9	9	9	9	9	9	9	9	9	9	9
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	27	0	0	27	0	0	27	0	0	27	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.93	0.85	0.95	0.93	0.85	0.95	0.93	0.85	0.95	0.93	0.85
Saturated Flow (vph)	0	1775	0	0	1775	0	0	1775	0	0	1775	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1351		0	1351		0	1351		0	1351	
Reference Time A (s)	0.0	2.4		0.0	2.4		0.0	2.4		0.0	2.4	
Adj Saturation B (vph	0	0		0	0		0	0		0	0	
Reference Time B (s)	8.6	9.8		8.6	9.8		8.6	9.8		8.6	9.8	
Reference Time (s)		2.4			2.4			2.4			2.4	
Adj Reference Time (s)		8.0			8.0			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	1.8		0.0	1.8		0.0	1.8		0.0	1.8	
Ref Time Seperate (s)	0.6	0.6		0.6	0.6		0.6	0.6		0.6	0.6	
Reference Time (s)	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	8.0	
Split Option (s)	16.0	16.0	
Minimum (s)	8.0	8.0	16.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1805	3618	1615	1805	3618	1615	1805	1900	1615	1805	1900	1615
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Permitted Option												
Adj Saturation A (vph)	120	1809		120	1809		120	1900		120	1900	
Reference Time A (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Adj Saturation B (vph	0	3618		0	3618		0	1900		0	1900	
Reference Time B (s)	8.0	0.0		8.0	0.0		8.0	0.0		8.0	0.0	
Reference Time (s)		0.0			0.0			0.0			0.0	
Adj Reference Time (s)		8.0			8.0			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Reference Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Adj Reference Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	16.0	16.0	
Permitted Option (s)	8.0	8.0	
Split Option (s)	0.0	0.0	
Minimum (s)	0.0	0.0	0.0

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	8.0	8.0	8.0	8.0
Cross Thru Ref Time (s)	0.0	0.0	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0	0.0
Combined (s)	0.0	0.0	0.0	0.0

Intersection Summary			
Intersection Capacity Utilization	0.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (vph)	410	6	1	342	9	7
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	416	0	0	343	16	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.91	0.85
Saturated Flow (vph)	1896	0	0	1900	1725	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	1896		0	1825	115	
Reference Time A (s)	26.3		0.0	22.6	16.7	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	26.3			22.6		
Adj Reference Time (s)	30.3			26.6		
Split Option						
Ref Time Combined (s)	26.3		0.0	21.7	1.1	
Ref Time Seperate (s)	26.0		0.1	21.6	0.6	
Reference Time (s)	26.3		21.7	21.7	1.1	
Adj Reference Time (s)	30.3		25.7	25.7	8.0	

Summary	NB SB	SW	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	30.3	Err	
Split Option (s)	56.0	8.0	
Minimum (s)	30.3	8.0	38.3

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Intersection Capacity Utilization
2: US 2 & Montclair

7/2/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	82	0	42	2	0	0	48	1055	1	3	1015	80
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	82	42	0	2	0	48	1055	1	3	1015	80
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Turning Factor (vph)	0.95	0.95	0.85	0.95	0.95	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	0	1805	1615	0	1805	0	1805	3618	1615	1805	3618	1615
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			Yes			Yes	
Reference Time (s)			3.1			0.0	3.2	35.0	0.1	0.2	33.7	5.9
Adj Reference Time (s)			8.0			0.0	8.0	39.0	8.0	8.0	37.7	9.9
Permitted Option												
Adj Saturation A (vph)	0	1925		0	120		120	1809		120	1809	
Reference Time A (s)	0.0	5.1		0.0	2.0		47.9	35.0		3.0	33.7	
Adj Saturation B (vph	0	0		0	0		NA	NA		NA	NA	
Reference Time B (s)	13.5	13.5		8.1	8.1		NA	NA		NA	NA	
Reference Time (s)		5.1			2.0			47.9			33.7	
Adj Reference Time (s)		9.1			8.0			51.9			37.7	
Split Option												
Ref Time Combined (s)	0.0	5.5		0.0	0.1		3.2	35.0		0.2	33.7	
Ref Time Seperate (s)	5.5	0.0		0.1	0.0		3.2	35.0		0.2	33.7	
Reference Time (s)	5.5	5.5		0.1	0.1		35.0	35.0		33.7	33.7	
Adj Reference Time (s)	9.5	9.5		8.0	8.0		39.0	39.0		37.7	37.7	

Summary	EB WB	NE SW	Combined
Protected Option (s)	NA	47.0	
Permitted Option (s)	9.1	51.9	
Split Option (s)	17.5	76.7	
Minimum (s)	9.1	47.0	56.1

Right Turns	EBR	NER	SWR
Adj Reference Time (s)	8.0	8.0	9.9
Cross Thru Ref Time (s)	37.7	9.1	8.0
Oncoming Left Ref Time (s)	8.0	8.0	8.0
Combined (s)	53.7	25.1	25.9

Intersection Summary			
Intersection Capacity Utilization	46.8%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	96	10	11	96	4	5
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	106	0	0	107	9	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.99	0.85	0.95	0.99	0.90	0.85
Saturated Flow (vph)	1873	0	0	1890	1703	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	1873		0	751	114	
Reference Time A (s)	6.8		0.0	17.1	9.5	
Adj Saturation B (vph	1873		0	0	NA	
Reference Time B (s)	6.8		8.7	14.8	NA	
Reference Time (s)	6.8			14.8		
Adj Reference Time (s)	10.8			18.8		
Split Option						
Ref Time Combined (s)	6.8		0.0	6.8	0.6	
Ref Time Seperate (s)	6.2		0.7	6.1	0.3	
Reference Time (s)	6.8		6.8	6.8	0.6	
Adj Reference Time (s)	10.8		10.8	10.8	8.0	

Summary	EB WB	NB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	18.8	Err	
Split Option (s)	21.6	8.0	
Minimum (s)	18.8	8.0	26.8

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	22.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	1	29	14	12	13	3
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right				No		No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	0	30	26	0	16	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.93	0.85	0.93	0.85
Saturated Flow (vph)	0	1897	1768	0	1772	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00	0.00		0.00	
Protected Option Allowed		No	No		No	
Reference Time (s)				0.0		0.0
Adj Reference Time (s)				0.0		0.0
Permitted Option						
Adj Saturation A (vph)	0	1285	1768		118	
Reference Time A (s)	0.0	2.8	1.8		16.3	
Adj Saturation B (vph	0	0	1768		NA	
Reference Time B (s)	8.1	9.9	1.8		NA	
Reference Time (s)		2.8	1.8			
Adj Reference Time (s)		8.0	8.0			
Split Option						
Ref Time Combined (s)	0.0	1.9	1.8		1.1	
Ref Time Seperate (s)	0.1	1.8	0.9		0.9	
Reference Time (s)	1.9	1.9	1.8		1.1	
Adj Reference Time (s)	8.0	8.0	8.0		8.0	

Summary	EB WB	SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	Err	
Split Option (s)	16.0	8.0	
Minimum (s)	8.0	8.0	16.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	36	6	77	23	3	70
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	42	0	0	100	73	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.98	0.85	0.95	0.96	0.85	0.85
Saturated Flow (vph)	1859	0	0	1827	1623	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	1859		0	146	108	
Reference Time A (s)	2.7		0.0	81.9	80.9	
Adj Saturation B (vph	1859		0	0	NA	
Reference Time B (s)	2.7		13.1	14.6	NA	
Reference Time (s)	2.7			14.6		
Adj Reference Time (s)	8.0			18.6		
Split Option						
Ref Time Combined (s)	2.7		0.0	6.6	5.4	
Ref Time Seperate (s)	2.3		5.1	1.5	0.2	
Reference Time (s)	2.7		6.6	6.6	5.4	
Adj Reference Time (s)	8.0		10.6	10.6	9.4	

Summary	EB WB	NB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	18.6	Err	
Split Option (s)	18.6	9.4	
Minimum (s)	18.6	9.4	28.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	23.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	954	72	265	795	6	0	0	276	0	0	30
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	11	954	72	265	795	6	0	0	276	0	30	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	0.85	0.85
Saturated Flow (vph)	1805	3618	1615	1805	3618	1615	0	1900	1615	0	1615	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			No			No	
Reference Time (s)	0.7	31.6	5.3	17.6	26.4	0.4			20.5			0.0
Adj Reference Time (s)	8.0	35.6	9.3	21.6	30.4	8.0			24.5			0.0
Permitted Option												
Adj Saturation A (vph)	120	1809		120	1809		0	1900		0	1615	
Reference Time A (s)	11.0	31.6		264.3	26.4		0.0	0.0		0.0	2.2	
Adj Saturation B (vph	NA	NA		NA	NA		0	1900		0	1615	
Reference Time B (s)	NA	NA		NA	NA		0.0	0.0		0.0	2.2	
Reference Time (s)		31.6			264.3			0.0			2.2	
Adj Reference Time (s)		35.6			268.3			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.7	31.6		17.6	26.4		0.0	0.0		0.0	2.2	
Ref Time Seperate (s)	0.7	31.6		17.6	26.4		0.0	0.0		0.0	0.0	
Reference Time (s)	31.6	31.6		26.4	26.4		0.0	0.0		2.2	2.2	
Adj Reference Time (s)	35.6	35.6		30.4	30.4		0.0	0.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	57.3	NA	
Permitted Option (s)	268.3	8.0	
Split Option (s)	66.0	8.0	
Minimum (s)	57.3	8.0	65.3

Right Turns	EBR	WBR	NBR
Adj Reference Time (s)	9.3	8.0	24.5
Cross Thru Ref Time (s)	8.0	0.0	35.6
Oncoming Left Ref Time (s)	21.6	8.0	8.0
Combined (s)	39.0	16.0	68.2

Intersection Summary			
Intersection Capacity Utilization	56.8%	ICU Level of Service	B

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	9	9	9	9	9	9	9	9	9	9	9
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	27	0	0	27	0	0	27	0	0	27	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	0.93	0.85	0.95	0.93	0.85	0.95	0.93	0.85	0.95	0.93	0.85
Saturated Flow (vph)	0	1775	0	0	1775	0	0	1775	0	0	1775	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		No			No			No			No	
Reference Time (s)			0.0			0.0			0.0			0.0
Adj Reference Time (s)			0.0			0.0			0.0			0.0
Permitted Option												
Adj Saturation A (vph)	0	1351		0	1351		0	1351		0	1351	
Reference Time A (s)	0.0	2.4		0.0	2.4		0.0	2.4		0.0	2.4	
Adj Saturation B (vph	0	0		0	0		0	0		0	0	
Reference Time B (s)	8.6	9.8		8.6	9.8		8.6	9.8		8.6	9.8	
Reference Time (s)		2.4			2.4			2.4			2.4	
Adj Reference Time (s)		8.0			8.0			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	1.8		0.0	1.8		0.0	1.8		0.0	1.8	
Ref Time Seperate (s)	0.6	0.6		0.6	0.6		0.6	0.6		0.6	0.6	
Reference Time (s)	1.8	1.8		1.8	1.8		1.8	1.8		1.8	1.8	
Adj Reference Time (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	8.0	8.0	
Split Option (s)	16.0	16.0	
Minimum (s)	8.0	8.0	16.0

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians												
Ped Button												
Pedestrian Timing (s)												
Free Right			No			No			No			No
Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120	120	120	120	120	120	120
Volume Combined (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Utilization Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85	0.95	1.00	0.85
Saturated Flow (vph)	1805	3618	1615	1805	3618	1615	1805	1900	1615	1805	1900	1615
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)		0.00			0.00			0.00			0.00	
Protected Option Allowed		Yes			Yes			Yes			Yes	
Reference Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj Reference Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Permitted Option												
Adj Saturation A (vph)	120	1809		120	1809		120	1900		120	1900	
Reference Time A (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Adj Saturation B (vph	0	3618		0	3618		0	1900		0	1900	
Reference Time B (s)	8.0	0.0		8.0	0.0		8.0	0.0		8.0	0.0	
Reference Time (s)		0.0			0.0			0.0			0.0	
Adj Reference Time (s)		8.0			8.0			8.0			8.0	
Split Option												
Ref Time Combined (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Ref Time Seperate (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Reference Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Adj Reference Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Summary	EB WB	NB SB	Combined
Protected Option (s)	16.0	16.0	
Permitted Option (s)	8.0	8.0	
Split Option (s)	0.0	0.0	
Minimum (s)	0.0	0.0	0.0

Right Turns	EBR	WBR	NBR	SBR
Adj Reference Time (s)	8.0	8.0	8.0	8.0
Cross Thru Ref Time (s)	0.0	0.0	0.0	0.0
Oncoming Left Ref Time (s)	0.0	0.0	0.0	0.0
Combined (s)	0.0	0.0	0.0	0.0

Intersection Summary			
Intersection Capacity Utilization	0.0%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (vph)	410	6	1	342	9	7
Pedestrians						
Ped Button						
Pedestrian Timing (s)						
Free Right		No				No
Ideal Flow	1900	1900	1900	1900	1900	1900
Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Refr Cycle Length (s)	120	120	120	120	120	120
Volume Combined (vph)	416	0	0	343	16	0
Lane Utilization Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Factor (vph)	1.00	0.85	0.95	1.00	0.91	0.85
Saturated Flow (vph)	1896	0	0	1900	1725	0
Ped Intf Time (s)	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Frequency (%)	0.00			0.00	0.00	
Protected Option Allowed	No			No	No	
Reference Time (s)		0.0				0.0
Adj Reference Time (s)		0.0				0.0
Permitted Option						
Adj Saturation A (vph)	1896		0	1825	115	
Reference Time A (s)	26.3		0.0	22.6	16.7	
Adj Saturation B (vph	NA		NA	NA	NA	
Reference Time B (s)	NA		NA	NA	NA	
Reference Time (s)	26.3			22.6		
Adj Reference Time (s)	30.3			26.6		
Split Option						
Ref Time Combined (s)	26.3		0.0	21.7	1.1	
Ref Time Seperate (s)	26.0		0.1	21.6	0.6	
Reference Time (s)	26.3		21.7	21.7	1.1	
Adj Reference Time (s)	30.3		25.7	25.7	8.0	

Summary	NB SB	SW	Combined
Protected Option (s)	NA	NA	
Permitted Option (s)	30.3	Err	
Split Option (s)	56.0	8.0	
Minimum (s)	30.3	8.0	38.3

Right Turns
Adj Reference Time (s)
Cross Thru Ref Time (s)
Oncoming Left Ref Time (s)
Combined (s)

Intersection Summary			
Intersection Capacity Utilization	31.9%	ICU Level of Service	A

Reference Times and Phasing Options do not represent an optimized timing plan.

APPENDIX E

2013 Background Plus Site Signal Warrants Analysis Worksheets

Warrants Volume

Information

Analyst	Thomas McMurtry	Intersection	
Agency/Co	KLJ	Jurisdiction	
Date Performed	5/13/2013	Units	U.S. Customary
Project ID	FCEDA TIS	Time Period Analyzed	
East/West Street	Montclair	North/South Street	US 2
File Name	Warrant Montclair 2013 plus site	Major Street	North-South

Project Description *FCEDA TIS*

Warrant 1

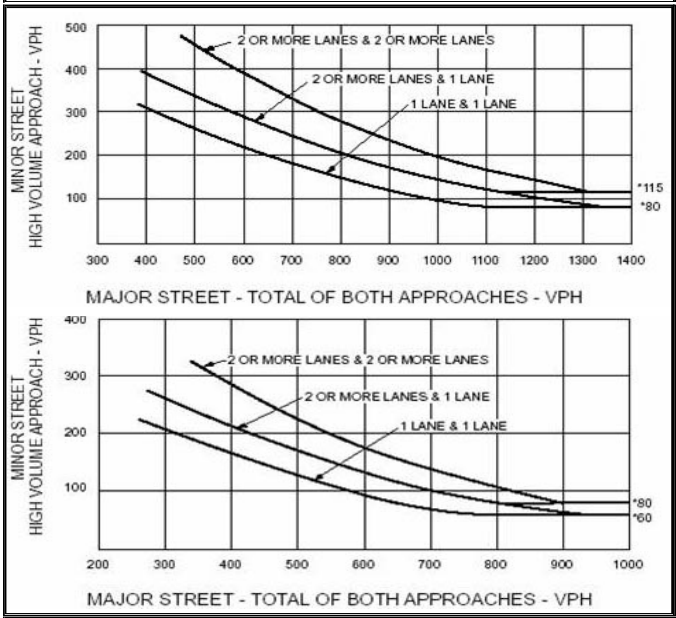
Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	500	400	350	150	120	105
2 or more	1	600	480	420	150	120	105
2 or more	2 or more	600	480	420	200	160	140
1	2 or more	500	400	350	200	160	140

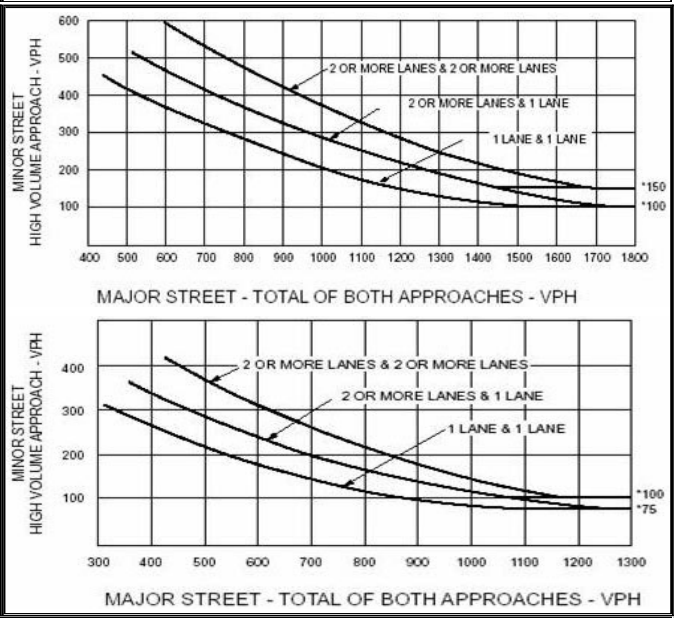
Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)			Vehicles per hour on higher-volume minor-street approach (one direction only)		
Major Street	Minor Street	100%[a]	80%[b]	70%[c]	100%[a]	80%[b]	70%[c]
1	1	750	600	525	75	60	53
2 or more	1	900	720	630	75	60	53
2 or more	2 or more	900	720	630	100	80	70
1	2 or more	750	600	525	100	80	70

Warrant 2



Warrant 3



Volume Summary

Major Street Lanes 2+ **Minor Street Lanes** 1 **Speed** 45 **Population** 10000+

Hours	Major Volume	Minor Volume	Total Volume	1A (70%)	1A (56%)	1B (70%)	1B (56%)	2 (70%)	3A (70%)	3B (70%)
07-08	980	40	1020	No	No	No	No	No	No	No
08-09	1030	40	1070	No	No	No	No	No	No	No
09-10	880	40	920	No	No	No	No	No	No	No
10-11	1010	40	1050	No	No	No	No	No	No	No
11-12	1180	60	1240	No	No	Yes	Yes	No	No	No
12-13	1350	80	1430	No	No	Yes	Yes	Yes	No	Yes
13-14	1810	80	1890	No	No	Yes	Yes	Yes	No	Yes
14-15	1810	80	1890	No	No	Yes	Yes	Yes	No	Yes
15-16	2030	90	2120	No	Yes	Yes	Yes	Yes	No	Yes
16-17	2170	124	2294	Yes	Yes	Yes	Yes	Yes	No	Yes
17-18	2210	124	2334	Yes	Yes	Yes	Yes	Yes	No	Yes
18-19	1720	80	1800	No	No	Yes	Yes	Yes	No	Yes
Totals	18180	878	19058	2	3	8	8	7	0	7

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Warrants Summary

Information			
Analyst	Thomas McMurtry	Intersection	
Agency/Co	KLJ	Jurisdiction	
Date Performed	5/13/2013	Units	U.S. Customary
Project ID	FCEDA TIS	Time Period Analyzed	
East/West Street	Montclair	North/South Street	US 2
File Name	Warrant Montclair 2013 plus site	Major Street	North-South

Project Description *FCEDA TIS*

General				Roadway Network	
Major Street Speed (mph)	45	☐	Population < 10,000	Two Major Routes	☐
Nearest Signal (ft)	695	☐	Coordinated Signal System	Weekend Count	☐
Crashes (per year)	6	☐	Adequate Trials of Alternatives	5-yr Growth Factor	0

Geometry and Traffic	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of lanes, N	0	1	0	0	1	0	1	2	1	1	2	0
Lane usage		LTR			LTR		L	T	R	L	TR	
Vehicle Volume Averages (vph)	48	0	24	0	0	0	31	683	0	0	738	61
Peds (ped/h) / Gaps (gaps/h)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--
Delay (s/veh) / (veh-hr)	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--	--	0 / 0	--

Warrant 1: Eight-Hour Vehicular Volume	☑
1 A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	☐
1 B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	☑
1 80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	☐
Warrant 2: Four-Hour Vehicular Volume	☑
2 A. Four-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☑
Warrant 3: Peak Hour	☑
3 A. Peak-Hour Conditions (Minor delay --and-- minor volume --and-- total volume) --or--	☐
3 B. Peak- Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	☑
Warrant 4: Pedestrian Volume	☐
4 A. Four Hour Volumes --or--	☐
4 B. One-Hour Volumes	☐
Warrant 5: School Crossing	☐
5. Student Volumes --and--	☐
5. Gaps Same Period	☐
Warrant 6: Coordinated Signal System	☐
6. Degree of Platooning (Predominant direction or both directions)	☐
Warrant 7: Crash Experience	☐
7 A. Adequate trials of alternatives, observance and enforcement failed --and--	☐
7 B. Reported crashes susceptible to correction by signal (12-month period) --and--	☑

7 C. 80% Volumes for Warrants 1A, 1B --or-- 4 are satisfied	☑
Warrant 8: Roadway Network	☐
8 A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2 or 3) --or--	☐
8 B. Weekend Volume (Five hours total)	☐
Warrant 9: Grade Crossing	☐
9 A. Grade Crossing within 140 ft --and--	☐
9 B. Peak-Hour Vehicular Volumes	☐

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APPENDIX F

Planning Level Cost Estimate Assumptions

Planning Level Cost Estimate Assumptions

Table 8 Planning Level Cost Estimates		
#	**Improvement**	**Cost**
1	*Install signal at Flathead Dr. and US-2	*$300,000
2	Remove Stop control on Montclair Dr at RR	$1,000
3	Widen railroad crossing on Montclair Dr	$10,000
4	Move and realign Montclair Dr and US-2	$270,000
5	Install signal at Montclair Dr. and US-2	$300,000
6	Install lights, gates, bells at new RR crossing	$1,500,000
7	New pavement for site access roads	$450,000
Total		**$2,831,000**
*Not a necessary improvement for the rail park development		
**All Costs are in 2013 US Dollars		

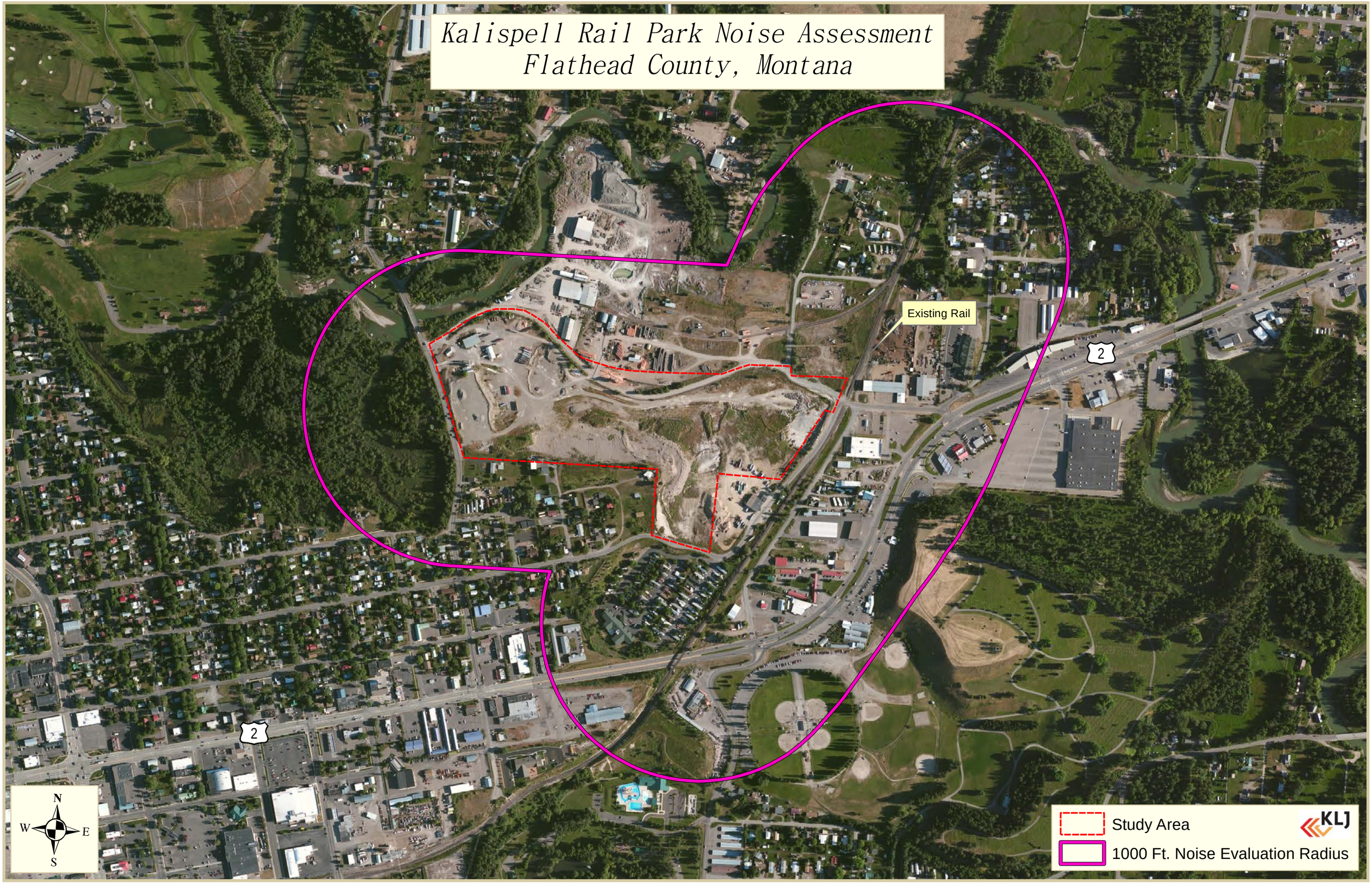
1. The planning level cost estimate of installing a traffic signal was assumed to be $250,000. This was based on recently completed project and other published costs. A 25% contingency or $50,000 was added to the total cost.
2. Traffic signs are usually $100-$300 each and there will be some labor to remove the old signs and install the new ones. A round cost of $1,000 was used.
3. Widening this intersection was assumed to use cover an area of about 2,000 square feet (50'x40') with pavement at about $2 per square foot. Then there is also the cost of replacing the rail, which was estimated at $3,000-$,4000 for a total around $8,000 a 20% contingency was added the planning level cost was rounded to $10,000
4. Realigning this intersection will impact the Office Max property, we calculated that about 0.20 acres would be required for a cost of $20,000. About one half mile of Montclair would have to be reconstructed for about $50,000. Then the intersection of US-2 would have to be moved, we estimated that would cost $100,000 to $150,000. We added a 20% contingency for a grand total around $270,000.
5. Same as the signal above, the planning level cost estimate of installing a traffic signal was assumed to be $250,000. This was based on recently completed project and other published costs. A 25% contingency or $50,000 was added to the total cost.
6. Recently installed gates for at-grade railroad crossing vary in cost. Gate cost estimates are between $175,000 and $250,000. Plus we have the lights, crossbucks, bells, electrical work, and advanced signs. We estimate the cost to be $1,000,000 to $2,000,000. $1,500,000 was used for this planning estimate.
7. We assumed $100,000 per mile of new two way roadway. We assumed these roads will be between 30-40 feet wide and have a depth appropriate to accommodate heavy trucks. 3.75 miles of new roadway will be needed. We added a 20% contingency for a total of $450,000.

Attachment 5:

Kalispell Rail Project

Noise Study

Kalispell Rail Park Noise Assessment
Flathead County, Montana



MARCH 2011

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

KNIFE RIVER PROPERTY (FORMER McELROY AND WILKEN SITE) KALISPELL, MONTANA

CITY OF KALISPELL MONTANA

AMEC Geomatrix

Phase I Environmental Site Assessment

Knife River Property
(Former McElroy and Wilken Site)
Kalispell, Montana

Prepared for:

Katharine Thompson
Community Development Manager
City of Kalispell
201 First Avenue East
Kalispell, MT 59901

Prepared by:

AMEC Geomatrix, Inc.
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Missoula, MT 59801
(406) 542-0129

In collaboration with:

The City of Kalispell
Planning and Building Department
201 First Avenue East
Kalispell, MT 59901

March 2011

Project No. MT10160050

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EXECUTIVE SUMMARY

This report presents the results of a Phase I Environmental Site Assessment (ESA) for a series of contiguous parcels owned by the Knife River Corporation (KRC) located on the east and west sides of Whitefish Stage Road, Flathead County, Montana. The parcels are collectively referred to as the "Site" in this report. AMEC Geomatrix, Inc. (AMEC), in collaboration with the City of Kalispell, performed the ESA on behalf of the City of Kalispell. The ESA was completed in accordance with ASTM Standard E 1527-05 (ASTM International 2005). ASTM E 1527-05 complies with the U.S. Environmental Protection Agency (EPA) All Appropriate Inquiries (AAI) Final Rule (40 CFR 312). To complete the ESA, AMEC and the City of Kalispell reviewed historical documents, photos, maps, and government records; interviewed the property owners; obtained a regulatory database search report; reviewed appropriate agency files; and conducted a Site visit and visual survey of the property.

For descriptive purposes, the Site was divided into two areas: Area A is the riparian portion of the Site west of Whitefish Stage Road, and Area B is the portion formerly used for mining and processing of aggregate materials.

We do not recommend any additional assessment of Area A. With the exception of minor quantities of concrete and aggregate materials present near the road, the Site inspection and document review did not indicate that lands within Area A were ever used or developed by the current or previous property owners. Based on the currently available information, Area A appears to have remained in its current, undeveloped state since the late 1930's.

The ESA identifies four recognized environmental conditions (RECs) and one potential REC in connection with Area B (the former gravel pit area), including:

- Groundwater and soil contamination originating at the adjacent KRY Montana Comprehensive Environmental Cleanup Responsibility Act (CECRA) facility that has migrated onto the eastern portion of Area B.
- Several waste oil containers and 55-gallons drums were present along the northwest side of the diesel repair shop that is located within Area B. Soil staining was observed in association with several of the drums in this area. AMEC also noted soil and building foundation staining in a location in this area where steel and plastic piping was present entering the subsurface. One of the steel pipes may have been a vent pipe, and if so, it is possible that a waste oil underground storage tank (UST) could be present at this location. A parts washer, waste oil tank, buckets containing waste oil, and various hydrocarbon and chemical containers were present along the northwestern interior wall of the shop (coincident with the exterior soil staining and steel pipes).
- An exterior sump observed near the northwest corner of the diesel shop. The walls of the sump were constructed of concrete, but fluid in the sump at the time of our inspection prevented observation of the bottom of the structure. According to a 2002 Phase I ESA of the Site, water from the sump was periodically spread onsite, and the associated sediment was stockpiled in an onsite bermed area (Olympus Technical Services 2002). It is not known where the water was applied or where the sediment stockpile area was located. The sump and the disposal locations for the wastewater and sediment are collectively considered a REC.

- Fill material containing non-inert materials that were used to fill mined excavations. Interviews with KRC representatives indicate that an unknown quantity of fill has been placed within Area B of the Site. Asphalt fill material was observed on the eastern portion of Area B near Flathead Drive. Non-inert fill on the Site constitutes a REC; however, the types of fill and magnitude of fill placed on the property is unknown.
- Suspect asbestos-containing materials and lead-based paint associated with on-site buildings is a potential REC. The age of the structures suggest that they may contain asbestos and/or lead-based paint.

AMEC recommends a Phase II site investigation to address the above-mentioned RECs. An asbestos and lead-based paint survey of the on-site buildings is also recommended if there are plans to renovate or demolish the buildings. Prior to the collection of any samples, a Sampling and Analysis Plan should be prepared to evaluate potential environmental impacts associated with the RECs identified for the Site.

1.0 INTRODUCTION

This report presents the results of a Phase I Environmental Site Assessment (ESA) for seven parcels owned by the Knife River Corporation (KRC) located on the east and west sides of Whitefish Stage Road, Flathead County, Montana. The contiguous parcels are hereafter referred to as the "Site." AMEC Geomatrix, Inc. (AMEC), in collaboration with the City of Kalispell, performed the ESA on behalf of the City of Kalispell Brownfields Program. An Environmental Protection Agency (EPA) Brownfields Hazardous Substance Grant paid for the completion of this ESA. The ESA was conducted in accordance with the ASTM International (ASTM) E 1527-05 Standard Practice for Environmental Site Assessments (ASTM Standard, 2005). ASTM E 1527-05 complies with EPA All Appropriate Inquiries (AAI) Final Rule (40 CFR 312), which was promulgated November 1, 2005 and took effect November 1, 2006.

The seven individual parcels of land which total 56.6 acres are shown in **Figure 1**. Whitefish Stage Road bisects the western third of the Site. The road is within a county road easement that physically separates a portion of Tract 1 from the rest of the Site. Approximately 15.9 acres of Tract 1 is located on the west side of Whitefish Stage Road. This area is referred to as Area A throughout the Phase I ESA report and the remaining 40.7 acres of the Site are referred to as Area B. Area A is within the floodplain of the Stillwater River, contains primarily wetlands and a riparian zone, and has not been developed. Area B is a former gravel mine and concrete batch plant. A portion of Area B is currently being leased as a diesel repair shop.

1.1 PURPOSE

The purpose of the ESA is to compile and review available information about the Site and immediate vicinity to identify ***recognized environmental conditions*** (RECs) to the extent feasible pursuant to ASTM E 1527-05. According to the ASTM Standard, a REC is defined as:

> "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a threat to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies."[1]

1.2 REASON FOR PERFORMING THE ESA

The City of Kalispell has commissioned this ESA at the request of Knife River Corporation. The ESA fulfills one of the requirements to qualify future purchasers for the innocent landowner, contiguous property ***owner, or bona fide prospective purchaser*** limitations on Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) liability (referred to as the ***landowner liability protections*** or

[1] The AAI Final Rule applies to "…conditions indicative of releases and threatened releases of hazardous substances… (and) petroleum or petroleum products are excluded from the definition of hazardous substance…" (40 CRF 312.1).

LLPs). This ESA has been prepared using the ASTM Standard and constitutes "***all appropriate inquiry*** into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined at 42 United States Code (U.S.C.) §9601(35)(B).

KRC (formerly JTL Group, Inc.) is the current property owner. Area B of the Site was used in the past as a gravel mine and concrete production plant. The majority of available aggregate products have been mined out of the Site. KRC does not plan to conduct additional mining or resume operations at the concrete production plant. Discussions with Ms. Elaine Hawk of pLAND Land Use Consulting (representing KRC) indicate that the Site is being evaluated for future development, which may include light industrial, commercial, and residential uses.

KRC elected to participate in the ESA because they are currently investigating the feasibility of the McElroy & Wilken property for redevelopment. KRC recognizes that a complete understanding of the Site is essential for future development given the proximity of the property to known contaminant sources. Company representatives also expect that the ESA will help to ensure that land use plans are integrated with Montana Department of Environmental Quality (DEQ) remediation plans.

1.3 SCOPE OF SERVICES

The scope of services for this Phase I ESA included the following tasks:

- Conducting a field reconnaissance to observe and document current conditions and activities at the Site;
- Conducting a visual survey of immediately adjacent parcels from the Site or from public streets;
- Interviewing the Site owner;
- Reviewing available historical documents, state, tribal and local government records or other restrictions on the Site;
- Reviewing available historical aerial photographs and topographic maps for the Site and vicinity;
- Obtaining a regulatory database search report to identify reported on-site and off-site chemical releases that may affect soil or groundwater conditions at the Site;
- Obtaining a report of environmental liens against the Site;
- Reviewing a title report to identify previous tenants and Site history;
- Reviewing selected agency files identified in the regulatory database search report to obtain current status of environmental assessments and/or remediation at the Site and nearby properties;
- Evaluating the data and identifying data gaps, open issues, and key uncertainties; and
- Preparing this report documenting these activities and identified RECs, including our opinions on the significance of the data gaps insofar as they impact the ability to identify possible environmental contamination.

1.4 EXCLUSIONS

This ESA did not include collection or chemical analysis of samples of soil, water, air, or on-site structures; or an evaluation of seismic characteristics. In addition, according to the ASTM Standard, the following surveys are not part of the scope of this Phase I ESA: asbestos-containing building materials; lead-based paint; lead in drinking water; cultural and historic resources; ecological resources; biological agents; radon; wetlands; industrial hygiene; endangered species; mold; regulatory compliance; health and safety; and indoor air quality.

1.5 SIGNIFICANT ASSUMPTIONS

Based on potentiometric surface maps created for an adjacent property to the east (for August and October of 2006), the groundwater flow direction in the vicinity of the Site is assumed to be primarily to the southeast. Groundwater elevation data were not measured during this Phase I ESA.

1.6 LIMITATIONS

This report does not constitute legal advice. In addition, AMEC and the City of Kalispell make no determination or recommendations regarding the decision to purchase, sell, or provide financing for the Site.

Time Constraint

The opinions and conclusions presented in this report are based on the Site conditions observed and information reviewed at the time of this assessment. Information pertaining to Site conditions or changes may exist that the City of Kalispell and AMEC are not aware of or which we have not had the opportunity to evaluate within the time available for this ESA.

Uncertainty Not Eliminated

Per the ASTM Standard, no ESA can wholly eliminate uncertainty regarding the potential for RECs in connection with a property. The use of the ASTM Standard is intended to reduce, but not eliminate, this uncertainty.

Within the limitations of the agreed-upon scope of work and the ASTM Standard, AMEC and the City of Kalispell have conducted this ESA in a professional manner in accordance with generally accepted practices, using the degree of skill and care ordinarily exercised by environmental consultants under similar circumstances. Due to physical limitations inherent to this or any environmental assessment, the City and AMEC do not warrant that the Site is free of pollutants or that all pollutants have been identified. As such, no absolute determination of environmental risks can be made. No other warranties, expressed or implied, are made.

Reliance on Information Provided by Others

AMEC and the City have relied upon information provided by others in the evaluation of environmental site conditions reported herein. We did not attempt to independently verify the accuracy or completeness of that information. To the extent that the opinion and conclusions in this report are based in whole or in part on such information, those conclusions are contingent on its accuracy and validity. We assume no

responsibility for any consequence arising from any information or condition that was concealed, withheld, misrepresented, or otherwise not fully disclosed or available to us.

1.7 USER RELIANCE

This ESA report has been prepared for the express use of the City of Kalispell. No other parties shall rely on this report without the written consent from AMEC and the City. AMEC or the City may release this report to third parties; however, such third party in using this report agrees that it shall have no legal recourse against AMEC, its parent, or subsidiaries.

2.0 SITE DESCRIPTION

The characteristics and uses of the property and vicinity are described in the following sections.

2.1 LOCATION AND LEGAL DESCRIPTION

The Site consists of seven tracts of land totaling approximately 56.6 acres. The Site can be legally described as Tracts 1 through 7 of Certificate of Survey number 18380 that was filed with Flathead County on July 2, 2008 (**Appendix A**). For the purposes of this report, the Site was divided into Area A and Area B. **Figure 1** includes the entire 56.6 acre Site with Areas A and B labeled for reference.

Several properties near and adjacent to the eastern portion of Area B are part of a Montana state Superfund (Comprehensive Environmental Cleanup Responsibility Act or CECRA) complex known as the KRY site. Further information about the KRY site and its environmental impact on the Site is presented in Section 4.2.

2.2 SITE AND VICINITY GENERAL CHARACTERISTICS

The general Site setting, geology, hydrogeology, and soil characteristics are summarized in the following paragraphs.

2.2.1 General Site Setting

The Site is located in an area of mixed commercial, residential and heavy industrial land uses. The Stillwater River and Whitefish Stage Road are located near the western and northwestern boundaries of the Site, and the Burlington Northern Railroad and Oregon Street are located near the eastern boundary. Although the Site is located just outside of the Kalispell City limit, KRC has signed a waiver of the right to protest annexation.

2.2.2 Geology, Hydrogeology, and Soils

The Flathead Valley's mountainous perimeter is largely composed of metamorphosed sedimentary bedrock of the Belt Supergroup (Harrison et al. 1992). These rocks also underlie the valley, and the depth to bedrock at the Site is between 1,500 and 2,000 feet (Smith 2000a). Above bedrock are Tertiary- and Quaternary-age valley-fill sediments (LaFave 2000). Tertiary-age sediments were deposited on bedrock surfaces. The upper 600 to 1,000 feet of valley fill sediments, which were deposited in the Quaternary

Period during the most recent glacial cycle, consist of alluvium, glacial till, and glaciolacustrine deposits (LaFave 2000, Harrison et al. 1992). Surficial deposits on the Site consist of Quaternary-age river terrace and glacial lake sediments (Smith 2000b).

Glacial stream processes deposited a package of alluvial sand and gravel above the Tertiary-age sediments and below a fine-grained confining unit throughout much of the valley. The sand and gravel unit forms a deep artesian aquifer that supplies most of the potable water to the Kalispell area (Smith 2000c). The groundwater flow direction in the deep aquifer beneath the Site is likely to the southeast, toward the Flathead River (LaFave 2000). Shallow groundwater present at the Site is likely not connected to the deep aquifer (Smith 2000c).

The Site is located in the northwest quarter of Section 8, Township 28 North, Range 21 West. At the time it was queried, the GWIC database contained records for approximately 40 wells in the northwest quarter of Section 8. The wells were drilled for domestic, commercial, industrial, public water supply, and monitoring purposes. Most listed well depths are less than 100 feet, and several monitoring wells are associated with the CECRA complex located adjacent to the Site. The majority of wells in the area tap unconsolidated valley-fill deposits.

McElroy & Wilken (the former Site operator) is the listed owner for three of the wells in Section 8. GWIC ID 82151 was drilled in 1977 to a total depth of 240 feet. The static water level is listed as 30 feet bgs, and the well produced 90 gpm from a Pleistocene alluvial sand and gravel formation. A second well (GWIC ID 140433) was completed in 1983, although no water level or well completion details were available. A third well was drilled in 1996 to a depth of 260 feet in alluvium. The static water level is listed as 38 feet bgs, and the well produced 50 gpm.

Soil at the Site is classified as Kalispell gravelly loam (USDA 2010). The USDA database indicates that the soil formed on stream terraces, and alluvium is listed as the parent material. A profile for this well-drained soil consists of gravelly loam (0-30 inches) and stratified gravelly loamy fine sand to gravelly silt loam below 30 inches.

2.3 CURRENT USE OF THE SITE AND ADJOINING PARCELS

Area A is entirely surrounded by undeveloped land located within the floodplain of the Stillwater River. Lands immediately west and south of Area A are owned by the City and are part of Lawrence Park. Lands north of Area A are under commercial ownership.

There are five buildings located in the northwestern portion of Area B, including an inactive concrete batch plant, an office/weigh station, an older wood frame building, a steel-frame structure (currently used as a diesel engine repair shop), and a Quonset hut (currently used for storage). Two of the buildings (the diesel shop and the Quonset hut) are leased by KRC to Butch Barber Trucking.

Properties north of Area B are or were used for industrial businesses. Former businesses included a timber yard and a refining company. Current businesses include a stone supply company and a lumber yard. Lands uses east of Area B include a mix of commercial/retail businesses, professional offices, and single family residences. Single family homes, a truck repair shop, and a trailer park are located south of Area B (within city limits).

3.0 INFORMATION PROVIDED BY USER

The property is currently owned by KRC. Only the portion of the Site designated as Area B in **Figure 1** is still being actively used (leased by a trucking company). The property was previously used as a gravel mine and concrete batch plant. An interview with the Vice President of KRC is discussed in Section 6.0 of this document.

3.1 TITLE RECORD INFORMATION

First American Title Company of Kalispell provided a recorded document guarantee for all of the parcels composing the Site. The primary tract (Tract 1 of COS 18380) was quitclaimed to a David McGinnis in 1891 shortly after the patent was recorded. McGinnis owned the property until his death, when it was distributed as part of his estate in 1954. During that period, a lease was recorded in 1930 referring to the "McGinnis Gravel Pit". There was also an easement recorded in 1915 referencing a mill pond and dam bridge, although it is not clear if the pond and bridge were on this property or an adjacent parcel. Documents recorded after 1954 indicate the continued use of the property as a gravel pit. These include an agreement with the state in 1966 for removal of gravel and other material, a transfer of ownership to McElroy and Wilken (a gravel/construction company) in 1983, and that company's merger with JTL in 2003.

Tracts 2 and 3 of the COS were acquired by McGinnis via patent in 1895. He transferred the properties to another party in 1912, and there does not appear to be a direct connection with the gravel pit from that time until McElroy and Wilken acquired the properties in 1983.

Tract 4 of the COS was not part of the McGinnis ownership, and recorded documents did not indicate the use of the property until a recorded lease in 1954 provided for the installation of a television antenna and associated structures. In 1964, the property was sold to Engebretson Gravel. In subsequent years, ownership was transferred to a Mel Jukich, then Ron Pack (who owned various gravel and construction interests), and then McElroy and Wilken in 1993.

Tracts 5 and 6 of the COS were acquired by McGinnis in 1908. As with Tract 1, he continued to own the property until his death. The same 1966 agreement with the state for removal of materials was recorded, indicating its use as a gravel pit. The property was acquired by McElroy and Wilken in the same transaction as Tract 1.

Tract 7 was transferred to Kalispell Water and Electric in 1893 shortly after the patent. It was later transferred to the Conrad Cemetery and other owners before McElroy and Wilken acquired an interest and later owned the property in 1983. A 1976 lease was recorded for Northwest Telephone to install a microwave tower.

3.2 SPECIALIZED KNOWLEDGE

Mr. Alrick Hale, KRC Vice President, provided AMEC with several documents related to the Site. Mr. Hale received an October 26, 2010 letter from AECOM, Inc. describing the future abandonment of two monitoring wells on the Site. The wells are associated with the KRY site (see Section 4.2). Although the abandonments were scheduled for November 2010, it is unknown whether the wells were abandoned at the time of this ESA. They may be the same wells discussed by Moriah Bucy of the DEQ in Section 4.2.

The documents provided by Mr. Hale included additional information about the KRY site. Details about this Montana State Superfund facility are presented in Section 4.2.

Mr. Hale provided a 2002 Phase I report documenting historic fuel storage at the Site. Three underground storage tanks (USTs) were removed in 1995 and replaced with newer tanks. In 1995, a diesel release was discovered at the dispenser for the diesel UST system. This release is confirmed by the Olympus (2002) Phase I ESA, which listed a diesel release from an onsite UST system and floor drains within the concrete batch plant as recognized environmental conditions (RECs). January 2011 communications between AMEC and DEQ staff indicate that the agency closed this diesel release in March 2005. According to DEQ records, the newer tanks (gasoline, diesel, and waste oil) were removed in 2009 and there was no indication of a release at that time.

3.3 Commonly Known or Reasonably Ascertainable Information

Information on a portion of Area B and adjacent properties to the north was obtained from the DEQ. Further discussion on the information obtained from DEQ is provided in Section 4.2.

3.4 Valuation Reduction for Environmental Issues

Contaminants present on or under the property have likely reduced the value of the Site. However, no details were available on the amount of the valuation reduction.

3.3 OWNER, PROPERTY MANAGER, AND OCCUPANT INFORMATION

The current property owner is the Knife River Corporation, 3131 Highway 2 East, Kalispell, MT 59901.

3.4 OTHER

No additional information was provided to AMEC.

4.0 RECORDS REVIEW

The records reviewed for this ESA included standard environmental databases and readily-available historical information. The information from the review of these documents is described in the following sections.

4.1 STANDARD ENVIRONMENTAL RECORD SOURCES

This discussion below assumes that the direction of shallow groundwater flow at the Site is to the southeast. This assumption is supported by potentiometric surface maps created for the adjacent KRY site for August and October 2006 (Tetra Tech EM Inc. 2008).

AMEC retained Environmental FirstSearch (FirstSearch) to search federal, state, and tribal environmental regulatory databases to identify properties located within 1 mile of the Site with documented environmental releases and/or those that use, store, or dispose of regulated chemicals. The distances of the database searches were consistent with those listed in the ASTM Standard (ASTM 2005). Descriptions of the ASTM databases that were searched and a list of the regulatory database results are presented in the FirstSearch report dated October 27, 2010, which is provided in **Appendix B**. The information provided by

FirstSearch is limited to what has been reported or registered in each database. The information was used to evaluate the Site and also to determine whether surrounding properties could potentially affect soil or groundwater on the Site. The report included 41 listings of potential RECs.

Onsite Listings

The report contains four entries for the Site that are listed in the DEQ's UST and leaking UST (LUST) databases as well as the federal Resource Conservation and Recovery Act (RCRA) hazardous waste generator database.

USTs

The Site is listed in the DEQ's UST database as Facility ID No. 1501294. AMEC contacted the DEQ UST Section for information on the tanks associated with the Site. Shastina Steinweden of the DEQ indicated that six tanks were formerly located at the Site, but that they have all been removed. In 1995, previous owner Mr. Wilken removed a 6,000 gallon gasoline UST, a 10,000 gallon diesel UST, and a 3,000 gallon waste oil UST. A 2002 Phase II ESA for the Site (Olympus Technical Services, Inc. 2002) indicates that three newer USTs were installed to replace the tanks removed in 1995. According to the DEQ's online database, the newer tanks were removed in 2009. Ms. Steinweden confirmed that in May 2009, KRC removed a heating oil tank and a two-compartment tank which held diesel and gasoline (listed as two tanks by the DEQ).

Releases

According to Marcile Sigler (DEQ Petroleum Technical Section), only one petroleum release identification number (2507) has been assigned to the facility. The release is associated with the older USTs, and was confirmed in January 1995 when the tanks were removed. Release 2507 appears to be associated with two separate onsite releases: the diesel dispenser and the waste oil UST. Over-excavation at the diesel tank area south of the diesel shop produced approximately ten cubic yards of soil. According to Ms. Sigler, the soil excavated at the diesel tank area was processed through an onsite washer and was mixed into a cement batch. A second source of contamination was documented in soil at the older waste oil tank (north of the diesel shop).

Release 2507 is listed as inactive by the DEQ, which closed the file in March 2005. According to the closure letter (**Appendix C**), corrective actions were proper and no additional investigation or cleanup was required. The decision was based on the following: the contamination sources were removed; a test pit completed downgradient of the waste oil tank produced satisfactory results; analytical results indicated that groundwater had not been impacted by petroleum hydrocarbons; and confirmation soil samples collected during remediation were below DEQ risk-based screening levels (RBSLs). Residual hydrocarbon contamination remains in soil at the location of the former waste oil tank, but the DEQ indicated that concentrations were below RBSLs.

The above information indicates that the release is a historical REC, but does appear to be a current REC. However, site maps provided by the DEQ indicate that the waste oil tank was located on the north side of the diesel repair shop. This is the same general location where soil and foundation staining were observed during the site visit (see Section 5.0).

Hazardous Waste Database

According to the FirstSearch report, the Site is listed as a conditionally exempt small quantity generator of hazardous wastes. Facilities in this category generate less than 100 kilograms per month of hazardous waste. The report indicates that corrosive wastes were generated at the Site. AMEC contacted Mr. Bob Reinke of the DEQ Hazardous Waste Section for further information. Mr. Reinke indicated that the facility was on the DEQ's hazardous waste transporter list, and that acids were used to clean concrete from equipment. However, the use of such acids is a standard procedure in the industry, and Mr. Reinke was not aware of any problems that have been documented at the Site.

An acid storage locker was observed west of the concrete batch plant, and the 2002 ESA noted the presence of floor drains inside the batch plant. KRC representatives indicated that chemical containers associated with the plant previously held detergent cleaners, acids, and concrete admixtures. Dilute acid solutions were used to remove concrete from mixer trucks, and admixtures were added directly to ready mix concrete batches. KRC staff did not have any information regarding previous waste disposal practices associated with batch plant chemicals. AMEC did not observe any evidence of improper onsite waste disposal.

Based on the above information, the listing of the Site as a hazardous waste generator is not considered a REC.

Offsite Properties

Details for selected properties identified within one mile of the Site (**Table 1**) are provided below. The sites are listed in one of two State of Montana databases: the Leaking Underground Storage Tank (LUST) list and the DEQ's Comprehensive Environmental Cleanup Responsibility Act (CECRA) database. The remaining listings in the FirstSearch report are located downgradient or cross-gradient of the Site and are therefore unlikely to have affected the Site.

Montana Power Company

A release occurred from a 4-inch natural gas distribution line in May 1997. According to the FirstSearch report, the release affected the Stillwater River. High water exposed the line, which was then severed by an unknown cause. The line was shut off to secure the release. No fires were involved, and no service was cut off. No additional information was provided in the FirstSearch report. AMEC contacted Mr. Bob Reinke of the DEQ Hazardous Waste Section for additional information, but he did not have any knowledge of the release. AMEC contacted Northwestern Energy (formerly Montana Power Company), the Flathead City-County Health Department, and the Daily Interlake (newspaper) for additional details. No information was provided by NWE or the Health Department. The Daily Interlake provided a short news article about the incident (Daily Interlake 1997). According to the article, the rupture occurred in a line that had been buried beneath the river channel in the 1970s. It did not present a significant hazard because it occurred near the center of the river, far away from any potential ignition sources. The pipe was abandoned and capped on both sides of the river. Based on the information presented above, the natural gas release does not constitute a REC in connection with the Site.

Table 1. Details for Selected Offsite Properties Listed in the Database Search Report

Site Name	Address	Database Type	Distance & Direction[1]	Elevation[2]	Upgradient or Cross-Gradient	REC
Montana Power Company	801 Whitefish Stage Road	Emergency Response	0.20 SW	-111	Yes	No
Stillwater Forest Products	955 Whitefish Stage Road	UST & RCRA Generator	0.31 NW	-115	Yes	No
Consolidated KRY Site (Kalispell Pole and Timber Co., Yale Oil Corp., and Reliance Refining Co.)	330 Flathead Drive	State CECRA & RCRA Generator	0.20 NE	-105	Yes	Yes
Kalispell Pole and Timber Company	Kalispell	State CECRA & Emergency Response	0.20 NE	-105	Yes	Yes
Yale Oil Corporation	Kalispell	State CECRA	0.37 NE	-116	Yes	Yes
Reliance Refining Company	100 First Ave East	State CECRA	0.88 SW	-89	Yes	Yes

Notes:
LUST = leaking underground storage tank
CECRA = State of Montana Comprehensive Environmental Cleanup Responsibility Act
RCRA = Resource Conservation and Recovery Act hazardous waste generator
1 - Distances in miles; direction is relative to the Site (per FirstSearch report)
2 – Elevation difference in feet relative to the Site (per FirstSearch report)

Stillwater Forest Products

This facility is listed as a small quantity hazardous waste generator. AMEC contacted Mr. Reinke for additional information. According to Mr. Reinke, the DEQ completed a site inspection several years ago and determined that no wood treatment was being conducted on the property. No other issues relating to hazardous wastes were identified. According to DEQ records, one UST was removed from the ground in 1996 at this facility. The site is not listed in the DEQ's online LUST database, and there is no evidence that a leak occurred at the site. Based on the above information, the property is not considered a REC in connection with the Site.

4.2 ADDITIONAL RECORDS

AMEC reviewed several other documents and interviewed state officials for information on the KRY site. A portion of Area B is located within the boundaries of the KRY Montana CECRA facility. The Kalispell Pole & Timber (KPT), Reliance Refining Company (Reliance), and Yale Oil Corporation (Yale) sites neighbor each other and exhibit co-mingled contamination. The DEQ is addressing the sites as one facility that is collectively called the KRY Site.

The KPT site is an inactive wood treating facility that operated from approximately 1973 to 1990. The Reliance facility is an inactive oil refinery that operated from 1924 until the 1960s. The Yale facility is an inactive petroleum bulk plant and product refinery that operated from 1938 to 1978. Soil and groundwater are contaminated with pentachlorophenol, dioxins/furans, polycyclic aromatic hydrocarbons, petroleum hydrocarbons, and metals (primarily lead).

The DEQ issued a Record of Decision (ROD) for the KRY Site in June 2008 (DEQ 2008). The site remedy consists of:

- Institutional controls, including land use restrictions and a controlled groundwater area;
- Excavation and disposal of contaminated soils;
- Free-product recovery;
- Chemical oxidation of the groundwater plume;
- Monitored natural attenuation; and
- Long-term groundwater monitoring.

In October 2009, the DEQ issued a Remedial Action Work Plan (RAWP, DEQ 2009) for the KRY site that describes the implementation of the remedy. The RAWP shows that contaminated soils are present on portions of the Site in Area B (**Figure 2**).

Soils contaminated with lead, dioxin, and petroleum hydrocarbons are found on the eastern portion of Area B. This area may also contain an area of petroleum soil contamination. Up to 0.5 feet of free-product has been observed in monitoring wells completed within Area B. Groundwater at the Site is contaminated above DEQ cleanup levels with metals, petroleum hydrocarbons, pentachlorophenol, and dioxin/furans.

According to Moriah Bucy, DEQ Project Manager for the KRY facilities, soils containing elevated concentrations of lead were excavated from the Site in October 2010. She also stated that two nested wells on the Site were recently abandoned. Ms. Bucy stated that remedial design is on-going and that cleanup activities are anticipated to continue in spring 2011.

In a 2002 letter, the DEQ indicated that the previous owner of the Site (the McElroy and Wilken Company) was no longer considered a potentially responsible party for contamination present on the portion of the gravel pit property north of Flathead Drive as a result of subsurface migration from the KRY site. Nevertheless, the KRY site is considered a REC in connection with Area B of the Site.

4.3 HISTORICAL INFORMATION

Aerial photos were obtained from the Flathead Soil Conservation District and the City of Kalispell (**Appendix D**). Topographic maps (**Appendix E**) were used to compile historical information about the Site. Sanborn maps were downloaded online at www.sanborn.umi.com. AMEC also requested that EFS conduct a record search of environmental liens against the Site. A copy of their environmental lien search report is presented in **Appendix F**. A summary of historical information pertaining to the Site and its surroundings obtained from the information sources listed above is presented below.

4.3.1 Historical Aerial Photographs

City of Kalispell staff reviewed available historical aerial photographs of the Site and vicinity from 1938 through 2006. Observations from the aerial photographs reviewed are presented in **Table 2**.

4.3.2 Historical Topographic Maps

The City of Kalispell reviewed two topographic maps from the U.S. Geological Survey. The 1:24,000 scale map dated 1962 shows the city limits and surrounding streets, rivers and buildings. For Area A, the Site is unimproved and the Stillwater River is shown flowing through the northern end of the area. For Area B, the map indicates two gravel pits, one in the southern portion of the Site and the other in the northwestern corner. Topographic contours indicate that the majority of the Site was formerly a large hill. Several buildings are shown north and south of the northwestern gravel pit. A dirt road is shown providing access from Whitefish Stage Road to the approximate center of the Site. A green band shown along the north boundary of Area B represents the tree stand shown in aerial photos taken prior to 1974. Numerous structures are depicted to the north, south, and east of the Site.

The 1:24,000 scale map dated 1994 shows the surrounding streets, rivers and buildings. For Area A, the Site is still unimproved with the Stillwater River cutting through the northern end of the area. For Area B, the map indicates two gravel pits, one in the southern portion of the Site and the other in the northwest corner. The small dash marks encircling each of the gravel pits in the 1962 map are now gone. This would appear to indicate that the gravel pits have expanded to cover the majority of the area which is consistent with the 1998 and 2006 aerial photos. Several buildings are shown north and south of the northwestern gravel pit. A dirt road is shown providing access from Whitefish Stage Road to the approximate center of the Site. A green band shown along the northern boundary of Area B represents the tree stand shown in the aerial photos taken prior to 1974.

The topographic maps provide information about former land uses, but do not indicate the presence of any onsite or offsite RECs.

Table 2. Aerial Photograph Observations

Date	Source of Aerial Photo
1938	US Dept. of Agriculture
Area A – Undeveloped floodplain and wetlands along the Stillwater River Area B – The northwest corner shows evidence of small scale mining on the land; no buildings are visible in the immediate area. A small stand of trees is located on the north end of the Site oriented in an east-west direction. Near the northeast corner of the Site are approximately one dozen cylindrical containers for petroleum product storage (location of the former Reliance site).	
1946	US Dept. of Agriculture
Area A – Undeveloped floodplain and wetlands along the Stillwater River Area B – The northwest corner includes a small gravel pit with evidence of expansion into the hillside running along the southwest corner of the Site. Small buildings are visible in the immediate area of the gravel mine. The small stand of trees is still present and the northeast corner has several small buildings in addition to the containers for petroleum products. A small gravel pit is visible on the south end of the Site. North of the Site is a post and pole yard with buildings and log decks evident in the photo.	

Table 2 (continued). Aerial Photograph Observations

Date	Source of Aerial Photo
1954	US Dept. of Agriculture
Area A – Undeveloped floodplain and wetlands along the Stillwater River Area B – The buildings in the northwest have expanded in size. The concrete batch plant is now evident. The gravel pit continues to expand south into the hillside running along the southwest corner of the Site. Small buildings are visible in the immediate area of the gravel mine. The small stand of trees is still present and the northeast corner is unchanged. The gravel pit on the south end of the area has expanded to the north. North of the Site, industrial development has dramatically increased with more buildings and log decks.	
1961	US Dept. of Agriculture
Area A – Undeveloped floodplain and wetlands along the Stillwater River Area B – The gravel pit in the northwest corner still continues to expand south and east. The gravel pit on the south end of the area now has equipment at the Site. North of the area the industrial development is still very active with numerous buildings and log decks. More development is occurring east of the Site across the railroad tracks.	
1974	US Dept. of Agriculture
Area A – Undeveloped floodplain and wetlands along the Stillwater River Area B – The gravel pit in the northwest corner still continues to expand south and east, now into the tree stand on the Site. The equipment in the gravel pit on the south end of the area has been removed. A new gravel pit is operating on the east end of the Site.	
1998	US Dept. of Agriculture
Area A – Undeveloped floodplain and wetlands along the Stillwater River Area B (only the northwest portion is shown) – The gravel pit in the northwest corner is still evident. The pit has expanded further south nearing the property boundaries and has expanded further east. The tree stand has been at least partially removed by mining.	
2006	City of Kalispell
Area A – Undeveloped floodplain and wetlands along the Stillwater River Area B – The gravel pit has expanded to cover most of the Site. Most of the vegetation on the Site is gone. The only buildings remaining on the Site are located in the northwest corner, the location of the original gravel pit in 1938. The industrial operations north of the area have been scaled back (based on the removal of several buildings and log decks).	

4.3.3 Sanborn Maps

City of Kalispell staff reviewed Sanborn Maps from the years 1892, 1894, 1899, 1903, 1910, 1927 and 1950. The Site is outside the boundaries of the map years listed above, and therefore, no maps were available.

4.3.4 Environmental Lien Records

EFS did not identify any environmental liens or activity and use limitations associated with the property. A copy of the lien search report is included as **Appendix F** of this ESA.

5.0 SITE VISIT

Staff from AMEC and the City of Kalispell Planning and Building Department completed an initial site visit on November 1, 2010. Participants included Adam Johnson of AMEC and the following City staff: Thomas Jentz (Planning Director); Sean Conrad (Senior Planner); and P.J. Sorensen (Planner II). Mr. Johnson conducted an additional reconnaissance of the Site on November 2, 2010. Observations made during the field visits are summarized in this section.

5.1 METHODOLOGY AND LIMITING CONDITIONS

The Site was observed by driving and walking the property and recording interior and exterior observations. Photographs obtained during the field visits are included as **Appendix G**. The office/weigh station building and a nearby older frame building were locked and were not accessible. Although the interior of the concrete batch plant was accessible, AMEC did not observe the upper levels of the plant building due to safety concerns. All other interior and exterior areas of the Site were accessible.

5.2 ON-SITE OBSERVATIONS

The undeveloped portion of the Site (Area A) was inspected by AMEC on November 2, 2010. The area was dominated by floodplain, wetland, and riparian habitats. Vegetation included deciduous and coniferous trees, grasses, weeds, and shrubs. Some portions of Area A could not be accessed due to the presence of impenetrable vegetation or small water bodies present in flood channels. AMEC did not observe any evidence of mining activity or any other permanent improvements to Area A. One small portion of land adjacent to Whitefish Stage Road appeared to have been disturbed; aggregate materials may have been placed there in the past, and minor concrete waste was noted at the same location.

Area B of the Site is a former gravel mine. Permanent structures in this area include a concrete batch plant, an office/weigh station (locked), an older wood frame building (locked), a steel-frame structure (currently used as a diesel engine repair shop), and a Quonset hut (currently used for storage). An outside acid storage locker was located near the batch plant and several drums and containers were present at scattered locations on the property. The drums and containers held waste oil and other unidentified fluids. The buildings and surrounding land uses are identified on **Figure 3**.

Area B is generally flat, although the original land surface has been removed by past gravel mining operations. The highest land surfaces were located in the southwestern portion of the property, and the lowest elevations were observed in excavations in the eastern portion of the Site. No surface water bodies were observed.

Bedrock was not present at the Site. However, a partial stratigraphic section (unconsolidated valley-fill sediments) was exposed in the eastern portion of the Site near Flathead Drive. The exposure indicates that the Site is underlain by alluvial terrace deposits and/or glacial lake sediments. Well- to poorly-sorted and

interbedded sand, gravel, and silt are consistent with fluvial deposition. Lake sediments are represented by finely laminated silts.

Land surface cover consisted of large expanses of exposed gravel and soil, some grass-covered areas, and small areas of asphalt and concrete pavement. Roads adjacent to the Site include: Whitefish Stage Road (western Site boundary); East Oregon Street (south and east); Flathead Drive (north and east); and an unnamed gravel road that forms the northern property boundary. A rail line (BNSF Railroad) parallels Flathead Drive and East Oregon Street, and a rail spur extends from east to west to the north of the Site.

Several waste oil containers and 55-gallons drums were present along the northwest side of the diesel repair shop. Soil staining was observed in association with several of the drums. AMEC also noted soil and building foundation staining in a location where steel and plastic piping was present entering the subsurface. One of the steel pipes may have been a vent pipe, and if so, it is possible that a waste oil UST could be present at this location despite DEQ records indicating that it has been removed. A parts washer, aboveground waste oil tank, buckets containing waste oil, and various hydrocarbon and chemical containers were present along the northwestern interior wall of the shop (coincident with the exterior staining). Several areas of concrete floor inside the shop were stained.

AMEC observed two sumps associated with the diesel shop. An interior sump was located parallel to and in the northern half of the shop. This structure consisted of a concrete-lined trench approximately three feet deep. The walls and floor of the sump contained minor staining, but appeared to be intact and in good condition. Several drains in the floor of the shop emptied into the interior sump. An exterior sump was observed near the northwest corner of the diesel shop. The walls of the sump were constructed of concrete, but fluid present prevented observation of the bottom of the structure. A diesel mechanic present during the Site visit stated that the contents of the interior sump were periodically transferred to the exterior sump. He also indicated that he had never seen the exterior sump fill completely, nor had he observed it being emptied. According to a 2002 Phase I ESA of the Site, water from the sump was spread onsite, and sediment was stockpiled in an onsite bermed area (Olympus Technical Services 2002). It is not clear whether these activities still occur. A septic system access port was noted near the sump.

One water supply well was observed on the west side of the concrete batch plant. Several monitoring wells were also observed on Area B. A typical well surface completion is shown in **Appendix G**. These wells are associated with the KRY site located north and east of the Site. Concrete block waste piles were present on the eastern portion of Area B. In addition, AMEC observed smaller piles of asphalt and poured concrete waste in this area. One trailer-mounted aboveground storage tank was located near the concrete batch plant. The tank may have been used to store water, and no soil staining was observed. A shallow plastic-lined excavation was present near one of the monitoring well pads beside the northern edge of Area B. The purpose of this excavation is unknown. Heavy equipment was stored along the northern boundary of the Site, north of the diesel shop. AMEC did not observe any soil staining in this location.

Assessments of asbestos-containing building materials and lead-based paint are beyond the scope of a Phase I ESA. However, these materials may be present in association with one or more of the buildings present in Area B.

5.3 SURROUNDING PROPERTIES

During the field visit, excavation work was occurring on the northeastern portion of the Site (north of Flathead Drive). The area north of the excavation work is the former location of the Reliance Refining Company. AMEC observed monitoring wells on the Reliance site at the time of the field visit. Numerous monitoring wells were also present on property north of the eastern portion of Area B. This property is the site of the former Kalispell Pole and Timber Company. Although not directly observed during the Site visit, the former Yale Oil Corporation property is located east of the Site. The Kalispell Post and Pole, Reliance, and Yale sites are collectively known as the KRY site, and they are managed as one CECRA facility by the DEQ (see Section 4.2). Other land uses surrounding the Site include industrial, residential, commercial, and retail (**Figure 3**).

6.0 INTERVIEWS

On November 2, 2010 AMEC interviewed Mr. Alrick Hale, KRC Vice President of KRC, about his knowledge of the Site. Mr. Hale indicated that the property address is 801 Whitefish Stage Road. The Site was owned and operated by McElroy & Wilken, Inc. from the 1950s until 2003, when it was acquired by KRC. A well located on the western end of the batch plant serves the onsite buildings.

The onsite concrete batch plant was inactive at the time of the interview. Mr. Hale was not aware of any asphalt plants that had operated on the Site. The onsite buildings have been used for maintenance and repair for the last few decades. Two of the buildings (the diesel shop and the Quonset hut) are currently leased to Butch Barber Trucking. The westernmost structure that fronts on Whitefish Stage Road is an office building. A weigh station is located immediately south of the office building.

Mr. Hale was aware that the Kalispell Pole and Timber Company site is a source of contamination in the area. He indicated that several monitoring wells have been installed on the Site, and that offsite sources have impacted the subject property. Concrete fill has been placed on portions of the eastern side of the Site.

A release was documented in association with underground storage tanks (USTs) at a fueling facility formerly located east of the current diesel repair shop. Mr. Hale indicated that the fueling site had been remediated.

Mr. Hale indicated that several previous and/or current employees may have information relating to the history of the Site. Although these employees were not available for interviews as of the date of this ESA, they will be able to provide information in the future if necessary. Mr. Hale provided AMEC with several documents relating to the Site and the adjacent CECRA facility. These documents are reviewed in Section 3.2 of this ESA.

Interviews with KRC owner representatives indicate that an unknown quantity of fill has been placed on the Site. Specifically, fill and some solid waste (concrete and some asphalt) has been placed on the eastern portion of the Site. KRC is concerned about potential environmental impacts on the Site from the fill, whose origin is unknown.

7.0 FINDINGS AND CONCLUSIONS

AMEC has performed a Phase I ESA of the KRC Site located immediately north of the City of Kalispell, Montana in conformance with the scope and limitations of ASTM Standard E 1527-05. Any exceptions to, or deletions from, this practice are described in Section 9.0 of this report.

We do not recommend any additional assessment of Area A of the Site. With the exception of minor quantities of concrete and aggregate materials present near the road, the Site inspection and document review did not indicate that the land was ever used or developed by the current or previous property owners. Based on the currently available information, Area A appears to have remained in its current, undeveloped state since the late 1930's.

The ESA identifies four recognized environmental conditions (RECs) and one potential REC in connection with Area B (the former gravel pit area), including:

- Groundwater and soil contamination originating at the adjacent KRY Montana Comprehensive Environmental Cleanup Responsibility Act (CECRA) facility that has migrated onto the eastern portion of Area B. The KRY site and associated contamination of Area B is a REC in connection with the Site.
- Several waste oil containers and 55-gallons drums present along the northwest side of the diesel repair shop. Soil staining was observed in association with several of the drums in this area. AMEC also noted soil and building foundation staining in this area where steel and plastic piping entered the subsurface. One of the steel pipes may have been a vent pipe, and if so, it is possible that a waste oil UST could be present at this location. A parts washer, waste oil tank, buckets containing waste oil, and various hydrocarbon and chemical containers were present along the northwestern interior wall of the shop coincident with the exterior soil staining and steel pipes.
- An exterior sump observed near the northwest corner of the diesel shop. The walls of the sump were constructed of concrete, but fluid in the sump at the time of our inspection prevented observation of the bottom of the structure. According to a 2002 Phase I ESA of the Site, water from the sump was periodically spread onsite, and the associated sediment was stockpiled in an onsite bermed area (Olympus Technical Services 2002). It is not known where the water was applied or where the sediment stockpiled area was located. The sump and the disposal location for the wastewater and sediment is considered to be a REC.
- Fill material containing non-inert materials that were used to fill mined excavations. Interviews with KRC representatives indicate that an unknown quantity of fill has been placed within Area B of the Site. Asphalt fill material was observed on the eastern portion of Area B near Flathead Drive. Non-inert fill on the Site constitutes a REC; however, the types of fill and magnitude of fill placed on the property is unknown.
- Suspect asbestos containing materials and lead-based paint associated with on-site buildings is a potential REC. The age of the structures suggest that they may contain asbestos and/or lead-based paint.

AMEC recommends a Phase II site investigation to address the above-mentioned RECs. An asbestos and lead-based paint survey of on-site buildings is also recommended if there are plans to renovate or demolish

the buildings. Prior to collection of any samples, a Sampling and Analysis Plan should be prepared to evaluate potential environmental impacts associated with the RECs identified for the Site.

8.0 DEVIATIONS AND ADDITIONAL SERVICES

No deviations or deletions from ASTM Standard E 1527-05 were made during preparation of this ESA. No additional services were provided as part of this ESA.

9.0 REFERENCES

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10.0 ENVIRONMENTAL PROFESSIONAL SIGNATURE AND STATEMENT

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in section 312.10 of 40 Code of Federal Regulations (CFR) 312. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

P.J. Sorensen
City of Kalispell

Sean Conrad
City of Kalispell

Adam Johnson
Project Hydrogeologist

Chris Cerquone
Senior Project Scientist

FIGURES

Figure 1. Site Location Map

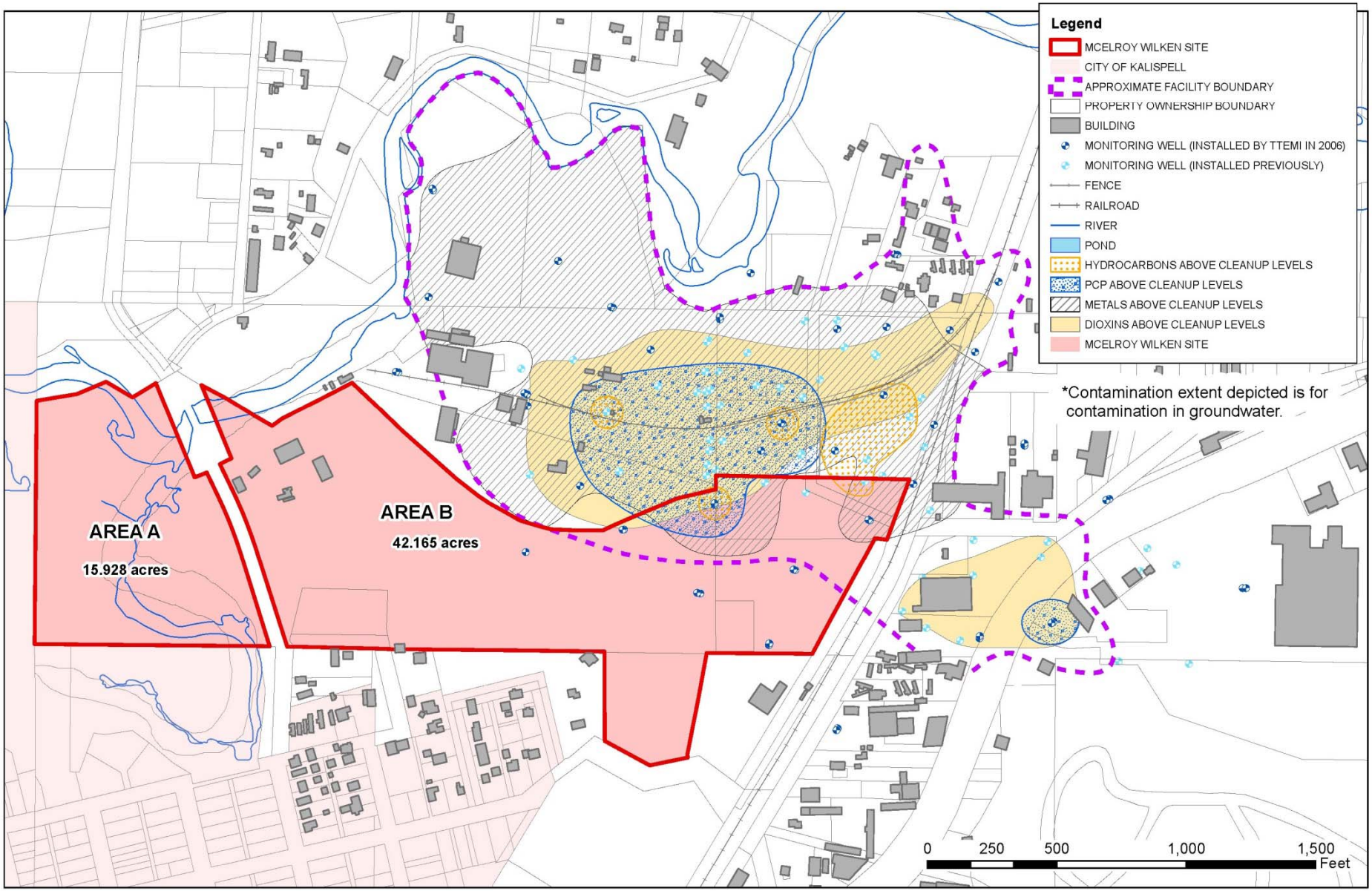


Figure 2. Extent of Groundwater Contamination at the KRY Site

Figure 3. Land Uses on the Site and Surrounding Properties

APPENDICES

APPENDIX A
CERTIFICATE OF SURVEY

By: SANDS SURVEYING, Inc.
2 Village Loop
Kalispell, MT 59901
(406) 755 6481

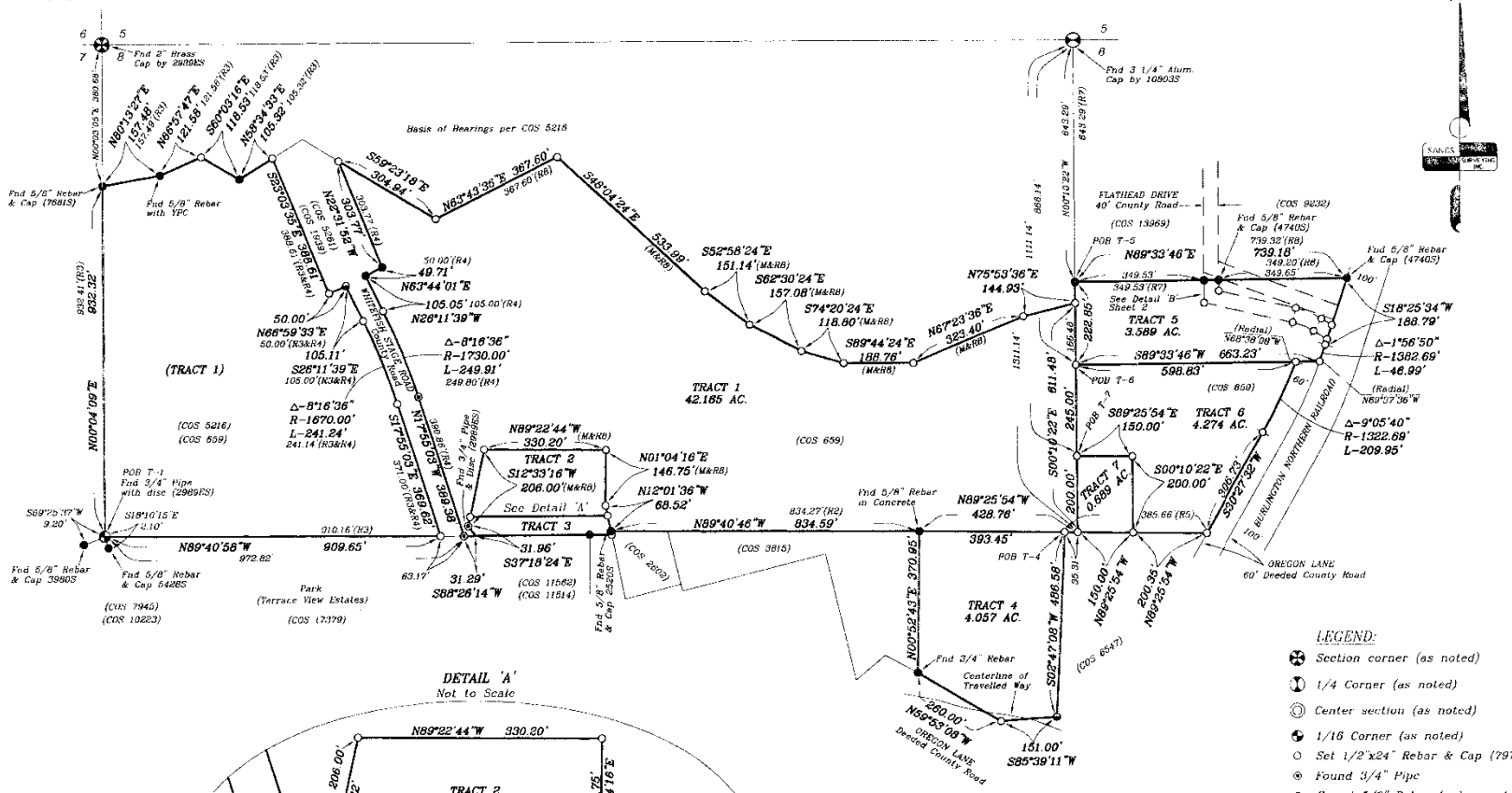
CERTIFICATE OF SURVEY

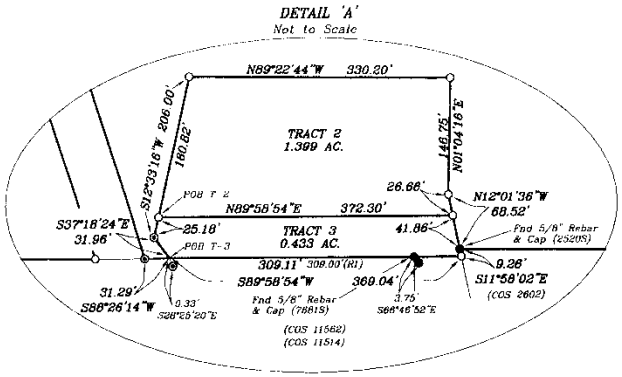
in NW1/4 & NW1/4NE1/4 SEC. 8, T.28N., R.21W., P.M.,M., FLATHEAD COUNTY, MONTANA

JOB NO: 209234
DATE: MAY 28, 2008
FOR: KNIFE RIVER
OWNER: JTL GROUP INC.

SCALE : 1" = 200'
200' 100' 0 200' 400'

PURPOSE: RETRACEMENT





LEGEND:

- Section corner (as noted)
- 1/4 Corner (as noted)
- Center section (as noted)
- 1/16 Corner (as noted)
- Set 1/2"x24" Rebar & Cap (7975S)
- Found 3/4" Pipe
- Found 5/8" Rebar (unless noted)
- Found 5/8" Rebar & Cap (2516S)
- (R1) Record Information Per C.O.S. 11562
- (R2) Record Information Per C.O.S. 2602
- (R3) Record Information Per C.O.S. 5216
- (R4) Record Information Per C.O.S. 5261
- (R5) Record Information Per C.O.S. 6547
- (R6) Record Information Per C.O.S. 9232
- (R7) Record Information Per C.O.S. 13969
- (R8) Record Information Per C.O.S. 659

COS# 18380
200800018641 Fees: $8.50 by: JL
by SANDS SURV
Date 7/2/2008 Time 12:06 PM
Paula Robinson, Flathead County Montana

CERTIFICATE OF SURVEY No. 18380

By: SANDS SURVEYING, Inc.
2 Village Loop
Kalispell, MT 59901
(406) 755 6481

CERTIFICATE OF SURVEY

in NW1/4 & NW1/4NE1/4 SEC. 8, T.28N., R.21W., P.M.,M., FLATHEAD COUNTY, MONTANA

JOB NO: 209234
DATE: MAY 28, 2008
FOR: KNIFE RIVER
OWNER: JTL GROUP INC.

SCALE : 1" = 200'

200' 100' 0 200' 400'

PURPOSE: RETRACEMENT

N

DESCRIPTION:

SEVEN TRACTS OF LAND, SITUATED, LYING AND BEING IN THE NORTHWEST QUARTER AND IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 8, TOWNSHIP 28 NORTH, RANGE 21 WEST, P.M.,M., FLATHEAD COUNTY, MONTANA, AND MORE PARTICULARLY DESCRIBED AS FOLLOWS TO WIT:

TRACT 1.

BEGINNING at the southwest corner of the Northwest Quarter of the Northwest Quarter of Section 8, Township 28 North, Range 21 West, P.M.,M., Flathead County, Montana, which is a found pipe, Thence along the west boundary of said NW1/4NW1/4 N00°04'09"E 932.32 feet to a found iron pin; Thence N80°13'27"E 157.48 feet to a found iron pin; Thence N66°57'47"E 121.58 feet to a set iron pin; Thence S60°03'16"E 118.53 feet to a found iron pin; Thence N58°34'33"E 105.32 feet to a set iron pin on the westerly R/W of a county road known as Whitefish Stage Road; Thence along said R/W S23°03'35"E 386.61 feet to a set iron pin; Thence N66°59'33"E 50.00 feet to a found pipe; Thence S25°11'39"E 105.11 feet to a set iron pin and the P.C. of a 1870.00 foot radius curve, concave southwesterly, having a central angle of 08°16'36"; Thence along an arc length of 241.24 feet to a set iron pin; Thence S17°55'03"E 369.62 feet to a set iron pin; Thence leaving said R/W S89°40'58"E 63.17 feet to a found pipe on the easterly R/W of said Whitefish Stage Road; Thence along said R/W N17°55'03"W 369.38 feet to a found pipe and the P.C. of a 1730.00 foot radius curve, concave southwesterly, having a central angle of 08°16'36"; Thence along an arc length of 249.91 feet to a set iron pin; Thence N25°11'39"W 105.05 feet to a found iron pin; Thence N63°44'01"E 49.71 feet to a found iron pin; Thence N22°31'52"W 303.77 feet to a set iron pin; Thence leaving said R/W S59°23'18"E 304.94 feet to a set iron pin; Thence N63°43'36"E 367.60 feet to a set iron pin; Thence S48°04'24"E 533.99 feet to a set iron pin, Thence S52°58'24"E 151.14 feet to a set iron pin, Thence S62°30'24"E 157.08 feet to a set iron pin; Thence S74°20'24"E 118.80 feet to a set iron pin; Thence S89°44'24"E 188.76 feet to a set iron pin; Thence N67°23'36"E 323.40 feet to a set iron pin; Thence N75°53'36"E 144.93 feet to a set iron pin on the east boundary of the Northwest Quarter of said Section 8; Thence along said boundary S00°10'22"E 611.48 feet to a set iron pin. Thence N89°25'54"W 428.76 feet to a found iron pin; Thence N89°40'46"W 834.59 feet to a found iron pin; Thence N12°01'36"W 68.52 feet to a set iron pin; Thence N01°04'16"E 146.75 feet to a set iron pin; Thence N89°22'44"W 330.20 feet to a set iron pin; Thence S12°33'16"W 206.00 feet to a found pipe, Thence S37°18'24"E 31.96 feet, Thence S88°26'14"W 31.29 feet to a found pipe; Thence N89°40'58"W 972.82 feet to the point of beginning and containing 42.165 ACRES; Subject to and together with all appurtenant easements of record.

TRACT 2:

Commencing at the southwest corner of the Northwest Quarter of the Northwest Quarter of Section 8, Township 28 North, Range 21 West, P.M.,M., Flathead County, Montana, which is a found pipe; Thence S89°40'58"E 972.82 feet to a found pipe; Thence N88°26'14"E 31.29 feet; Thence N37°18'24"W 31.96 feet to a found pipe; Thence N12°33'16"E 25.18 feet to a set iron pin and THE TRUE POINT OF BEGINNING OF THE TRACT OF LAND HEREIN DESCRIBED; Thence N12°33'16"E 180.62 feet to a set iron pin, Thence S89°22'44"E 330.20 feet to a set iron pin, Thence S01°04'16"W 146.75 feet to a set iron pin; Thence S12°01'36"E 26.66 feet to a set iron pin; Thence S89°58'54"W 372.30 feet to the point of beginning and containing 1.399 ACRES; Subject to and together with all appurtenant easements of record.

TRACT 3.

Commencing at the southwest corner of the Northwest Quarter of the Northwest Quarter of Section 8, Township 28 North, Range 21 West, P.M.,M., Flathead County, Montana, which is a found pipe; Thence S89°40'58"E 972.82 feet to a found pipe; Thence N88°26'14"E 31.29 feet and THE TRUE POINT OF BEGINNING OF THE TRACT OF LAND HEREIN DESCRIBED; Thence N37°18'24"W 31.96 feet to a found pipe; Thence N12°33'16"E 25.18 feet to a set iron pin; Thence N89°58'54"E 372.30 feet to a set iron pin; Thence S12°01'36"E 41.86 feet to a found iron pin; Thence S11°58'02"E 9.26 feet to a set iron pin; Thence S89°58'54"W 369.04 feet to the point of beginning and containing 0.433 ACRES; Subject to and together with all appurtenant easements of record.

TRACT 4.

Commencing at the northeast corner of the Northwest Quarter of Section 8, Township 28 North, Range 21 West, P.M.,M., Flathead County, Montana; Thence along the east boundary of said NW1/4 S00°10'22"E 1311.14 feet to a set iron pin; Thence N89°25'54"W 35.31 feet to a set iron pin and THE TRUE POINT OF BEGINNING OF THE TRACT OF LAND HEREIN DESCRIBED; Thence S02°47'08"W 486.58 feet to a found iron pin on the north boundary of a deeded county road known as Oregon Lane; Thence along said R/W S85°39'11"W 151.00 feet to a set iron pin; Thence N59°53'08"W 260.00 feet to a found iron pin; Thence leaving said R/W N00°52'43"E 370.95 feet to a found iron pin; Thence S89°25'54"E 393.45 feet to the point of beginning and containing 4.057 ACRES; Subject to and together with all appurtenant easements of record.

TRACT 5:

Commencing at the northeast corner of the Northwest Quarter of Section 8, Township 28 North, Range 21 West, P.M.,M., Flathead County, Montana; Thence along the east boundary of said NW1/4 S00°10'22"E 643.29 feet to a found iron pin and THE TRUE POINT OF BEGINNING OF THE TRACT OF LAND HEREIN DESCRIBED: N89°33'46"E 739.18 feet to a found iron pin on the westerly R/W of Burlington Northern Railroad; Thence along said R/W S18°25'34"W 188.79 feet to the P.C. of a 1382.69 foot radius curve, concave northwesterly, having a central angle of 01°56'50"; Thence along an arc length of 46.99 feet to a set iron pin; Thence leaving said R/W S89°33'46"W 663.23 feet to a set iron pin; Thence N00°10'22"W 222.65 feet to the point of beginning and containing 3.589 ACRES; Subject to and together with a 40 foot county road as shown hereon; Subject to and together with all appurtenant easements of record.

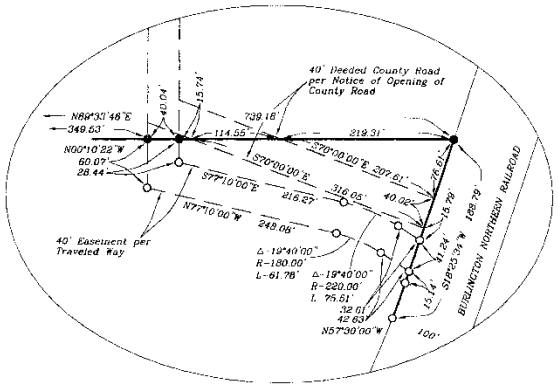
TRACT 6.

Commencing at the northeast corner of the Northwest Quarter of Section 8, Township 28 North, Range 21 West, P.M.,M., Flathead County, Montana; Thence along the east boundary of said NW1/4 S00°10'22"E 866.14 feet to a set iron pin and THE TRUE POINT OF BEGINNING OF THE TRACT OF LAND HEREIN DESCRIBED: Thence N89°33'46"E 598.83 feet to a set iron pin on the westerly R/W of a 60 foot county road, which is on a 1322.69 foot radius curve, concave northwesterly (radial bearing N68°38'08"W), Thence southwesterly along said curve and along said R/W through a central angle of 09°05'40" an arc length of 209.95 feet to a set iron pin, Thence S30°27'32"W 306.73 feet to a set iron pin, Thence leaving said R/W N89°25'54"W 200.35 feet to a set iron pin; Thence N00°10'22"W 200.00 feet to a set iron pin; Thence N89°25'54"W 150.00 feet to a set iron pin; Thence N00°10'22"W 245.00 feet to the point of beginning and containing 4.274 ACRES. Subject to and together with all appurtenant easements of record.

TRACT 7:

Commencing at the northeast corner of the Northwest Quarter of Section 8, Township 28 North, Range 21 West, P.M.,M., Flathead County, Montana; Thence along the east boundary of said NW1/4 S00°10'22"E 1111.14 feet to a set iron pin and THE TRUE POINT OF BEGINNING OF THE TRACT OF LAND HEREIN DESCRIBED: Thence S89°25'54"E 150.00 feet to a set iron pin; Thence S00°10'22"E 200.00 feet to a set iron pin; Thence N89°25'54"W 150.00 feet to a set iron pin, Thence N00°10'22"W 200.00 feet to the point of beginning and containing 0.689 ACRES; Subject to and together with all appurtenant easements of record.

DETAIL 'B'
Not to Scale



LEGEND:

- Section corner (as noted)
- 1/4 Corner (as noted)
- Center section (as noted)
- 1/16 Corner (as noted)
- Set 1/2"x24" Rebar & Cap (7975S)
- Found 3/4" Pipe
- Found 5/8" Rebar (unless noted)
- Found 5/8" Rebar & Cap (2516S)
- (R1) Record Information Per C.O.S. 11562
- (R2) Record Information Per C.O.S. 2602
- (R3) Record Information Per C.O.S. 5216
- (R4) Record Information Per C.O.S. 5281
- (R5) Record Information Per C.O.S. 6547
- (R6) Record Information Per C.O.S. 9232
- (R7) Record Information Per C.O.S. 13969
- (R8) Record Information Per C.O.S. 659

CERTIFICATE OF SURVEYOR

THOMAS E. SANDS 7975S

APPROVED: _____, 200_

EXAMINING LAND SURVEYOR
REG. No. 5426S

STATE OF MONTANA)
COUNTY OF FLATHEAD) SS

FILED ON THE 2 DAY OF July 2008
AT 12:16 PM, FAID FEE $8.50

CLERK & RECORDER

BY _____
DEPUTY

INSTRUMENT REC. No. 201800018641

COS# 18380
200800018641 Fees: $8.50 by: JL
by SANDS SURV
Date 7/2/2008 Time 12:06 PM
Paula Robinson, Flathead County Montana

SHEET 2 OF 2 SHEETS

CERTIFICATE OF SURVEY No. 5581

APPENDIX B
EFS SEARCH REPORT

InfoMap

Technologies Incorporated

Environmental FirstSearch™ Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT

FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

Job Number: MT10160050-1

PREPARED FOR:

AMEC Geomatrix

Adam Johnson

10-27-10

Tel: (610) 430-7530 *Fax: (610) 430-7535*

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Environmental FirstSearch
Search Summary Report

Target Site: FORMER MCELROY AND WILKEN GRAVEL PIT SITE
KALISPELL MT 59901

FirstSearch Summary

Database	Sel	Updated	Radius	Site	1/8	1/4	1/2	1/2>	ZIP	TOTALS
NPL	Y	08-01-10	1.25	0	0	0	0	0	0	0
NPL Delisted	Y	08-02-10	0.75	0	0	0	0	0	0	0
CERCLIS	Y	08-31-10	0.75	0	0	1	0	0	0	1
NFRAP	Y	08-31-10	0.75	0	0	0	1	1	0	2
RCRA COR ACT	Y	09-14-10	1.25	0	0	0	0	0	0	0
RCRA TSD	Y	09-14-10	0.75	0	0	0	0	0	0	0
RCRA GEN	Y	09-14-10	0.50	1	0	1	6	-	0	8
Federal IC / EC	Y	10-01-10	0.75	0	0	0	0	0	0	0
ERNS	Y	10-21-10	0.50	0	0	2	1	-	0	3
Tribal Lands	Y	12-01-05	1.25	0	0	0	0	0	0	0
State/Tribal Sites	Y	04-29-10	1.25	0	0	1	1	2	0	4
State Spills 90	Y	NA	0.50	0	0	0	0	-	0	0
State/Tribal SWL	Y	11-01-01	0.75	0	0	0	0	0	0	0
State/Tribal LUST	Y	08-10-10	0.75	1	0	0	3	6	0	10
State/Tribal UST/AST	Y	08-10-10	0.50	2	0	0	10	1	0	13
State/Tribal EC	Y	NA	0.75	0	0	0	0	0	0	0
State/Tribal IC	Y	NA	0.50	0	0	0	0	-	0	0
State/Tribal VCP	Y	08-10-10	0.75	0	0	0	0	0	0	0
State/Tribal Brownfields	Y	04-29-10	0.75	0	0	0	0	0	0	0
- TOTALS -				4	0	5	22	10	0	41

Notice of Disclaimer

Due to the limitations, constraints, inaccuracies and incompleteness of government information and computer mapping data currently available to InfoMap Technologies, certain conventions have been utilized in preparing the locations of all federal, state and local agency sites residing in InfoMap Technologies's databases. All EPA sites are depicted by a rectangle approximating their location and size. The boundaries of the rectangles represent NPL and state landfill the eastern and western most longitudes; the northern and southern most latitudes. As such, the mapped areas may exceed the actual areas and do not represent the actual boundaries of these properties. All other sites are depicted by a point representing their approximate address location and make no attempt to represent the actual areas of the associated property. Actual boundaries and locations of individual properties can be found in the files residing at the agency responsible for such information.

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Environmental FirstSearch
Site Information Report

Request Date:	10-27-10	**Search Type:**	COORD
Requestor Name:	AMEC Geomatrix	**Job Number:**	MT10160050-1
Standard:	AAI	**Filtered Report**	

Target Site: FORMER MCELROY AND WILKEN GRAVEL PIT SITE
KALISPELL MT 59901

Demographics

Sites:	41	**Non-Geocoded:**	0	**Population:**	NA
Radon:	0.5 - 71.4 PCI/L				

Site Location

	Degrees (Decimal)	Degrees (Min/Sec)		UTMs
Longitude:	-114.301758	-114:18:6	**Easting:**	700462.354
Latitude:	48.208534	48:12:31	**Northing:**	5342779.915
Elevation:	3045		**Zone:**	11

Comment

Comment:

Additional Requests/Services

Adjacent ZIP Codes: 0 Mile(s)

ZIP Code	City Name	ST	Dist/Dir	Sel

Services:

	Requested?	Date
Fire Insurance Maps	No	
Aerial Photographs	No	
Historical Topos	No	
City Directories	No	
Title Search/Env Liens	No	
Municipal Reports	No	
Online Topos	No	

Environmental FirstSearch
Sites Summary Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

TOTAL: 41 **GEOCODED:** 41 **NON GEOCODED:** 0 **SELECTED:** 41

Page No.	DB Type	Site Name/ID/Status	Address	Dist/Dir	Map ID	ElevDiff
1	LUST	MCELROY and WILKEN INC 2507 1501294/INACTIVE	801 WHITEFISH STAGE PIT 2 KALISPELL MT	0.00 --	1	- 0
2	RCRAGN	MCELROY AND WILKEN INC KALISPELL MTD035262591/VGN	801 WHITEFISH STAGE KALISPELL MT 59901	0.00 --	1	- 0
3	UST	MCELROY and WILKEN INC WHITEFISH S 15-01294/INACTIVE	801 WHITEFISH STAGE PIT 2 KALISPELL MT	0.00 --	1	- 0
3	UST	MCELROY and WILKEN INC HYW 35 E 15-01295/INACTIVE	EAST HYW 35 KALISPELL MT	0.00 --	1	- 0
4	CERCLIS	KALISPELL POLE and TIMBER CO INC MTD006237234/NOT PROPOSED	3/4 MI NE OF KALISPELL KALISPELL MT 59901	0.20 NE	3	- 105
5	ERNS	KALISPELL POLE and TIMBER 478917/FIXED FACILITY	330 FLATHEAD - 3/4 MILE NE KALISPELL MT	0.20 NE	3	- 105
6	RCRAGN	CONSOLIDATED KRY SITE MTD006237234/SGN	330 FLATHEAD DR KALISPELL MT 59901	0.20 NE	3	- 105
7	STATE	KALISPELL POLE AND TIMBER 104/CECRA	KALISPELL MT	0.20 NE	3	- 105
8	ERNS	MONTANA POWER CO 536234/PIPELINE RELATED	801 WHITE FISH STAGE ROAD CALISPELL MT 59901	0.20 SW	2	- 111
9	RCRAGN	BATCO OF KALISPELL INC MTD986070829/VGN	1023 EAST IDAHO KALISPELL MT 59901	0.27 SE	4	- 103
10	LUST	BALDINGS USED CARS INC 3021 1509994/INACTIVE	1010 EAST IDAHO KALISPELL MT	0.29 SE	5	- 87
11	UST	BALDINGS USED CARS INC 15-09994/INACTIVE	1010 EAST IDAHO KALISPELL MT	0.29 SE	5	- 87
12	RCRAGN	STILLWATER FOREST PRODUCTS MTR000001545/VGN	955 WHITEFISH STAGE ROAD KALISPELL MT 59901	0.31 NW	6	- 115
13	UST	STILLWATER FOREST INC 15-00521/INACTIVE	955 WHITEFISH STAGE ROAD KALISPELL MT	0.31 NW	6	- 115
14	LUST	RYGG FORD SALES 1867 1508879/INACTIVE	820 EAST IDAHO KALISPELL MT	0.32 SW	7	- 82
15	RCRAGN	RYGG FORD MTD035263128/VGN	820 EAST IDAHO KALISPELL MT 59901	0.32 SW	7	- 82
17	UST	RYGG FORD SALES 15-08879/INACTIVE	820 EAST IDAHO KALISPELL MT	0.32 SW	7	- 82
18	ERNS	MONTANA POWER 344144/PIPELINE RELATED	EAST SEEMAN MOBLE HOME SAL KALISBELL MT 59901	0.33 SE	9	N/A
19	UST	BLACK BEAR DEVELOPMENT 15-03723/INACTIVE	16 WOODLAND PARK DR KALISPELL MT	0.33 SE	10	- 87
20	LUST	DAILY INTERLAKE 4178 1514031/INACTIVE	727 EAST IDAHO ST KALISPELL MT	0.33 SW	8	- 79
21	RCRAGN	A and B NORGE LAUNDRY and CLEANING MT0000887158/VGN	702 EAST IDAHO KALISPELL MT 59901	0.36 SW	11	- 80

Environmental FirstSearch
Sites Summary Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

TOTAL: 41 **GEOCODED:** 41 **NON GEOCODED:** 0 **SELECTED:** 41

Page No.	DB Type	Site Name/ID/Status	Address	Dist/Dir	Map ID	ElevDiff
22	NFRAP	YALE OIL CORP. MTD980953582/NFRAP-N	1/4MI NE OF KALISPELL ON HW KALISPELL MT 59901	0.37 NE	12	- 116
23	STATE	YALE OIL CORP KALISPELL 209/CECRA	KALISPELL MT	0.37 NE	12	- 116
24	UST	JACKSON PROPERTY 56-13999/INACTIVE	627 EAST IDAHO ST KALISPELL MT	0.38 SW	13	- 82
24	UST	JACKSON PROPERTY 15-02200	627 EAST IDAHO ST KALISPELL MT	0.38 SW	13	- 82
25	RCRAGN	WALMART 2259 MTR000200238/SGN	1150 IDAHO ST KALISPELL MT 59901	0.39 NE	14	- 115
28	UST	IRVIN and WREN MOEN 15-13450/INACTIVE	294 5TH AVE EN KALISPELL MT	0.42 SW	15	- 83
28	UST	CURTIS and BRENDA JAMES 15-13490/INACTIVE	258 RIVERSIDE DR KALISPELL MT	0.44 NE	16	- 116
28	UST	HIGH COUNTRY CORP 15-05990/INACTIVE	1192 EAST IDAHO KALISPELL MT	0.45 NE	17	- 118
29	RCRAGN	MT DOT KALISPELL MT0001037175/VGN	85 5TH AVE EN KALISPELL MT 59901	0.50 SW	18	- 86
30	UST	MDOT KALISPELL 15-08733/ACTIVE	85 5TH AVE EN KALISPELL MT	0.50 SW	18	- 86
31	LUST	LAPLUME EXXON 1327 1505489/ACTIVE	335 EAST IDAHO KALISPELL MT	0.56 SW	19	- 88
31	LUST	NOONS 437 3482 1503915/INACTIVE	305 EAST IDAHO KALISPELL MT	0.56 SW	19	- 89
32	LUST	CENEX FARM and HOME SUPPLY 2911 1509705/ACTIVE	55 4TH AVE KALISPELL MT	0.57 SW	20	- 89
33	LUST	WOODLAND QUIKSTOP 3498 1500115/INACTIVE	81 WOODLAND PARK DR KALISPELL MT	0.61 SE	21	- 145
34	UST	WOODLAND QUIKSTOP 15-00115/ACTIVE	81 WOODLAND PARK DR KALISPELL MT	0.61 SE	21	- 145
35	LUST	FORMER CHEVRON STATION 70092 852 1512443/INACTIVE	NORTH MAIN and IDAHO KALISPELL MT	0.72 SW	22	- 89
35	LUST	MANION EQUIPMENT 4249 1504503/ACTIVE	249 EAST CENTER ST KALISPELL MT	0.74 SW	23	- 89
36	NFRAP	RELIANCE REFINING CO. MTD980953657/NFRAP-N	100 1ST AVE EAST KALISPELL MT 59901	0.88 SW	24	- 89
37	STATE	RELIANCE REFINING CO 165/CECRA	KALISPELL MT	0.88 SW	24	- 89
37	STATE	KALISPELL LANDFILL WILLOW GLEN ROA 103/CECRA	KALISPELL MT	1.01 SE	25	- 145

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

LUST

SEARCH ID: 36 **DIST/DIR:** 0.00 -- **ELEVATION:** 3045 **MAP ID:** 1

NAME: MCELROY and WILKEN INC 2507
ADDRESS: 801 WHITEFISH STAGE PIT 2
KALISPELL MT
CONTACT:

REV: 08/10/10
ID1: 1501294
ID2:
STATUS: INACTIVE
PHONE:

EAK INFORMATION

FACILITY ID NUMBER: 1501294
RELEASE ID : 2507
PRIORITY:
CONFIRMED RELEASE DATE: 1/20/1995
ACTIVE?: No
PROJECT OFFICER:

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

RCRAGN

SEARCH ID: 7 **DIST/DIR:** 0.00 -- **ELEVATION:** 3045 **MAP ID:** 1

NAME: MCELROY AND WILKEN INC KALISPELL
ADDRESS: 801 WHITEFISH STAGE
KALISPELL MT 59901
CONTACT:

REV: 7/14/10
ID1: MTD035262591
ID2:
STATUS: VGN
PHONE:

SITE INFORMATION

UNIVERSE INFORMATION:

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA:	N - NO
SUBJCA TSD 3004:	N - NO
SUBJCA NON TSD:	N - NO
SIGNIFICANT NON-COMPLIANCE(SNC):	N - NO
BEGINNING OF THE YEAR SNC:	N - NO
PERMIT WORKLOAD:	-----
CLOSURE WORKLOAD:	-----
POST CLOSURE WORKLOAD:	-----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS:	-----
CORRECTIVE ACTION WORKLOAD:	N - NO
GENERATOR STATUS:	CEG - CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS: GENERATES LESS THAN 100 KG/MONTH OF HAZARDOUS WASTE

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

D002 - Corrosive waste

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

UST

SEARCH ID: 25 **DIST/DIR:** 0.00 -- **ELEVATION:** 3045 **MAP ID:** 1

NAME: MCELROY and WILKEN INC WHITEFISH STAGE PIT 2
ADDRESS: 801 WHITEFISH STAGE PIT 2
KALISPELL MT
FLATHEAD
CONTACT:

REV: 08/10/10
ID1: 15-01294
ID2:
STATUS: INACTIVE
PHONE:

TANK INFORMATION
NUMBER OF ACTIVE TANKS:
NUMBER OF NONACTIVE TANKS: 6

UST

SEARCH ID: 41 **DIST/DIR:** 0.00 -- **ELEVATION:** 3045 **MAP ID:** 1

NAME: MCELROY and WILKEN INC HYW 35 E
ADDRESS: EAST HYW 35
KALISPELL MT
FLATHEAD
CONTACT:

REV: 08/10/10
ID1: 15-01295
ID2:
STATUS: INACTIVE
PHONE:

TANK INFORMATION
NUMBER OF ACTIVE TANKS:
NUMBER OF NONACTIVE TANKS: 1

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

CERCLIS

SEARCH ID: 1 **DIST/DIR:** 0.20 NE **ELEVATION:** 2940 **MAP ID:** 3

NAME: KALISPELL POLE and TIMBER CO INC
ADDRESS: 3/4 MI NE OF KALISPELL
KALISPELL MT 59901
CONTACT: GWEN CHRISTIANSEN

REV: 8/31/10
ID1: MTD006237234
ID2: 0800381
STATUS: NOT PROPOSED
PHONE: 3033126463

WOOD PRODUCTS TREATING FACILITY. PENTACHLOROPHENOL (PCP) DIOXINS AND HEAVY METALS ARE FOUND IN SOIL AND GROUNDWATER AT THE SITE.

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

ERNS

SEARCH ID: 11 **DIST/DIR:** 0.20 NE **ELEVATION:** 2940 **MAP ID:** 3

NAME: KALISPELL POLE and TIMBER
ADDRESS: 330 FLATHEAD - 3/4 MILE NE OF KALISPELL DR
KALISPELL MT
FLATHEAD
CONTACT:

REV: 5/1/90 0:0
ID1: 478917
ID2:
STATUS: FIXED FACILITY
PHONE:

SPILL INFORMATION

DATE OF SPILL: 5/1/90 **TIME OF SPILL:** 0000

PRODUCT RELEASED (1): PENTACHLOROPHENOL (PCP)
QUANTITY (1): 0
UNITS (1): UNK

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED

AIR: NO **GROUNDWATER:** NO
LAND: YES **FIXED FACILITY:** NO
WATER: NO **OTHER:** NO
WATERBODY AFFECTED BY RELEASE: GROUNDWATER

CAUSE OF RELEASE

DUMPING: NO **EQUIPMENT FAILURE:** NO
NATURAL PHENOMENON: NO **OPERATOR ERROR:** NO
OTHER CAUSE: NO **TRANSP. ACCIDENT:** NO
UNKNOWN: YES

ACTIONS TAKEN: PRELIMINARY SITE EVALUATION BY TECHNICAL ASSISTANCE TEAM (TAT)
RELEASE DETECTION: WOOD TREATING FACILITY DRIPPING ONTO GROUND DURING WOOD TREATMENT PROCESS.
MISC. NOTES: FOLLOW-UP INFO: STATE REQUESTED EPA ASSISTANCE FOR INVESTIGATION OF KALISPELL POST and POLE. STATE and EPA INVESTIGATION REPORTS IN 1990 and 1991 SHOW THAT THE SOIL and GROUNDWATER AT THE SITE IS CONTAMINATED WITH PCP. FURTHER INVISTIGATION P

DISCHARGER INFORMATION

DISCHARGER ID: 478917 **DUN and BRADSTREET :**
TYPE OF DISCHARGER: PRIVATE CITIZEN
NAME OF DISCHARGER: KALISPELL POLE and TIMBER
ADDRESS: 330 FLATHEAD DR.
KALISPELL MT

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

RCRAGN

SEARCH ID: 6 **DIST/DIR:** 0.20 NE **ELEVATION:** 2940 **MAP ID:** 3

NAME: CONSOLIDATED KRY SITE
ADDRESS: 330 FLATHEAD DR
KALISPELL MT 59901
CONTACT:

REV: 7/14/10
ID1: MTD006237234
ID2:
STATUS: SGN
PHONE:

SITE INFORMATION

UNIVERSE INFORMATION:

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA:	N - NO
SUBJCA TSD 3004:	N - NO
SUBJCA NON TSD:	N - NO
SIGNIFICANT NON-COMPLIANCE(SNC):	N - NO
BEGINNING OF THE YEAR SNC:	N - NO
PERMIT WORKLOAD:	-----
CLOSURE WORKLOAD:	-----
POST CLOSURE WORKLOAD:	-----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS:	-----
CORRECTIVE ACTION WORKLOAD:	N - NO
GENERATOR STATUS:	LQG - LARGE QUANTITY GENERATORS: GENERATES MORE THAN 1000 KG/MONTH OF HAZARDOUS WASTE

NAIC INFORMATION

482111 - LINE-HAUL RAILROADS
56291 - REMEDIATION SERVICES
56291 - REMEDIATION SERVICES
321114 - WOOD PRESERVATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

VIOLATION NUMBER:	0001	**RESPONSIBLE:**	S - STATE
DETERMINED:	10/25/2005	**DETERMINED BY:**	S - STATE
CITATION:	75-10-406 MCA	**RESOLVED:**	12/21/2005
TYPE:	GENERATOR-GENERAL REQUIREMENTS		

HAZARDOUS WASTE INFORMATION:

F032 - Wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use, or have previously used, chlorophenolic formulations <except potenti
D008 - Lead

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

STATE

SEARCH ID: 15 **DIST/DIR:** 0.20 NE **ELEVATION:** 2940 **MAP ID:** 3

NAME: KALISPELL POLE AND TIMBER
ADDRESS:
KALISPELL MT 59901
CONTACT:

REV: 04/29/10
ID1: 104
ID2: CECRA-KPTC
STATUS: CECRA
PHONE:

ONTANA COMPREHENSIVE ENVIRONMENTAL CLEANUP AND RESPONSIBILITY ACT-CECRA

ALTERNATE NAME: Kalispell Pole and Treating - Kalispell Post and Pole
OPERATION: Operated from 1947 to1990
DESCRIPTION: Abandoned wood treating facility

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

ERNS

SEARCH ID: 13 **DIST/DIR:** 0.20 SW **ELEVATION:** 2934 **MAP ID:** 2

NAME: MONTANA POWER CO
ADDRESS: 801 WHITE FISH STAGE ROAD
CALISPELL MT 59901
FLATHEAD
CONTACT:

REV: 5/21/1997
ID1: 536234
ID2:
STATUS: PIPELINE RELATED
PHONE:

SPILL INFORMATION

DATE OF SPILL: 5/21/1997 **TIME OF SPILL:** 0800

PRODUCT RELEASED (1): NATURAL GAS
QUANTITY (1): 0
UNITS (1): UNK

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED

AIR: NO **GROUNDWATER:** NO
LAND: NO **FIXED FACILITY:** NO
WATER: YES **OTHER:** NO
WATERBODY AFFECTED BY RELEASE: STILL WATER RIVER

CAUSE OF RELEASE

DUMPING: NO **EQUIPMENT FAILURE:** NO
NATURAL PHENOMENON: NO **OPERATOR ERROR:** NO
OTHER CAUSE: NO **TRANSP. ACCIDENT:** NO
UNKNOWN: NO

ACTIONS TAKEN: LINE WAS SHUT OFF TO SECURE THE RELEASE
RELEASE DETECTION: 4 INCH DISTRIBUTION LINE / HIGH WATER EXPOSED THE LINE AND THEN IT WAS SEVERED BY AN UNKNOWN CAUSE
MISC. NOTES: NO FIRES WERE INVOLVED / NO SERVICE WAS CUT OFF

DISCHARGER INFORMATION

DISCHARGER ID: 536234
TYPE OF DISCHARGER: PRIVATE ENTERPRISE
NAME OF DISCHARGER: MONTANA POWER CO
ADDRESS: 40 EAST BROADWAY
BUTTE MT 59701

DUN and BRADSTREET :

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

RCRAGN

SEARCH ID: 5 **DIST/DIR:** 0.27 SE **ELEVATION:** 2942 **MAP ID:** 4

NAME:	BATCO OF KALISPELL INC	**REV:**	7/14/10
ADDRESS:	1023 EAST IDAHO	**ID1:**	MTD986070829
	KALISPELL MT 59901	**ID2:**	
	FLATHEAD	**STATUS:**	VGN
CONTACT:		**PHONE:**	

SITE INFORMATION

UNIVERSE INFORMATION:

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA:	N - NO
SUBJCA TSD 3004:	N - NO
SUBJCA NON TSD:	N - NO
SIGNIFICANT NON-COMPLIANCE(SNC):	N - NO
BEGINNING OF THE YEAR SNC:	N - NO
PERMIT WORKLOAD:	-----
CLOSURE WORKLOAD:	-----
POST CLOSURE WORKLOAD:	-----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS:	-----
CORRECTIVE ACTION WORKLOAD:	N - NO
GENERATOR STATUS:	CEG - CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS: GENERATES LESS THAN 100 KG/MONTH OF HAZARDOUS WASTE

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

D001 - Ignitable waste

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

LUST

SEARCH ID: 30 **DIST/DIR:** 0.29 SE **ELEVATION:** 2958 **MAP ID:** 5

NAME: BALDINGS USED CARS INC 3021
ADDRESS: 1010 EAST IDAHO
KALISPELL MT
CONTACT:

REV: 08/10/10
ID1: 1509994
ID2:
STATUS: INACTIVE
PHONE:

EAK INFORMATION

FACILITY ID NUMBER: 1509994
RELEASE ID : 3021
PRIORITY:
CONFIRMED RELEASE DATE: 10/1/1996
ACTIVE?: No
PROJECT OFFICER:

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

UST

SEARCH ID: 18 **DIST/DIR:** 0.29 SE **ELEVATION:** 2958 **MAP ID:** 5

NAME: BALDINGS USED CARS INC
ADDRESS: 1010 EAST IDAHO
KALISPELL MT
FLATHEAD
CONTACT:

REV: 08/10/10
ID1: 15-09994
ID2:
STATUS: INACTIVE
PHONE:

TANK INFORMATION
NUMBER OF ACTIVE TANKS:
NUMBER OF NONACTIVE TANKS: 1

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

RCRAGN

SEARCH ID: 40 **DIST/DIR:** 0.31 NW **ELEVATION:** 2930 **MAP ID:** 6

NAME:	STILLWATER FOREST PRODUCTS	**REV:**	7/14/10
ADDRESS:	955 WHITEFISH STAGE ROAD	**ID1:**	MTR000001545
	KALISPELL MT 59901	**ID2:**	
	FLATHEAD	**STATUS:**	VGN
CONTACT:		**PHONE:**	

SITE INFORMATION

UNIVERSE INFORMATION:

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA:	N - NO
SUBJCA TSD 3004:	N - NO
SUBJCA NON TSD:	N - NO
SIGNIFICANT NON-COMPLIANCE(SNC):	N - NO
BEGINNING OF THE YEAR SNC:	
PERMIT WORKLOAD:	-----
CLOSURE WORKLOAD:	-----
POST CLOSURE WORKLOAD:	-----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS:	-----
CORRECTIVE ACTION WORKLOAD:	N - NO
GENERATOR STATUS:	CEG - CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS: GENERATES LESS THAN 100 KG/MONTH OF HAZARDOUS WASTE
INSTITUTIONAL CONTROL:	N
HUMAN EXPOSURE:	
GW CONTROLS:	
LAND TYPE:	

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

D001 - Ignitable waste

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

UST

SEARCH ID: 28 **DIST/DIR:** 0.31 NW **ELEVATION:** 2930 **MAP ID:** 6

NAME:	STILLWATER FOREST INC	**REV:**	08/10/10
ADDRESS:	955 WHITEFISH STAGE ROAD	**ID1:**	15-00521
	KALISPELL MT	**ID2:**	
	FLATHEAD	**STATUS:**	INACTIVE
CONTACT:		**PHONE:**	

TANK INFORMATION

NUMBER OF ACTIVE TANKS:

NUMBER OF NONACTIVE TANKS: 1

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

LUST

SEARCH ID: 38 **DIST/DIR:** 0.32 SW **ELEVATION:** 2963 **MAP ID:** 7

NAME: RYGG FORD SALES 1867
ADDRESS: 820 EAST IDAHO
KALISPELL MT
CONTACT:

REV: 08/10/10
ID1: 1508879
ID2:
STATUS: INACTIVE
PHONE:

EAK INFORMATION

FACILITY ID NUMBER: 1508879
RELEASE ID : 1867
PRIORITY:
CONFIRMED RELEASE DATE: 9/27/1993
ACTIVE?: No
PROJECT OFFICER:

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE
KALISPELL MT 59901

JOB: MT10160050-1

RCRAGN

SEARCH ID: 9 **DIST/DIR:** 0.32 SW **ELEVATION:** 2963 **MAP ID:** 7

NAME: RYGG FORD
ADDRESS: 820 EAST IDAHO
KALISPELL MT 59901
FLATHEAD
CONTACT:

REV: 7/14/10
ID1: MTD035263128
ID2:
STATUS: VGN
PHONE:

SITE INFORMATION

UNIVERSE INFORMATION:

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA:	N - NO
SUBJCA TSD 3004:	N - NO
SUBJCA NON TSD:	N - NO
SIGNIFICANT NON-COMPLIANCE(SNC):	N - NO
BEGINNING OF THE YEAR SNC:	N - NO
PERMIT WORKLOAD:	-----
CLOSURE WORKLOAD:	-----
POST CLOSURE WORKLOAD:	-----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS:	-----
CORRECTIVE ACTION WORKLOAD:	N - NO
GENERATOR STATUS:	CEG - CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS: GENERATES LESS THAN 100 KG/MONTH OF HAZARDOUS WASTE

NAIC INFORMATION

81111 - AUTOMOTIVE MECHANICAL AND ELECTRICAL REPAIR AND MAINTENANCE
81111 - AUTOMOTIVE MECHANICAL AND ELECTRICAL REPAIR AND MAINTENANCE
81111 - AUTOMOTIVE MECHANICAL AND ELECTRICAL REPAIR AND MAINTENANCE
81111 - AUTOMOTIVE MECHANICAL AND ELECTRICAL REPAIR AND MAINTENANCE
81111 - AUTOMOTIVE MECHANICAL AND ELECTRICAL REPAIR AND MAINTENANCE
81111 - AUTOMOTIVE MECHANICAL AND ELECTRICAL REPAIR AND MAINTENANCE

ENFORCEMENT INFORMATION:

AGENCY:	S - STATE	**DATE:**	11/7/1991
TYPE:	120 - WRITTEN INFORMAL		

VIOLATION INFORMATION:

VIOLATION NUMBER:	0001	**RESPONSIBLE:**	S - STATE
DETERMINED:	11/7/1991	**DETERMINED BY:**	S - STATE
CITATION:	16.44.415	**RESOLVED:**	12/17/1991
TYPE:	GENERATOR-PRE-TRANSPORT REQUIREMENTS		

HAZARDOUS WASTE INFORMATION:

F005 - The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before us
D018 - Benzene
D039 - Tetrachloroethylene

- Continued on next page -

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

RCRAGN

SEARCH ID:	9	**DIST/DIR:**	0.32 SW	**ELEVATION:**	2963	**MAP ID:**	7

NAME:	RYGG FORD	**REV:**	7/14/10
ADDRESS:	820 EAST IDAHO	**ID1:**	MTD035263128
	KALISPELL MT 59901	**ID2:**	
	FLATHEAD	**STATUS:**	VGN
CONTACT:		**PHONE:**	

D001 - Ignitable waste
F001 - The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichlorethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride and chlorinated fluorocarbons; all spent solvent mixt

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

UST

SEARCH ID: 27 **DIST/DIR:** 0.32 SW **ELEVATION:** 2963 **MAP ID:** 7

NAME: RYGG FORD SALES
ADDRESS: 820 EAST IDAHO
KALISPELL MT
FLATHEAD
CONTACT:

REV: 08/10/10
ID1: 15-08879
ID2:
STATUS: INACTIVE
PHONE:

TANK INFORMATION
NUMBER OF ACTIVE TANKS:
NUMBER OF NONACTIVE TANKS: 2

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

ERNS

SEARCH ID: 12 **DIST/DIR:** 0.33 SE **ELEVATION:** **MAP ID:** 9

NAME: MONTANA POWER
ADDRESS: EAST SEEMAN MOBLE HOME SALES 1028 IDAHO
KALISBELL MT 59901
FLATHEAD
CONTACT:

REV: 10/20/1993
ID1: 344144
ID2:
STATUS: PIPELINE RELATED
PHONE:

SPILL INFORMATION

DATE OF SPILL: 10/20/1993 **TIME OF SPILL:** 1200

PRODUCT RELEASED (1): NATURAL GAS
QUANTITY (1): 0
UNITS (1): UNK

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED

AIR: YES **GROUNDWATER:** NO
LAND: NO **FIXED FACILITY:** NO
WATER: NO **OTHER:** NO
WATERBODY AFFECTED BY RELEASE: ATMOSPHERE

CAUSE OF RELEASE

DUMPING: NO **EQUIPMENT FAILURE:** NO
NATURAL PHENOMENON: NO **OPERATOR ERROR:** NO
OTHER CAUSE: NO **TRANSP. ACCIDENT:** NO
UNKNOWN: NO

ACTIONS TAKEN: THE FIRE WAS PUT OUT BY LOCAL FIRE UNITS
RELEASE DETECTION: A 3/4 INCH DISTRUBUTION LINE RUPTURED DUE TO BEING STRUCK BY A BACKHOE AND THE ESCAPING GAS EXPLODED UNDER A MOBLE HOME
MISC. NOTES: 1 SERVICEMAN WAS BURNED SLIGHTLY. THERE WAS NO INTERUPTION OF SERVICE

DISCHARGER INFORMATION

DISCHARGER ID: 344144 **DUN and BRADSTREET :**
TYPE OF DISCHARGER: PUBLIC UTILITY
NAME OF DISCHARGER: MONTANA POWER
ADDRESS: 980 MERDIAN ROAD
KALISBELL MT 59901

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

UST

SEARCH ID: 19 **DIST/DIR:** 0.33 SE **ELEVATION:** 2958 **MAP ID:** 10

NAME:	BLACK BEAR DEVELOPMENT	**REV:**	08/10/10
ADDRESS:	16 WOODLAND PARK DR	**ID1:**	15-03723
	KALISPELL MT	**ID2:**	
	FLATHEAD	**STATUS:**	INACTIVE
CONTACT:		**PHONE:**	

TANK INFORMATION

NUMBER OF ACTIVE TANKS:

NUMBER OF NONACTIVE TANKS: 1

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

LUST

SEARCH ID: 32 **DIST/DIR:** 0.33 SW **ELEVATION:** 2966 **MAP ID:** 8

NAME: DAILY INTERLAKE 4178
ADDRESS: 727 EAST IDAHO ST
KALISPELL MT

CONTACT:

REV: 08/10/10
ID1: 1514031
ID2:
STATUS: INACTIVE
PHONE:

EAK INFORMATION

FACILITY ID NUMBER: 1514031
RELEASE ID : 4178
PRIORITY:
CONFIRMED RELEASE DATE: 4/28/2003
ACTIVE?: No
PROJECT OFFICER:

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

RCRAGN

SEARCH ID: 4 **DIST/DIR:** 0.36 SW **ELEVATION:** 2965 **MAP ID:** 11

NAME:	A and B NORGE LAUNDRY and CLEANING VILLAGE	**REV:**	12/9/02
ADDRESS:	702 EAST IDAHO	**ID1:**	MT0000887158
	KALISPELL MT 59901	**ID2:**	
	FLATHEAD	**STATUS:**	VGN
CONTACT:		**PHONE:**	

SITE INFORMATION

UNIVERSE TYPE:

CEG - CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS: GENERATES LESS THAN 100 KG/MONTH OF HAZARDOUS WASTE

SIC INFORMATION:

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

NFRAP

SEARCH ID: 3 **DIST/DIR:** 0.37 NE **ELEVATION:** 2929 **MAP ID:** 12

NAME: YALE OIL CORP.
ADDRESS: 1/4MI NE OF KALISPELL ON HWY 2
KALISPELL MT 59901
CONTACT:

REV: 8/31/10
ID1: MTD980953582
ID2: 0800451
STATUS: NFRAP-N
PHONE:

DESCRIPTION:

ACTION/QUALITY	AGENCY/RPS	START/RAA	END
ARCHIVE SITE	EPA In-House		12/31/1986
DISCOVERY	EPA Fund-Financed		1/25/1985
PRELIMINARY ASSESSMENT LOW PRIORITY FOR FURTHER ASSESSMENT	State, Fund Financed		12/20/1985
SITE INSPECTION NFRAP: NO FURTHER REMEDIAL ACTION PLANNED	EPA Fund-Financed		12/31/1986

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

STATE

SEARCH ID: 17 **DIST/DIR:** 0.37 NE **ELEVATION:** 2929 **MAP ID:** 12

NAME: YALE OIL CORP KALISPELL
ADDRESS:
KALISPELL MT 59901
CONTACT:

REV: 04/29/10
ID1: 209
ID2: CECRA-YOKL
STATUS: CECRA
PHONE:

ONTANA COMPREHENSIVE ENVIRONMENTAL CLEANUP AND RESPONSIBILITY ACT-CECRA

ALTERNATE NAME:
OPERATION: Operated from 1938 to 1978
DESCRIPTION: Inactive oil refinery

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

UST

SEARCH ID: 24 **DIST/DIR:** 0.38 SW **ELEVATION:** 2963 **MAP ID:** 13

NAME: JACKSON PROPERTY
ADDRESS: 627 EAST IDAHO ST
KALISPELL MT
FLATHEAD
CONTACT:

REV: 08/10/10
ID1: 56-13999
ID2:
STATUS: INACTIVE
PHONE:

TANK INFORMATION
NUMBER OF ACTIVE TANKS:
NUMBER OF NONACTIVE TANKS: 2

UST

SEARCH ID: 23 **DIST/DIR:** 0.38 SW **ELEVATION:** 2963 **MAP ID:** 13

NAME: JACKSON PROPERTY
ADDRESS: 627 EAST IDAHO ST
KALISPELL MT
FLATHEAD
CONTACT:

REV:
ID1: 15-02200
ID2:
STATUS:
PHONE:

TANK INFORMATION
NUMBER OF ACTIVE TANKS:
NUMBER OF NONACTIVE TANKS: 2

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE
KALISPELL MT 59901

JOB: MT10160050-1

RCRAGN

SEARCH ID: 10 **DIST/DIR:** 0.39 NE **ELEVATION:** 2930 **MAP ID:** 14

NAME: WALMART 2259
ADDRESS: 1150 IDAHO ST
KALISPELL MT 59901
FLATHEAD
CONTACT:

REV: 4/21/10
ID1: MTR000200238
ID2:
STATUS: SGN
PHONE:

SITE INFORMATION

UNIVERSE INFORMATION:

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA:	N - NO
SUBJCA TSD 3004:	N - NO
SUBJCA NON TSD:	N - NO
SIGNIFICANT NON-COMPLIANCE(SNC):	N - NO
BEGINNING OF THE YEAR SNC:	N - NO
PERMIT WORKLOAD:	-----
CLOSURE WORKLOAD:	-----
POST CLOSURE WORKLOAD:	-----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS:	-----
CORRECTIVE ACTION WORKLOAD:	N - NO
GENERATOR STATUS:	CEG - CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS: GENERATES LESS THAN 100 KG/MONTH OF HAZARDOUS WASTE

NAIC INFORMATION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

D011 - Silver
D026 - Cresol
U279 - Carbaryl (OR) 1-Naphthalenol, methylcarbamate
U165 - Naphthalene
U159 - 2-Butanone (I,T) (OR) Methyl ethyl ketone (MEK) (I,T)
U122 - Formaldehyde
U080 - Methane, dichloro- (OR) Methylene chloride
U002 - 2-Propanone (I) (OR) Acetone (I)
D039 - Tetrachloroethylene
D035 - Methyl ethyl ketone
D027 - 1,4-Dichlorobenzene
D002 - Corrosive waste
D018 - Benzene
D001 - Ignitable waste
D003 - Reactive waste
D004 - Arsenic
D005 - Barium
D007 - Chromium

- Continued on next page -

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

RCRAGN

SEARCH ID: 10 **DIST/DIR:** 0.39 NE **ELEVATION:** 2930 **MAP ID:** 14

NAME: WALMART 2259
ADDRESS: 1150 IDAHO ST
KALISPELL MT 59901
FLATHEAD
CONTACT:

REV: 4/21/10
ID1: MTR000200238
ID2:
STATUS: SGN
PHONE:

D008 - Lead
D009 - Mercury
D016 - 2,4-D (2,4-Dichlorophenoxyacetic acid)
D006 - Cadmium

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE
KALISPELL MT 59901

JOB: MT10160050-1

UST

SEARCH ID: 22 **DIST/DIR:** 0.42 SW **ELEVATION:** 2962 **MAP ID:** 15

NAME: IRVIN and WREN MOEN
ADDRESS: 294 5TH AVE EN
KALISPELL MT
FLATHEAD
CONTACT:

REV: 08/10/10
ID1: 15-13450
ID2:
STATUS: INACTIVE
PHONE:

TANK INFORMATION
NUMBER OF ACTIVE TANKS:
NUMBER OF NONACTIVE TANKS: 1

UST

SEARCH ID: 20 **DIST/DIR:** 0.44 NE **ELEVATION:** 2929 **MAP ID:** 16

NAME: CURTIS and BRENDA JAMES
ADDRESS: 258 RIVERSIDE DR
KALISPELL MT
FLATHEAD
CONTACT:

REV: 08/10/10
ID1: 15-13490
ID2:
STATUS: INACTIVE
PHONE:

TANK INFORMATION
NUMBER OF ACTIVE TANKS:
NUMBER OF NONACTIVE TANKS: 1

UST

SEARCH ID: 21 **DIST/DIR:** 0.45 NE **ELEVATION:** 2927 **MAP ID:** 17

NAME: HIGH COUNTRY CORP
ADDRESS: 1192 EAST IDAHO
KALISPELL MT
FLATHEAD
CONTACT:

REV: 08/10/10
ID1: 15-05990
ID2:
STATUS: INACTIVE
PHONE:

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

UST

SEARCH ID: 21 **DIST/DIR:** 0.45 NE **ELEVATION:** 2927 **MAP ID:** 17

NAME: HIGH COUNTRY CORP
ADDRESS: 1192 EAST IDAHO
KALISPELL MT
FLATHEAD
CONTACT:

REV: 08/10/10
ID1: 15-05990
ID2:
STATUS: INACTIVE
PHONE:

TANK INFORMATION
NUMBER OF ACTIVE TANKS:
NUMBER OF NONACTIVE TANKS: 1

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE
KALISPELL MT 59901

JOB: MT10160050-1

RCRAGN

SEARCH ID: 8 **DIST/DIR:** 0.50 SW **ELEVATION:** 2959 **MAP ID:** 18

NAME: MT DOT KALISPELL
ADDRESS: 85 5TH AVE EN
KALISPELL MT 59901
CONTACT:

REV: 7/14/10
ID1: MT0001037175
ID2:
STATUS: VGN
PHONE:

SITE INFORMATION

UNIVERSE INFORMATION:

SUBJECT TO CORRECTIVE ACTION (SUBJCA)

SUBJCA:	N - NO
SUBJCA TSD 3004:	N - NO
SUBJCA NON TSD:	N - NO
SIGNIFICANT NON-COMPLIANCE(SNC):	N - NO
BEGINNING OF THE YEAR SNC:	N - NO
PERMIT WORKLOAD:	-----
CLOSURE WORKLOAD:	-----
POST CLOSURE WORKLOAD:	-----
PERMITTING /CLOSURE/POST-CLOSURE PROGRESS:	-----
CORRECTIVE ACTION WORKLOAD:	N - NO
GENERATOR STATUS:	CEG - CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS: GENERATES LESS THAN 100 KG/MONTH OF HAZARDOUS WASTE

NAIC INFORMATION

23411 - HIGHWAY AND STREET CONSTRUCTION

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

HAZARDOUS WASTE INFORMATION:

D001 - Ignitable waste
D007 - Chromium
D008 - Lead
D039 - Tetrachloroethylene

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

UST

SEARCH ID: 26 **DIST/DIR:** 0.50 SW **ELEVATION:** 2959 **MAP ID:** 18

NAME: MDOT KALISPELL
ADDRESS: 85 5TH AVE EN
KALISPELL MT
FLATHEAD
CONTACT:

REV: 08/10/10
ID1: 15-08733
ID2:
STATUS: ACTIVE
PHONE:

TANK INFORMATION
NUMBER OF ACTIVE TANKS: 2
NUMBER OF NONACTIVE TANKS: 2

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

LUST

SEARCH ID: 34 **DIST/DIR:** 0.56 SW **ELEVATION:** 2957 **MAP ID:** 19

NAME: LAPLUME EXXON 1327
ADDRESS: 335 EAST IDAHO
KALISPELL MT
CONTACT:

REV: 08/10/10
ID1: 1505489
ID2:
STATUS: ACTIVE
PHONE:

EAK INFORMATION

FACILITY ID NUMBER: 1505489
RELEASE ID : 1327
PRIORITY: 1.4
CONFIRMED RELEASE DATE: 8/5/1992
ACTIVE?: Yes
PROJECT OFFICER: Marcile Sigler

LUST

SEARCH ID: 37 **DIST/DIR:** 0.56 SW **ELEVATION:** 2956 **MAP ID:** 19

NAME: NOONS 437 3482
ADDRESS: 305 EAST IDAHO
KALISPELL MT
CONTACT:

REV: 08/10/10
ID1: 1503915
ID2:
STATUS: INACTIVE
PHONE:

EAK INFORMATION

FACILITY ID NUMBER: 1503915
RELEASE ID : 3482
PRIORITY:
CONFIRMED RELEASE DATE: 7/7/1998
ACTIVE?: No
PROJECT OFFICER:

FACILITY ID NUMBER: 1503915
RELEASE ID : 4392
PRIORITY: 5.0
CONFIRMED RELEASE DATE: 1/27/2005
ACTIVE?: No
PROJECT OFFICER:

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

LUST

SEARCH ID: 31 **DIST/DIR:** 0.57 SW **ELEVATION:** 2956 **MAP ID:** 20

NAME: CENEX FARM and HOME SUPPLY 2911
ADDRESS: 55 4TH AVE
KALISPELL MT
CONTACT:

REV: 08/10/10
ID1: 1509705
ID2:
STATUS: ACTIVE
PHONE:

EAK INFORMATION

FACILITY ID NUMBER: 1509705
RELEASE ID : 2911
PRIORITY: 1.4
CONFIRMED RELEASE DATE: 5/14/1996
ACTIVE?: Yes
PROJECT OFFICER: Marcile Sigler

FACILITY ID NUMBER: 1509705
RELEASE ID : 3090
PRIORITY: 1.4
CONFIRMED RELEASE DATE: 12/19/1996
ACTIVE?: Yes
PROJECT OFFICER: Marcile Sigler

FACILITY ID NUMBER: 1509705
RELEASE ID : 3698
PRIORITY:
CONFIRMED RELEASE DATE: 3/30/1999
ACTIVE?: No
PROJECT OFFICER:

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

LUST

SEARCH ID: 39 **DIST/DIR:** 0.61 SE **ELEVATION:** 2900 **MAP ID:** 21

NAME: WOODLAND QUIKSTOP 3498
ADDRESS: 81 WOODLAND PARK DR
KALISPELL MT
CONTACT:

REV: 08/10/10
ID1: 1500115
ID2:
STATUS: INACTIVE
PHONE:

EAK INFORMATION

FACILITY ID NUMBER: 1500115
RELEASE ID : 3498
PRIORITY: 5.0
CONFIRMED RELEASE DATE: 7/22/1998
ACTIVE?: No
PROJECT OFFICER:

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

UST

SEARCH ID: 29 **DIST/DIR:** 0.61 SE **ELEVATION:** 2900 **MAP ID:** 21

NAME:	WOODLAND QUIKSTOP	**REV:**	08/10/10
ADDRESS:	81 WOODLAND PARK DR	**ID1:**	15-00115
	KALISPELL MT	**ID2:**	
	FLATHEAD	**STATUS:**	ACTIVE
CONTACT:		**PHONE:**	

TANK INFORMATION

NUMBER OF ACTIVE TANKS: 2

NUMBER OF NONACTIVE TANKS: 2

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

LUST

SEARCH ID: 33 **DIST/DIR:** 0.72 SW **ELEVATION:** 2956 **MAP ID:** 22

NAME: FORMER CHEVRON STATION 70092 852
ADDRESS: NORTH MAIN and IDAHO
KALISPELL MT
CONTACT:

REV: 08/10/10
ID1: 1512443
ID2:
STATUS: INACTIVE
PHONE:

EAK INFORMATION

FACILITY ID NUMBER: 1512443
RELEASE ID : 852
PRIORITY:
CONFIRMED RELEASE DATE: 10/4/1988
ACTIVE?: No
PROJECT OFFICER:

LUST

SEARCH ID: 35 **DIST/DIR:** 0.74 SW **ELEVATION:** 2956 **MAP ID:** 23

NAME: MANION EQUIPMENT 4249
ADDRESS: 249 EAST CENTER ST
KALISPELL MT
CONTACT:

REV: 08/10/10
ID1: 1504503
ID2:
STATUS: ACTIVE
PHONE:

EAK INFORMATION

FACILITY ID NUMBER: 1504503
RELEASE ID : 4249
PRIORITY: 2.0
CONFIRMED RELEASE DATE: 7/18/2003
ACTIVE?: Yes
PROJECT OFFICER: Marcile Sigler

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

NFRAP

SEARCH ID: 2 **DIST/DIR:** 0.88 SW **ELEVATION:** 2956 **MAP ID:** 24

NAME: RELIANCE REFINING CO.
ADDRESS: 100 1ST AVE EAST
KALISPELL MT 59901
CONTACT:

REV: 8/31/10
ID1: MTD980953657
ID2: 0800458
STATUS: NFRAP-N
PHONE:

DESCRIPTION:

ACTION/QUALITY	AGENCY/RPS	START/RAA	END
ISSUE REQ LTTRS (104e)	Federal Enforcement		4/25/1991
Public Notice Published	EPA Fund-Financed		6/26/1988
ISSUE REQ LTTRS (104e)	Federal Enforcement		4/16/1991
ARCHIVE SITE	EPA In-House		5/24/1991
ISSUE REQ LTTRS (104e)	Federal Enforcement		3/19/1991
ADMINISTRATIVE RECORDS ADMIN RECORD COMPILED FOR A REMOVAL EVENT	EPA Fund-Financed	/1-88-5/19 Primary	9/26/1988
DISCOVERY	EPA Fund-Financed		1/21/1985
NON-NPL PRP SEARCH SEARCH COMPLETE, VIABLE PRPS	Federal Enforcement	/1-91-3/19	5/24/1991
PRELIMINARY ASSESSMENT HIGHER PRIORITY FOR FURTHER ASSESSMENT	EPA Fund-Financed		3/17/1986
PREPARATION OF COST DOCM PKGE	Federal Enforcement Primary	19-91-1/1/	4/30/1991
REMOVAL STABILIZED	EPA Fund-Financed Primary	/1-88-5/19	5/27/1988
SITE INSPECTION HIGHER PRIORITY FOR FURTHER ASSESSMENT	State, Fund Financed		3/31/1989
SITE INSPECTION HIGHER PRIORITY FOR FURTHER ASSESSMENT	State, Fund Financed		12/31/1986

Environmental FirstSearch
Site Detail Report

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

STATE

SEARCH ID: 16 **DIST/DIR:** 0.88 SW **ELEVATION:** 2956 **MAP ID:** 24

NAME: RELIANCE REFINING CO
ADDRESS:
KALISPELL MT 59901
CONTACT:

REV: 04/29/10
ID1: 165
ID2: CECRA-RERC
STATUS: CECRA
PHONE:

ONTANA COMPREHENSIVE ENVIRONMENTAL CLEANUP AND RESPONSIBILITY ACT-CECRA

ALTERNATE NAME:
OPERATION: Operated from 11/11/24 to 1960s
DESCRIPTION: Abandoned oil refinery

STATE

SEARCH ID: 14 **DIST/DIR:** 1.01 SE **ELEVATION:** 2900 **MAP ID:** 25

NAME: KALISPELL LANDFILL WILLOW GLEN ROAD
ADDRESS:
KALISPELL MT
CONTACT:

REV: 04/29/10
ID1: 103
ID2: CECRA-KALW
STATUS: CECRA
PHONE:

ONTANA COMPREHENSIVE ENVIRONMENTAL CLEANUP AND RESPONSIBILITY ACT-CECRA

ALTERNATE NAME: Old Kalispell City Landfill Willow Glen Road Landfill
OPERATION: Operated from Unk to 1971
DESCRIPTION: Inactive municipal landfill

Environmental FirstSearch Descriptions

NPL: ***EPA*** NATIONAL PRIORITY LIST - The National Priorities List is a list of the worst hazardous waste sites that have been identified by Superfund. Sites are only put on the list after they have been scored using the Hazard Ranking System (HRS), and have been subjected to public comment. Any site on the NPL is eligible for cleanup using Superfund Trust money.
A Superfund site is any land in the United States that has been contaminated by hazardous waste and identified by the Environmental Protection Agency (EPA) as a candidate for cleanup because it poses a risk to human health and/or the environment.
FINAL - Currently on the Final NPL
PROPOSED - Proposed for NPL

NPL DELISTED: ***EPA*** NATIONAL PRIORITY LIST Subset - Database of delisted NPL sites. The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.
DELISTED - Deleted from the Final NPL

CERCLIS: ***EPA*** COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM (CERCLIS)- CERCLIS is a database of potential and confirmed hazardous waste sites at which the EPA Superfund program has some involvement. It contains sites that are either proposed to be or are on the National Priorities List (NPL) as well as sites that are in the screening and assessment phase for possible inclusion on the NPL.
PART OF NPL- Site is part of NPL site
DELETED - Deleted from the Final NPL
FINAL - Currently on the Final NPL
NOT PROPOSED - Not on the NPL
NOT VALID - Not Valid Site or Incident
PROPOSED - Proposed for NPL
REMOVED - Removed from Proposed NPL
SCAN PLAN - Pre-proposal Site
WITHDRAWN - Withdrawn

NFRAP: ***EPA*** COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM ARCHIVED SITES - database of Archive designated CERCLA sites that, to the best of EPA's knowledge, assessment has been completed and has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.
NFRAP – No Further Remedial Action Plan
P - Site is part of NPL site
D - Deleted from the Final NPL
F - Currently on the Final NPL
N - Not on the NPL
O - Not Valid Site or Incident
P - Proposed for NPL
R - Removed from Proposed NPL
S - Pre-proposal Site
W – Withdrawn

RCRA COR ACT: ***EPA*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984.
RCRAInfo facilities that have reported violations and subject to corrective actions.

RCRA TSD: ***EPA*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM

TREATMENT, STORAGE, and DISPOSAL FACILITIES. - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984.
Facilities that treat, store, dispose, or incinerate hazardous waste.

RCRA GEN: ***EPA/MA DEP/CT DEP*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM GENERATORS - Database of hazardous waste information contained in the Resource Conservation and Recovery Act Information (RCRAInfo), a national program management and inventory system about hazardous waste handlers. In general, all generators, transporters, treaters, storers, and disposers of hazardous waste are required to provide information about their activities to state environmental agencies. These agencies, in turn pass on the information to regional and national EPA offices. This regulation is governed by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments of 1984.
Facilities that generate or transport hazardous waste or meet other RCRA requirements.
LGN - Large Quantity Generators
SGN - Small Quantity Generators
VGN – Conditionally Exempt Generator.
Included are RAATS (RCRA Administrative Action Tracking System) and CMEL (Compliance Monitoring & Enforcement List) facilities.
CONNECTICUT HAZARDOUS WASTE MANIFEST – Database of all shipments of hazardous waste within, into or from Connecticut. The data includes date of shipment, transporter and TSD info, and material shipped and quantity. This data is appended to the details of existing generator records.
MASSACHUSETTES HAZARDOUS WASTE GENERATOR – database of generators that are regulated under the MA DEP.
VQN-MA = generates less than 220 pounds or 27 gallons per month of hazardous waste or waste oil.
SQN-MA = generates 220 to 2,200 pounds or 27 to 270 gallons per month of waste oil.
LQG-MA = generates greater than 2,200 lbs of hazardous waste or waste oil per month.

Federal IC / EC: ***EPA*** BROWNFIELD MANAGEMENT SYSTEM (BMS) - database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various Brownfield grant Programs.
FEDERAL ENGINEERING AND INSTITUTIONAL CONTROLS- Superfund sites that have either an engineering or an institutional control. The data includes the control and the media contaminated.

ERNS: ***EPA/NRC*** EMERGENCY RESPONSE NOTIFICATION SYSTEM (ERNS) - Database of incidents reported to the National Response Center. These incidents include chemical spills, accidents involving chemicals (such as fires or explosions), oil spills, transportation accidents that involve oil or chemicals, releases of radioactive materials, sightings of oil sheens on bodies of water, terrorist incidents involving chemicals, incidents where illegally dumped chemicals have been found, and drills intended to prepare responders to handle these kinds of incidents. Data since January 2001 has been received from the National Response System database as the EPA no longer maintains this data.

Tribal Lands: ***DOI/BIA*** INDIAN LANDS OF THE UNITED STATES - Database of areas with boundaries established by treaty, statute, and (or) executive or court order, recognized by the Federal Government as territory in which American Indian tribes have primary governmental authority. The Indian Lands of the United States map layer shows areas of 640 acres or more, administered by the Bureau of Indian Affairs. Included are Federally-administered lands within a reservation which may or may not be considered part of the reservation.
BUREAU OF INDIAN AFFIARS CONTACT - Regional contact information for the Bureau of Indian Affairs offices.

State/Tribal SWL: ***MT DEQ*** OPEN AND CLOSED LANFILL LIST - Obtained from a geographic image file from the MT DEQ

State/Tribal LUST: ***MT DEQ*** LIST OF PETROLEUM RELEASE SITES - Leaking UST facilities

State/Tribal UST/AST: ***MT DEQ*** LIST OF ACTIVE UST SYSTEMS - Active UST facilities

State/Tribal VCP: ***VCRA*** VOLUNTARY CLEANUP AND REDEVELOPMENT ACT (VCRA)

REGISTRY - The act was developed to permit and encourage voluntary cleanup of facilities where releases or threatened releases of hazardous or deleterious substances exist, by providing interested persons with a method of determining what the cleanup responsibilities will be for reuse or redevelopment of existing facilities.

State/Tribal Brownfields: ***MT DEQ/EPA*** MONTANA DEQ BROWNFIELDS LIST - Sites in the MT Brownfields Program.
Brownfields Management System (BMS) is an analytical database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various Brownfield grant Programs.

RADON: ***NTIS*** NATIONAL RADON DATABASE - EPA radon data from 1990-1991 national radon project collected for a variety of zip codes across the United States.

Environmental FirstSearch
Street Name Report for Streets within .25 Mile(s) of Target Property

Target Property: FORMER MCELROY AND WILKEN GRAVEL PIT SITE

KALISPELL MT 59901

JOB: MT10160050-1

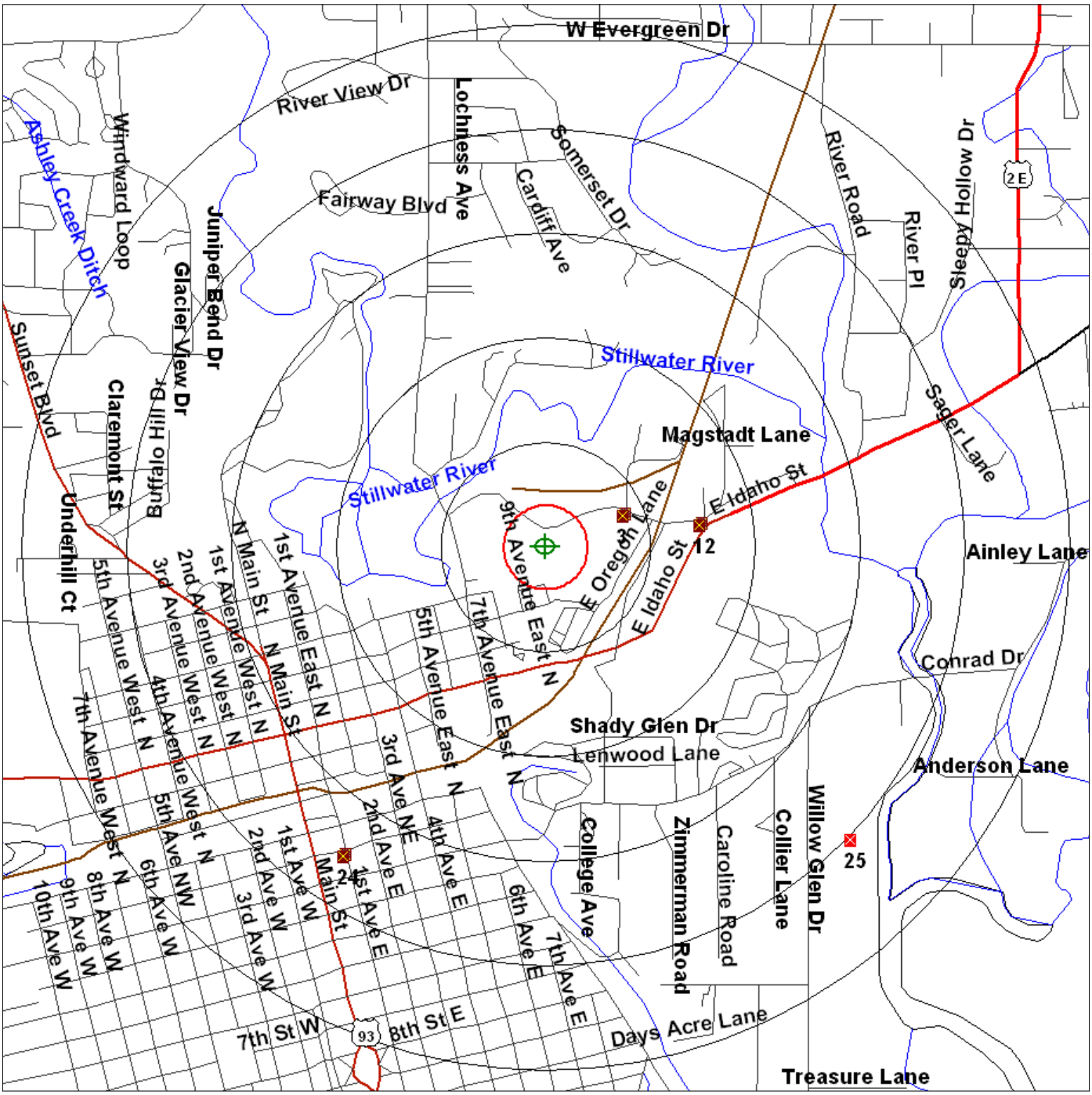
Street Name	Dist/Dir	Street Name	Dist/Dir
10th Avenue East N	0.10 SW		
8th Avenue East N	0.20 SW		
9th Avenue East N	0.14 SW		
E California St	0.20 SW		
E Idaho St	0.25 SE		
E Oregon Ln	0.13 SW		
E Oregon St	0.13 SW		
E Washington St	0.25 SW		
Flathead Dr	0.18 NE		
Montclair Dr	0.25 NE		
United States Highwa	0.25 SE		
United States Highwa	0.25 SE		
Whitefish Stage	0.25 SW		
Whitefish Stage Rd	0.25 SW		

Environmental FirstSearch

1.25 Mile Radius

NPL RCRACOR State Sites

FORMER MCELROY AND WILKEN GRAVEL PIT SITE , KALISPELL MT



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 48.208534 Longitude: -114.301758) .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

Railroads .....

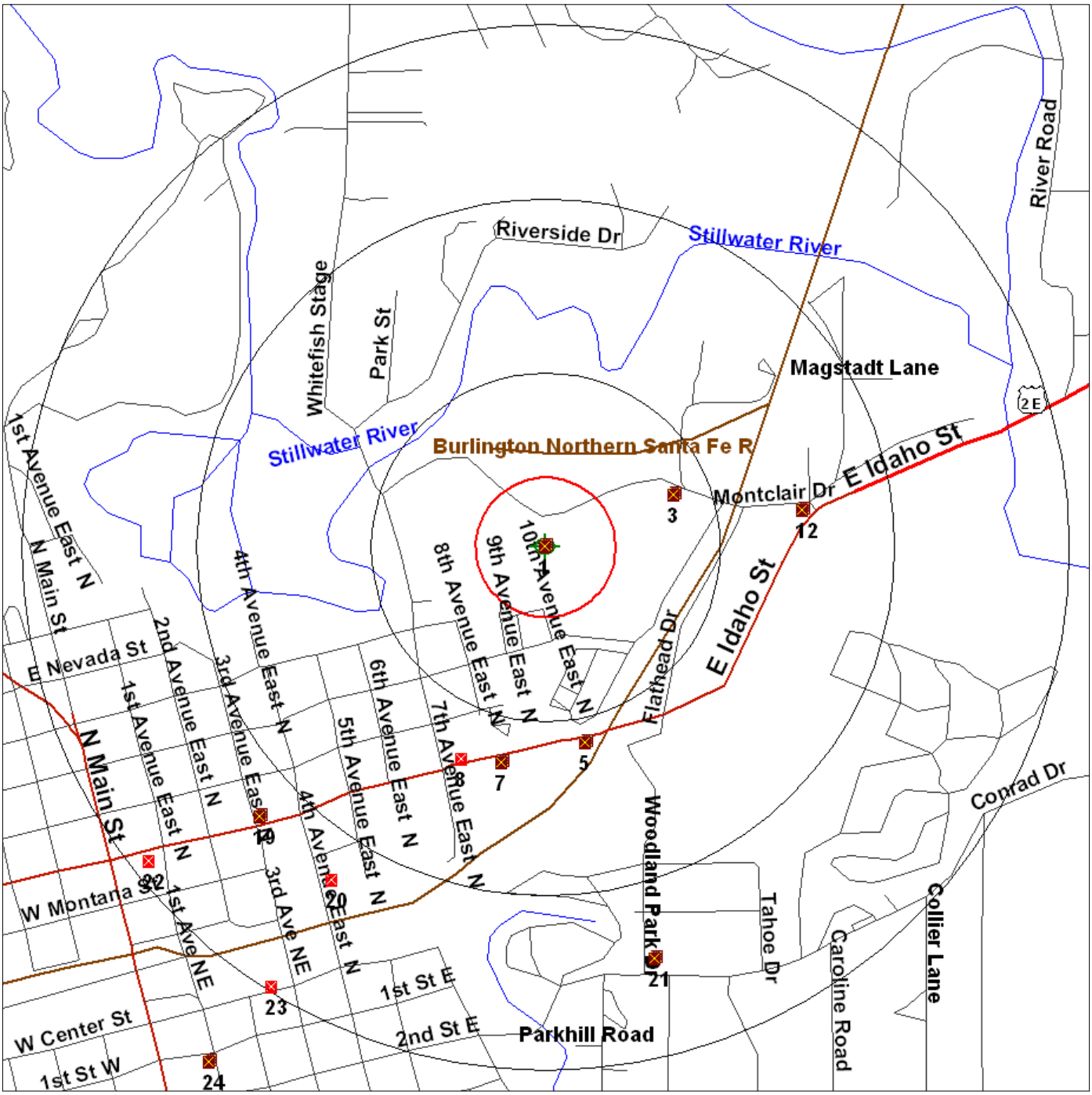
Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.75 Mile Radius

Selected FEDERAL SWL LUST Sites

FORMER MCELROY AND WILKEN GRAVEL PIT SITE , KALISPELL MT



Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 48.208534 Longitude: -114.301758) .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

Railroads .....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

.5 Mile Radius

RCRAGEN ERNS UST Sites

FORMER MCELROY AND WILKEN GRAVEL PIT SITE , KALISPELL MT

Source: 2005 U.S. Census TIGER Files

Target Site (Latitude: 48.208534 Longitude: -114.301758) .....

Identified Site, Multiple Sites, Receptor .....

NPL, DELNPL, Brownfield, Solid Waste Landfill (SWL), Hazardous Waste

Triballand.....

Railroads .....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

APPENDIX C
TANK CLOSURE LETTER

Site 5:1705 HG

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

RECEIVED
MAR 21 2005
Department of Environmental Quality
Kalispell Regional Office

March 14, 2005

McElroy & Wilkens
801 Whitefish Stage Road
Kalispell, MT 59901

Subject: No Further Corrective Action Required for the Release at McElroy & Wilkens, 801 Whitefish Stage Road, Kalispell, MT: Facility ID# 15-01294, Release #2507.

KA

Dear Sirs:

The Department of Environmental Quality (DEQ) Petroleum Release Section (PRS) has reviewed information associated with a petroleum release at the above-referenced facility. Based on the available information, it appears that the corrective action was proper and that no further investigation or cleanup activities are needed. You may still be responsible for any damages not yet identified resulting from leaks, spills, or improper closure of the tank(s).

The decision that no further corrective action is required is based on the following:

- The source of the contamination at the waste oil tank and the former dispenser area has been removed.
- A test pit was completed down gradient of the waste oil tank.
- Groundwater analytical data indicates that groundwater has not been impacted by petroleum hydrocarbons.
- Confirmation soil samples collected during remediation were below DEQ Risk Based Screening Levels (RBSLs).

Although some residual hydrocarbon concentrations remain in the soil immediately below the former waste oil tank at 844 parts per million Total Extractable Hydrocarbons, when fractionated all results were below RBSLs. The DEQ does not feel this poses a risk to human health or to the environment.

The DEQ-PRS will maintain your "release" file so that if you need any information in the future or new problems with your site arise, it can be accessed easily. If you still have outstanding permit requirements or fees due, the Technical Services Bureau's Environmental Services Section will contact you separately.

If you have any questions concerning this letter please contact this office at (406) 755-8985, ext.105. The DEQ-PRS appreciates your cooperation concerning corrective action requirements.

Sincerely,

Scott Mestring for,

Marcile Sigler
Environmental Specialist
cloltr81.ms

cc: Tom Kandt, Board Staff
Flathead County Sanitarian, 1035 1st Avenue West, Kalispell, MT 59901
Scott Mason, Land & Water Consulting, P.O. Box 8027, Kalispell, MT 59901

APPENDIX D
AERIAL PHOTOGRAPHS

1938 USDA Aerial Photo

1946 USDA Aerial Photo

1954 USDA Aerial Photo

1961 USDA Aerial Photo

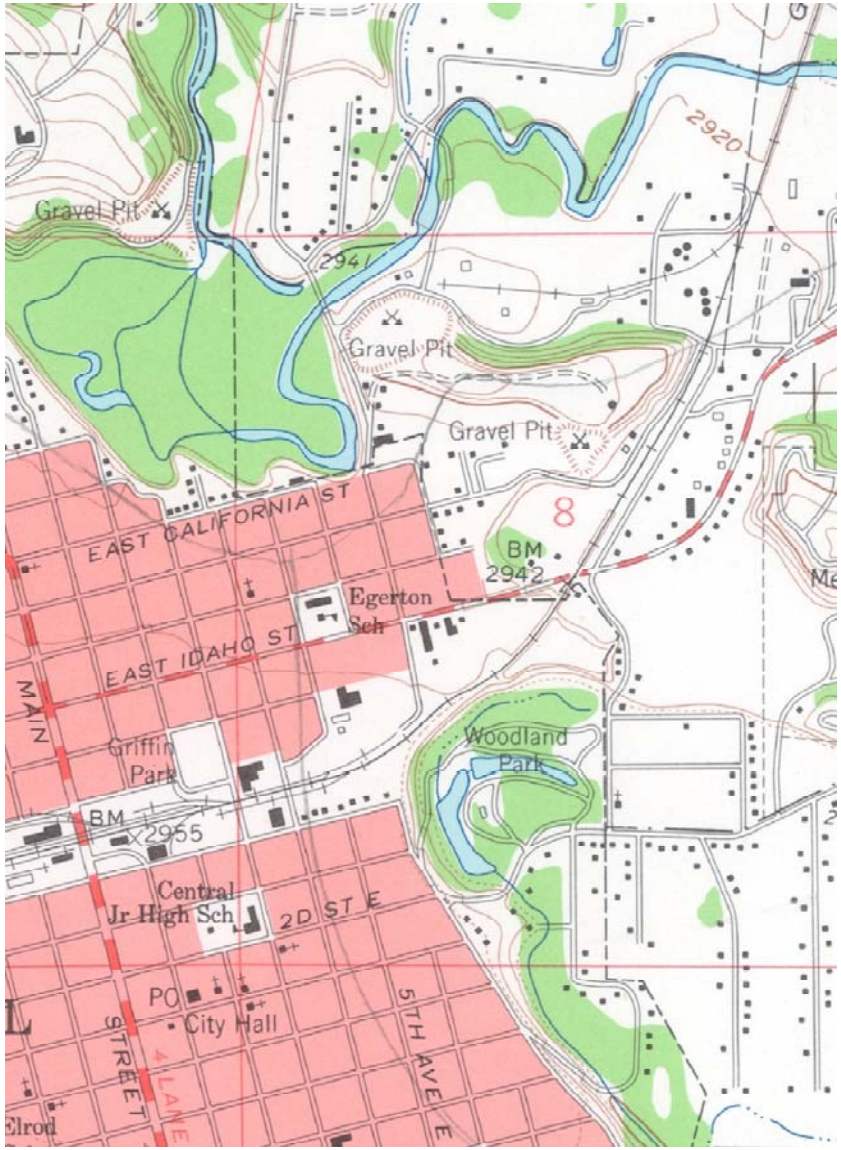
1974 USDA Aerial Photo

1998 USDA Aerial Photo

2006 City of Kalispell Aerial Photo

APPENDIX E
TOPOGRAPHIC MAPS

1962 USGS Topographic Map



1994 USGS Topographic Map

APPENDIX F
ENVIRONMENTAL LIEN SEARCH REPORT

Land Title Inquiries, Inc.

Order No. 11-120L

Subject Property Address: Former McElroy and Wilken Gravel Pit Site, Kalispell, MT.

Current Owner of Record: JTL Group, Inc., htta McElroy and Wilken, Inc. and merging into JTL Group, Inc. by Articles of Merger on 4/16/2003
Grantor: Mary Catherine Wilcox and Minnie Irene Wilcox
Recorded: 5/19/1983
Book 769 Page 494

Environmental Lien/AUL Search prepared exclusively for:

Infomap Technologies, Inc.

Job No. 55901 Effective Date: February 4, 2011

Land Title Inquiries

Order No. 11-120L

ENVIRONMENTAL LIEN/AUL SEARCH

We have done a search of Flathead County Recorders Records for “Environmental Liens” only on the subject property as identified as Former McElroy and Wilken Gravel Pit Site, Kalispell, MT. and find the following:

None found

We have done a search of Flathead County Recorders Records for “Activity and Use Limitations” (AUL’s) only on the subject property as identified as Former McElroy and Wilken Gravel Pit Site, Kalispell, MT. and find the following:

None found

Order No.

BOOK 769 PAGE 494

WARRANTY DEED

For Value Received MARY CATHERINE WILCOX of Kalispell, Montana and MINNIE IRENE SHINN of Redwood City, California,

the grantors, do hereby grant, bargain, sell and convey unto McELROY AND WILKEN, INC., a Montana Corporation of Kalispell, Montana,

the grantee, the following described premises, in Flathead County, Montana, to-wit:

SEE EXHIBIT "A" ATTACHED HERETO.

5-19-83

TO HAVE AND TO HOLD the said premises, with their appurtenances unto the said Grantee, its heirs and assigns forever. And the said Grantors do hereby covenant to and with the said Grantee, that they are the owners in fee simple of said premises; that they are free from all incumbrances

and that they will warrant and defend the same from all lawful claims whatsoever.

Dated: February 1, 1974.

Mary Catherine Wilcox

STATE OF MONTANA, COUNTY OF FLATHEAD

On this [illegible] 1974, before me, [illegible] public, personally appeared

MARY CATHERINE WILCOX,

whose name is [illegible] instrument, and acknowledged to [illegible] executed the same.

Notary Public

, Montana

5/25/1974

STATE OF MONTANA, COUNTY OF

I hereby certify that this instrument was filed for record at the request of

at minutes past o'clock m., this day of 19, in my office, and duly recorded in Book of Deeds at page

Ex-Officio Recorder

By Deputy.

Fees $

Mail to:

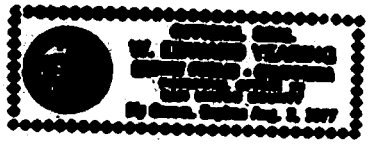
INSTRUMENT No.

STATE OF CALIFORNIA)
: ss
County of San Mateo)

BOOK 769 PAGE 495

On this 7th day of March, 1974, before me, the undersigned, a Notary Public for the State of California, personally appeared MINNIE IRENE SHINN, known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that she executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial Seal the day and year first above written.



Notary Public for the State of California
Residing at San Carlos, California
My Commission expires August 13, 1977

When recorded return to:

Warranty Deed

FROM

TO

DRAWN BY

"Under All the Land -- The Title"

COMPLIMENTS OF
Flathead County Title Company
27 - 2ND ST. EAST
KALISPELL, MONTANA
PHONE 756-3623

Member of
AMERICAN LAND TITLE ASSOCIATION

Dependable Title Service

Title Insurance - - Abstracts
Escrows

COMPLETE TITLE SERVICE

SCHEDULE "A"

A tract of land in the N½, Section 8, Township 28 North, Range 21 West M.P.M., Flathead County, Montana, more particularly described as follows:

Beginning at a point in the West line of the NE¼ of Section 8, bearing South 0° 20' 48" East, a distance of 643.94 feet from the ¼ corner common to Sections 5 and 8, which said point is the Southwest corner of a parcel described in deed to Reliance Refining Company recorded in Book 191 page 170, records of Flathead County, Montana; thence along the South line of said parcel,

North 89° 23' 12" East, a distance of 739.32 feet to a point in the Easterly line of the Burlington Northern Railway right of way; thence along the right of way line

South 18° 08' 25" West, a distance of 241.91 feet to a point therein; thence

South 89° 13' 10" West, a distance of 45.86 feet to a point on the westerly boundary of a County Road; thence along said road boundary,

South 27° 17' 10" West, a distance of 197.00 feet to a point therein; thence along said road,

South 30° 14' 10" West, a distance of 323.10 feet to a point in the South line of the NW¼NE¼ of Section 8; thence along the South line,

North 89° 52' 10" West, a distance of 360.99 feet to the Southwest corner of said NW¼NE¼; thence, along the South line of the NE¼NW¼ of said Section 8,

North 89° 51' 55" West, a distance of 1258.24 feet to the Southeast corner of that parcel described in deed to Pearl M. Knight recorded in Book 353 page 585, records of Flathead County, Montana; thence along the Knight parcel the following courses:

North 14° 12' 55" West, a distance of 80.20 feet to a point therein; thence

North 1° 01' 05" East, a distance of 146.75 feet to a point therein; thence

North 89° 29' 55" West, a distance of 330.20 feet to a point therein; thence

South 12° 30' 05" West, a distance of 206.00 feet to a point therein; thence

South 37° 04' 55" East, a distance of 32.30 feet to the Southwest corner of said Knight parcel in the South line of the NW¼NW¼; thence along the South line,

North 89° 51' 55" West, a distance of 1005.85 feet to the Southwest corner of the NW¼NW¼; thence along the West line of said Section 8,

North 0° 04' 15" East, a distance of 932.80 feet to the Southwest corner of that parcel described in Order of Distribution recorded in Book 513 page 525, records of Flathead County, Montana; thence along the Southerly boundary of said parcel,

North 80° 45' 00" East, a distance of 158.66 feet to a point therein; thence continuing along said southerly boundary

North 65° 22' 00" East, a distance of 121.40 feet to a point; thence

South 60° 19' 00" East, a distance of 119.00 feet to a point;

continued

SCHEDULE "A" Cont. page 2.

thence
North 58° 17' 00" East, a distance of 201.77 feet to a point in the Southerly boundary of that parcel described in deed recorded in Book 29 page 132, records of Flathead County, Montana; thence along said Southerly boundary
South 59° 00' 00" East, a distance of 419.07 feet to a point therein; thence
North 63° 30' 00" East, a distance of 367.60 feet to the most Westerly corner of that parcel described in deed recorded in Book 241 page 629, records of Flathead County, Montana; thence along the Southerly boundary of said parcel,
South 48° 18' 00" East, a distance of 533.99 feet to a point therein; thence
South 53° 12' 00" East, a distance of 151.14 feet to a point therein; thence
South 62° 44' 00" East, a distance of 157.08 feet to a point therein; thence
South 74° 34' 00" East, a distance of 118.80 feet to a point therein; thence
South 89° 58' 00" East, a distance of 188.76 feet to a point therein; thence
North 67° 10' 00" East, a distance of 323.40 feet to a point therein; thence
North 75° 40' 00" East, a distance of 139.92 feet to the Southeast corner thereof; thence continuing
North 75° 40' 00" East, adistance of 4.37 feet to a point in the East line of the NW¼ of said Section 8; thence along the East line,
North 0° 20' 48" West, a distance of 55.91 feet, more or less, to the point of beginning. TOGETHER with all water rights appurtenant thereto.
Except public roads and rights of way.

Return TO: Tax Sam -
McElroy And Wilken, Inc.
Box 35
Kalispell, Mt. 59901

Mary Catherine Wilcox
Mary Catherine Wilcox

Minnie Irene Shinn
Minnie Irene Shinn

STATE OF MONTANA. } ss
County of Flathead

Filed for record at the request of County Treasurer
this 19 day of May 19 83 at 10:20 o'clock A M and recorded in VOL 769
PAGE 494 Records of Flathead County, State of Montana.
Fee $ 8.50 Pd.

RECEPTION NO. 83 - 8670

Iris L. Hindman
Flathead County Clerk and Recorder

RETURN TO

Nancy E. Cornelsman
Deputy

2003129 15170

FM-29993

SECRETARY OF STATE

STATE OF MONTANA

M

CERTIFICATE OF FACT

I, **BOB BROWN**, Secretary of State of the State of Montana, do hereby certify that on 08/03/1990, JTL GROUP, INC. was incorporated under the laws of the State of Montana and received its Certificate of Incorporation for a term of perpetual duration.

I further certify that the registered agent as listed on the 2002 annual report was JOHN ALKE, 40 W LAWRENCE STE A, BOX 1166, HELENA, MONTANA, 59624-1166.

I further certify that on 04/16/2003, Articles of Merger were filed merging MCELROY AND WILKEN, INC. into JTL GROUP, INC., a Montana corporation.

I further certify that the corporate existence of MCELROY AND WILKEN, INC. ceased as of the effective date of the filing of the Articles of Merger, and JTL GROUP, INC. is the surviving corporation.

I further certify that JTL GROUP, INC. is in good standing under the laws of the State of Montana and authorized to transact in business and conduct its affairs in this state.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the Great Seal of the State of Montana, at Helena, the Capital, this **May 5, 2003**.

Bob Brown

BOB BROWN
Secretary of State

2003129 15170

STATE OF MONTANA)
County of Flathead) ss

Recorded at the request of FCTC

this 9 day of May 2003 at 3:17 o'clock P M.
and recorded in the records of Flathead County, State of Montana.

Fee $ 6.- Pd.
RECEPTION NO.

Paula Robinson
Flathead County Clerk and Recorder

RETURN TO Flathead Title
PO Box 188
Kal MT 59903

Deputy

Certified File Number: D-069946

APPENDIX G
SITE PHOTOGRAPHS

Area A Photos

(Riparian Zone)

Stillwater River flood channel/spring brook and riparian area; view to the Southwest.

Wood debris and partially filled flood channel.

Riparian/upland habitats near the Stillwater River. View to the east.

Riparian/floodplain zone on east side of flood channels near Whitefish Stage Road.

Area B Photos

(Gravel Mine Area)

View of the Site to the west-northwest from a gravel stockpile; site buildings visible in the background.

View of the Site to the east-northeast from a gravel stockpile; KRY site visible in the background

View of the Site to the north from the southwest corner of the property; concrete batch plant visible in the background.

View of Site buildings from the concrete batch plant.

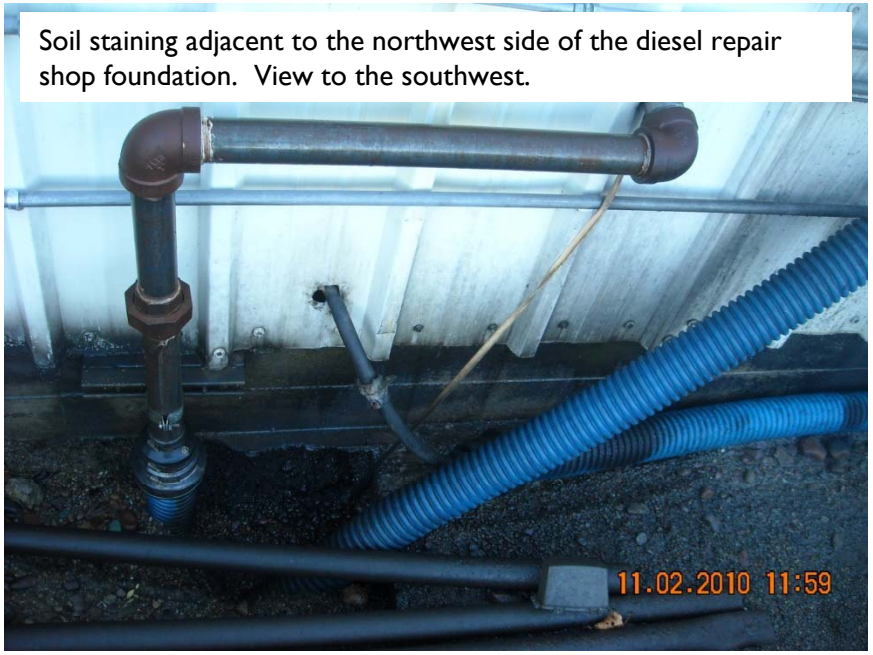
Site buildings, including the diesel shop (right), older frame building (center), and office/weight station (center-left). View to the west.

Stratigraphy in the southern portion of Tract 6. View to the South.

Concrete batch plant. View to the southwest.

Riparian area and Stillwater River channel at the northwestern-most extent of Area B. View to the northeast.

Soil staining at ground surface adjacent to 55-gallon drums. Northwest side of diesel repair shop.



Soil staining adjacent to the northwest side of the diesel repair shop foundation. View to the southwest.

Soil and foundation staining at northwest side of diesel repair shop. Steel and plastic pipes visible.

Various containers, waste oil tanks, and parts washer along north wall of diesel shop. View to the west.

Interior concrete sump along northern portion of the diesel shop. View to the southwest.

Parts washing station midway along northern wall of the diesel shop.

Containers of used oil on the northeast side of the parts washing station.

Exterior concrete sump at the northwest corner of the diesel shop. View to the northeast.

Typical monitoring well completions. Wells KRY 121A and 121B. View to the east.

Loader and excavator working in the northeastern portion of Tract 5. View to the northeast. The excavation is one component of the remedial action being implemented at the KRY site.

Concrete waste in Tract 5 and/or Tract 6. View to the northwest.

Plastic-lined shallow excavation near northern boundary of Tract 1. View to the east.

NOVEMBER 2011

PHASE II ENVIRONMENTAL SITE ASSESSMENT

KNIFE RIVER PROPERTY (FORMER McELROY & WILKEN SITE) 801 WHITEFISH STAGE ROAD KALISPELL, MONTANA

CITY OF KALISPELL MONTANA

AMEC Geomatrix

PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT

Knife River Property
(Former McElroy & Wilken Site)

801 Whitefish Stage Road
Kalispell, Montana

Prepared for:

City of Kalispell
201 First Avenue East
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PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT

Knife River Property
801 Whitefish Stage Road
Kalispell, Montana

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LIST OF ACRONYMS

ACBM	Asbestos Containing Building Materials
BNSF	Burlington Northern Santé Fe Railroad Company
CERCA	Comprehensive Environmental Cleanup Responsibility Act
CFR	Code of Federal Regulations
CSM	Conceptual Site Model
DEQ	Montana Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
EPH	Extractable Petroleum Hydrocarbons
ERB	Equipment Rinse Blank
ESA	Environmental Site Assessment
KRC	Knife River Corporation
KRY	Kalispell Pole and Timber, Reliance Refining Company, & Yale Oil Corporation
KTP	Kalispell Pole and Timber
LNAPL	Light Non-aqueous Phase Liquid
LPB	Lead Based Paint
MBMG	Montana Bureau of Mines and Geology
NESHAP	National Emissions Standards for Hazardous Air Pollutants
ORP	Oxidation Reduction Potential
PAH	Polycyclic Aromatic Hydrocarbon
PCP	Pentachlorophenol
PID	Photo-Ionization Detector
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RAWP	Remedial Action Work Plan
RBSL	Risk-Based Screening Level
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
Reliance	Reliance Refining Company
ROD	Record of Decision
RSL	Regional Screening Level
SAP	Sampling and Analysis Plan
SOP	Standard Operating Procedure
SSL	Soil Screening Level
TCLP	Toxicity Characteristic Leaching Procedure
USCS	Unified Soil Classification System
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds
VPH	Volatile Petroleum Hydrocarbons
Yale	Yale Oil Corporation

EXECUTIVE SUMMARY

AMEC Geomatrix, Inc. (AMEC) completed a Phase II Environmental Site Assessment (ESA) of several contiguous parcels owned by the Knife River Corporation (KRC) in Flathead County, Montana. The Phase II ESA evaluated potential environmental impacts associated with recognized environmental conditions (RECs) and potential contaminant sources identified during the 2011 Phase I ESA and historic uses of the property and adjacent properties. Assessment of the property (hereafter called the "Site") was conducted in accordance with ASTM standards and 42 USC §9601 (35) (B). The purpose of the ESA was to assess environmental impacts in anticipation of property sale and/or reuse. AMEC investigated the following potential contaminant sources during this ESA:

- Contaminants of concern that may have migrated via groundwater flow onto the Site from the adjacent KRY State CECRA (Superfund) Facility;
- Petroleum hydrocarbons originating near the onsite Truck Repair Shop;
- Exterior sump at the Truck Repair Shop;
- Asbestos and Lead-Based Paint associated with onsite structures; and
- An onsite plastic-lined pit.

Groundwater Impacts from the CECRA Facility

Contaminants have migrated in groundwater onto the Site from the adjacent KRY Facility. In general, concentrations of contaminants in groundwater samples collected on the eastern portion of the Site in 2011 (adjacent to the CECRA Facility) were similar to or lower than historic concentrations. Pentachlorophenol (PCP) and dioxin concentrations in the sampled monitoring wells were below Montana Department of Environmental Quality (DEQ) risk-based screening levels (RBSLs) and/or numeric groundwater quality standards. Dioxin concentrations were either similar to or lower than the most recent historical samples collected from the monitoring wells. Petroleum hydrocarbons, iron, and manganese were not detected in groundwater above water quality standards. AMEC was unable to obtain groundwater samples from two of the onsite monitoring wells proposed for sampling in the EPA–approved SAP. One of the wells contained free product and an obstruction in the casing was encountered in the second well. We do not recommend additional groundwater investigation or sampling at this time.

Soil at the Truck Repair Shop

AMEC documented petroleum hydrocarbon contamination in three test pits completed on the northwest side of the Truck Repair Shop. The surficial waste-oil source sample contained methylene chloride at a concentration that exceeded the EPA generic soil screening level protective of the leaching to groundwater pathway. The source sample also contained C9-C18 aliphatic hydrocarbons at a concentration that exceeded the residential surface soil DEQ Tier I RBSL. Concentrations of C9-C18 aliphatic hydrocarbons; however, were below DEQ Tier I RBSLs protective of commercial exposure. Methylene chloride and C9-C18 aliphatic hydrocarbon concentrations in subsurface test-pit soil samples (depths of 2.5-4 feet) were also below EPA and DEQ screening levels, suggesting that the depth of soil contamination is limited. At a test pit excavated laterally from the source area, concentrations of C9-C18 aliphatic hydrocarbons and C11-C22 aromatic hydrocarbons exceeded their respective residential Tier I RBSLs in surface soil but were below

residential and commercial RBSLs at a depth of 2.5 feet bgs. AMEC recommends shallow excavation and offsite disposal of soils along the northwest side of the Truck Repair Shop to eliminate exposure risks associated with direct contact to the soil or ingestion of contaminants that may leach to groundwater.

Truck Repair Shop Sump

AMEC inspected the sump and collected a sediment sample from the sump structure. The sump has a concrete bottom and sides. Water and sediment in the sump prevented a thorough inspection of the concrete; however, the sump appeared to be intact. Concentrations of several volatile organic compounds in the sediment sample slightly exceeded EPA leaching to groundwater generic soil screening levels. Concentrations of C9-C18 aliphatic hydrocarbons and C11-C22 aromatic hydrocarbons also exceeded the residential surface soil Tier 1 RBSLs; however, concentrations were below commercial RBSLs. Based on the above information, we recommend removal and disposal of the sump contents. Closure of the sump should be considered as it represents a potential source of contamination to underlying soil and groundwater.

Asbestos and Lead-Based Paint

Five onsite buildings were inspected and sampled to evaluate the presence of asbestos containing building materials (ACBM). Three building materials were determined to be ACBMs: mastic in the scale office; roofing/silver paint in the main shop; and window glazing in the tire shop. Sampling for lead-based paint (LBP) was completed to evaluate the lead content of anticipated waste streams if one or more buildings were to be demolished. Waste stream lead concentrations were below the regulatory standard of 5.0 mg/L lead for four of the five buildings. The waste stream concentration at the tire shop was 5.6 mg/L, largely due to lead in the structure's exterior painted siding.

AMEC recommends the removal of ACBMs at the time the building(s) are demolished and/or renovated. Abatement of the asbestos will require special considerations for handling and containerization prior to demolition. The Flathead County Landfill will accept such materials provided they are appropriately containerized and transported. Special considerations for lead abatement are required prior to demolition of the Tire Shop. The principal work required consists of removal of the exterior painted siding or paint on the siding prior to demolition of the building and appropriate disposal of the lead-based paint.

Plastic-Lined Pit

AMEC collected three five-point composite samples of soil within the pit to document the presence/absence of potential contaminants of concern. Concentrations of all contaminants of potential concern were below applicable EPA and DEQ generic soil screening levels. AMEC does not recommend any additional investigation or remediation of soils located within the lined pit.

Cleanup Costs

The estimated cost to implementation of the above recommendations is estimated to cost approximately $28,000.

1.0 INTRODUCTION

AMEC Geomatrix, Inc. (AMEC) completed a Phase II Environmental Site Assessment (ESA) of several contiguous parcels owned by the Knife River Corporation (KRC) in Flathead County, Montana (**Figure 1**). The property investigated is located west of U.S. Highway 93 and immediately north of the Kalispell city limit (**Figure 1**). The Phase II ESA evaluated potential environmental impacts associated with recognized environmental conditions (RECs) identified during the Phase I ESA (AMEC 2011a) and historic uses of the property and adjacent properties. Assessment of the property (hereafter called the "Site") was conducted in accordance with ASTM standards and 42 USC §9601 (35) (B). The purpose of the ESA was to assess environmental impacts in anticipation of property sale and/or reuse. This report documents the methods and results of the assessment, and provides conclusions and recommendations with regard to additional assessment and site remediation based on anticipated property redevelopment.

AMEC completed the assessment using EPA community-wide hazardous substance grant funds. The assessment was completed in accordance with the Phase II Sampling and Analysis Plan (SAP) approved by EPA and DEQ in September 2011 (AMEC 2011a). The SAP was initially approved by the EPA, and then later by the DEQ (**Appendix A**). DEQ approval of the plan was required because soil and groundwater sampling within the boundary for the KRY Montana Comprehensive Environmental Cleanup Responsibility Act (CECRA) facility was deemed a remedial action.

AMEC provided the City of Kalispell with preliminary results of the assessment in a letter dated October 14, 2011 (AMEC 2011b).

1.1 Background and Site Description

The Site is located in an area of mixed commercial, residential and heavy industrial land uses (**Figure 2**). The Stillwater River and Whitefish Stage Road are located near the western and northwestern Site boundaries, and the Burlington Northern Railroad and Flathead Drive are located near the eastern boundary. The Site comprises several parcels of land, all owned by Knife River Corporation (KRC). Although the Site is located just outside of the Kalispell city limit, KRC has signed a waiver of the right to protest annexation. Several properties near and adjacent to the Site, as well as a portion of the Site, are part of a Montana (CECRA) site known as the KRY Facility (See Section 2.1).

The Site consists of seven contiguous parcels of land that total 56.6 acres. The legal description of the Site is Tracts 1 through 7, Certificate of Survey No. 18380, Flathead County, Montana. Approximately 15.9 acres of Tract 1 is located on the west side of Whitefish Stage Road within the floodplain of the Stillwater River. This portion of the KRC property, which contains undeveloped forested areas, wetlands, and a riparian area, was not part of the environmental assessment. The remaining 40.7 acres (the focus of this assessment) is located on the east side of Whitefish Stage Road, and is a former gravel mining operation that contains an inactive concrete batch plant, an active truck repair shop and a storage facility (**Figure 2**). KRC leases a portion of the Site to Butch Barber Trucking, which operates the repair shop and stores equipment in a nearby Quonset hut.

Although the area of the Site investigated is generally flat, past gravel-mining operations have significantly altered land surface elevations. The highest elevation is in the southwestern portion of the gravel mine

property, and the lowest elevations occur in the eastern portion of the Site where open excavations remain. No permanent surface water features are present on the Site.

Land cover consists of large expanses of exposed gravel and soil, some grass-covered areas, small areas of asphalt and concrete pavement, and asphalt and concrete waste. Roads adjacent to the Site include Whitefish Stage Road (western Site boundary); East Oregon Street (to the south and east); Flathead Drive (to the north and east); and an unnamed gravel road that forms the northern property boundary. A BNSF rail line parallels Flathead Drive and East Oregon Street, and a rail spur extends from east to west on the north side of the Site.

1.2 Geologic and Hydrogeologic Conditions

Metamorphosed sedimentary bedrock of the Belt Supergroup underlies the Flathead Valley (including the Site). The bedrock is overlain by Tertiary- and Quaternary-age valley-fill sediments (Harrison et al. 1992; LaFave 2000). Glaciofluvial processes deposited alluvial sand and gravel above the Tertiary-age sediments. A confining unit (clay and gravelly silt) separates the deeper aquifer (alluvial sand and gravel) from an unconfined surficial aquifer within the valley. The deeper sand and gravel aquifer supplies most of the potable water to the Kalispell area (Smith 2000a). Several supply wells on the Site were completed to depths of approximately 250 feet below ground surface (bgs); however, most of the potable water near the Site is supplied by domestic and public water supply wells that are completed in the unconfined surficial aquifer.

The upper 600 to 1,000 feet of valley fill materials were deposited in the Quaternary Period during the most recent glacial cycle. These sediments consist of alluvium, glacial till, and glaciolacustrine deposits. According to Smith (2000b), surficial deposits on the Site consist of Quaternary-age river terrace and glacial lake sediments. Observations at an exposed stratigraphic section in the eastern portion of the Site near Flathead Drive were consistent with alluvial terrace deposition and glacial lake sediments (AMEC 2011c). Well- to poorly-sorted and interbedded sand, gravel, and silt were observed (consistent with fluvial deposition). The finely laminated silt observed on the Site is typical of lacustrine deposition.

According to the Remedial Action Work Plan for the adjacent KRY Facility (Trihydro Corporation 2009), all three hydrostratigraphic units (deep artesian aquifer, confining unit, and unconfined aquifer) underlie the Site. The unconfined aquifer at the KRY Facility consists largely of sandy, silty gravel and gravelly, silty sand with minor amounts of clay, silt, and fine- to coarse-grained sand. Investigations at the KRY Facility to date have been restricted to the shallow aquifer and the confining unit.

Unconfined groundwater present at depths of approximately 20 feet bgs near the Site is likely disconnected from the deeper artesian aquifer (Smith 2000a; Trihydro Corporation 2009). In August 2006, the groundwater flow direction in the shallow aquifer was to the east-southeast on the adjacent KRY Facility and on the northern and eastern portion of the Site (Trihydro Corporation 2009).

According to records maintained by the Montana Bureau of Mines and Geology (MBMG 2011), the former gravel mine operator (McElroy & Wilken, Inc.) is the listed owner for several wells located on the Site. Total depths listed for these wells ranged from 240 to 260 feet bgs, and static water levels were between 30 and 40 feet bgs. These wells were completed in the deep artesian aquifer.

1.3 Current and Future Use of the Site and Adjoining Parcels

Five buildings are located in the northwestern portion of the Site: an inactive concrete batch plant, a scale office/weigh station, an older wood frame building (tire shop), a steel-frame structure (repair shop), and a Quonset hut (**Figure 3**). The steel structure is currently under lease to Butch Barber Trucking for use as a truck repair shop. The trucking company also uses the nearby Quonset hut as a storage facility. The three other buildings are apparently unused. Portions of the Site not associated with structures comprise gravel pits; gravel, soil, concrete, and asphalt stockpiles; internal roads; and uncovered storage areas.

The majority of available aggregate products have been mined from the Site. According to Mr. Alrick Hale of KRC, the company does not plan to conduct additional mining or resume operations at the concrete plant. It is our understanding that KRC is in final negotiations with a party to sell the land. Future commercial and industrial use is anticipated.

Properties north of the Site are or were used for industrial purposes. Former operations included a lumber yard and a refinery. Current business uses north of the Site include a lumber yard and a stone supply company. Land uses east of the Site include a mix of commercial/retail and industrial businesses, professional offices, and single-family residences. A rail line is located east of the Site. Single-family homes, a truck repair shop, and a trailer park are located south of the Site. The KRY CECRA Facility (see Section 2.1) encompasses property located east and northeast of the Site, as well as a portion of Tracts 1, 5, and 6 of the Site (**Figure 2**).

KRC owns undeveloped land west of Whitefish Stage Road that is within the floodplain of the Stillwater River (**Figure 2**). Lands further west and south are owned by the City of Kalispell and are part of Lawrence Park. Lands north of the Whitefish Stage Road bridge are under commercial and residential ownership.

1.4 Site Land Use

The Kalispell Growth Policy Future Land Use Map designates the Knife River property as industrial land. According to the City of Kalispell Planning Department, the Site currently falls within the I-2 (Heavy Industrial) Flathead County Zoning District, which was developed to "provide for industrial uses to accommodate heavy manufacturing, processing, fabrication, and assembly of parts or materials" (City of Kalispell 2011). The I-2 District also allows for light industrial uses, which are those that "typically do not create objectionable by-products (such as dirt, noise, glare, heat, odors, smoke, etc.), which extend beyond the lot lines".

If the City of Kalispell annexes the Site, it would most likely fall into one of the following zoning districts:

- B-5 (Industrial-Business)
    - Accommodates a variety of business, warehouse, and light-industrial uses.
    - Typically found in areas designated as industrial or urban mixed use on the Growth Policy map.

- I-1 (Light Industrial)
    - Provide areas for light industrial, research and technology uses.
    - Typically restricted to areas designated as industrial on the Growth Policy map.

- I-2 (Heavy Industrial)
    - Provides areas for heavy industrial uses to accommodate heavy manufacturing, processing, fabrication and assembling of products or materials.
    - Typically restricted to areas designated as industrial on the Growth Policy map.

If the recommendations in Section 11.0 below are implemented, the Site is suitable for business and industrial uses consistent with the Zoning Districts specified above.

2.0 RECOGNIZED ENVIRONMENTAL CONDITIONS (RECS)

The following sections provide background information on the Recognized Environmental Conditions (RECs) identified in the Phase I ESA (AMEC 2011a). These RECs formed the basis by which AMEC developed the scope of the Phase II ESA.

2.1 KRY CECRA Facility

The Kalispell Pole & Timber (KPT), Reliance Refining Company (Reliance), and Yale Oil Corporation (Yale) sites neighbor each other and represent sources of contamination that represent a potential environmental risk to the Site. The DEQ is overseeing cleanup of the sites as one property called the KRY Facility. The DEQ has designated the KRY facility as a high priority CECRA site. A portion of the Site is located within the boundaries of the KRY Facility (**Figure 2**). Groundwater and soil contamination originating at the KRY facility has migrated onto the northeastern portion of the Site.

The KPT site is an inactive wood treating facility that operated from approximately 1945 to 1990. The Reliance facility is an inactive oil refinery that operated from 1924 until the 1960s. The Yale facility is an inactive petroleum bulk plant and product refinery that operated from 1938 to 1978. Soil and groundwater are contaminated with pentachlorophenol (PCP), dioxins/furans, polynuclear aromatic hydrocarbons, petroleum hydrocarbons, and metals.

The DEQ issued a Record of Decision (ROD) for the KRY Facility in June 2008 (DEQ 2008). The site remedy includes the following components:

- Institutional controls, including land use restrictions and a controlled groundwater area;
- Consolidation of dioxin/furan-contaminated soils in an onsite repository;
- Excavation and disposal of lead-contaminated soils and recovered product;
- PCP-and petroleum hydrocarbon-contaminated soil treatment in an onsite RCRA land treatment unit;
- Free-product (light non-aqueous phase liquid or LNAPL) recovery;
- Chemical oxidation of the groundwater plume (PCP, dioxins/furans, and petroleum hydrocarbons);
- Monitored natural attenuation for petroleum hydrocarbons and metals in groundwater; and
- Long-term groundwater monitoring.

In October 2009, the DEQ issued a Remedial Action Work Plan (RAWP, DEQ 2009) for the KRY Facility that describes the implementation of the remedy. The RAWP indicated that contaminated soils are present on portions of the Site within the CECRA boundary (**Figure 2**). Soils contaminated with lead, dioxins, and petroleum hydrocarbons were detected on the far northeasterneastern portion of the Site. Up to 0.5 feet of free-product has been observed in monitoring wells completed on the north central area of the Site. In addition, groundwater in the northeastern area of the Site is contaminated above DEQ groundwater

standards with metals (manganese and iron), petroleum hydrocarbons, PCP, and dioxin/furans; however, the extent of groundwater contamination has been defined by the CECRA boundary (**Figure 2**).

According to Ms. Moriah Bucy, DEQ Project Manager for the KRY Facility, surface and subsurface soils containing elevated concentrations of lead in the far northeastern portion of the Site were excavated in October 2010. The excavation completion report indicated that the remediation effort successfully removed soils containing lead from the Site. Based on this information, the DEQ determined that the soil excavation to remediate lead on the KRY Facility was complete. At this time, there is no contaminated soil associated with sources at the KRY facility thought to be located on the Site, with the exception of contaminated soil located within the groundwater smear zone. Contaminated groundwater is located on the Site within the CECRA facility boundary shown on **Figure 2**. Remediation of soil and groundwater at the KRY Facility is ongoing and cleanup activities are anticipated to continue for several years.

2.2 Hydrocarbon Impacts to Soils at the Truck Repair Shop

Several waste oil containers and 55-gallons drums were observed during the Phase I site visit along the northwest side of the Truck Repair Shop (**Figure 3**). Soil staining was observed around the drums. AMEC also noted soil and building foundation staining near steel and plastic piping entering the subsurface in this area. A parts washer, aboveground waste oil tank, buckets containing waste oil, and various hydrocarbon and chemical containers were also present along the northwestern interior wall of the shop, coincident with the exterior staining.

AMEC contacted Mr. Butch Barber, current operator of the trucking business about the soil staining. According to Mr. Barber, a former waste oil underground storage tank (UST) located north of the shop building was removed. This information is consistent with DEQ records. Mr. Barber felt that the hydrocarbon impacts we observed were likely restricted to surface soils. He indicated that containers observed during the Phase I ESA consisted largely of waste oil and antifreeze, and that waste oil is burned as a heat source for the repair shop. He also said that pipes on the northwest side of the building were previously used to fill the waste oil tank, but that they are not currently in use. Interviews with KRC staff indicated that the waste oil UST has been removed.

2.3 Sumps at the Truck Repair Shop

During the Phase I ESA site inspection, AMEC observed two sumps associated with the repair shop. An interior sump was located parallel to and in the northern half of the shop. This structure consisted of a concrete-lined trench approximately three feet deep. The walls and floor of the sump contained minor staining, but appeared to be intact and in good condition. Several drains in the floor of the shop emptied into the interior sump.

An exterior sump was observed near the northwest corner of the Truck Repair Shop. Although the walls of the sump appeared to be constructed of concrete, fluid in the sump at the time of the Phase I ESA site visit prevented observation of the bottom of the structure. A mechanic present during the Phase I Site visit stated that the contents of the interior sump were routinely removed and transferred to the exterior sump. A previous Phase I ESA of the Site (Olympus Technical Services 2002) indicated that water from the exterior sump was spread on Site, and sediment was stockpiled in an on-site bermed area. However, the 2002 ESA did not provide the locations of the sediment stockpile and wastewater application area. The

stockpile may have been associated with an onsite plastic-lined pit (see Section 2.5), although this could not be confirmed.

According to KRC employee interviews, trucks, excavators, other equipment, and various parts were washed near the sump outside the repair shop (**Figure 3**). However, none of the employees could provide definitive information about the locations of the sediment stockpile or wastewater disposal point.

2.4 Asbestos and Lead-Based Paint in Structures

The ages of the on-site structures suggested that they might contain asbestos and/or lead-based paint. Although these materials are not RECs per the ASTM standard (ASTM International 2005), asbestos and lead-based paint were considered to be environmental liabilities for the Site, particularly since there is the potential for demolition of the buildings in the future.

2.5 Other Potential RECs

2.5.1 Plastic-Lined Pit

During the Phase I ESA, a plastic-lined pit or depression was identified near the northern boundary of the Site (**Figure 2**). KRC employees and DEQ staff did not know the origin or purpose of this feature; however, it appears that it could have been used as a secondary containment cell. The 2011 Phase I ESA did not identify the depression as a REC because there was no indication that a release had occurred in connection with the feature.

2.5.2 Leaking Underground Storage Tank

According to Ms. Marcile Sigler (DEQ Petroleum Technical Section), one petroleum release identification number (2507) has been assigned to the Site. The release was confirmed in January 1995 when several underground storage tanks (USTs) were removed. Release 2507 appears to be associated with two separate onsite releases: a diesel dispenser and a waste oil UST. Over-excavation at the diesel tank area south of the truck repair shop produced approximately ten cubic yards of soil. According to Ms. Sigler, the soil excavated at the diesel tank area was processed through an onsite washer and was mixed into a cement batch. A second source of contamination was documented in soil at the older waste oil tank (north of the truck repair shop).

Release 2507 is listed as inactive by the DEQ, and DEQ closed the file in March 2005. According to the closure letter, corrective actions were proper and no additional investigation or cleanup was required. Residual hydrocarbon contamination remains in soil at the location of the former waste oil tank, but the DEQ indicated that concentrations were below RBSLs. The above information indicates that the release is a historical REC, but is not necessarily a current REC.

3.0 PHASE II INVESTIGATION PURPOSE AND APPROACH

The purpose of the Phase II ESA was to gather data necessary to evaluate data gaps associated with RECs identified in Section 2.0. The specific objectives of the Phase II ESA included the following:

1. Evaluation of the extent of surface and subsurface soil impacts next to the Truck Repair Shop sump where oil has been stored above and below ground and where there is evidence of an oil release to surface soils.
2. Assessment of potential environmental impacts associated with the Truck Repair Shop sump.
3. Investigation of surface soils where shop sump sediments had reportedly been disposed of on site.
4. Collection of groundwater samples from selected existing onsite monitoring wells to evaluate current groundwater quality conditions related to migration of contamination from the KRY CECRA Facility.
5. Inspection of the plastic-lined pit/depression and sampling of soil stockpiled inside the feature to evaluate if it represents an environmental concern.
6. Surveying of onsite structures for asbestos and lead-based paint.
7. Preparation of preliminary cleanup cost estimates for soil.

3.1 Triad Approach

In accordance with EPA site assessment guidance, AMEC utilized the Triad Approach for the environmental assessment at the Site. The Triad Approach helps manage uncertainty and employs innovative characterization tools and strategies to improve site characterization. The primary goal of the Triad Approach is to increase confidence in project decisions concerning contaminant presence, location, fate, exposure, and risk (EPA 2004). The approach comprises three primary components: 1) Systematic Project Planning, 2) Dynamic Work Strategies, and 3) Real-Time Measurement Technologies. Additional details regarding the Triad Approach are provided in the SAP (AMEC 2011c). Elements of the Triad Approach that were used for the Phase II ESA are described below.

- AMEC used the findings of the Phase I ESA and interviews with KRC employees to develop both a site-specific conceptual model of contamination and the scope of work.
- The SAP was developed with the potential end use of the property in mind (i.e. commercial and/or industrial development), although data were compared to residential screening levels as well.
- Laboratory reporting limits were compared to generic soil screening levels prior to conducting the field assessment to ensure that the data collected would allow stakeholders to make informed decisions with respect to contamination and redevelopment. This approach reduced the potential for collecting unusable data.

- The field team leader was responsible for communicating with the project manager and was authorized to make decisions to adapt the work plan based on observed field conditions.
- The SAP allowed for the collection of additional soil and/or groundwater samples based on field observations or analytical results in an effort to determine the extent of contamination. This approach was advantageous because it: 1) allowed for decisions concerning contamination extent in the field; 2) increased the amount of data and information that could be collected during a single mobilization; 3) reduced the time and costs required for preparation of supplemental planning documents.
- All laboratory analytical data were provided in an electronic format, which allowed AMEC to evaluate and manage the data more efficiently.
- AMEC used a photoionization detector (PID) capable of providing real-time measurements of volatile concentrations in soil to aid in evaluating sampling frequency, identifying specific areas of contamination, and determining the need for supplemental sample locations.

4.0 FIELD AND ANALYTICAL METHODS

The following sections detail the methods AMEC employed to evaluate potential onsite impacts to soil and groundwater and to determine whether onsite buildings were contaminated with asbestos and lead-based paint. All fieldwork was conducted in accordance with the site-specific Health and Safety Plan (AMEC 2011c), the Final Quality Assurance Project Plan (QAPP) for the City of Kalispell Brownfield Project (AMEC 2011d), and AMEC standard operating procedures (SOPs) applicable to the scope of work (AMEC 2011c).

AMEC documented soil sampling locations by measuring their distances from fixed onsite points that are visible on aerial photographs. Monitoring well locations were determined during previous surveying efforts. All field observations (including but not limited to soil types, visual indications of potential contamination, and sample locations) were recorded in a project-dedicated field book (**Appendix B**) or on appropriate field forms.

Prior to the field investigation, AMEC contacted the Flathead County UDIG Underground Utility Location Center to have all buried public utilities marked at the Site. Utilities identified on the Site included electric power, natural gas, communication, and water lines, as well as the onsite septic system. Electric, gas, and communication lines were noted near the southwest corner of the Truck Repair Shop. The water line serving the repair shop reportedly entered the structure along its southeast side. The septic tank was located near the northwest corner of the building.

4.1 Site-Wide Groundwater Sampling

As part of the cleanup process for the KRY State Superfund facility located directly north of the Site, groundwater sampling was conducted to evaluate the extent of groundwater quality impacts (Trihydro Corporation 2009). Groundwater impacts have been documented on the Site (**Table 1**). The primary contaminants of concern in groundwater are PCP, dioxins, petroleum hydrocarbons, and metals (iron and manganese).

The last comprehensive onsite groundwater sampling event (during which all contaminants of concern were analyzed at the same time) was completed more than five years ago. For this reason, AMEC collected groundwater samples from selected onsite monitoring wells to evaluate current trends in groundwater quality. Prior to groundwater sampling, water level measurements were collected from each well using a decontaminated electronic well probe to allow for determinations of groundwater elevations and groundwater flow directions.

AMEC sampled or attempted to sample groundwater from monitoring wells KPT-16, KRY 102A and 102B, KRY 104A, KRY 107A and 107B, KRY 111A and 111B, and KRY 121A (**Figure 3**). The DEQ controls access to the KRY wells, and BNSF Railway Company maintains monitoring well KPT-16. AMEC coordinated with DEQ and BNSF to sample the wells. Groundwater samples were submitted to Pace Analytical Services (Pace) of Billings, Montana for analysis of EPH, VPH, RCRA metals, iron, manganese, PCP, and dioxins (**Table 2** and **Table 3**).

AMEC did not sample monitoring wells KRY 111A and KRY 121A during the Phase II ESA. Well KRY 111A contained petroleum free product (consistent with two sampling events conducted in 2010). AMEC was

unable to sample well KRY 121A due to an obstruction in the well casing. The cause of the obstruction is unknown.

Groundwater samples were collected using low-flow sampling procedures, as outlined in ASTM Standard D 6771-02 and DEQ's low flow purging and sampling guidance (DEQ 2005). To purge the wells and collect the samples, AMEC used a 0.85-inch diameter stainless steel bladder pump that can be fully disassembled and decontaminated in the field. New polyethylene tubing was used at each well. All non-disposable down-hole sampling equipment was decontaminated. Field parameters measured during well purging include temperature, specific conductance, pH, dissolved oxygen, oxidation-reduction potential (ORP), and turbidity. Groundwater sampling forms are contained in **Appendix C**.

All samples were shipped in ice-filled and sealed coolers under chain-of-custody documentation. Each cooler was secured with strapping tape and displayed a shipping label with laboratory contact information. The chain-of-custody form identified each sample, specified the date and time of sample collection, and listed the requested analyses for each sample. Because all EPH screen concentrations were less than 1,000 micrograms per liter (µg/L), Pace did not analyze EPH fractions or PAHs (consistent with DEQ requirements).

Groundwater QA/QC samples were collected in accordance with the SAP and the QAPP (AMEC 2011a and AMEC 2011d). Groundwater QC samples included a blind field duplicate, an equipment rinse blank, and a trip blank. The field duplicate was collected to evaluate the accuracy of the laboratory. The equipment rinse blank (ERB) sample was collected to evaluate the completeness of decontamination procedures. The trip blank was submitted to assess the potential for sample contamination during sample shipment. AMEC collected the ERB sample by pouring deionized water over decontaminated reusable sampling equipment and collecting the rinse water in sample containers. The field duplicate and equipment rinse blank were analyzed for the same constituents as the natural samples. The trip blank was analyzed for VPH.

Wastes fluids generated during the site-wide groundwater sampling event included groundwater and decontamination fluids from the washing/rinsing process. PCP present in groundwater and/or free product in several of the sampled monitoring wells has been determined by the DEQ to be an FO32-listed hazardous waste, and as such, may not be applied to the land surface. Therefore, purged groundwater, rinse water, and wash water generated at these wells was containerized in a 55-gallon drum. AMEC sampled the drum contents to determine the appropriate waste disposal method. The drums were stored within secondary containment devices in a secure location on the Site pending receipt of laboratory analytical results.

4.2 Soil Investigation at the Truck Repair Shop Area

AMEC completed a soil investigation in an attempt to document the depth and lateral extent of surface soil staining in proximity to the truck repair shop foundation and nearby waste oil drums. During the Phase I ESA, observation of the ground surface was hindered by the presence of pallets, logs, small aboveground storage tanks, drums, containers, hydraulic components, piping, and other miscellaneous equipment. Prior to the investigation, AMEC worked with KRC and Mr. Butch Barber to relocate these materials in order to obtain access to the area for sampling.

Gray and Sons Excavating of Bigfork, Montana completed test pits in the general area of soil staining. AMEC determined the number, location, and depth of the test pits in the field based on observed contaminant impacts. Three test pits (TP-1, TP-2, and TP-3) were completed along the northwestern side of the repair shop (**Figure 3**). Test pit depths varied from 3.5 feet to 9.0 feet bgs. **Appendix D** contains test pit logs. After soil sampling was complete, material excavated from each test pit was placed back in the pit in the reverse order that it was excavated, and topsoil material was returned to the top of the pit to the extent possible.

Each test pit was photographed (**Appendix E**). AMEC described soil lithologic characteristics encountered in the test pits in a field book in accordance with the Unified Soil Classification System (USCS) as described in ASTM D2488-00 (Visual-Manual Procedure) and SOPs. Soil descriptions included, but were not limited to, major and secondary lithologies, color, qualitative moisture content, soil structure, and additional descriptive modifiers (i.e., associated with contaminants).

At least two soil grab samples were collected for laboratory analysis from each test pit. Sample depths were determined in the field, and samples of both impacted and non-impacted soil were submitted for analysis to determine the extents of impacts. In addition, AMEC collected a surface soil sample in a heavily-stained area to characterize the petroleum source.

AMEC screened soils in the field for the presence of volatile organic compounds (VOCs) with a Photo-Ionization Detector (PID) to help determine which soil samples to submit for analysis. Prior to completion of the test pit investigation, AMEC's field team leader discussed conditions encountered in the test pits with AMEC's Project Manager to determine the adequacy of the investigation and the sampling effort.

To prevent cross-contamination between soil samples and test pits, all sampling equipment was decontaminated between sampling locations using distilled water, alconox detergent, and a methanol rinse. Decontamination procedures were conducted at a designated location on the property that was located an appropriate distance from sampling activities.

All soil samples were submitted to Pace for analysis of Extractable Petroleum Hydrocarbons (EPH), Volatile Petroleum Hydrocarbons (VPH), volatile organic compounds (VOCs) and Resource Conservation and Recovery Act (RCRA) Metals (see **Table 2** and **Table 3**). Samples having a reported EPH screen concentration above 200 milligrams per kilogram (mg/kg) were also analyzed for EPH fractions and polynuclear aromatic hydrocarbons (PAHs). Quality Assurance/Quality Control (QA/QC) samples, which were collected in accordance with the SAP and the QAPP, included an equipment rinse blank sample and a trip blank. The rinse blank was analyzed for EPH, VPH, VOCs, and RCRA metals, and the trip blank was analyzed for VPH. Field duplicates for soil samples were not collected due to soil heterogeneities.

All soil samples were placed in ice-filled and sealed coolers for shipment to the laboratory with chain-of-custody documentation that specified the laboratory analyses for each sample. Each cooler was secured with strapping tape.

The SAP proposed the installation of one monitoring well in the petroleum source area and a second monitoring well downgradient of the source area if the test pit investigation indicated that petroleum contamination may have reached the shallow aquifer in the repair shop area. Based on site observations and soil laboratory analytical results, neither of the two proposed wells was installed.

4.3 Sump Inspection and Sediment Sampling

During the Phase II ESA, AMEC probed the sump (**Figure 3**) to determine its total depth, to evaluate the competency of its bottom, and to determine if sediment was present in the sump. AMEC collected a sample of sediment for analyses of EPH, VOCs, and RCRA metals. Because the EPH screen concentration was greater than 200 mg/kg, the sample was also analyzed for EPH fractions and PAHs. Sampling and shipping procedures were similar to those for surface soils as described above.

The SAP proposed the installation of one monitoring well near the sump if the sump inspection and/or analytical results indicated that soils and/or groundwater may have been impacted by release(s) from the structure. Based on the sump inspection, which showed it to have a competent concrete bottom, and the sediment laboratory analytical results, a monitoring well was not installed.

4.4 Building Material Inspections

Existing buildings may be renovated or demolished if the property is redeveloped. Therefore, AMEC and its subcontractors completed an inspection and sampling of onsite buildings to evaluate the presence of asbestos-containing building materials (ACBMs) and lead-based paint (LBP) in interior and exterior finishes.

4.4.1 Asbestos Sampling

TDH Engineering, Inc. (TDH) of Kalispell, Montana and its subcontractor (ALM Consulting, LLC of Helena, Montana) completed a visual survey of the onsite structures to identify potential ACBMs. Samples were collected from all suspected ACBMs in accordance with SOPs included in the SAP (AMEC 2011a) and submitted to Carolina Environmental Inc. of Cary, North Carolina for laboratory analysis of asbestos by EPA Method 600/R-93/116 (polarized light microscopy). Duplicate samples were not collected because several samples were obtained from each suspected ACBM. Repairs to the material sampling locations were made to prevent asbestos exposure. Building materials were considered ACBMs if they contain greater than 1% asbestos by weight, as defined in the National Emissions Standards for Hazardous Air Pollutants (NESHAP) under 40 CFR Part 61.

4.4.2 Lead-Based Paint Sampling

To identify LBP associated with the structures, TDH and ALM sampled painted surfaces in accordance with SOPs included in the SAP (AMEC 2011a). The number and location of paint samples was determined by the number of different paints and substrates identified during the sampling effort. During the survey, areas with similar substrates and paints were identified and considered homogenous with respect to sampling. Toxicity Characteristic Leaching Procedure (TCLP) lead analysis was completed to determine if the demolition of a building would generate a waste steam considered to be a characteristic hazardous waste under RCRA. Proportional samples of the entire potential waste stream of each building were collected and analyzed for TCLP lead. Samples for analysis of TCLP lead (EPA Method 1311) were submitted to Carolina Environmental, Inc. Duplicate samples were not collected because several samples were obtained from each homogenous area of potential LBP. Confirmation of lead content in paint chips by laboratory analysis was expressed as weight of lead per weight of sample. Paint having a total lead concentration greater than 0.5% or 5,000 milligrams per kilogram (mg/kg) was identified as LBP and will require in-place management or abatement.

4.5 Plastic-Lined Pit

Figure 2 shows the location of a lined pit near the northern boundary of the Site. To the extent possible, AMEC evaluated the integrity of the plastic liner. Samples of soil stockpiled in the lined pit were also collected to evaluate the presence/absence of potential contaminants of concern. AMEC collected three five-point composite samples of soil within the pit (Lined Pit – 1, Lined Pit – 2, and Lined Pit – 3). Soil samples were obtained using a hand trowel. All samples were submitted to Pace for analysis of EPH, VPH, PCP, and metals (see **Table 2** and **Table 3**). The soil investigation methods were identical to those described above with respect to sample recording, handling and shipment.

The SAP proposed the collection of up to three soil grab samples from below the liner material in locations where the integrity of the liner had been compromised. AMEC's inspection revealed several small breaches in the liner along the pit's sloped sidewall; however, no breaches in the bottom of the pit were documented. Therefore, AMEC did not collect subsurface samples below the liner.

5.0 DEVIATIONS FROM THE SAP

The SAP specified that AMEC would collect groundwater samples from monitoring wells KRY 111 A and KRY 121 A. Because well KRY 111 A contained free product (LNAPL), groundwater samples were not collected. A casing obstruction prevented the collection of groundwater samples from well KRY 121 A.

In accordance with the SAP, soil samples were to be collected at the sump sediment disposal location. No samples were collected at the sump sediment disposal area because AMEC was unable to field-verify the disposal location. AMEC attempted to work with KRC staff and Mr. Butch Barber to identify, to the extent possible, the exact location where sediments were reportedly placed on the site (AMEC 2011c). Mr. Barber indicated that the location of sediment placement was likely under asphalt and concrete waste stockpiles that were placed on the eastern portion of the property; however, he was not able to field verify the location of the sediment stockpile. Due to the lack of additional location information, AMEC did not collect surface soil samples in association with the reported sediment disposal location.

6.0 SOIL SCREENING LEVELS AND GROUNDWATER STANDARDS

6.1 Soil Screening Levels

The SAP indicated that AMEC would compare soil contaminant concentrations to generic (not site-specific) EPA and DEQ screening levels. Generic soil screening levels (SSLs) were designed to assess contamination at properties and evaluate specific contaminants that may pose risks for human health and/or the environment. Generic SSLs were developed using average values for physical and chemical parameters (e.g., lithologies/soil types, soil porosity, aquifer properties, and fractions of organic material) that are representative of a "typical" site. The tables included with this report provide analytical results for soil samples collected on the Site as well as applicable generic SSLs to allow the reviewer to compare concentrations found in samples collected from the site to screening levels.

Potential human and environmental risks and exposures vary based on land use. For example, residential land uses are typically characterized by continuous site occupancy, and risks to children must be considered. For industrial sites, tolerable risk levels are usually higher because site workers are present on the property for a limited time each day, and therefore the risks from direct contact are considered to be lower. Soils whose contaminant concentrations are below residential screening levels are assumed not to pose risks for commercial or recreational land users.

Several EPA and DEQ screening levels were used in this Phase II ESA. These included:

- EPA residential direct-contact regional screening levels (RSLs)
- EPA industrial direct-contact RSLs
- EPA leaching to groundwater soil screening levels (SSLs)
- Montana Tier 1 Risk-Based Screening Levels (RBSLs) for residential, commercial, and leaching to groundwater exposure pathways.

Direct-contact RSLs were developed to protect human health and consider the potential for contaminant contact through dermal absorption or ingestion. Leaching RSLs allow for evaluation of environmental risks by assessing the likelihood of groundwater contamination via migration through the soil profile. Montana Tier 1 RBSLs were established for petroleum releases as concentrations believed to be protective of both direct contact and consumption of groundwater via leaching. DEQ developed RBSLs for both surface and subsurface soils. Subsurface soil RBSLs vary based on the depth to groundwater.

If onsite contaminant concentrations are below generic RSLs and Montana Tier 1 RBSLs, the property is considered to pose an acceptable risk to human health and the environment, and no additional investigation or remedial actions is warranted. If the concentrations of contaminants in soil at a property are found to exceed generic RSLs or RBSLs, site-specific cleanup levels are often calculated to determine if concentrations exceed acceptable human health thresholds for current and anticipated future property uses. Site-specific cleanup levels are calculated using assumed or measured values of physical and chemical parameters representative of the site in question. If concentrations are found to exceed site-specific cleanup levels, soil and/or groundwater remediation is commonly required to obtain regulatory closure.

According to DEQ, existing site-specific cleanup levels calculated for the KRY Facility apply to samples collected within the facility's exterior boundary, which includes a portion of the Site (**Figure 2**). Based on the analytical results presented in this SAP, calculation of site-specific cleanup levels was not required.

6.2 Groundwater Standards

As specified in the SAP, contaminant concentrations in groundwater samples collected at the Site were compared with Montana Numeric Water Quality Standards (DEQ 2010b) and Montana Tier 1 groundwater RBSLs for petroleum constituents. Groundwater standards were developed by DEQ for the protection of human health. The tables included with this report provide analytical results for groundwater samples collected on the Site and a comparison of concentrations to these standards and RBSLs.

7.0 RESULTS

The sections below present the field and analytical results of the Phase II ESA. Laboratory analytical reports for soil and groundwater samples are contained in **Appendix G**.

7.1 Groundwater Occurrence and Groundwater Flow

AMEC measured depths to water prior to collecting groundwater samples at each of the monitoring wells (**Figure 2**). **Table 4** is a summary of selected monitoring well construction details, measuring point elevations, depths to water, and groundwater elevations collected between September 14 and September 16, 2011. Depths to groundwater ranged from 19.1 to 27.0 feet below the top of the PVC casings. Because the monitoring wells are approximately located along an east-west orientation, groundwater elevation data were not sufficient to construct potentiometric maps of the shallow and deep aquifers. The data indicate that groundwater elevations are generally higher at the western end of the Site. Data collected by DEQ during previous investigations of the KRY facility (TetraTech EM, Inc. 2008), showed that onsite groundwater flow directions were to the east-southeast in both the upper and the lower portions of the unconfined aquifer.

7.2 Groundwater Analytical Results

AMEC collected groundwater samples from seven onsite monitoring wells. Below is a summary of analytical results, which are presented in **Tables 5** through **7**.

- All metals concentrations were below applicable Montana Numeric Groundwater Quality (DEQ-7) Standards.
- Concentrations of all volatile petroleum hydrocarbons (VPH) and extractable petroleum hydrocarbons (EPH) were below analytical reporting limits and RBSLs.
- In wells KRY 102A and KRY 102B, concentrations of contaminants of potential concern were below detection limits in 2011 and in previous (historic) samples collected from these wells.
- Toluene was detected in well KRY 104A in 2006 but not in 2011. This result is consistent with an improvement in groundwater quality in this well since the last sampling event.
- Although PCP was detected in samples collected from several wells, concentrations were below the DEQ-7 Numeric Water Quality Standard.
- Dioxins were detected at concentrations ranging from 1.1 to 3.4 pg/L in 2011. Although this value is above the DEQ-7 standard of 2.0 pg/L, it is below the KRY Facility cleanup level of 5.6 pg/L. The concentrations of dioxins detected in groundwater are likely indicative of background dioxin concentrations within the aquifer. Dioxin concentrations were either similar to or lower than the most recent historic samples collected from the wells.
- AMEC did not sample well KRY 111 A due to the presence of free product on the water table. Groundwater at this well is likely contaminated with PCP, dioxins/furans, manganese, iron, and petroleum hydrocarbons at concentrations above DEQ water quality standards..

- Well KRY 121A was not sampled due to an obstruction in the PVC casing. During previous sampling events, groundwater at this well contained PCP, dioxins/furans, manganese, iron, and petroleum hydrocarbons.

7.2.1 Investigation-Derived Waste

A sample of wastewater generated during the groundwater sampling process (**Table 7**) contained PCP at a concentration of 0.19 µg/L. This concentration is below the DEQ-7 water quality standard and the KRY Facility cleanup level (both 1.0 µg/L). Therefore, the containerized water is not subject to special handling or disposal requirements, and may be disposed of on the ground.

7.3 Truck Repair Shop Soil Investigation

AMEC collected soil samples from test pits TP-1, TP-2, and TP-3 (**Figure 3**). Test pit soil analytical results (**Tables 8** through **12**) are summarized as follows:

- Concentrations of most metals were below generic RSLs. Chromium concentrations were below the Cr-III RSL but above the Cr-VI RSL. Concentrations in the soil samples were reported as total chromium (Cr-VI + Cr-III). Historic uses of the site are not suggestive of Cr-VI generation.
- Several VPH and PAH constituents were detected above laboratory reporting limits. However, all concentrations were below Montana Tier 1 RBSLs.
- Concentrations of most VOCs were below reporting limits or RSLs. The waste-oil source sample collected at test pit TP-1 contained methylene chloride at a concentration that exceeded the leaching to groundwater RSL.
- In the waste-oil source sample, C9-C18 aliphatic hydrocarbon concentration exceeded the residential surface soil RBSL, but was below the commercial RBSL. Methylene chloride and C9-C18 aliphatic hydrocarbon concentrations in test-pit soil samples collected beneath the waste oil source sample did not exceed any screening levels.
- At test pit TP-2, concentrations of C9-C18 aliphatic hydrocarbons exceeded the residential screening level at ground surface, but was below the commercial RBSL. C11-C22 aromatic hydrocarbon concentrations exceeded the residential and commercial RBSLs in the sample collected at ground surface. Concentrations of C9-C18 aliphatic hydrocarbons and C11-C22 aromatic hydrocarbons were below screening levels at a depth of 2.5 feet bgs.
- The Phase I ESA indicated that piping was observed entering the subsurface in the general location of surface staining and the former underground waste oil storage tank. The soil excavation at test pit TP-1 showed that the two pipes that appeared to enter the subsurface were in reality one pipe that formed a loop below ground surface (Appendix E). Although the piping likely served a former buried waste oil tank, the end of the pipe appeared to have been cut off after the tank was removed.

7.4 Sump Inspection and Sediment Sampling

AMEC completed an inspection of the concrete sump outside of the Truck Repair Shop (**Figure 3**; **Appendix E**). The walls and bottom of the square structure were constructed of concrete and appeared to be intact and fully competent. The bottom of the sump dipped toward the northeast. The area of the sump is approximately 120 square feet. Based on a mean solids thickness of 0.5 feet, the volume of sediment contained in the sump at the time of the Phase II ESA was approximately 60 cubic feet (2.2 cubic yards). Based on a mean height of the water column overlying the solids (2.2 feet), the volume of water present in the sump during the investigation was approximately 264 cubic feet (2,000 gallons). Sump sediment analytical results (**Tables 10** through **12**) are summarized below.

- Most metals concentrations were below RSLs. Chromium concentrations were below the Cr-III RSL but above the Cr-VI screening level. The concentration in the sediment sample was reported as total chromium (Cr-VI + Cr-III). Historic uses of the site are not suggestive of Cr-VI generation.
- Several PAH constituents were detected above laboratory reporting limits. However, all concentrations were below Montana Tier 1 RBSLs.
- Concentrations of most VOCs were below reporting limits or RSLs. The 1,2,4 trimethylbenzene and methylene chloride concentrations slightly exceeded leaching to groundwater RSLs.
- C9-C18 aliphatic hydrocarbon and C11-C22 aromatic hydrocarbon concentrations exceeded residential surface soil RBSLs, but were below commercial surface soil RBSLs.

7.5 Building Material Inspections

7.5.1 Asbestos

TDH and ALM inspected and sampled the scale office, the mixing plant, the main shop, the tire shop, and the welding shop (Quonset hut) (**Figure 3**) to evaluate the presence of asbestos containing building materials (ACBM). Building materials with greater than 1% asbestos are considered ACBMs. Three building materials were determined to be ACBMs:

- Mastic in the Scale Office contained 10% asbestos;
- Roofing/Silver Paint in the Main Shop contained 4-10% asbestos; and
- Window glazing in the Tire Shop contained 2% asbestos.

Additional asbestos inspection details are provided in **Appendix H**.

7.5.2 Lead-Based Paint

The on-site buildings have different dates of construction and were sampled separately for lead-based paint. Sampling was completed to evaluate the lead content of anticipated waste streams if one or more buildings were demolished. Waste stream lead concentrations were below the regulatory standard of 5.0 mg/L lead for four of the five buildings. The waste stream concentration at the tire shop was 5.6

mg/L, which was largely due to lead in the structure's exterior painted siding. Additional lead paint inspection details are provided in **Appendix H**.

7.6 Plastic-Lined Pit

AMEC collected three five-point composite samples of surface soil located within this feature (**Figure 2**). Analytical results are summarized below and in **Tables 13** through **15**.

- Most metals concentrations were below EPA regional soil screening levels. Chromium concentrations in all samples exceeded the Cr-VI screening level but were well below the Cr-III screening level. Concentrations in the soil samples were reported as total chromium (Cr-VI + Cr-III). Historic uses of the site are not suggestive of Cr-VI generation.
- VPH, PCP, and PAH concentrations were below RSLs and KRY Facility site-specific cleanup levels.
- The EPH screen concentration was above the ceiling limit of 200 mg/kg, which required the analysis of EPH fractions. However, all fraction concentrations were below screening levels.

8.0 DATA VALIDATION

AMEC collected Quality Assurance/Quality Control (QA/QC) data to assist with decision-making regarding potential additional assessment and preferred cleanup options. We collected soil and groundwater QA/QC samples during the Phase II ESA to evaluate analytical results and to assess whether errors were introduced during sample collection, handling, and transport, or at the laboratory. QA/QC samples were collected in accordance with applicable SOPs, the SAP (AMEC 2011c), and the QAPP (AMEC 2010d).

AMEC collected 11 natural surface/subsurface soil samples during the course of the Phase II ESA. The SAP did not require the collection of duplicate soil samples due to the inherent heterogeneity of soil. AMEC collected one equipment rinse blank (ERB) sample in association with the natural soil samples. We also collected a trip blank.

The soil-related ERB sample was analyzed for EPH, VPH, VOCs, and RCRA metals. Lead was detected at a concentration of 2.4 mg/kg, although the concentration was estimated (above the adjusted method detection limit and below the adjusted reporting limit). Lead concentrations in both the ERB and in the natural samples were well below EPA generic RSLs. Although benzene was detected at a concentration of 0.27 mg/L in the ERB sample, its concentration was also estimated. All natural-sample benzene concentrations were below reporting limits. Concentrations of all other constituents analyzed in the soil-related ERB sample were below laboratory reporting limits. Concentrations of all constituents in the trip blank were also below reporting limits.

AMEC collected seven natural groundwater samples during the investigation. QA/QC samples included one ERB, one trip blank, and one field duplicate. With the exception of dioxins, concentrations of all constituents were below laboratory reporting limits in the ERB sample. The dioxin concentration was 2.1 picograms per liter (pg/L). Although this concentration is above the Montana numerical groundwater standard of 2.0 pg/L, it is not likely representative of a source of contamination and is likely representative of the background concentration of the distilled water used to create the ERB sample. The dioxin concentration in the laboratory blank sample was 4.2 pg/L. Toluene was detected in the trip blank at a concentration of 0.13 μg/L. The toluene concentration was estimated by the lab. Toluene concentrations in the natural samples were below reporting limits.

A validation process was employed to reduce decision errors regarding the presence, locations, and concentrations of contaminants. The data validation reports (**Appendix F**) indicate that, with some exceptions, sample handling metrics and quality control results were within applicable thresholds.

9.0 REVISED CONCEPTUAL SITE MODEL (CSM)

A CSM of contamination was initially developed based on the findings of the Phase I ESA (AMEC 2011a), information contained in DEQ files, and interviews with KRC employees. AMEC revised the CSM based on data and information collected during the 2011 Phase II ESA.

Based on the literature, reports of previous drilling, and the Phase II ESA, on-site soils are predominantly composed of unconsolidated and partially consolidated gravel, sand, and silt. A shallow unconfined aquifer underlies the Site at a depth of approximately 20 feet bgs. A confining unit below the shallow aquifer appears to restrict the downward migration of contaminants in groundwater. The direction of shallow groundwater flow is estimated to be to the east-southeast at the Site (Trihydro Corporation 2009). Based on this information, releases to shallow soils have the potential to migrate to the underlying shallow aquifer.

Table 16 identifies sources of contamination on or adjacent to the Site, impacted media (soil, groundwater, and building materials), contaminants of concern, potential exposure pathways, and recommendations for remediation. Contaminants in groundwater have migrated onto the Site from the adjacent KRY State CECRA Facility. PCP has been detected in monitoring wells on the Site that were installed during investigations at the KRY facility. Although petroleum hydrocarbons, iron, manganese, and dioxins were not detected above screening levels in groundwater samples collected during this investigation, historic groundwater data (**Table 1**) indicate that these constituents are likely present in groundwater at monitoring well KRY 111 A (**Figure 2**). In addition, these constituents may remain in groundwater at well KRY 121 A.

With the exception of the far northeastern portion of the Site, on-site soils are not contaminated from sources originating at the KRY facility. According to Ms. Moriah Bucy of the DEQ, soils at the far northeastern portion of the Site have been or are currently being remediated under the direction of the DEQ.

Waste oil stored at and below the ground surface has contaminated soils adjacent to the northwest side of the truck repair shop (**Figure 3**). Poor handling and storage practices have resulted in heavy oil staining of surface soil. Information collected during this ESA is consistent with the waste oil tank having been removed from the Site. Although piping associated with the waste oil tank is still present at the Site, it has been disconnected and is no longer in use. VOCs and petroleum hydrocarbon compounds were detected above screening levels in near-surface soils associated with areas of surface soil staining. Decreases in contaminant concentrations at depth to below screening levels, however, indicate that groundwater impacts in this area are unlikely.

The SAP indicated that sediment contained within the repair shop exterior sump was a suspected source of contamination to onsite soil and groundwater. The sump routinely receives wastewater from vehicle, equipment, and parts washing. Based solely on this information, there was a concern that contaminants in the wastewater and solids placed in the sump may have leaked out of the structure and migrated to underlying soil and groundwater. Although VOCs and petroleum hydrocarbons were detected in the sump sediment at concentrations above screening levels, the walls and bottom of the structure are constructed of concrete and appeared to be intact and fully competent. There was no indication of significant leakage from the sump, although leakage is possible through concrete seams. Based on all data collected to date

concerning the sump, a groundwater investigation does not appear to be warranted in association with the sump.

Soils located above the liner within the plastic-lined pit did not contain concentrations of potential contaminants of concern above screening levels. Three different asbestos-containing building materials and one finish containing lead-based paint are associated with on-site structures. Abatement (removal) of these materials will be required before renovation or demolition of the associated structures.

10.0 RECOMMENDATIONS

Based on information and data collected during the Phase II ESA, AMEC has developed recommendations for soil remediation, additional soil investigation, and onsite groundwater use. **Table 16** and the sections below provide our recommendations for each recognized environmental condition (REC) or contaminant source. Below we also provide a preliminary evaluation of cleanup costs.

10.1 Soil Remediation within the KRY Facility Boundary

Soil remediation in the northeastern area of the Site is proceeding under the direction of the DEQ and is pursuant to the Record of Decision for the facility (DEQ 2008). This remedial effort should lower concentrations to acceptable levels and allow for commercial reuse of the property in this area.

10.2 Groundwater Impacts

In general, concentrations of contaminants in groundwater samples collected on the eastern portion of the Site (adjacent to the KRY CECRA facility) in 2011 were similar to or lower than historic concentrations. Groundwater in this area likely remains impacted with petroleum hydrocarbons, dioxins, manganese, iron, and PCP; however we do not recommend any additional groundwater investigation or sampling. Consistent with the ROD for the KRY facility, the DEQ should create a controlled groundwater area to prevent exposure to contaminated groundwater associated with that portion of the Site that lies within the CECRA facility boundary.

10.3 Soil Remediation and Sump Sediment Removal

Shallow excavation and offsite disposal of soils should be completed at the locations of test pits TP-1, TP-2, and TP-3 near the Truck Repair Shop to eliminate direct contact and ingestion of contaminated soil. AMEC also recommends removal of the sump contents and appropriate disposal off site. In addition, removal of the sump should be considered because it represents a potential source of contamination to underlying soil and groundwater.

10.4 Building Materials

AMEC recommends the removal of ACBMs at the time the building(s) are demolished and/or renovated. Abatement of the asbestos will require special considerations for handling and containerization prior to demolition. The Flathead County Landfill will accept such materials provided they are appropriately containerized and transported. Special considerations for lead abatement will be required prior to demolition of the Tire Shop. The principal work required consists of removal of the exterior painted siding from the tire shop or removal of the paint from the siding prior to demolition of the building.

11.0 ESTIMATED CLEANUP AND ABATEMENT COSTS

This Phase II ESA defined areas of impacted soil, asbestos containing materials, and lead-based paint that should be remediated. The need for asbestos and lead-based paint abatement is predicated on the need for demolition or renovation of the onsite buildings. While groundwater is contaminated above DEQ water quality standards in the northeastern portion of the Site in the area defined by DEQ (KRY CECRA site), remedial actions to address groundwater contamination are not addressed herein. Nor are remedial actions necessary to remove petroleum and lead-contaminated soil in the far northeastern portion of the Site. Remediation of groundwater and soil within the boundary of the CECRA facility are currently the responsibility of parties named in the Record of Decision by the DEQ, and for this reason were not quantified. Acquisition of the KRC property could result in liabilities to contamination associated with the KRY facility. For this reason, we recommend that any party acquiring the Site obtained an indemnification to liability for contamination associated with the KRY CECRA facility from the DEQ. Such indemnification was provided in the past by the DEQ to McElroy & Wilken. Demolition costs of onsite structures was also not estimated.

11.1 Test Pit Soils

This ESA defined areas of impacted soil that should be excavated and disposed of offsite to eliminate environmental risks. This includes soil on the north side of the Truck Repair Shop near test pits TP1, TP-2, and TP-3. The estimate below assumes that all areas around TP-1, TP-2,and TP-3 will be excavated at the same time.

11.2 Sump Sediment and Sump

An environmental contractor such as Oily Waste Processors of Great Falls, Montana can be retained to remove the water-sediment mixture (slurry) from the sump. At a cost of $2.00 per gallon, the total estimated cost for removal of the sump wastes is $5,000. The estimate presented above assumes that the analytical results presented in this report for the sump sediment are sufficient to obtain approval for disposal of the slurry. An estimate to remove the sump is not included, but removal of the sump should be considered to eliminate this potential source of contamination. Costs to eliminate the sump will vary depending on whether or not it is completed as part of the building demolition.

11.3 Asbestos and Lead in Structures

Appendix H provides preliminary cost estimates for asbestos and lead abatement work. The estimate for asbestos abatement is $5,000 and the lead-based paint estimate is $7,500.

Estimate Cleanup and Abatement Costs

	Test Pit Soil Excavation	Sump Sediment Removal	Asbestos and Lead Abatement
Estimated Cost	$10,500	$5,000	$12,500
		Total Estimated Cost	**$28,000**

Notes:

a – assumes 700 cubic feet (26 cubic yards) will require excavation; soil bulk density = 1.3 g/cm3 (2191 pounds/cubic yard) or 2.2 tons/cubic yard; estimated mass to be delivered to Flathead County Landfill = approx. 58 tons. For costing purposes, the mass was doubled in case additional material needs to be removed (116 tons); Flathead County Landfill rate is $31.05 per ton; engineering oversight and testing estimated cost is $25.00 per ton; reporting is estimated at $4,000.

b – assumes a slurry volume of 2,500 gallons and a disposal cost of $2.00 per gallon.

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TABLES

Table 1. Historic and 2011 Onsite Groundwater Analytical Data

Knife River Property, Kalispell, Montana

Sample Information			PCP / Dioxins		Metals		Volatile Petroleum Hydrocarbons										Extractable Petroleum Hydrocarbons					Organics	
Well Name	Data Source	Sample Date	Pentachlorophenol (µg/L)	Dioxins/Furans (pg/L)	Iron (µg/L)	Manganese (µg/L)	MTBE (µg/L)	Toluene (µg/L)	Napthalene (µg/L)	o-Xylene (µg/L)	m+p-Xylenes (µg/L)	Total Xylenes (µg/L)	C5-C8 Aliphatics (µg/L)	C9-C10 Aromatics (µg/L)	C9-C12 Aliphatics (µg/L)	Total Puregable Hydrocarbons (µg/L)	C11-C22 Aromatics (µg/L)	C19-C36 Aliphatics (µg/L)	C9-C18 Aliphatics (µg/L)	Total Extractable Hydrocarbons (µg/L)	EPH Screen (µg/L)	VOCs (µg/L)	SVOCs (µg/L)
DEQ-7 GW Standard			1	2.0 / 5.6 *	300 [a]	50 [a] / 778 †	30	1,000	100	10,000	10,000	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	b	b
RBSL			NA	NA	NA	NA	30	1,000	100	NA	NA	10,000	700	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	b	b
GWRR-8	A, C	4/24/2002	0.35	14.72	---	---	---	---	---	---	---	---	<20	<20	<20	<20	---	---	---	320	---	BDL	BDL
	D	6/29/2006	---	---	---	---	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<300	BDL	BDL
KPT-16	C	7/9/2001	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<300	BDL	BDL
	C	7/19/2001	<5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	C	8/6/2002	<1	30.59	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	C	4/2/2003	62	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	C	10/1/2003	<0.53	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	C	4/7/2004	5.7	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	C	10/19/2004	<0.51	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	D	6/23/2006	0.15	---	---	---	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<310	BDL	BDL
	E	4/16/2009	<0.50	0.82	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	E	10/20/2009	<0.24	8.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	E	5/11/2010	---	2.9 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	E	9/30/2010	---	8.3 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	F	9/15/2011	0.14	3.3	57.2	<5	<0.50	<0.50	<5.0	<0.50	<1.0	<1.5	<20	<20	<20	<20	---	---	---	<215	---	---	---
KRY102A	D	6/13/2006	<0.1	---	---	---	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<320	BDL	BDL
	F	9/15/2011	<0.030	2.9	55.5	<5.0	<0.50	<0.50	<5.0	<0.50	<1.0	<1.5	<20	<20	<20	<20	---	---	---	<211	---	---	---
KRY102B	D	6/13/2006	<0.1	---	---	---	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<300	b	BDL
	F	9/16/2011	<0.019	1.4	<50.0	<5.0	<0.50	<0.50	<5.0	<0.50	<1.0	<1.5	<20	<20	<20	<20	---	---	---	<218	---	---	---
KRY104A	D	6/14/2006	<0.1	---	---	---	<1	0.76	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<300	b	BDL
	F	9/15/2011	<0.029	2.0	<50.0	<5.0	<0.50	<0.50	<5.0	<0.50	<1.0	<1.5	<20	<20	<20	<20	---	---	---	<211	---	---	---
KRY107A	B, D	6/16/2006	0.076 J	7.29	<30	<5	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<300	BDL	BDL
	E	5/14/2010	---	2.5 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	E	9/30/2010	---	4.8 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	F	9/14/2011	0.035	2.4	<50.0	<5.0	<0.50	<0.50	<5.0	<0.50	<1.0	<1.5	<20	<20	<20	<20	---	---	---	<215	---	---	---
KRY107B	B, D	6/16/2006	<0.1	6.25	<30	47	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<300	BDL	BDL
	F	9/16/2011	0.024 J	3.4	239	7.9	<0.50	<0.50	<5.0	<0.50	<1.0	<1.5	<20	<20	<20	<20	---	---	---	<213	---	---	---
KRY111A	B, D	6/16/2006	2390	969	450	5320	1	0.86	16	2.2	1.2	2.3	25	143	79	599	1800	<300	350	2300	8500	b	b
	E	5/13/2010	Well not sampled - 0.75 feet LNAPL																				
	E	9/30/2010	Well not sampled - 0.27 feet LNAPL																				
	F	9/14/2011	Well not sampled - LNAPL present																				
KRY111B	B, D	6/16/2006	<0.1	3.59	<30	<5	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<310	b	BDL
	E	5/13/2010	0.18 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	E	10/5/2010	0.066 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	F	9/16/2011	0.021 J	1.1	<50.0	<5.0	<0.50	<0.50	<5.0	<0.50	<1.0	<1.5	<20	<20	<20	<20	---	---	---	<211	---	---	---
KRY112A	D	6/14/2006	<0.1	---	---	---	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<300	BDL	BDL
KRY112B	D	6/14/2006	<0.1	---	---	---	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<300	BDL	BDL
KRY115A	D	6/13/2006	<0.1	---	---	---	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<320	BDL	BDL
KRY115B	D	6/13/2006	<0.1	---	---	---	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<310	BDL	BDL
KRY116A	D	6/14/2006	<0.1	---	---	---	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<300	BDL	BDL
KRY116B	D	6/14/2006	<0.1	---	---	---	<1	<0.5	<1	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<300	BDL	BDL
KRY121A	B, D	6/20/2006	0.25	3.23	950	698	<1	<0.5	2.2	<0.5	1.2	1.2	32	68	43	139	<310	<310	<310	<310	1200	b	BDL
	E	5/13/2010	0.14 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	E	10/5/2010	<0.24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	F	9/14/2011	Well not sampled - obstruction present in PVC casing																				
KRY121B	B, D	6/28/2006	0.13	3.23	<30	177	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<20	<20	<20	<20	---	---	---	---	<300	BDL	BDL
	E	5/13/2010	<0.24	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	E	10/5/2010	0.045 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Notes:

a = Secondary groundwater standard

b = several VOCs and SVOCs were detected; concentrations are estimated.

** = DEQ-7 Standard is 2.0 pg/L; KRY CECRA facility cleanup level is 5.6 pg/L*

† = DEQ-7 Standard is 50 µg/L; KRY CECRA facility cleanup level is 778 µg/L

J = estimated concentration

A = Land and Water Consulting. 2002. Summary of Soil & Groundwater Characterization of the McElroy & Wilken Property, Reliance Refinery Facility.

B = Tetra Tech EM, Inc. 2008. Final Remedial Investigation Report, Kalispell Pole and Timber, Reliance Refinery, and Yale Oil Facilities.

C = Tetra Tech EM, Inc. 2005. Final Data Summary Report, Kalispell Pole and Timber, Reliance Refinery, and Yale Oil Facilities.

D = Montana DEQ and Tetra Tech EM, Inc. 2008. Final Feasibility Study Report, KRY Site.

E = AECOM Environment. KRY Site / BNSF Kalispell Pole and Timber Site - 2009-2010 Groundwater Monitoring Reports (June 2009, Dec. 2009, August 2010, and Dec. 2010)

F = AMEC Geomatrix, Inc. 2011; this table does not include all 2011 groundwater analytical results

DEQ-7 GW Standard = Circular DEQ-7, Numeric Groundwater Quality Standards, Montana Department of Environmental Quality. August 2010.

RBSL = Montana Department of Environmental Quality Tier 1 Groundwater Risk-Based Screening Levels. September 2009.

BDL = VOC and SVOC concentrations were below detection limits

--- = no data; LNAPL = Light Non-Aqueous Phase Liquid

= analyte concentration exceeds DEQ-7 Groundwater Standard

= well sampled/proposed for sampling in 2011

= well abandoned

Table 2. Sampling Locations and Analyses

Knife River Property, Kalispell, Montana

Sample Type	Sample Location(s)	Analyses
Surface and Subsurface Soil	Repair Shop Waste Oil Area	EPH, VPH, PAHs, VOCs, and RCRA Metals
Sediment	Repair Shop Exterior Sump	EPH, PAHs, VOCs, and RCRA Metals
Surface Soil	Disposal Location of Repair Shop Sump Sediments	Samples not collected (disposal location not determined)
Groundwater	Onsite Monitoring Wells Installed to Evaluate Impacts from Adjacent Superfund Site	PCP, dioxins, EPH, VPH, RCRA metals, iron, and manganese
Surface/Subsurface Soil	Plastic-Lined Pit	EPH, VPH, PCP, and RCRA Metals
Building Materials	Onsite Structures	Asbestos and TCLP Lead

Notes:

EPH = Extractable Petroleum Hydrocarbons; VPH = Volatile Petroleum Hydrocarbons; PAHs = Polynuclear Aromatic

VOCs = Volatile Organic Compounds; RCRA = Resource Conservation and Recovery Act; PCP = Pentachlorophenol

RCRA Metals include Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, and Silver

TCLP = Toxicity Characteristic Leaching Procedure

Table 3. Sampling Methods, Containers, Preservation, and Holding Times

Knife River Property, Kalispell, Montana

COPC	Media	Analytical Method	Container Type	Preservation	Extraction HT	Analysis HT
Extractable Petroleum Hydrocarbons (EPH)	S	MA DEP EPH	8-oz glass	4 °C	7	40
	G		2 x 1000 mL glass	HCl	14	40
Volatile Petroleum Hydrocarbons (VPH)	S	MA DEP VPH	4-oz glass	4 °C	7	28
	G		4 x 40 mL VOA	HCl	NA	14
Polynuclear Aromatic Hydrocarbons (PAHs)	S	EPA 8270 with SIM	8-oz glass	4 °C	14	40
RCRA Metals	S	EPA 6010 / 7471	4-oz glass	4 °C	N/A	180 (28 for Hg)
	G	EPA 6010 / 7470	250 mL plastic	HNO_3	N/A	180 (28 for Hg)
Iron and Manganese	G	EPA 6010	250 mL plastic	HNO_3	N/A	180
Volatile Organic Compounds (VOCs)	Sed	EPA 8260	4-oz glass	4 °C	14	14
	S	EPA 8260	4 x 40 mL VOA	HCl	N/A	14
Pentachlorophenol (PCP)	G	EPA 8151	2 x 1000 mL glass	4 °C	14	28
	S		4-oz amber glass	4 °C	14	28
Dioxins	G	EPA 8290	2 x 1000 mL glass	4 °C	30	45
Asbestos	BM	EPA 600/R-93/116	Plastic bag	N/A	N/A	N/A
Lead	BM	TCLP - EPA 1311	Plastic bag	N/A	N/A	N/A

Notes:

COPC = Contaminant of Potential Concern

MA DEP = Massachusetts Department of Environmental Protection

RCRA = Resource Conservation and Recovery Act

HT = Holding Time (Days)

S = Soil; G = Groundwater; Sed = Sediment; BM = Building Materials

TCLP = Toxicity Characteristic Leaching Procedure

Table 4. Monitoring Well and Groundwater Elevation Summary

Knife River Property, Kalispell, Montana

Sample Location	Total Well Depth (ft bgs)	Screened Interval (ft bgs)	Top of Casing Elevation (ft amsl) [a]	Depth to Water (ft btc)	Date Measured	Groundwater Elevation (ft amsl Sept. 2011)
Shallow Monitoring Wells (Unconfined Aquifer)						
KRY 102 A	33.5	13-33	2945.27	24.94	9/15/2011	2920.33
KRY 104 A	40.5	20-40	2946.68	26.98	9/15/2011	2919.70
KRY 107 A	29.5	9-29	2938.92	19.10	9/14/2011	2919.82
KRY 111 A	25.5	5-25	2936.61	FP	9/14/2011	FP
KPT 16	29.5	14-29	2935.66	21.08	9/15/2011	2914.58
KRY 121 A	32.5	12-32	2937.39	22.77	9/15/2011	2914.62
Deep Monitoring Wells (Unconfined Aquifer)						
KRY 102 B	110	95-105	2945.26	24.92	9/16/2011	2920.34
KRY 107 B	136	121-131	2938.73	21.68	9/16/2011	2917.05
KRY 111 B	138	123-133	2936.96	19.94	9/16/2011	2917.02

Notes:

Wells in each group (shallow and deep) are listed based on their relative positions on the site from west to east

bgs - below ground surface

btc - below top of PVC casing

amsl - above mean sea level

a = Source: TetraTech EM, Inc. (2008)

FP = Free Product Present in Well; depth to water not representative of water table elevation

Table 5. Groundwater Analytical Results - Metals

Knife River Property, Kalispell Montana

Sample	DEQ-7	Analytical Results								
		KRY 102 A	KRY 102 B	KRY 104 A	KRY 104 A DUP	KRY 107 A	KRY 107 B	KRY 111 B	KPT 16	ERB
Date Collected	---	9/15/2011	9/16/2011	9/15/2011	9/15/2011	9/14/2011	9/16/2011	9/16/2011	9/15/2011	9/16/2011
Time Collected	---	1415	1020	1135	---	1310	1226	1600	1645	1500
Arsenic	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Barium	1000	179	114	98	101	133	102	112	154	<10.0
Cadmium	5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	100	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0
Iron	300*	55.5	<50.0	<50.0	<50.0	<50.0	239	<50.0	57.2	<50.0
Lead	15	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Manganese	50* [a]	<5.0	<5.0	<5.0	<5.0	<5.0	7.9	<5.0	<5.0	<5.0
Mercury	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Selenium	50	<15.0 M%	<15.0 M%	<15.0 M%	<15.0 M%	<15.0 M%	<15.0 M%	<15.0 M%	<15.0 M%	<15.0 M%
Silver	100	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0

Notes:

All results are in μg/L

ERB = Equipment Rinse Blank

DUP = Field Duplicate Sample

DEQ-7 = Circular DEQ-7, Numeric Groundwater Quality Standards, Montana Department of Environmental Quality. August 2010.

** = secondary standard*

a = Cleanup Level within KRY Facility Boundary is 778 μg/L

Table 6. Groundwater Analytical Results - Petroleum Hydrocarbons

Knife River Property, Kalispell Montana

Analyte	Sample ID	DEQ-7	RBSL	Analytical Results									
				KRY 102 A	KRY 102 B	KRY 104 A	KRY 104 A DUP	KRY 107 A	KRY 107 B	KRY 111 B	KPT 16	Trip Blank	ERB
	Date Collected	---	---	9/15/2011	9/16/2011	9/15/2011	9/15/2011	9/14/2011	9/16/2011	9/16/2011	9/15/2011	9/16/2011	9/16/2011
	Time Collected	---	---	1415	1020	1135	---	1310	1226	1600	1645	---	1500
Volatile Petroleum Hydrocarbons (VPH)	MTBE	30	30	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Benzene	5	5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Toluene	1,000	1,000	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	Ethylbenzene	700	700	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
	m&p-Xylene	10,000	N/A	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.1	<1.0
	o-Xylene	10,000	N/A	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.51	<0.50
	Xylene (total)	10,000	10,000	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.6	<1.5
	Naphthalene	100	100	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.1	<5.0
	C05-C08 Aliphatics [a]	N/A	700	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
	C9-C12 Aliphatics [b]	N/A	1,000	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
	C09-C10 Aromatics	N/A	1,000	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
	Total Purgeable Hydrocarbons	N/A	1,000	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0	<20.0
EPH	TEH	N/A	1,000	<211	<218	<211	<208	<215	<213	<211	<215	---	<218

Notes:

All results are in µg/L

ERB = Equipment Rinse Blank; DUP = Field Duplicate Sample

DEQ-7 = Circular DEQ-7, Numeric Groundwater Quality Standards, Montana Department of Environmental Quality. August 2010.

RBSL = State of Montana Tier 1 Groundwater Risk-Based Screening Levels, Montana Department of Environmental Quality. September 2009.

N/A = Not applicable

EPH = Extractable Petroleum Hydrocarbons; TEH = Total Extractable Hydrocarbons

a = Cleanup Level within the KRY Facility Boundary is 800 µg/L

b = Cleanup Level within the KRY Facility Boundary is 500 µg/L

Table 7. Groundwater Analytical Results - PCP and Dioxins

Knife River Property, Kalispell Montana

Sample	DEQ-7 Standard	Analytical Results									
		KRY 102 A	KRY 102 B	KRY 104 A	KRY 104A DUP	KRY 107 A	KRY 107 B	KRY 111 B	KPT 16	ERB	Waste Water
Date Collected	---	9/15/2011	9/16/2011	9/15/2011	9/15/2011	9/14/2011	9/16/2011	9/16/2011	9/15/2011	9/16/2011	9/16/2011
Time Collected	---	1415	1020	1135	---	1310	1226	1600	1645	1500	1715
PCP	1.0	<0.030 H	<0.019 H	<0.029 H	<0.030 H	0.035 H	0.024 J, H	0.021 J, H	0.14 H	<0.019 H	0.19 H
Dioxins	2.0 / 5.6 [a]	2.9	1.4	2.0	2.0	2.4	3.4	1.1	3.3	2.1	---

Notes:

Pentachlorophenol (PCP) results are in μg/L; dioxin results are in picograms per liter (pg/L)

ERB = Equipment Rinse Blank; DUP = Field Duplicate Sample

DEQ-7 = Circular DEQ-7, Numeric Groundwater Quality Standards, Montana Department of Environmental Quality. August 2010.

Dioxins - Dioxins nd Furans. Based on Toxic Equivalency Factors per World Health Organization Guidance

N/A = Not applicable

a = Cleanup Level within KRY Facility Boundary is 5.6 pg/L

Purge water sample was collected from containerized purge, wash, and rinse water after groundwater sampling was complete.

J - estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

H - hold time exceeded

Table 8. Soil Analytical Results - Metals

Truck Repair Shop Area

Knife River Property, Kalispell, Montana

Sample	Date Collected	Time Collected	Analytical Results								
			Arsenic*	Barium	Cadmium	Chromium (Cr-VI)	Chromium (Cr-III)	Lead	Mercury	Selenium	Silver
Residential Direct-Contact RSL (mg/kg)	---	---	40	1,500	70	0.29	1.2 E+4	400	1.0	39	39
Industrial Direct-Contact RSL (mg/kg)	---	---	40	19,000	800	5.6	1.5 E+5	800	4.3	510	510
Leaching RSL (mg/kg)	---	---	40	411	3.8	1.80E+06	9.9 E+8	140	2.60	8.90	1.0
TP-1 @ 4 FT	08/03/11	12:45	3.3	85.6 M%	0.13 M%	6.7 M%		20.1 M%	0.011J M%	1.2 M%	<0.033 M%
TP-1 @ 6 FT	08/03/11	12:55	3.4	42.8 M%	0.35 M%	6.2 M%		7.5 M%	<0.0017 M%	<0.12 M%	<0.027 M%
TP-1 @ 9 FT	08/03/11	13:05	3.5	109 M%	0.84 M%	8.4 M%		11.1 M%	0.0059J M%	<0.13 M%	<0.029 M%
TP-1 Source Sample	08/03/11	13:45	3.6	62.0 M%	0.060 M%	3.5 M%		8.0 M%	0.011J M%	0.75J M%	<0.031 M%
TP-2 @ 0-6 Inches	08/03/11	15:30	3.7	54.7 M%	0.12 M%	6.1 M%		13.1 M%	0.010J M%	1.0 M%	<0.027 M%
TP-2 @ 2.5 FT	08/03/11	15:45	3.8	115 M%	0.14 M%	7.1 M%		13.7 M%	0.0078J M%	1.4 M%	<0.031 M%
TP-3 @ 1.5 FT	08/03/11	15:47	3.9	146 M%	0.17 M%	7.7 M%		14.6 M%	0.015J M%	1.4 M%	<0.030 M%
TP-3 @ 4 FT	08/03/11	15:52	3.10	55.3 M%	0.14 M%	6.8 M%		14.6 M%	0.0099J M%	0.71 M%	<0.027 M%
Sump Sediment	08/03/11	17:00	3.11	257 M%	3.4 M%	27.0 M%		39.7 M%	0.015J M%	2.3 M%	<0.055 M%
Equipment Rinse Blank	08/03/11	17:30	<3.4	<0.37	<0.23	<1.7		2.4J	<0.037	<2.7	<0.29

Notes:

All concentrations are in mg/kg (ERB sample in μg/L)

Screening levels for metals are based on EPA RSLs and adjusted according to DEQ's April 2011 soil screening flow charts.

RSL = EPA Regional Screening Level (May 2011)

TP = Test Pit

** = DEQ action level for arsenic (April 2005)*

J - estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

= concentration exceeds Chromium (Cr VI) soil screening level(s)

M% = MS/MSD percent recoveries were outside QC limits and/or laboratory blank RPD value exceeded the QC limit

Table 9. Soil Analytical Results - Volatile Petroleum Hydrocarbons (VPH)

Truck Repair Shop Area

Knife River Property, Kalispell, Montana

Sample ID	Date	Time	Analytical Results											
			Aliphatic (C05-C08)	Aliphatic (C09-C12)	Aromatic (C09-C10)	Benzene	Ethylbenzene	m&p-Xylene	Methyl-tert-butyl ether	Naphthalene	o-Xylene	Toluene	Total Purgeable Hydrocarbons	Xylene (Total)
Residential Surface Soil RBSL (10-20 feet to groundwater)	---	---	60	100	100	0.1	6	---	0.2	4	---	40	---	70
Commercial Surface Soil RBSL (10-20 feet to groundwater)	---	---	300	700	500	0.1	30	---	0.2	20	---	40	---	300
Subsurface Soil RBSL (<10 feet to groundwater)	---	---	200	1000	100	0.04	10	---	0.08	9	---	10	---	200
Subsurface Soil RBSL (10-20 feet to groundwater)	---	---	500	1000	500	0.1	40	---	0.2	30	---	40	---	600
TP-1 @ 4 FT	08/03/2011	12:45	<0.44	<0.45	<0.017 M%	<0.012	<0.0084	<0.012	<0.0099	<0.071 M%	<0.0069	<0.0082	<4.9	<0.074
TP-1 @ 6 FT	08/03/2011	12:55	<0.48	5.8	0.26J M%	<0.013	<0.0091	<0.013	<0.011	<0.077 M%	<0.0075	<0.0089	10.6J	<0.080
TP-1 @ 9 FT	08/03/2011	13:05	0.93J	1.9J	<0.020 M%	<0.014	<0.0098	<0.014	<0.012	<0.083 M%	<0.0081	<0.0096	<5.8	<0.086
TP-1 Source Sample	08/03/2011	13:45	0.89J	4.2J	5.0 M%	<0.013	<0.0087	0.020J	<0.010	0.89 M%	<0.0072	<0.0085	15.2	<0.077
TP-2 @ 0-6 inches	08/03/2011	15:30	0.50J	1.0J	<0.017 M%	<0.012	<0.0083	<0.012	<0.0097	<0.070 M%	<0.0068	<0.0081	<4.9	<0.073
TP-2 @ 2.5 FT	08/03/2011	15:45	2.4J	<0.52	<0.019 M%	<0.014	<0.0096	<0.014	<0.011	<0.082 M%	<0.0079	<0.0094	<5.7	<0.085
TP-3 @ 1.5 FT	08/03/2011	15:47	0.61J	1.6J	<0.019 M%	<0.014	<0.0096	<0.014	<0.011	<0.081 M%	<0.0079	<0.0094	<5.7	<0.085
TP-3 @ 4 FT	08/03/2011	15:52	<0.46	<0.47	<0.017 M%	<0.013	<0.0087	<0.012	<0.010	<0.074 M%	<0.0072	<0.0085	<5.1	<0.077
Equipment Rinse Blank	08/03/2011	17:30	<10.0	<2.4	<0.16	0.27J	<0.13	<0.25	<0.15	<2.5	<0.11	<0.089	<5.4	<0.36
Trip Blank	08/03/2011	---	<10.0	<2.4	<0.16	<0.11	<0.13	<0.25	<0.15	<2.5	<0.11	0.13J	<5.4	<0.36

Notes:

RBSL = Montana Tie 1 Risk-Based Screening Level

All concentrations are in mg/kg (ERB and trip blank samples in μg/L)

J - estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

TP = Test Pit

M% = MS/MSD percent recoveries were outside QC limits and/or laboratory blank RPD value exceeded the QC limit

Table 10. Soil Analytical Results - Extractable Petroleum Hydrocarbons (EPH)

Truck Repair Shop Soil Samples

Knife River Property, Kalispell, Montana

Sample	Date	Time	Analytical Results			
			Aliphatic (C9-C18)	Aliphatic (C19-C36)	Aromatic (C11-C22)	EPH Screen
Residential RBSL (10-20 feet to groundwater)			200	20000	500	200
Commercial RBSL (10-20 feet to groundwater)			1000	100000	1000	200
Subsurface RBSL (<10 feet to groundwater)			2000	100000	400	200
Subsurface RBSL (10-20 feet to groundwater)			2000	100000	1000	200
TP-1 Source Sample	08/03/11	13:45	230	3180	96.8	3510
TP-1 @ 4 FT	08/03/11	12:45	---	---	---	52.3
TP-1 @ 6 FT	08/03/11	12:55	85.8	835	81.7	1000
TP-1 @ 9 FT	08/03/11	13:05	114	1080	54.3	1250
TP-2 @ 0-6 Inches	08/03/11	15:30	332	16500	3200	20,100
TP-2 @ 2.5 FT	08/03/11	15:45	---	---	---	<5.7
Sump Sediment	08/03/11	17:00	519	7200	966	8690
TP-3 @ 1.5 FT	08/03/11	15:47	---	---	---	95.2
TP-3 @ 4 FT	08/03/11	15:52	---	---	---	<5.2
Equipment Rinse Blank	08/03/11	17:30	---	---	---	<107

Notes:

All concentrations are in mg/kg (ERB sample in μg/L)

RBSL = Montana Tier 1 Risk-Based Screening Level

= *concentration exceeds one or more soil screening levels*

= *concentration exceeds EPH screen ceiling concentration*

TP = Test Pit

TEH = total extractable hydrocarbons

Table 11. Soil Analytical Results - Volatile Organic Compounds (VOCs)

Truck Repair Shop Area

Knife River Property, Kalispell, Montana

Analyte	Residential Direct Contact RSL	Industrial Direct Contact RSL	Leaching RSL	TP-1 Source Sample	TP-1 @ 4 ft.	TP-1 @ 6 ft.	TP-1 @ 9 ft.	TP-2 @ 0-6 inches	TP-2 @ 2.5 ft.	TP-3 @ 1.5 ft.	TP-3 @ 4 ft.	Sump Sed.	ERB
Date Collected	---	---	---	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11
Time Collected	---	---	---	13:45	12:45	12:55	13:05	15:30	15:45	15:47	15:52	17:00	17:30
1,1,1,2-Tetrachloroethane	1900	9300	2	<1.0	<1.0	<1.1	<1.2	<0.97	<1.2	<1.2	<1.0	<1.9	<0.35
1,1,1-Trichloroethane	870000	3800000	700	<0.90	<0.91	<0.93	<1.1	<0.85	<1.0	<1.1	<0.90	<1.7	<0.26
1,1,2,2-Tetrachloroethane	560	2800	7.8	<1.2	<1.2	<1.2	<1.4	<1.1	<1.4	<1.4	<1.2	<2.2	<0.17
1,1,2-Trichloroethane	1100	5300	9.8	<0.91	<0.92	<0.94	<1.1	<0.86	<1.0	<1.1	<0.91	<1.7	<0.38
1,1,2-Trichlorotrifluoroethane	na	na	na	<1.1	<1.1	<1.1	<1.2	<1.0	<1.2	<1.2	<1.1	<2.0	<0.49
1,1-Dichloroethane	3300	17000	6.9	<1.0	<1.0	<1.0	<1.2	<0.96	<1.2	<1.2	<1.0	<1.9	<0.23
1,1-Dichloroethene	240000	1100000	2.1	<0.82	<0.83	<0.84	<0.96	<0.77	<0.93	<0.96	<0.82	<1.5	<0.47
1,1-Dichloropropene	na	na	na	<0.81	<0.82	<0.83	<0.94	<0.77	<0.92	<0.95	<0.81	<1.5	<0.46
1,2,3-Trichlorobenzene	4900	49000	870	<1.2	<1.2	<1.2	<1.3	<1.1	<1.3	<1.3	<1.1	<2.1	<0.29
1,2,3-Trichloropropane	5	95	2.7	<0.83	<0.84	<0.85	<0.97	<0.78	<0.94	<0.97	<0.83	<1.5	<0.25
1,2,4-Trichlorobenzene	22000	99000	2000	<0.82	<0.83	<0.84	<0.96	<0.77	<0.93	<0.96	<0.82	<1.5	<0.33
1,2,4-Trimethylbenzene	6200	26000	210	1.2J	<0.85	<0.86	<0.98	<0.79	<0.95	<0.99	<0.84	279	<0.26
1,2-Dibromo-3-chloropropane	5.4	69	0.86	<2.0	<2.0	<2.1	<2.3	<1.9	<2.3	<2.3	<2.0	<3.7	<1.2
1,2-Dibromoethane (EDB)	34	170	0.011	<1.3	<1.4	<1.4	<1.6	<1.3	<1.5	<1.6	<1.3	<2.5	<0.26
1,2-Dichlorobenzene	190000	980000	5800	<0.53	<0.54	<0.55	<0.62	<0.50	<0.60	<0.63	<0.53	<0.99	<0.31
1,2-Dichloroethane	430	2200	11.2	<1.2	<1.2	<1.3	<1.4	<1.2	<1.4	<1.4	<1.2	<2.3	<0.23
1,2-Dichloropropane	940	4700	17	<0.96	<0.97	<0.98	<1.1	<0.90	<1.1	<1.1	<0.95	<1.8	<0.41
1,3,5-Trimethylbenzene	78000	1000000	5200	1.3J	<0.66	<0.67	<0.76	<0.62	<0.74	<0.77	<0.66	133	<0.38
1,3-Dichlorobenzene	na	na	na	<0.84	<0.85	<0.86	<0.98	<0.79	<0.95	<0.99	<0.84	<1.6	<0.40
1,3-Dichloropropane	160000	2000000	2500	<0.91	<0.92	<0.94	<1.1	<0.86	<1.0	<1.1	<0.91	<1.7	<0.36
1,4-Dichlorobenzene	2400	12000	720	<0.90	<0.91	<0.93	<1.1	<0.85	<1.0	<1.1	<0.90	<1.7	<0.34
2,2-Dichloropropane	na	na	na	<1.1	<1.1	<1.1	<1.2	<1.0	<1.2	<1.2	<1.1	<2.0	<0.42
2-Butanone (MEK)	na	na	na	5.7J	<10.4	<10.5	<11.9	<9.7	<11.6	<12.0	<10.3	<19.1	<2.0
2-Chlorotoluene	160000	2000000	7100	<0.97	<0.98	<0.99	<1.1	<0.91	<1.1	<1.1	<0.96	<1.8	<0.37
4-Chlorotoluene	160000	2000000	7100	<0.89	<0.90	<0.92	<1.0	<0.84	<1.0	<1.0	<0.89	<1.7	<0.29
4-Methyl-2-pentanone (MIBK)	na	na	na	3.8J	<10.4	<10.5	<11.9	<9.7	<11.6	<12.0	<10.3	<19.1	<2.0
Acetone	6100000	63000000	45000	<7.3	<13.0	<13.1	<14.9	<12.1	<14.5	<15.0	<12.8	436J	<12.5
Allyl chloride	680	3400	2.1	<0.84	<0.85	<0.86	<0.98	<0.79	<0.95	<0.99	<0.84	<1.6	<0.51
Benzene	a	a	a	<0.64	<0.64	<0.65	<0.74	<0.60	<0.72	<0.75	<0.64	<1.2	<0.36
Bromobenzene	30000	180000	590	<0.81	<0.82	<0.83	<0.94	<0.77	<0.92	<0.95	<0.81	<1.5	<0.31
Bromochloromethane	16000	68000	210	<1.2	<1.2	<1.2	<1.4	<1.1	<1.3	<1.4	<1.2	<2.2	<0.22
Bromodichloromethane	270	1400	26.7	<0.74	<0.75	<0.76	<0.86	<0.70	<0.84	<0.87	<0.74	<1.4	<0.23
Bromoform	62000	220000	210	<0.80	<0.81	<0.82	<0.93	<0.76	<0.91	<0.94	<0.80	<1.5	<2.0
Bromomethane	7300	32000	2.5	<2.2	<2.2	<2.3	<2.6	<2.1	<2.5	<2.6	<2.2	<4.1	<0.36
Carbon tetrachloride	610	3000	11.6	<1.2	<1.3	<1.3	<1.4	<1.2	<1.4	<1.5	<1.2	<2.3	<0.38
Chlorobenzene	29000	140000	680	<0.91	<0.92	<0.94	<1.1	<0.86	<1.0	<1.1	<0.91	<1.7	<0.33
Chloroethane	na	na	na	<1.1	<1.1	<1.1	<1.3	<1.0	<1.2	<1.3	<1.1	<2.0	<0.32
Chloroform	290	1500	195	<0.93	<0.94	<0.96	<1.1	<0.88	<1.1	<1.1	<0.93	<1.7	<0.34
Chloromethane	12000	50000	77	<0.73	<0.74	<0.75	<0.85	<0.69	<0.82	<0.85	<0.73	<1.4	<0.36
cis-1,2-Dichloroethene	16000	200000	210	<1.1	<1.1	<1.1	<1.3	<1.0	<1.2	<1.3	<1.1	<2.0	<0.37
cis-1,3-Dichloropropene	1700	8300	14	<0.81	<0.82	<0.83	<0.94	<0.77	<0.92	<0.95	<0.81	<1.5	<0.27
Dibromochloromethane	680	3300	10	<1.4	<1.4	<1.4	<1.6	<1.3	<1.6	<1.6	<1.4	<2.6	<0.36
Dibromomethane	2500	11000	20	<1.6	<1.6	<1.6	<1.8	<1.5	<1.8	<1.9	<1.6	<2.9	<0.48
Dichlorodifluoromethane	9400	40000	15500	<1.3	<1.3	<1.3	<1.5	<1.2	<1.4	<1.5	<1.3	<2.4	<0.23
Dichlorofluoromethane	na	na	na	<1.0	<1.0	<1.0	<1.2	<0.94	<1.1	<1.2	<0.99	<1.9	<0.25

Table 11. Soil Analytical Results - Volatile Organic Compounds (VOCs)

Truck Repair Shop Area

Knife River Property, Kalispell, Montana

Analyte	Residential Direct Contact RSL	Industrial Direct Contact RSL	Leaching RSL	TP-1 Source Sample	TP-1 @ 4 ft.	TP-1 @ 6 ft.	TP-1 @ 9 ft.	TP-2 @ 0-6 inches	TP-2 @ 2.5 ft.	TP-3 @ 1.5 ft.	TP-3 @ 4 ft.	Sump Sed.	ERB
Date Collected	---	---	---	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11	08/03/11
Time Collected	---	---	---	13:45	12:45	12:55	13:05	15:30	15:45	15:47	15:52	17:00	17:30
Diethyl ether (Ethyl ether)	1600000	20000000	16000	<1.4	<1.4	<1.5	<1.6	<1.3	<1.6	<1.7	<1.4	<2.6	<0.28
Ethylbenzene	a	a	a	<0.50	<0.51	<0.52	<0.59	<0.47	<0.57	<0.59	<0.50	43.9J	<0.38
Hexachloro-1,3-butadiene	54	260	70	<0.83	<0.84	<0.85	<0.97	<0.78	<0.94	<0.97	<0.83	<1.5	<0.20
Isopropylbenzene (Cumene)	210000	1100000	11000	<0.73	<0.74	<0.75	<0.85	<0.69	<0.82	<0.85	<0.73	<1.4	<0.36
m&p-Xylene	59000	250000	100000	---	---	---	---	---	---	---	---	---	<0.66
Methylene Chloride	11000	53000	13	17.8J	<10.4	<10.5	12.5J	10J	<11.6	<12.0	<10.3	120J	<2.0
Methyl-tert-butyl ether	a	a	a	<0.82	<0.83	<0.84	<0.96	<0.77	<0.93	<0.96	<0.82	<1.5	<0.24
Naphthalene	a	a	a	<0.85	<0.86	<0.87	<0.99	<0.80	<0.96	<1.0	<0.85	337J	<0.57
n-Butylbenzene	na	na	na	<0.98	<0.99	<1.0	<1.1	<0.92	<1.1	<1.1	<0.97	<1.8	<0.38
n-Propylbenzene	340000	2100000	25000	<0.84	<0.85	<0.86	<0.98	<0.79	<0.95	<0.99	<0.84	45.7J	<0.42
o-Xylene	69000	300000	100000	---	---	---	---	---	---	---	---	---	<0.46
p-Isopropyltoluene	na	na	na	<0.93	<0.94	<0.96	<1.1	<0.88	<1.1	<1.1	<0.93	2500	<0.36
sec-Butylbenzene	390000	5100000	59000	<0.71	<0.72	<0.73	<0.82	<0.67	<0.80	<0.83	<0.71	19.7J	<0.37
Styrene	630000	3600000	1100	<0.64	<0.64	<0.65	<0.74	1.7J	<0.72	<0.75	<0.64	<1.2	<0.35
tert-Butylbenzene	na	na	na	<0.99	<1.0	<1.0	<1.1	<0.93	<1.1	<1.2	<0.98	<1.8	<0.47
Tetrachloroethene	550	2600	23	<1.4	<1.4	<1.4	<1.6	<1.3	<1.5	<1.6	<1.4	<2.5	<0.26
Tetrahydrofuran	na	na	na	<10.7	<10.8	<10.9	<12.4	<10.1	<12.1	<12.5	<10.7	<19.9	<4.1
Toluene	a	a	a	<0.54	0.90J	1.2J	1.2J	0.72J	<0.62	0.78J	1.4J	2230	<0.39
trans-1,2-Dichloroethene	15000	69000	290	<0.54	<0.55	<0.56	<0.63	<0.51	<0.62	<0.64	<0.54	<1.0	<0.21
trans-1,3-Dichloropropene	1700	8300	7	<1.2	<1.2	<1.2	<1.4	<1.1	<1.4	<1.4	<1.2	<2.2	<0.18
Trichloroethene	2800	14000	18	<0.71	<0.72	<0.73	<0.82	<0.67	<0.80	<0.83	<0.71	<1.3	<0.20
Trichlorofluoromethane	79000	340000	63850	<1.2	<1.2	<1.3	<1.4	<1.2	<1.4	<1.4	<1.2	<2.3	<0.30
Vinyl chloride	60	1700	0.7	<1.3	<1.3	<1.3	<1.5	<1.2	<1.5	<1.5	<1.3	<2.4	<0.17
Xylene (Total)	a	a	a	<2.9	<3.0	<3.0	<3.4	<2.8	<3.3	<3.4	<2.9	171J	<1.1

Notes:

All concentrations are in µg/kg (ERB sample in µg/L)

RSL = EPA Regional Screening Level (June 2011)

Screening levels for VOCs are based on EPA RSLs and adjusted according to DEQ's April 2011 soil screening flow charts.

a = DEQ RBSLs apply. See Table 9 for screening levels

b = the more conservative RSL between p-xylene and m-xylene was used

--- = sample not analyzed or no RSL

na = not available. No EPA Regional Screening Levels exist for this compound

J - estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

TP = Test Pit

ERB = Equipment Rinse Blank

= concentration exceeds one or more soil screening levels

Table 12. Soil Analytical Results - Polynuclear Aromatic Hydrocarbons (PAHs)
Truck Repair Shop Area
Knife River Property, Kalispell, Montana

Analyte	Surface Soil RBSL (10-20 feet to groundwater)		Subsurface Soil RBSL		Analytical Results				
	Residential	Commercial	<10 feet to groundwater	10-20 feet to groundwater	TP-1 Source Sample	TP-1 @ 6 Ft	TP-1 @ 9 Ft	TP-2 @ 0-6 Inches	Sump Sed
Date Sampled	---	---	---	---	8/3/2011	8/3/2011	8/3/2011	8/3/2011	8/3/2011
Time Sampled	---	---	---	---	1345	1255	1305	1530	1700
Naphthalene	4	20	9	30	<0.0063	<0.00065	<0.00075	<0.0030	0.084 J
Acenaphthylene	400	800	200	800	<0.0032	<0.00033	<0.00037	<0.0015	<0.0029
Acenaphthene	400	800	200	800	0.14	<0.00033	<0.00037	<0.0015	0.079 J
Fluorene	300	2000	600	2000	0.23	<0.00044	<0.00050	<0.0020	0.17
Phenanthrene	300	2000	500	2000	0.27	<0.0054	<0.0062	<0.025	0.24
Anthracene	2000	10000	4000	10000	<0.053	<0.0054	<0.0062	<0.025	<0.048
Fluoranthene	300	2000	500	2000	<0.053	0.0071 J	<0.0062	<0.025	0.11
Pyrene	200	2000	2000	2000	0.28	0.015	0.011 J	0.053	0.32
Benzo(a)anthracene	0.2	2	10	50	<0.053	<0.0054	<0.0062	<0.025	<0.048
Chrysene	20	200	2000	5000	<0.0053	<0.00054	<0.00062	<0.0025	0.16
Benzo(b)fluoranthene	0.2	2	50	50	<0.0053	<0.00054	<0.00062	<0.0025	0.099
Benzo(k)fluoranthene	400	800	200	800	<0.0063	<0.00065	<0.00075	<0.0030	<0.0058
Benzo(a)pyrene	0.02	0.2	4	5	<0.053	<0.0054	<0.0062	<0.025	0.098
Indeno(1,2,3-cd)pyrene	0.2	2	50	50	<0.0053	<0.00054	<0.00062	<0.0025	<0.0048
Dibenz(a,h)anthracene	0.02	0.2	5	5	<0.0053	<0.00054	<0.00062	<0.0025	<0.0048
Benzo(g,h,i)perylene	2	20	500	500	<0.0053	<0.00054	<0.00062	<0.0025	0.090 J

Notes:

All concentrations in milligrams per kilogram (mg/kg)

RBSL = Montana Tier 1 Risk-Based Screening Level

TP = Test Pit

PAH analyses were only completed for those samples in which the EPH screen concentration exceeded 200 mg/kg

J - estimated concentration above the adjusted method detection limit and below the adjusted reporting limit

Table 13. Soil Analytical Results - Metals

Plastic Lined Pit

Knife River Property, Kalispell Montana

Sample ID	Soil Screening Levels			**Analytical Results**		
	Residential Direct-Contact RSL (mg/kg)	Industrial Direct-Contact RSL (mg/kg)	Leaching RSL (mg/kg)	Lined Pit - 1	Lined Pit - 2	Lined Pit - 3
Date Collected	---	---	---	9/14/2011	9/14/2011	9/14/2011
Time Collected	---	---	---	1815	1835	1900
Arsenic	40	40	40	7.5	8.8	10.2
Barium	1500	19000	411	93	131	66.9
Cadmium	70	800	3.8	1.4	1.1	0.8
Chromium (Cr-VI) [a]	0.29	5.6	1.80E+06	7.4	9.1	7.6
Chromium (Cr-III) [a]	1.2 E +4	1.5 E+5	9.9 E+8			
Lead [b]	400	800	140	13.2	13.7	11.5
Selenium [c]	39	510	8.9	<0.77 M%	<0.74 M%	<0.74 M%
Silver	39	510	1.0	<0.52	<0.49	<0.49
Mercury	1.0	4.3	2.6	0.022	0.034	<0.018

Notes:

All results are in mg/kg

RSL = EPA Regional Screening Level (June 2011)

a = Cleanup Level within KRY Facility Boundary is 150 mg/kg (industrial direct-contact surface cleanup level) and 20 mg/kg (subsurface soil construction/excavation cleanup level)

b = Cleanup Level within KRY Facility Boundary is 800 mg/kg for both industrial direct-contact surface cleanup level and subsurface soil construction/excavation cleanup level)

c = Cleanup Level within KRY Facility Boundary is 1.7 mg/kg for subsurface soil construction/excavation cleanup level

= concentration exceeds Chromium (CR-VI) soil screening levels

M% = MS/MSD percent recoveries were outside QC limits and/or laboratory blank RPD value exceeded the QC limit

Table 14. Soil Analytical Results - Petroleum Hydrocarbons and PCP

Plastic Lined Pit

Knife River Property, Kalispell Montana

Sample		Soil Screening Levels		Analytical Results			
		Residential Surface RBSL (10-20 feet to groundwater)	Commercial Surface Soil RBSL (10-20 feet to groundwater)	Lined Pit - 1	Lined Pit - 2	Lined Pit - 3	Trip Blank
	Date Collected	---	---	9/14/2011	9/14/2011	9/14/2011	9/16/2011
	Time Collected	---	---	1815	1835	1900	---
Volatile Petroleum Hydrocarbons (VPH)	MTBE	0.2	0.2	<0.025	<0.048	<0.048	<0.50
	Benzene	0.1	0.1	<0.025	<0.024	<0.024	<0.50
	Toluene	40	40	<0.050	<0.048	<0.048	<0.50
	Ethylbenzene	6	30	<0.050	<0.048	<0.048	<0.50
	m&p-Xylene	---	---	<0.10	<0.097	<0.096	<1.0
	o-Xylene	---	---	<0.050	<0.048	<0.048	<0.50
	Xylene (total)	70	300	<0.15	<0.15	<0.14	<1.5
	Naphthalene	4	20	<0.60	<0.58	<0.58	<5.0
	C09-C10 Aromatics	100	500	<1.0	<0.97	<0.96	<20.0
	C05-C08 Aliphatics	60	300	<5.0	<4.8	<4.8	<20.0
	C9-C12 Aliphatics	100	700	<5.0	<4.8	<4.8	<20.0
	TPH	---	---	<10.0	<9.7	<9.6	<20.0
EPH	TEH	---	---	692	1410	1110	---
	C9-C18 Aliphatics	200	1,000	<15.5	<10.0	<10.0	---
	C19-C36 Aliphatics	20000	100,000	607	1330	1060	---
	C11-C22 Aromatics	500	1,000	85.8	81.9	49.4	---
	Residential Direct Contact RSL	Industrial Direct Contact RSL	Leaching SSL	Liner Pit - 1	Liner Pit - 2	Liner Pit - 3	Trip Blank
PCP [a, b]	0.89	2.7	0.1	0.0021	0.0021	<0.00097	---

Notes:

TEH = Total Extractable Hydrocarbons

All results in milligrams per kilogram (mg/kg), with the exception of the Trip Blank, which is in milligrams per liter (µg/L)

EPH = Extractable Petroleum Hydrocarbons

PCP = Pentachlorophenol

TPH = Total Purgeable Hydrocarbons

RSL = EPA Regional Screening Level (June 2011)

RBSL = Montana DEQ Risk-Based Screening Levels for soils between 10 and 20 feet to groundwater

a = Cleanup Level within KRY Facility Boundary is 12 mg/kg unless subsurface soil is also contaminated

b = Cleanup Level within KRY Facility Boundary is 0.43 mg/kg for leaching to groundwater if subsurface soil is contaminated

Table 15. Soil Analytical Results - Polynuclear Aromatic Hydrocarbons (PAHs)
Plastic Lined Pit
Knife River Property, Kalispell, Montana

Analyte	Surface Soil RBSL (10-20 feet to groundwater)		Subsurface Soil RBSL		Analytical Results		
	Residential	Commercial	<10 feet to groundwater	10-20 feet to groundwater	Lined Pit - 1	Lined Pit - 2	Lined Pit - 3
Date Sampled	---	---	---	---	9/14/2011	9/14/2011	9/14/2011
Time Sampled	---	---	---	---	1815	1835	1900
Naphthalene	4	20	9	30	<0.015	<0.010	<0.010
Acenaphthylene	400	800	200	800	<0.015	<0.010	<0.010
Acenaphthene	400	800	200	800	<0.015	<0.010	<0.010
Fluorene	300	2000	600	2000	<0.015	<0.010	<0.010
Phenanthrene	300	2000	500	2000	<0.015	<0.010	<0.010
Anthracene	2000	10000	4000	10000	<0.015	<0.010	<0.010
Fluoranthene	300	2000	500	2000	<0.015	<0.010	<0.010
Pyrene	200	2000	2000	2000	<0.015	<0.010	<0.010
Benzo(a)anthracene	0.2	2	10	50	<0.015	<0.010	<0.010
Chrysene	20	200	2000	5000	<0.015	0.013	<0.010
Benzo(b)fluoranthene	0.2	2	50	50	<0.015	<0.010	<0.010
Benzo(k)fluoranthene	400	800	200	800	<0.015	<0.010	<0.010
Benzo(a)pyrene	0.02	0.2	4	5	<0.015	<0.010	<0.010
Indeno(1,2,3-cd)pyrene	0.2	2	50	50	<0.015	<0.010	<0.010
Dibenz(a,h)anthracene	0.02	0.2	5	5	<0.015	<0.010	<0.010
Benzo(g,h,i)perylene	2	20	500	500	0.020	0.028	0.023

Notes:

All concentrations in milligrams per kilogram (mg/kg)

RBSL = Montana Tier 1 Risk-Based Screening Level

TP = Test Pit

PAH analyses were only completed for those samples in which the EPH screen concentration exceeded 200 mg/kg

Table 16. Revised Conceptual Site Model of Contamination

Knife River Property, Kalispell, Montana

REC or Contaminant Source	Impacted Media (KRC Site)	Contaminants	Potential Exposure Pathways	Recommendations
KRY Facility	Groundwater	Petroleum hydrocarbon, dioxins, manganese, iron, and PCP	Ingestion of groundwater	Create controlled groundwater area to eliminate use of groundwater for drinking
KRY Facility	Soil	PCP, dioxins/furans, PAHs, petroleum hydrocarbons, and metals	Direct surface/subsurface soil contact and/or ingestion	Eliminate exposure to soil through excavation, offsite disposal, and soil repositories within the KRY Facility (remediation work is ongoing)
Repair Shop Area	Soil	VOCs and petroleum hydrocarbons	Direct surface/subsurface soil contact and/or ingestion	Eliminate exposure through excavation and offsite disposal of shallow soils.
Sump Sediment	Sump Contents	VOCs and petroleum hydrocarbons	Direct sediment contact and/or ingestion	Eliminate exposure through removal and offsite disposal of sump and contents.
Plastic-Lined Pit	Soil	None detected above screening levels	Not applicable	No action
Onsite Structures	Building Materials	Asbestos (scale office mastic, main shop roofing/silver paint, and tire shop window glazing)	Inhalation during renovation or demolition of onsite buildings	Asbestos abatement (removal of mastic, roofing/paint, and window glazing)
	Building Materials	Lead-Based Paint (tire shop exterior painted siding)	Inhalation or ingestion during renovation or demolition of onsite buildings	Lead-based paint abatement (removal of exterior siding)

Notes:

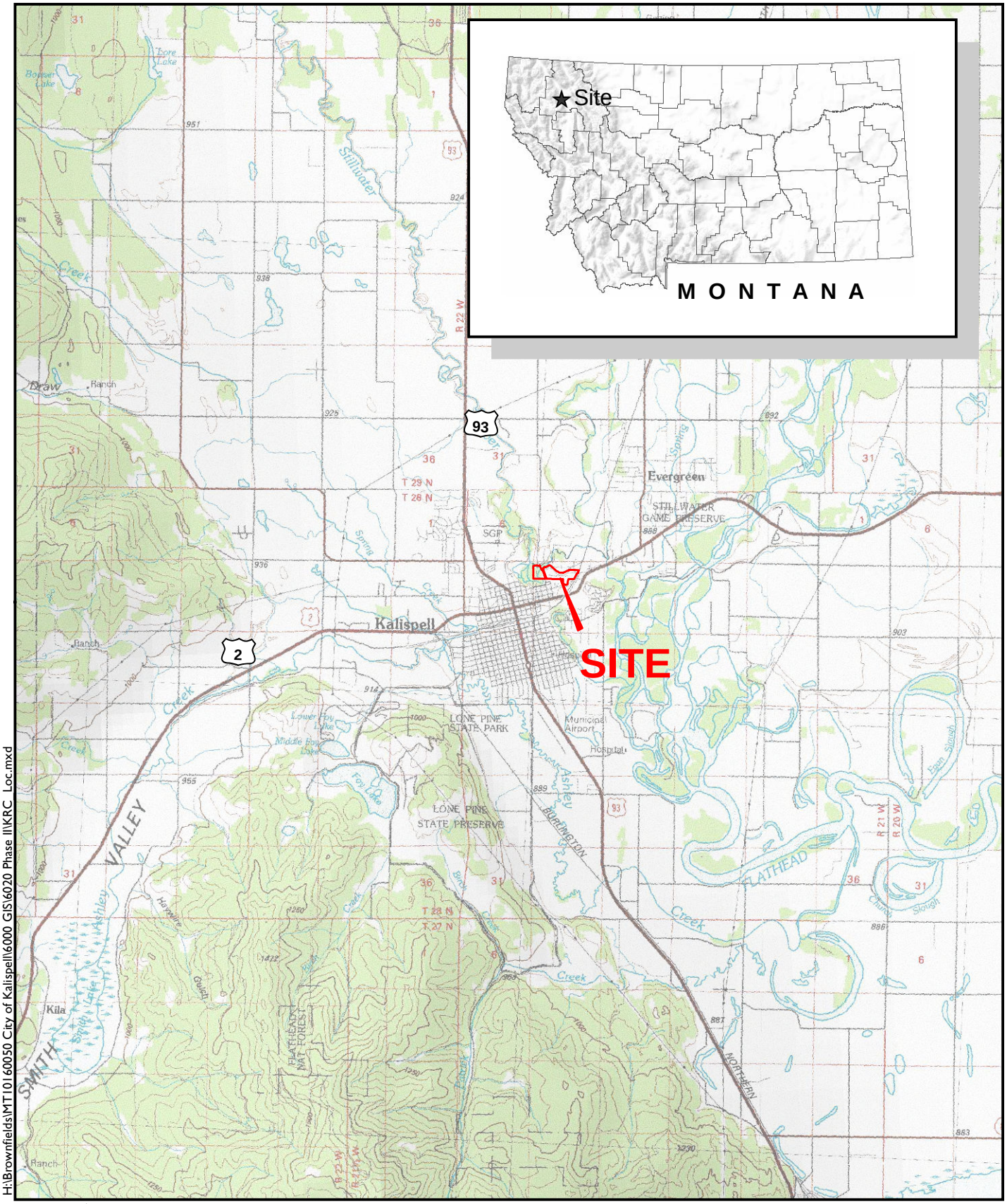
REC = recognized environmental condition

COPC = contaminant of potential concern

PCP = pentachlorophenol

PAH = polynuclear aromatic hydrocarbons

FIGURES



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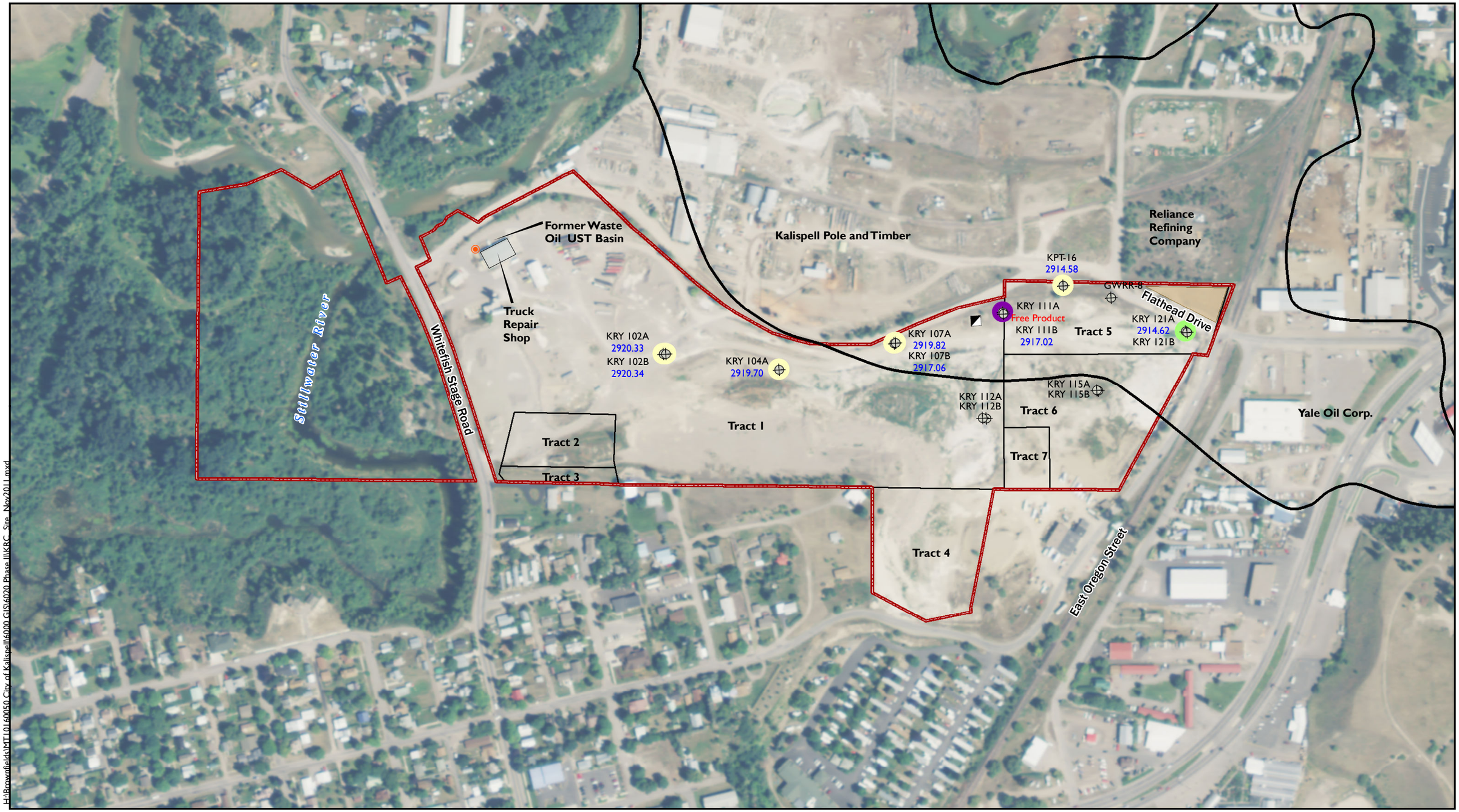
Source: Montana USGS 100K Topographic Map

N

0 Feet 10,000

AMEC Geomatrix

Location Map
Phase II ESA
Knife River Property
Kalispell, Montana
FIGURE 1



NOTE: NAIP Aerial Photography 2009

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N

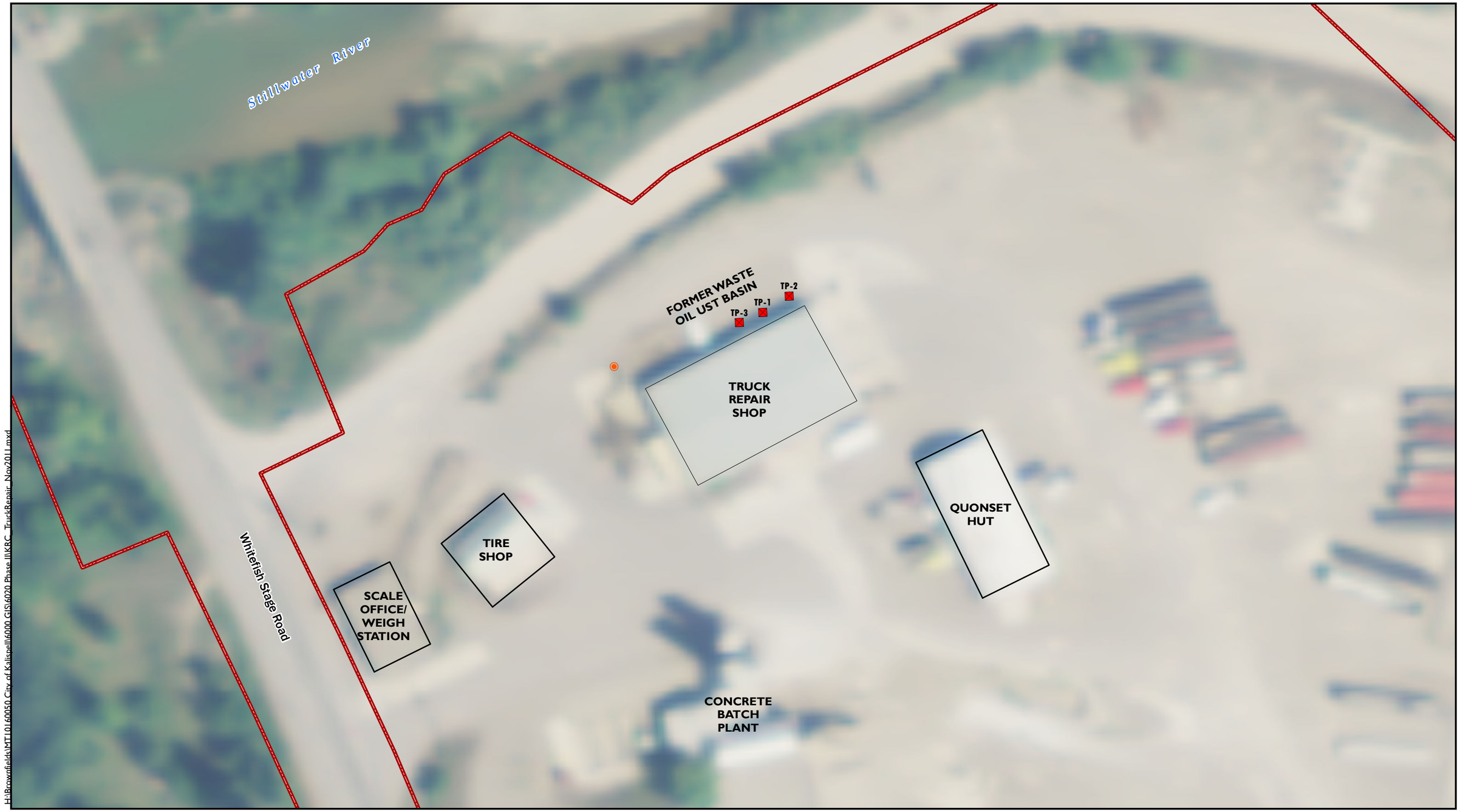
0 Feet 300

AMEC Geomatrix

2920.34 - Groundwater Elevation (feet) (September 10-14, 2011)

- Plastic-Lined Pit
- Repair Shop Sump
- Monitoring Well
- KRY 121A Not Sampled: Obstruction in Well Casing
- KRY 111A Not Sampled: Free Product (LNAPL) present
- Sampled Monitoring Well
- KRY CECRA Facility Boundary
- Approximate Knife River Property Boundary
- KRY Site Soil Remediation Area (Cleanup Directed by DEQ)

Site Map and Sampling Locations
Phase II ESA
Knife River Property
Kalispell, Montana
FIGURE 2



NOTE: NAIP Aerial Photography 2009

0 Feet 50

AMEC Geomatrix

Test Pit

Repair Shop Sump

Approximate Knife River Property Boundary

Test Pit Locations - Truck Repair Shop
Phase II ESA
Knife River Property
Kalispell, Montana
FIGURE 3

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APPENDICES

APPENDIX A
DEQ CORRESPONDENCE

Montana Department of
ENVIRONMENTAL QUALITY

Brian Schweitzer, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.mt.gov

September 2, 2011

Via Email and U.S. Mail

Mr. Adam Johnson
AMEC Geomatrix, Inc.
1001 South Higgins Ave., Bldg. B-1
Missoula, MT 59801

Re: Permission Letter to Conduct the Phase II Environmental Site Assessment Work at the KRY Site in Kalispell, Montana

Dear Mr. Johnson:

The Montana Department of Environmental Quality (DEQ) has reviewed the *Final (Revised) Sampling and Analysis Plan Phase II Environmental Site Assessment for the Knife River Property*, dated August 2011, which was submitted by AMEC on behalf of the City of Kalispell. DEQ has determined that its comments dated August 18, 2011 have been adequately incorporated, although DEQ noted some minor inconsistencies in descriptions of the remedy outlined in the KRY Site Record of Decision. As those inconsistencies do not impact the work proposed within the SAP, DEQ will not require revision.

Because the KRY Site is being remediated pursuant to a judicial abatement order under the authority of the Comprehensive Environmental Cleanup and Responsibility Act (CECRA) program, a person not subject to the judicial order may not conduct any remedial activities, including investigation of environmental contamination, on any part of the Facility without written permission from DEQ (see § 75-10-706(3), MCA and ARM 17.55.110). This letter serves as written permission from DEQ for AMEC to conduct the activities detailed in the Final (Revised) Sampling and Analysis Plan (SAP) Phase II Environmental Site Assessment (ESA). As required under ARM 17.55.110(7), AMEC must notify DEQ at least 10 days prior to the start of the work and provide a summary report to DEQ upon completion of the work. As indicated in DEQ's August 18, 2011 letter, the Phase II ESA report discussed in the SAP will likely satisfy DEQ's requirements for a summary report and must be submitted to DEQ following the schedule stated in the SAP.

Please feel free to contact me with any questions or concerns at mbucy@mt.gov or at (406) 841-5064.

Sincerely,

Moriah Bucy
Project Officer

cc: Katharine Thompson, Community Development Manager, City of Kalispell, 201 First Ave. E., Kalispell, MT 59901
Stephanie Metz, U.S. EPA Region 8 (EPR-B), 1595 Wynkoop St., Denver, CO 80202-1129
Cynthia Brooks, DEQ Legal

APPENDIX B
FIELD NOTES

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name ~~AMEG~~ AMEC

Address 1001 S. HIGGINS AVE. B-1
MISSOULA MT 59801

Phone (406) 542-0129

Project KNIFE RIVER PROJECT
MT 10160050
PHASE II ESA
Kalispell Montana

Clear Vinyl Protective Slipcovers (Item No. 30) are available for this style of notebook.
Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation.

CONTENTS

PAGE	REFERENCE	DATE

KNIFE RIVER PROPERTY 3 Aug. 2011

6:30 adam Johnson (AJ) & Heather Grobbo (HG) arrived @ office to load the truck with supplies for Field work

6:45 AJ & HG BEGIN COMMUTE TO KALISPELL MT.

8:45 AJ & HG arrive in Kalispell MT & stop at Grocery store for supplies then headed to the site

9:15 AJ & HG arrive on site at the Knife River Property

Weather: Partly cloudy, winds calm, temp is 58°F

OBJECTIVE:

- Truck Repair Shop Soil investigation
  - test pits
  - surface & subsurface sampling
- Sump Investigation

* materials that surrounded the ~~diesle~~ diesel site have been moved to another location.

* Some soil staining is aparent on the NW side of the repair shop.

10:00 underground electric, power, gas & communication lines were noted leaving the truck repair shop at its SW corner & heading to the SW (spray paint marks)

8/3/11

1005: Dave ~~the~~ Gray from Gray & Sons excavating from Big Fork montana arrived on site & began to unload the excavator from the flat bed trailer (set up)

10:15 Katharine Thompson with the City of Kalispell arrives on site
- Katharine was outfitted with a hard hat & safety glasses

1020: Safety meeting: AJ leads the meeting & conversation of safety around the excavator with Dave Gray.
- everyone signed the safety form

8/3/11

1040 Set up Decon station
* 1040-1050 Butch Barber stopped by

1045 Sean Conrad arrives on site works for City of Kalispell and gets equipt with safety hat & glasses & vest.

1050 Start excavating
- dig down approx 12 inches

1055 TP1 @ 1 ft
- Hydrocarbon mild odor
Decon trowel

1100 5 ft Some apparent soil staining with in 2-3 ft of AJ's foundation. Further away the soil appears to be more normal & not stained

Note: B. Barber indicated that building water line enters from the south/west.

8/3/11

1100 TP-1 @ 3-4 ft (gravel)
- more distinct hydrocarbon odor - but still very mild in smell. (smell observed at the excavation pit)
- Sample taken from the excavation bucket, no smell observed from the bucket sample or in the Bucket
* Decon trowel

1110: TP-1 @ 5-6 ft (gravel)
Slight hydrocarbon odor

1120: photo taken facing East @ TP-1
- Close up taken facing NorthEast
- photo taken looking East at the old ventilation pipe & blue ridged tubing
* Decon trowel

1140 TP-1 @ 4 ft (native soil)
- Less pea gravel
- non-fill soil material, best found @ this depth

8/3/11

1145 PID calibration
- Fresh air calibration 0.1 ppm
- Span calibration gas value 100 ppm
calibration result 101 ppm

Concentration
TP-1 @ 1 ft: 0.2 ppm
- pea gravel
TP-1 @ 3-4 ft: 0.1 ppm
- pea gravel
TP-1 @ 5-6 ft: 0.8 ppm
- pea gravel
TP-1 @ 4 ft: 0.0 ppm
- native soil

1155 Surface soil sample from (TP-1 S.S.) Concrete slab. ie: petroleum source sample * Decon ~~Soiling~~ Trowel
Concentration
1205 petroleum Source Sample: 1.7 ppm
- pea gravel.

12:15 Sean Conrad leaves site
12:20
TP1 @ 9 ft
- very slight odor, collected from bucket
~~- native soil~~ - pea gravel AJ (native soil)
* Decon trowel

8/3/11

1225 Concentration
TP-1 @ 9 ft : 11.5 ppm
-native soil

1235 TP-1 @ 6 ft
-native soil, collected from Bucket
*Decon Trowel

1235 Katharine Thompson leaves site.

Concentration
1255 TP1 @ 6 ft : 4.8 ppm
- native soil

Excavation Pit final size... 10 W x 10 L x 9 D

1240: Backfill photo taken facing NE.

*Decon Trowel

8/3/11

Soil Sample Collection...

- 3 clear glass containers
- 4oz jar for RCRA metals
- 4oz jar for VOC's
- 9oz jar for VPH + EPH

- Sample time 1245 TP-1 @ 4 ft
  *Decon Trowel, new gloves
- Sample time 1255 TP-1 @ 6 ft
  *Decon trowel, new gloves
- Sample time 1305 TP-1 @ 9 ft
  *Decon trowel, new gloves
- Sample time petroleum Source Sample from TP-1 13:45 @ surface
  *Decon trowel, new gloves

1355. Test Pit II Excavation (TP-2)
- pictures taken facing N.

1400 ~~pm~~ TP-2 @ 2.5 ft
- no smell & no staining

total Depth of test pit is 3.5 ft

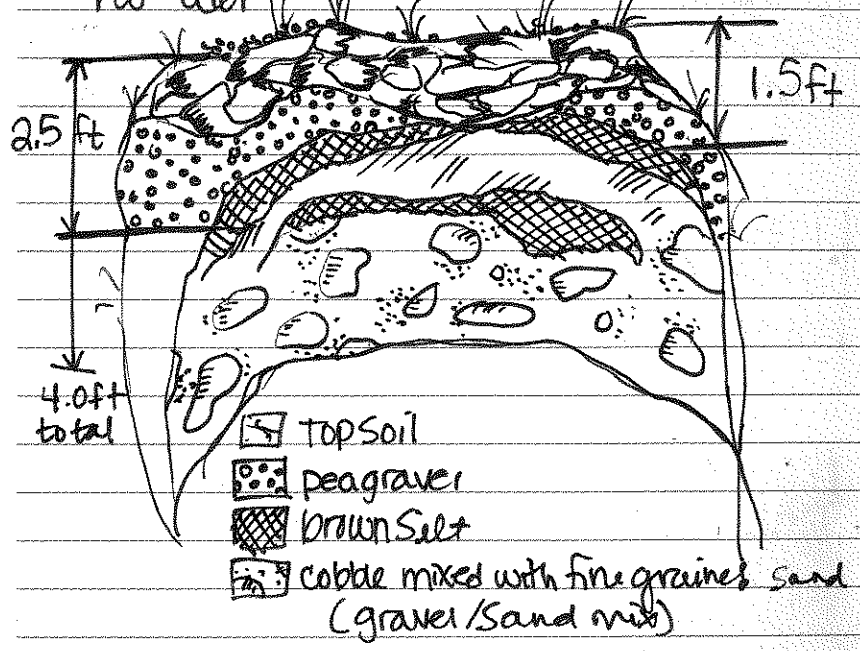
1410 ~~TP-2~~ TP-2 @ 0-6 inches
- moderate smell w/this sample

*picture taken facing NE with tape measure

8/3/11

1430 TP3 @ 1.5ft
- this impact zone is dark brown silt directly below the fill gravel.
- mild smell observed
* Decon trowel
- Picture taken South

1440 TP-3 @ 4ft
- no smell detected
- very sand rich, no staining & no oder



1455 PID concentration

- TP3 @ 1.5 ft = 17.0 ppm
- TP3 @ 4 ft = 1.5 ppm
- TP-2 @ 0-6inches: 1.2 ppm
- TP-2 @ 2.5ft : 0.8 ppm

* Decon trowel, new gloves

SOIL SAMPLE COLLECTION:

- Sample time 1530 TP-2 @ 0-6inches
  - TP-2 0-6inches - 3 $4O_2$ jars were collected due to the sample being too coarse.
    * Decon trowel, new gloves
- 1540 collecting TP-1 Source Sample
- another sample due to the coarse sediment size. (3x 4-oz jars); sample time 1345
  * Decon trowel, new gloves
- Sample time 1545 TP2 @ 2.5ft
  * Decon trowel, new gloves

8/3/11

- Sample time 1547 TP-3 @ 1.5ft
  - odor detected in this sample
  - ~ mild in nature
  - ~ Decon travel, new gloves
- Sample time 1552 TP-3 @ 4ft
  - Sandy texture
  - no odor detected

1630 - Began Sump Sediment Investigation
1645 - Completed initial probing of bottom of the Sump

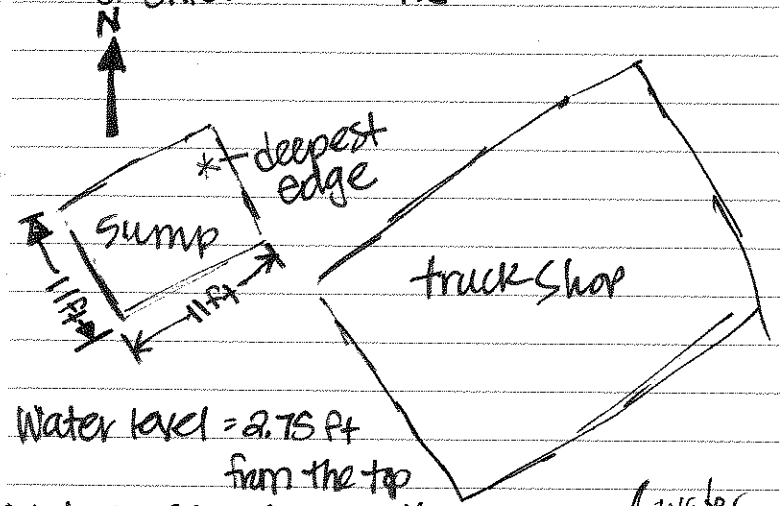
1700 - Sampling of the sump. Begins
- collecting the sediment with a long handled sieve & transferring the sludge into a stainless steel bowl

- Strong sewage like odor ~~like~~ing
- Sediment is fine grained & deep Charcoal gray/black
- Sediment water mixture
- minor scheen on water (sheen) surface after stirring up water with the long handled sieve

8/3/11

- Photo taken facing SW and 2 more photos taken facing NE.

Sump is oriented parallel to the building
-oriented SW → NE



Water level = 2.75 ft from the top

Water = 32 inches on the bottom of the Sump from top of water level on NE side (water depth = 32 inches)

~ Seems to be fairly concrete on the bottom.

Thickness of solids on the bottom ranges from 0-12 inches

~ Bottom is a gradual descent from the SW side, appears to be solid (concrete) and in good condition

8/3/11

TP-1
- center 5 ft out of the north west exterior of the building
- directly infront of the piping leading into the subsurface
- 23 ft from the NE edge of the building
- 77 ft from the NW corner the corner closest to the sump

TP-2
- 92 ft away from the NW corner
* the corner closest to the sump
- 12 ft from the NW exterior wall of the building.
* in front of the tree / bush
- 8 ft away from the NE edge/corner of the building

NOTE: 1730 ERB SOIL
using the bowl that had been decontaminated

8/3/11

TP-3
- 62 ft away from the NW corner
* the corner closest to the sump.
- 11 ft away from the ~~NE~~ NW exterior of the Shop building
* in front of orange ventilation tower
- 39 ft from the NE edge/corner of the Shop building

1800 HG & AJ leave site and depart for home to Missoula MT.

2030 AJ + HG Arrive at the missoula office headquarters

Aug 3, 2011

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CONTENTS

PAGE	REFERENCE	DATE

Levi McKay
Heather Grotbo

Sept 14, 2011

Knife River Property GW Sampling
& Soil Investigation

Weather: cloudless, sunny, 73°
no wind, calm

Objective Sample 9 wells on the Knife River property & Soil sampling @ 2 locations on site.

6:45 LM & HG gathered equipment & loaded the truck for departure.

7:30 left missoula for Kalispell

10:00 Stopped at grocery store for ice, DI H_2O & paper towels, tape

1020 Stopped at city service Valcon to pick up a 55 gal drum to containerize H_2O waste

1045 HG + LM arrived on site
drove around the site to make sure all wells were/are accessible.

→ spoke with Butch Barber about storing the 55 gal drum in repair shop → He o.k.ed it.

→ spoke with Lucas Darnell from Trihydro to open up wells for sampling

1105 met up with
he unlocked wells KRY 107A
KRY 107B

• Called AJ for Screening levels

1130: calibrated YSI
HG tagged DTW @ well
KRY 107 A: 19.10

→ Decon the bladder pump
→ LD on site watching wearing PPE

Decon: 10% Methanol, 10% Nitric, DI H_2O
+ Alconox soap

1155 calibrating turbidity meter

1220 Begin purge at well KRY107A
DTW 19.10

geocontrol pro:
discharge: 7 } Shallow well
fill time: 8

1310 Sample time
→ check field forms for specific parameters

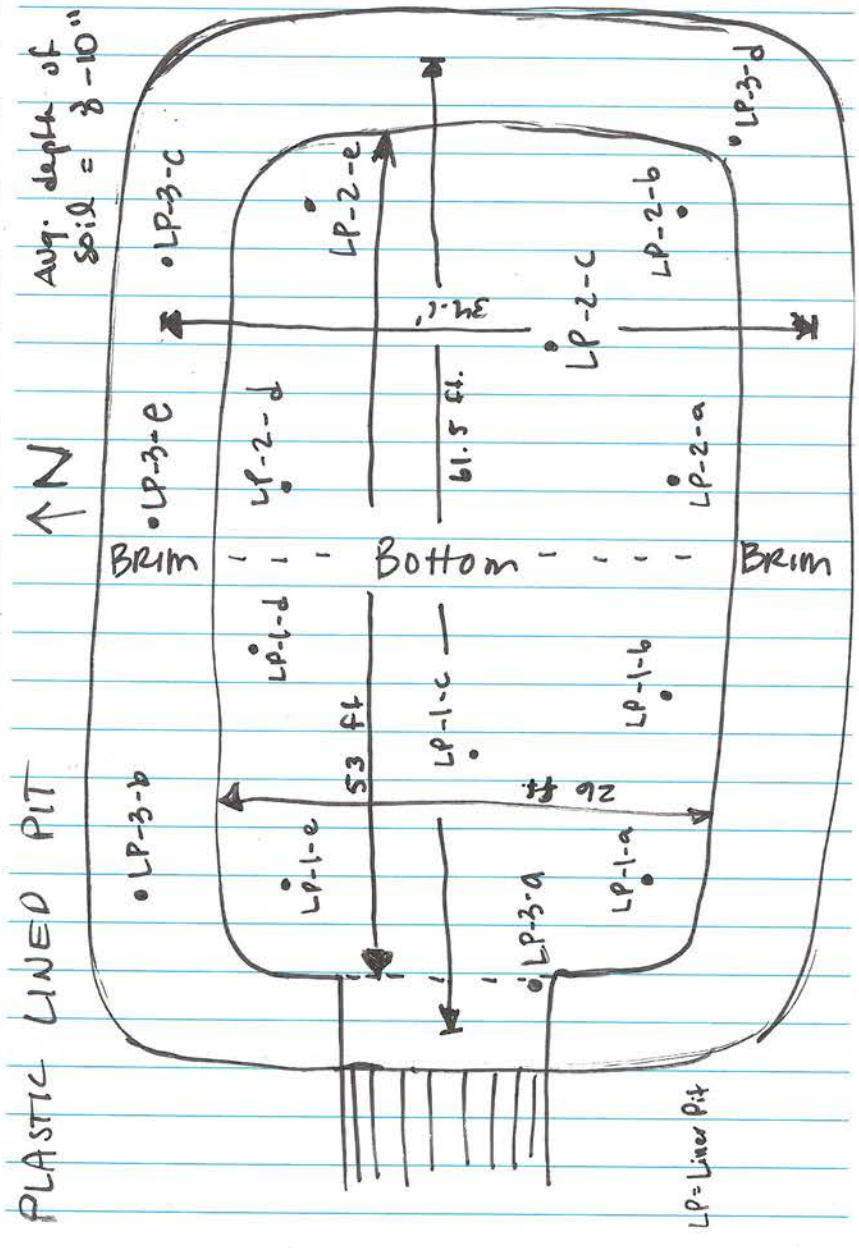
1430: Attempted to collect a sample from well KRY 107B
However, bladder pump was not heavy enough to keep the tubing from getting tangled + stuck in the PVC casing.
• Decon pump.
* decided to move to next shallow well & get zip ties to keep tubing from tangling in the deeper wells.
zip ties or weights.

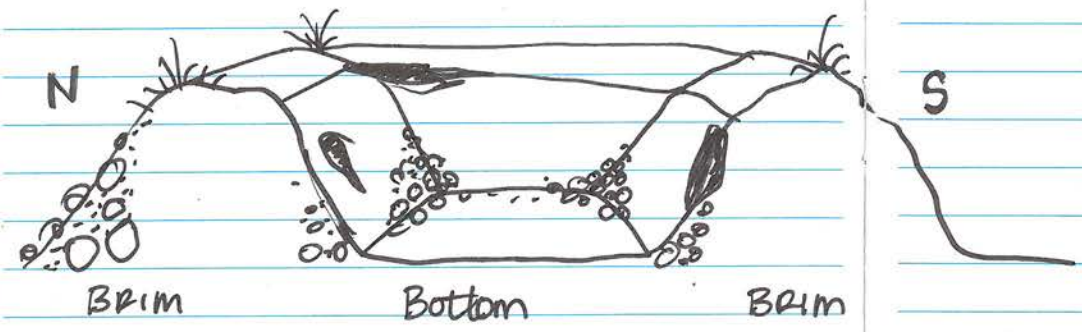
1645: attempt to collect sample at KRY111A: Found product on water level tape and could not proceed to sample.

- mega decon pump & replace bladder inside

1700: Lucas Darnell stopped by to open more wells for sampling & to check in on ~~HG~~ LM & HG

In the process of cleaning the pump & replacing the bladder the pump still smelled of PHC and HG & LM decided that the pump & the water level tape needed a more efficient & better decon that we could give in the field at this time. Bladder pump & tape will be fully decontaminated tonight. Groundwater will resume tomorrow morning.





1800: prep for soil sampling
* Decon stainless steel bowl & trowel

1815 - Soil sample time; 5 - subsamples for lab composition; 1 - 8 oz jar ~~for~~ composited. "Liner Pit-1"

Trowel deconed between each sub-sample: $H_2O \rightarrow ALCNX \rightarrow HNO_3 \rightarrow$ Methanol $\rightarrow H_2O$

1840 - "Liner Pit-2; 5-subsamples; 1-8oz composited

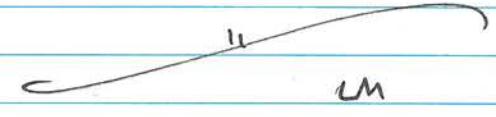
1900 - "Liner Pit-3"; 5- Subsamples.

1- 8 oz composited sample

Liner appeared in tact with the exception of tears along edges on upper berm, ~~no to l~~ little to no vegetation growing in location of Liner Pit-2 sample (eastern part of pit). At least 2 dump events, based on mounds in pit. Soil is yellowish brown w/ minor rounded Belt rock; Soil more silty-clayey in eastern portion.

1925 - ERB-1 collected for soil sampling equip.

1955 - LM + HG leave site.



September 15, 2011

0645 - H.G. + L.M. load truck + leave hotel for work site

objectives: continue groundwater sampling @ Knife River property.

Weather: @ 07:00, Mostly clear, ~50° F

0700 - Pick up extra buckets, ice, + zip-ties, + gas

0730 - Arrive @ site

0800 Set up, calibrate YSI, decon bladder pump + put new teflon tape on

0900 Attempt to purge well KRY107B. Began to zip tie the tubes together in effort to move the pump further down the casing into the screening level

→ didn't work, kept getting hung up in the casing + stuck.

→ unsuccessful attempt

0930: arrive at well KRY 121 A

Set up...

1000 attempt to sample unsuccessful

- water level tape can make it down the well, However the bladder pump is hung up on an obstruction

→ the pump cannot pass down into the water to pump any water out.

*decided to move on to the next well until later when we can decide how to condition the well.

1030

~~1045~~: Set up at KRY 104 A

Begin purge at 1056

1130 collect bottles for sampling

1135 Sample time

See field sheets for specific parameters

* Duplicate Sample collected for this well DUP-1 KRY 104A

1415 KRY 102A Sample time

* LM called Chris Cerquone, AMEC will ship weights for sampling the deep wells.

* will not sample KRY 121A due to obstruction > determined by Chris Cerquone

Called Dave Smith with BNSF
@ 303-
406-443-6548 office
picked up keys from EPM personnel on site.

1645 Sample time at KPT 16

LM called Butch Barber to meet up Friday to see if we could see the sump soil.

LM
Called Adam Johnson to check in for the day

1715 LM & HG left the site to get supplies at ACE hardware for the deep wells that will be sampled (attempted) Friday/tomorrow Sept 16, 2011.

2000 - 2100 HG & LM sorted coolers of samples & filled out the chain of custody and made sure there was enough ice to make it through the night.

END OF DAY 21:07

Sept. 15, 2011

 HG & LM

September 16, 2011

Weather : 65° F, cloudy/overcast breezy

Objective : to keep sampling the Knife River Property : today's focus is on the Deep wells

700 : LM & HG made a run to Albertsons to pick up extra zip locks, ice, and DI H_2O

725: begin loading coolers & packaging them with ice for pick up from Pace lab. Courier service

710: made trip blanks for coolers preserved with HCl and they will be tested for Vph.

Cooler	TRIP Blank
KRY 107 A	TRIP-BLANK-1
DUP-1	TRIP Blank-2
KRY 104 A	Trip blank-3
KPT-16	Trip blank-4
~~Liner Pit 3, a-e rg~~	Trip blank-4
~~Liner Pit 3 comp rg~~	Trip blank-4
Liner Pit 1 a-e	Trip blank-4
Liner Pit 1 comp	Trip blank-4
Liner Pit 2- a-e	Trip blank-4
Liner Pit 2 comp	Trip blank-4
Liner Pit 3 a-e	Trip blank 5
Liner Pit 3 comp	Trip blank 5
KRY 102 A	Trip blank 5
ERB-1	Trip blank-6

9/16/11

845 LM delivered the coolers (6) to Pace Courier.

850: loaded the truck up & headed to site

900: HG & LM on site at well KRY 102 B

905 HG began YSI calibration LM tagged H_2O depth & prepared the pump.

0945: DTW 24.92 KRY 102 B
0957 1st reading
[1020]
Sample time
!Very slow draw up!

check field forms for specific field parameters

1135 Finished sampling KRY 102 B

09/16/11

LM & HG moved to well KRY 107B set up

1148 began to purge well KRY 107B

1226 Sample time at KRY 107B

1350 - Purge rate very slow; call Chris C. & Adam J. to report progress
*Geo pro pump overheated & quit pumping had to let cool down, will try to pump ERB-2

1500 collected ERB-2
- pump was getting hot

1521: Well KRY 111 B sampling

1525: DTW 19.94 at KRY 111 B

1600: Sample time at well KRY 111 B

*we only took 1, 1L bottle samples because the pump was over heating and we weren't sure if/when it was going to stop all together.

1711 Purge water prep for taking samples out of waste water drum

1715 Sample time of purge water

1720 HG + LM off site

1940 - LM + HG arrive in MSLA office, unload cooler + equip.

LM

APPENDIX C
GROUNDWATER SAMPLING FIELD FORMS

screen 13-33

amec

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: KRY 102 A
Sample ID: KRY102 A Duplicate ID: —
Sample Depth: 26
Project and Task No.: MT 10160050
Project Name: Knife River Project
Date: September 15, 2011
Sampled By: HG + LM
Method of Purging: Bladder pump
Method of Sampling: low flow bladder pump

Initial Depth to Water: 24.94
Depth to Water after Sampling: See remarks
Total Depth to Well:
Well Diameter: 2"
1 Casing/Borehole Volume: — (Circle one)
4 Casing/Borehole Volumes: — (Circle one)
Total Casing/Borehole Volumes Removed: —

Time	Intake Depth	Rate (gpm)	Cum. Vol. (~~gal.~~ mL)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm mL)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment)
1345	—	—	Begin	purge @	well	—	—	—	24.94
1347	26	~166	500	12.67	7.67	554.0	60.0	37.8	24.94 dtw, 37.4, turb
1350	26	~166	1000	11.98	7.55	556.0	52.0	55.4	24.94 dtw.
1353	26	~166	1500	11.68	7.52	556.0	53.0	62.2	24.94 dtw,
1356	26	~166	2000	11.46	7.52	556.0	53.9	66.8	24.95 dtw
1359	26	~233	2700	11.38	7.52	556.0	55.2	69.2	24.95 dtw
1402	26	200	3300	11.25	7.51	556.0	56.4	71.7	24.95 dtw.
1405	26	~166	3800	11.19	7.51	557.0	57.2	73.8	24.94 dtw.
1408	26	~166	4300	11.26	7.51	557.0	57.4	74.4	24.94 dtw. 11.4 turb
1411	26	~133	4700	11.25	7.51	556.0	57.7	75.9	24.94 dtw, 11.97 turb
1415	—	—	—	SAMPLE	TIME	—	—	—	

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.: See KRY 107B 9/15/2011 for calibration

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	
Field Temperature °C		Altitude	
Instrument Reading		Instrument Reading	
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes:

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HH (11

Screen 95-105

amec

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: KRY 102B
Sample ID: KRY 102B Duplicate ID: —
Sample Depth: ~~100~~ 97
Project and Task No.: MT10160050
Project Name: Knife River Project
Date: September 16, 2011
Sampled By: HG & LM
Method of Purging: Bladder pump
Method of Sampling: Low flow bladder pump

Initial Depth to Water: 24.92
Depth to Water after Sampling: See remarks
Total Depth to Well:
Well Diameter: 2"
1 Casing/Borehole Volume: — (Circle one)
4 Casing/Borehole Volumes: — (Circle one)
Total Casing/Borehole Volumes Removed: —

Time	Intake Depth	Rate (gpm)	Cum. Vol. ~~(gal.)~~ mL	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment) ntu
0945	—	—	Begin to	purge the	well	—		—	24.92 dtw.
0957	97	40	500	14.13	7.36	349.0	83.0	144.2	24.92 dtw, 10.77 ntu
1002	97	80	700	13.62	7.46	352.0	69.6	135.6	24.92 dtw, 8.75 ntu
1007	97	80	1100	13.49	7.50	354.0	55.2	131.8	24.92 dtw, 7.46 ntu
1011	97	50	1300	13.61	7.53	355.0	45.7	129.0	24.92 dtw, —
1017	97	~116	2000	13.66	7.53	355.0	44.6	128.4	24.92 dtw,
1020	—	—	SAMPLE	TIME				—	—

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C	14.25	14.15	14.40	
Instrument Reading	4.00	6.95	10.00	

Model or Unit No.: YSI 556MPS

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	8974
Field Temperature °C			14.82
Instrument Reading			8975

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	
Field Temperature °C	15.11	Altitude	681.1
Instrument Reading	227.0	Instrument Reading	89.6
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes:

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1

Screen
20 -40

amec

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: KRY 104 A
Sample ID: KRY 104 A Duplicate ID: Dup - 1
Sample Depth: 30
Project and Task No.: MT 101 600 50
Project Name: Knife River Project
Date: September 15, 2011
Sampled By: HG & LM
Method of Purging: Bladder pump
Method of Sampling: low flow Bladder pump

Initial Depth to Water: 26.98
Depth to Water after Sampling:
Total Depth to Well:
Well Diameter: 2"
1 Casing/Borehole Volume: — (Circle one)
4 Casing/Borehole Volumes: — (Circle one)
Total Casing/Borehole Volumes Removed: —

Time	Intake Depth	Rate (gpm)	Cum. Vol. (~~gal.~~) mL	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment)
1056	—	Begin to purge well					—	—	26.98 water level
1104	30		500 mL	13.39	7.19	354.0	43.8	171.4	26.99 WL, 21.6 turb.
1110	30	83.3	1000	12.24	7.41	353.0	35.6	136.6	26.99 DTW, 15.0 turb.
1114	30	125	1500 mL	11.67	7.48	353.0	33.5	121.5	27.00 DTW, –
1118	30	125	2000	11.49	7.51	353.0	32.7	113.7	27.00 DTW, 9.74 turb.
1122	30	125	2500	11.37	7.53	353.0	32.2	107.7	27.00 DTW, 15.44 turb.
1126	30	125	3000	11.35	7.54	353.0	31.7	103.6	26.99 DTW, 15.26 turb.
1130	30	125	3500	11.34	7.55	353.0	31.9	100.9	27.00 DTW,
1135	—	Sample time				—			

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.: See ~~107~~ KRY 107 B 09/15/2011 for calibration

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	
Field Temperature °C		Altitude	
Instrument Reading		Instrument Reading	
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes:

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11

amec

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Screen: 9-29

Well ID: KRY 107A
Sample ID: KRY 107A Duplicate ID:
Sample Depth: 19 ft. bgs
Project and Task No.:
Project Name:
Date: 9/14/11
Sampled By: H. Grotbo L. McKay
Method of Purging: Bladder pump
Method of Sampling: Low Flow. bladder pump

Initial Depth to Water: 19.10
Depth to Water after Sampling: –
Total Depth to Well:
Well Diameter: 2" PVC
1 Casing/Borehole Volume: – (Circle one)
4 Casing/Borehole Volumes: – (Circle one)
Total Casing/Borehole Volumes Removed: –

Time	Intake Depth ft. bgs	Rate ~~(gpm)~~ mL/min	Cum. Vol. ~~(gal.)~~ mL	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment) (ft bgs), (NTU);
1220	→	Begin		purge,	pump	lowered.		WL =	19.10
1230	19.0		1000	15.20	7.14	137	4.34	190.8	19.10, 92.5, gray
1235	19.0	65	1325	14.41	6.81	135	3.95	178.2	19.10, 75.0, gray
1240	19.0	175	2200	12.84	6.42	135	3.64	188.0	19.10, 41.0, clear
1245	19.0	200	3200	12.43	6.53	135	5.60	170.8	19.11, 24.5, clear
1250	19.0	160	4000	12.33	6.73	135	3.58	151.4	19.11, 14.13, clear
1255	19.0	180	4900	12.36	6.91	135	3.51	137.2	19.11, 9.90, clear
1300	19.0	200	5900	12.36	6.98	135	3.46	129.9	19.11, 6.64, clear
1305	19.0	180	6800	12.38	7.05	135	3.43	124.3	19.11, 5.41, clear
1310	→	Sample		collected					

Unit turned off →

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C	23.34	22.58	23.04	
Instrument Reading	3.98	7.00	10.02	

Model or Unit No.: YSI 556 MPS (MSLA unit)

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C	22.05		
Instrument Reading	1411		

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	–
Field Temperature °C	25	Altitude mmHg	689.4
Instrument Reading	220.1	Instrument Reading	89.5%
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes: Dakton Turbidity Meter cal: 800 NTU, 100 NTU, 20 NTU, 0.02 NTU, 0.02 reading = 0.04 NTU

September 14, 2011 attempt.

amec

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Screen 121-131

Well ID: KRY 107B
Sample ID: KRY 107B Duplicate ID:
Sample Depth:
Project and Task No.: UT 101 60050
Project Name: Knife River Property
Date: Sept 14, 2011
Sampled By: HG + LM
Method of Purging: ~~Low~~ Bladderpump
Method of Sampling: low flow bladderpump

Initial Depth to Water: 21.67
Depth to Water after Sampling: —
Total Depth of Well: —
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one) —
4 Casing/Borehole Volumes: (Circle one) —
Total Casing/Borehole Volumes Removed: —

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment)
		*can not get pump into the							
		screening depth → ziptie tube (tomorrow)							
		together for next attempt to see							
		if that will force the pump deeper *							

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.: See KRY 107A for calibration

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	
Field Temperature °C		Altitude	
Instrument Reading		Instrument Reading	
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes:

m

September 15 2011 attempt

amec

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Screen 121-131

Well ID: KRY 107 B
Sample ID: KRY 107B Duplicate ID: —
Sample Depth:
Project and Task No.: UT 10100050
Project Name: Knife River Project
Date: September 15, 2011
Sampled By: HZ & LM
Method of Purging: Bladder pump
Method of Sampling: Low flow bladder pump

Initial Depth to Water: 21.70
Depth to Water after Sampling: —
Total Depth to Well: 136.57
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one) —
4 Casing/Borehole Volumes: (Circle one) —
Total Casing/Borehole Volumes Removed: —

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment)
		* tubing	was	not	permitting				
		the	pump	down	the well.	Tubing			
		was	more	buoyant	than	the pump.			
		pump	needs	weights	added	to carry			
		down	the	well. *					

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C	12.54	13.48	13.33	
Instrument Reading	3.99	6.94	10.00	

Model or Unit No.: YSI 556 MPS

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	8974
Field Temperature °C			13.78
Instrument Reading			8998

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	
Field Temperature °C	11.75	Altitude	679.8
Instrument Reading	227.0	Instrument Reading	89.4
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes:

September 16, 2011 Success.

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WELL SAMPLING AND/OR DEVELOPMENT RECORD

Screen 121-131

Well ID: KRY 107B
Sample ID: KRY107B Duplicate ID: —
Sample Depth: 126
Project and Task No.: UT10160050
Project Name: Knife River Property Project
Date: September 16, 2011
Sampled By: HG & LM
Method of Purging: Bladder flow
Method of Sampling: low flow

Initial Depth to Water: 21.68
Depth to Water after Sampling: See remarks
Total Depth to Well:
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one) —
4 Casing/Borehole Volumes: (Circle one) —
Total Casing/Borehole Volumes Removed: —

Time	Intake Depth	Rate (gpm)	Cum. Vol. ~~(gal.)~~ mL	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment) ntu
1148	→		Begin purge					→	21.68 dtw.
—	126								
1200	126	—	500	16.03	7.88	335.0	67.4 %	121.4	21.68 dtw, 23.1 ntu
1204	126	50	700	15.80	7.75	338.0	75.8 %	115.7	21.68 dtw, 19.74 ntu
1208	126	70	980	15.36	7.70	339.0	70.7 %	115.7	21.68 dtw, 31.4 NTU
1212	126	30	1100	14.76	7.66	340	5.96	116.7	21.68 dtw, 30.4 ntu
1216	126	100	1500	14.56	7.64	341.0	5.44	116.8	21.70 dtw, 28.4 ntu
1220	126	25	1600	14.69	7.63	342.0	4.85	116.9	21.68 dtw, 23.6 ntu
1224	126	25	1700	14.65	7.62	342.0	4.38	117.5	21.68 dtw, 28.8 ntu
1226	—		SAMPLE TIME						

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.: see KRY 102B for Calibration

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	
Field Temperature °C		Altitude	
Instrument Reading		Instrument Reading	
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes:

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WELL SAMPLING AND/OR DEVELOPMENT RECORD

Screen 5-25'

Well ID: KRY 111 A
Sample ID: KRY 111A Duplicate ID: —
Sample Depth: NA
Project and Task No.: WT 101600610
Project Name: KNIFE RIVER PROJECT
Date: SEPT 14, 2011
Sampled By: HG + LM
Method of Purging: BLADDER PUMP
Method of Sampling: LOW FLOW BLADDER

Initial Depth to Water: 21.47
Depth to Water after Sampling: —
Total Depth to Well:
Well Diameter: 2"
1 Casing/Borehole Volume: — (Circle one)
4 Casing/Borehole Volumes: — (Circle one)
Total Casing/Borehole Volumes Removed: —

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment)
— Product observed in well —									
		no sampling taken							
		place @ this time							

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.: See KRY 107A FOR CALIBRATION

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	
Field Temperature °C		Altitude	
Instrument Reading		Instrument Reading	
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes:

Screen 123-133

amec

WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: KRY 111 B
Sample ID: KRY 111B Duplicate ID: —
Sample Depth: 126
Project and Task No.: UT 10160050
Project Name: Knife River Property Project
Date: September 16, 2011
Sampled By: HBd LM
Method of Purging: Bladder pump
Method of Sampling: low flow bladder pump

Initial Depth to Water: 19.94
Depth to Water after Sampling:
Total Depth to Well: See remarks
Well Diameter: 2"
1 Casing/Borehole Volume: — (Circle one)
4 Casing/Borehole Volumes: — (Circle one)
Total Casing/Borehole Volumes Removed: —

Time	Intake Depth	Rate (gpm)	Cum. Vol. ~~(gal.)~~ mL	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment)
1535	—	—	Begin to purge well				—	—	19.94 dtw
1543	126	62.5	500	17.21	7.69	374	5.00	68.0	19.94 dtw, 27.4 ntu
1547	126	62.5	750	16.89	7.57	374	3.56	90.4	19.94 dtw, 38.7 ntu
1551	126	62.5	1000	16.87	7.54	374	3.12	96.7	19.94 dtw, 29.8 ntu
1555	126	50	1200	16.77	7.53	374	2.67	100.3	19.94 dtw, 21.1 ntu
1600	—	—	SAMPLE TIME				—	—	

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.: See KRY 102B for Calibration

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	
Field Temperature °C		Altitude	
Instrument Reading		Instrument Reading	
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes:

Screen 12-35

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WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: KRY 121 A
Sample ID: KRY121 A Duplicate ID:
Sample Depth: 25
Project and Task No.:
Project Name: Knife River Property
Date: September 15, 2011
Sampled By: HGJ LM
Method of Purging: Bladder pump
Method of Sampling: Low flow bladder pump

Initial Depth to Water: 22.77
Depth to Water after Sampling:
Total Depth to Well:
Well Diameter: 2"
1 Casing/Borehole Volume: (Circle one) –
4 Casing/Borehole Volumes: (Circle one) –
Total Casing/Borehole Volumes Removed: –

Time	Intake Depth	Rate (gpm)	Cum. Vol. (gal.)	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment)
			* unable to reach water						
			with pump due to an						
			obstruction in the well casing.						
			water level tape fit through → not pump.						

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.: See KRY 107 B 9/15/2011 for calibration

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	
Field Temperature °C		Altitude	
Instrument Reading		Instrument Reading	
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes:

screen 14-29

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WELL SAMPLING AND/OR DEVELOPMENT RECORD

Well ID: KPT 16
Sample ID: KPT 16 Duplicate ID: —
Sample Depth: 26
Project and Task No.: MT10160060
Project Name: Knife River Project
Date: September 15, 2011
Sampled By: HG & LM
Method of Purging: Bladder Pump
Method of Sampling: low flow bladder pump

Initial Depth to Water: 21.08
Depth to Water after Sampling:
Total Depth to Well:
Well Diameter: 2"
1 Casing/Borehole Volume: —
(Circle one)
4 Casing/Borehole Volumes: —
(Circle one)
Total Casing/Borehole Volumes Removed: —

Time	Intake Depth	Rate (gpm)	Cum. Vol. (~~gal~~) mL	Temp. (°C)	pH (units)	Specific Electrical Conductance (µS/cm)	Dissolved Oxygen (mg/l)	Redox Potential (mV; SSCE)	Remarks (DTW, turbidity, and sediment)
1627	26	—	Begin to purge the well					—	21.08 dtw.
1629	26	233	500	12.31	7.47	502.0	50.0	81.5	21.08 dtw., 6.18 turb
1632	26	233	1200	11.75	7.26	498.0	32.0	78.9	21.08 dtw, 6.17 turb
1635	26	433	2500	11.42	7.19	497.0	28.1	78.0	21.08 dtw, 4.88 turb
1638	26	166	3000	11.30	7.16	497.0	26.8	77.5	21.08 dtw, 3.66 turb
1641	26	233	3700	11.23	7.15	497.0	25.9	76.9	21.08 dtw, 4.56 turb
1644	26	266	4500	11.18	7.13	497.0	23.7	76.4	21.08 dtw, —
1645	—	—	SAMPLE TIME					—	

pH CALIBRATION (choose two)				
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Field Temperature °C				
Instrument Reading				

Model or Unit No.: See KRY 107 B 9/15/2011 for Calibration

SPECIFIC ELECTRICAL CONDUCTANCE – CALIBRATION			
KCL Solution (µS/cm=µmhos/cm)	1413 at 25°C	12880 at 25°C	
Field Temperature °C			
Instrument Reading			

Model or Unit No.:

REDOX CALIBRATION		DISSOLVED OXYGEN CALIBRATION	
Standard Solution	468 mV	Salinity %	
Field Temperature °C		Altitude	
Instrument Reading		Instrument Reading	
Model or Unit No.: Ag/AgCl Electrode (SSCE)		Model or Unit No.:	

Notes:

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APPENDIX D
TEST PIT LOGS

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LOG OF TEST PIT NO. TP-1

Sheet _1_ of _1_

Project No.	MT10160050	Project Name	Knife River Property	Date Excavated	8/3/2011
				Logged By	AJ/HG

Depth (ft.)	Sample	Symbol	DESCRIPTION AND REMARKS
0			0 - 0.5 fine gravel with silt; heavy staining with moderate odor
			0.5 - 3: fine gravel; minor-moderate odor
2			
	X		3 - 5: gravelly silt; 50% silt; 35% fine sub-rounded gravel; 15% fine-medium sand; moist; no staining or odor; dark to dusky yellowish brown; (10YR 4/2 to 10YR2/2); sampled at 4 ft.
4			5 - 8: Gravelly sand; 65% fine-medium sand; 25% fine-coarse gravel; 10% silt; moderate-dark yellowish brown (10YR 5/4 to 10YR 4/2); no staining or odor; sampled at 6 ft.
6	X		
8			8 - 9, sandy silt with gravel; 50% silt; 30% medium sand; 20% fine sub-rounded to sub-angular gravel; moist; very slight odor; no staining; sampled at 9 ft.
	X		
10			
12			
14			
16			Note: complete soil profile not obtained due to caving fine gravels in excavation; gravel was possibly fill material surrounding former UST; gravel present in central portion of excavation to a depth of approx. 7 feet bgs; log above was developed based on sidewall samples collected from immediately beneath the waste oil fill port;
18			
20			

LOG OF TEST PIT NO. TP-2

Sheet _1_ of _1_

Project No.	MT10160050	Project Name	Knife River Property	Date Excavated	8/3/2011
				Logged By	AJ/HG

Depth (ft.)	Sample	Symbol	DESCRIPTION AND REMARKS
- 0 -	X		0-1.5 silty gravel fill; 75% fine gravel; 15% silt; 10% sand; dark yellowish brown (10YR 4/2); moist; some staining & minor odor in upper 3-4"; occassional cobbles; loose; sample collected from 0-6 inches
- 2 -	X		1.5-3.5 gravelly silt with sand; 50-60% silt; 15% sand; 15-25% fine gravel; contains occassional cobbles up to 4" long; moist; no staining or odor; sample collected @ 2.5 ft.
- 4 -			
- 6 -			
- 8 -			
-10-			
-12-			
-14-			
-16-			
-18-			
-20-			

LOG OF TEST PIT NO. TP-3

Sheet _1_ of _1_

Project No.	MT10160050	Project Name	Knife River Property	Date Excavated	8/3/2011
				Logged By	AJ / HG

Depth (ft.)	Sample	Symbol	DESCRIPTION AND REMARKS
- 0 -			
- -	X		0-2 (varies from 1.5-2.5): fill gravel as at TP-1 & TP-2; no odor to minor odor; sub-rounded fine gravel; [fill]; approximately 4-inch thick zone of dark brown silt (dusty yellowish brown-10YR2/2); minor odor; sample collected at 1.5 feet
- 2 -			
- -	X		2-4 Gravelly sand; moderate yellowish brown (10YR 5/4); moist; no staining or odor; 70% fine-medium sand; 15% fine-coarse gravel; 15% silt; contains occasional cobbles up to 5" long (sub-rounded); sample collected at 4 feet
- 4 -			
- -			
- 6 -			
- -			
- 8 -			
- -			
-10-			
- -			
-12-			
- -			
-14-			
- -			
-16-			
- -			
-18-			
- -			
-20-			

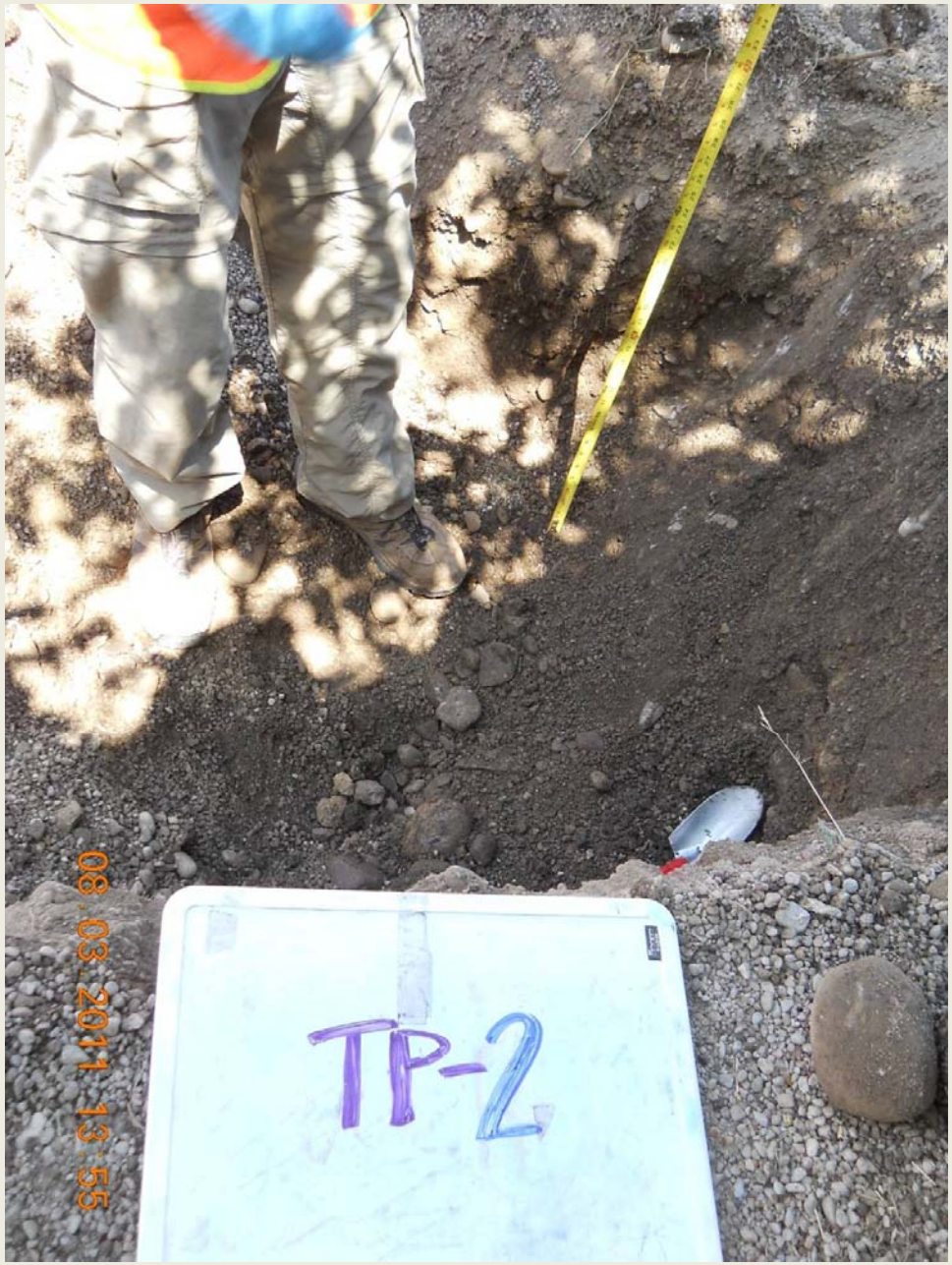
APPENDIX E
SITE PHOTOGRAPHS

Photo of test pit TP-1 was taken facing northeast. Source sample location is visible on top of concrete slab.

TP-1 pit and temporary soil stockpile. Sidewalls of excavation were unstable.

TP-1 other views. Upper Left Corner: overlooking excavation pit: photo taken looking east. Lower Left Corner: soil staining visible along the foundation of the building: photo taken looking southeast. Former waste oil piping visible. Upper Right corner: source sample site, remnants of waste oil piping: photo taken looking northeast.

Test pit TP-2. Soil sample collection.
Photos taken looking northeast.



Test Pit TP-2. Measuring depth of excavation. Photos taken facing northeast.

Test Pit TP-2.
Photo taken facing east.

Test Pit TP-3. Left Photo: measuring excavation depth. Upper Right Photo: shows the entirety of pit. Lower Right Photo: bottom of tape indicates the locations of the uppermost sample at TP-3 was collected. All photos were taken looking northwest.

<u>Sump Inspection and Sampling</u>

Upper Left Photo: Preparation for sediment sampling. Photo taken facing east.

Upper Right Photo: sediment sample collection. Photo taken facing northeast.

Lower Right Photo: sediment collected from the bottom of the sump.

Groundwater sampling. Upper left photo taken at KRY 104 A facing southwest. Lower left photo taken at well KTP 16 facing South. Right photo taken at KRY 102 A facing southwest.

Groundwater Sampling. Left photo taken of weights attached to bladder pump for deep well groundwater sampling. Upper right photo taken of decontamination procedure followed at KRP site. Lower right photo taken at KRY 107A facing south

Left photo: groundwater sampling at well KRY 102 B (facing northeast). Upper right photo taken facing northeast at KRY 111 B. Lower right photo taken at KRY 107 B facing east.

Plastic-lined pit. Upper right and left taken facing east. Lower left photo taken facing northeast. Lower right photo taken facing southeast. Red Arrows indicate selected sample locations.

Photos of Plastic-lined pit. Upper left photo taken facing northwest. Lower left photo taken facing west. Upper right photo taken facing north. Lower right photo taken facing southeast. Red Arrows indicate selected sample locations.

Photo of Plastic-lined pit taken facing northeast.

APPENDIX F
DATA VALIDATION REPORTS

Data Validation Report
Laboratory Work Order 10165707

1. Please provide the following information at the beginning of the data validation report:
• Project name: City of Kalispell: Knife River Property
• Name and Date of approved Quality Assurance Project Plan (QAPP), Sampling and Analysis Plan (SAP), or other applicable document: Quality Assurance Project Plan – City of Kalispell Brownfields Project (March 2011); Final (Revised) Sampling and Analysis Plan, Knife River Property (August 2011)
• Laboratory Name: Pace Analytical
• Laboratory Project ID: 10165707
• Sample Matrix: Soil Samples
• Sample Start and End Dates: August 5, 2011
• Parameters Included VPH (MADEP VPH), EPH (MADEP EPH), RCRA Metals (EPA 6010 and EPA 7471), and VOCs (EPA 8260)
• Date Validated: October 26, 2011
• Name of Validator: Heather Grotbo

2. Please include a description of the data validation criteria used. These data validation criteria should be outlined in the appropriate QAPP, SAP, or other applicable document.

- *National Functional Guidelines for Inorganic Data Review*
- *National Functional Guidelines for Organic Data Review*

3. Please include a table or list identifying all samples evaluated in this validation report. Please provide the associated laboratory sample identification numbers if different than the project sample ID/name.

Lab ID	Field Sample ID
10165707001	TP-1 @ 4 FT
10165707002	TP-1 @ 6 FT
10165707003	TP-1 @ 9FT
10165707004	TP-1 SOURCE SAMPLE
10165707005	TP-2 @ 0-6INCHES
10165707006	TP-2 @ 2.5FT
10165707007	TP-3 @ 1.5FT
10165707008	TP-3 @ 4FT
10165707009	SUMP SED
10165707010	ERB SOIL
10165707011	TRIP BLANK

4. Please include a description of the acceptability and usability of the data, including any qualified data. Please explain data qualification flags or any other notes used by the laboratory. Please identify and explain any exceptions (i.e., rejected data) to the acceptability and usability of the data.

- All data were accepted and are useable for project decisions.
- Some data were estimated (J qualifier; results above method detection limit (MDL) and below the practical quantitation limit (PQL).
- Some constituents were detected in laboratory blank samples. However, results were not qualified.

- Some matrix spike (MS) and matrix spike duplicate (MSD) recoveries were outside QC limits and/or the MS/MSD relative percent differences were outside QC limits. For these cases, an M% qualifier was added.
- For several constituents, LCS/LCSD % recoveries were outside QC limits. The data were not qualified.

5. Please include a description of the data qualifiers used during this validation.
J = Estimated result.
M% = Matrix spike recovery and/or RPD value exceeded acceptable limits.

6. Does the laboratory case narrative note any nonconformance issues with the analytical data? Please identify the nonconformance issues.
See Item #4.

7. Were sample chain-of-custody (CoC) forms complete, including a description of all samples, all analyses, and appropriate signatures?
Yes.

8. Were detection limits in accordance with the project requirements?
Yes.

9. Were the requested analytical methods in compliance with project requirements (i.e., QAPP, SAP)?
Yes.

10. Were samples received in good condition within method specified requirements? Please explain any exceptions, and how sample condition may affect the results.
Yes.

11. Were samples analyzed within method specified or technical holding times?
No. TP-1 @ 6FT, TP-1 @ 9FT, SUMP SED, TP-2 0-6INCHES AND TP-1 SOURCE SAMPLE had a lab surrogate 2-Flourobiphenyl (S) that was reported outside of holding time. No data were qualified. Otherwise all other constituents were reported within appropriate holding times.

12. Were reported units appropriate for the associated sample matrix/matrices and method(s) of analyses?
Yes.

13. Do the laboratory reports include all constituents requested to be analyzed on the CoC or under the QAPP, SAP, or other applicable document?
Yes.

14. Was there indication from the laboratory of whether initial or continuing calibration verification results were within acceptable limits?
Yes, except for TP-1 Source Sample (naphthalene did not pass calibration acceptance limits). Results may be biased high. No data were qualified.

15. Was the total number of method blank samples prepared equal to at least 5% (1 in 20) of the total number of samples, or analyzed as required by the method?
Yes.

16. Were laboratory blank samples free of analyte contamination?
No. Arsenic was reported at a concentration of 0.25mg/kg, selenium was reported at 0.17mg/kg, Cadmium was detected at 0.019 mg/kg, and lead was reported to 2.2 ug/L with a "J" qualifier. Results may be biased high; however, natural sample results for these constituents were below screening levels. Toluene was reported at 1.6ug/kg, 1,2,3-Trichloropropane reported to 0.38ug/L. However, concentrations of these constituents in natural samples were below detection limits. The estimated concentration of C11-C22 aromatics was 5.4mg/kg. Natural sample results may be biased high. No data were qualified.

All other laboratory blank sample results were below detection limits.

17. Was the total number of matrix spike samples prepared equal to at least 5% of the total number of samples, or analyzed as required by the method?
Yes.

18. Please provide a discussion of project samples used for MS/MSD, if applicable.
N/A.

19. Were MS/MSD percent recoveries and MS/MSD relative percent difference (RPDs) within data validation or laboratory QC limits?
No.

For EPA 6010 (RCRA metals), MS/MSD recoveries were out of QC limits for the following metals (M% Qualifier was added)

- Barium
- Cadmium
- Chromium
- Lead
- Mercury
- Selenium
- Silver

For PAHs, several MS/MSD percent recoveries and/or RPD values were outside QC limits. However, the laboratory did not use samples from this project for the MS/MSD analyses. No data were qualified.

For VOCs, several MS/MSD percent recoveries were outside QC limits and some RPD values exceeded QC limits. The data were not qualified.

For VPH, MS/MSD percent recoveries were outside QC limits for C09-C10 aromatics and naphthalene. M% qualifier added.

20. Was the reference material used for the laboratory control standard (LCSs) the correct matrix and concentration?
Yes.

21. Was the total number of LCSs samples analyzed equal to at least 5% (1 in 20) of the total number of samples, or analyzed as required by the method?
Yes.

22. Were LCSs prepared in the same way as the associated samples?
Yes.

23. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within laboratory QC limits?
No. Percent recoveries were outside QC limits for the following constituents. Data were not qualified.
EPA 8260 MSV 5035 Low Level:

- 2-Butanone (MEK)
- Acetone (Add Qualifier)

EPA 8260 MSV 5035 Low level:

- Carbon Tetrachloride(Add Qualifier)

EPA 8260 MSV 5030 Med Level:

- Dichlorofluoromethane,

8260 MSV 465 W:

- Trichlorofluoromethane(Add Qualifier)

MADEP VPH MA soil:

- Naphthalene

24. Were surrogate recoveries within laboratory QC limits?
Yes.

25. Were the number of equipment, trip, or field blanks collected equal to at least 10% of the total number of samples, or as required by the project requirements, QAPP, or SAP?
Yes. A field blank (groundwater) and two equipment rinse blanks were collected (one for groundwater sampling and one for soil sampling).

26. Were the trip blank, field blank, and/or equipment blank samples free of analyte contamination?
Yes.

27. Were the field duplicates collected as required by the project requirements, QAPP or SAP?
N/A for soil (no duplicates collected).

28. Were field duplicate RPD values within data validation QC limits (generally soil 0-50%, water 0-30%, or air 0-25%, or otherwise specified in the QAPP/SAP)? Please explain, and include discussion of how this affects the data
N/A - See Pace Laboratory Report No.: 10169815 for duplicate results

29. Were laboratory duplicate RPD values within laboratory-specified limits?
No. Some PAH and VOC RPD values were outside control limits. Results were not qualified.

30. If any data were qualified, please provide a data qualification summary.

See Item #4 above.

31. If DEQ collected split samples, explain how those results compare to the natural sample.
N/A.

Data Validation Report
Laboratory Work Order 10169815

1. Please provide the following information at the beginning of the data validation report:
• Project name: City of Kalispell: Knife River Property
• Name and Date of approved Quality Assurance Project Plan (QAPP), Sampling and Analysis Plan (SAP), or other applicable document: Quality Assurance Project Plan – City of Kalispell Brownfields Project (March 2011); Final (Revised) Sampling and Analysis Plan, Knife River Property (August 2011)
• Laboratory Name: Pace Analytical
• Laboratory Project ID: 10169815
• Sample Matrix: Groundwater and Soil Samples
• Sample Start and End Dates: September 14-16 2011
• Parameters Included: EPA 8151, EPA 6010, EPA 7470, MADEP VPH, and MADEP EPH
• Date Validated: October 27, 2011
• Name of Validator: Heather Grotbo

2. Please include a description of the data validation criteria used. These data validation criteria should be outlined in the appropriate QAPP, SAP, or other applicable document.
• *National Functional Guidelines for Inorganic Data Review*
• *National Functional Guidelines for Organic Data Review*

3. Please include a table or list identifying all samples evaluated in this validation report. Please provide the associated laboratory sample identification numbers if different than the project sample ID/name.

Lab ID	Field Sample ID
10169815001	KRY 102 A
10169815002	KPT 16
10169815003	DUP-1
10169815004	KRY 104 A
10169815005	KRY 107 A
10169815006	ERB-1
10169815007	LINER PIT -1-A,B,C,D,E (COMP)
10169815008	LINER PIT -1-COMP
10169815009	LINER PIT -2-A,B,C,D,E (COMP)
10169815010	LINER PIT -2-COMP
10169815011	LINER PIT -3-A,B,C,D,E (COMP)
10169815012	LINER PIT -3-COMP
10169815016	TRIP BLANK 4

4. Please include a description of the acceptability and usability of the data, including any qualified data. Please explain data qualification flags or any other notes used by the laboratory. Please identify and explain any exceptions (i.e., rejected data) to the acceptability and usability of the data.

- The MS/MSD percent recovery for selenium was outside of the acceptable laboratory range; results were qualified with M%. See Item 19 for more information.
- Several LCS percent recoveries exceeded QC limits; however, no data were qualified. See Item 23 for more information.

- Surrogate recoveries met all requirements except for one constituent in two liner pit locations. No data were qualified. See Item 24 for more information.

5. Please include a description of the data qualifiers used during this validation.
M% = Matrix spike recoveries exceeded acceptable limits.

6. Does the laboratory case narrative note any nonconformance issues with the analytical data? Please identify the nonconformance issues.
See Item 4.

7. Were sample chain-of-custody (CoC) forms complete, including a description of all samples, all analyses, and appropriate signatures?
Yes.

8. Were detection limits in accordance with the project requirements?
Yes.

9. Were the requested analytical methods in compliance with project requirements (i.e., QAPP, SAP)?
Yes.

10. Were samples received in good condition within method specified requirements? Please explain any exceptions, and how sample condition may affect the results.
Yes. Temperature of arriving coolers were within limits.

11. Were samples analyzed within method specified or technical holding times?
Yes.

12. Were reported units appropriate for the associated sample matrix/matrices and method(s) of analyses?
Yes.

13. Do the laboratory reports include all constituents requested to be analyzed on the CoC or under the QAPP, SAP, or other applicable document?
Yes.

14. Was there indication from the laboratory of whether initial or continuing calibration verification results were within acceptable limits?
Yes, all initial and continuing calibrations passed.

15. Was the total number of method blank samples prepared equal to at least 5% (1 in 20) of the total number of samples, or analyzed as required by the method?
Yes.

16. Were laboratory blank samples free of analyte contamination?
Yes.

17. Was the total number of matrix spike samples prepared equal to at least 5% of the total number of samples, or analyzed as required by the method?
Yes.

18. Please provide a discussion of project samples used for MS/MSD, if applicable.
N/A.

19. Were MS/MSD percent recoveries and MS/MSD relative percent difference (RPDs) within data validation or laboratory QC limits?
No. For metals, the MS percent recovery was outside the QC limit for selenium (qualified with M%).

20. Was the reference material used for the laboratory control standard (LCSs) the correct matrix and concentration?
Yes.

21. Was the total number of LCSs samples analyzed equal to at least 5% (1 in 20) of the total number of samples, or analyzed as required by the method?
Yes.

22. Were LCSs prepared in the same way as the associated samples?
Yes.

23. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within laboratory QC limits?
Percent recoveries were outside of QC limits for several EPH and VPH constituents. Results were not qualified.

24. Were surrogate recoveries within laboratory QC limits?
Yes, except for 1-Chloro-Octadecane (S) in Liner Pit -2 COMP and Liner Pit -3 COMP. No data were qualified.

25. Were the number of equipment, trip, or field blanks collected equal to at least 10% of the total number of samples, or as required by the project requirements, QAPP, or SAP?
Yes. An equipment rinse blank was collected (for groundwater sampling) and 1 Trip Blank was analyzed.

26. Were the trip blank, field blank, and/or equipment blank samples free of analyte contamination?
Yes.

27. Were the field duplicates collected as required by the project requirements, QAPP or SAP?
Yes, one field duplicate was collected.

28. Were field duplicate RPD values within data validation QC limits (generally soil 0-50%, water 0-30%, or air 0-25%, or otherwise specified in the QAPP/SAP)? Please explain, and include discussion of how this affects the data.
Yes.

29. Were laboratory duplicate RPD values within laboratory-specified limits?
Yes, except the RPD for mercury exceeded the QC limit. Results were not qualified.

30. If any data was qualified, please provide a data qualification summary and include how data is affected/biased.

Sample	**Analyte**	**Qualifier**	**Comments**
All	Selenium	M%	MS/MSD percent recovery exceeded QC limit

31. If DEQ collected split samples, explain how those results compare to the natural sample.
N/A.

Data Validation Report
Laboratory Work Order 10170015

1. Please provide the following information at the beginning of the data validation report:
• Project name: City of Kalispell: Knife River Property
• Name and Date of approved Quality Assurance Project Plan (QAPP), Sampling and Analysis Plan (SAP), or other applicable document: Quality Assurance Project Plan – City of Kalispell Brownfield Project (March 2011); Final (Revised) Sampling and Analysis Plan, Knife River Property (August 2011)
• Laboratory Name: Pace Analytical
• Laboratory Project ID: 10170015
• Sample Matrix: Groundwater
• Sample Start and End Dates: September 20, 2011
• Parameters Included EPA 8151, EPA 7470, MADEP EPH, MADEP VPH, EPA 6010
• Date Validated: September 30, 2011
• Name of Validator: Heather Grotbo

2. Please include a description of the data validation criteria used. These data validation criteria should be outlined in the appropriate QAPP, SAP, or other applicable document.
• *National Functional Guidelines for Inorganic Data Review*
• *National Functional Guidelines for Organic Data Review*

3. Please include a table or list identifying all samples evaluated in this validation report. Please provide the associated laboratory sample identification numbers if different than the project sample ID/name.

Lab ID	Field Sample ID
10170015001	ERB-2
10170015002	Purge Water
10170015003	KRY 111 B
10170015004	KRY 102 B
10170015005	KRY 107 B
10170015006	Trip Blank
10170015007	Trip Blank -2
10170015008	Trip Blank -3
10170015009	Trip Blank-4

4. Please include a description of the acceptability and usability of the data, including any qualified data. Please explain data qualification flags or any other notes used by the laboratory. Please identify and explain any exceptions (i.e., rejected data) to the acceptability and usability of the data.

- All results were accepted. Some results were qualified as estimated.
- 8151 Chlorinated Herbicides Pentachlorophenol was outside of holding time for all groundwater samples; H qualifier was added. See question 11 for more information.
- LCS/LCSD RPDs were outside of QC limits, and J qualifier was added: see question 23 for more information.

5. Please include a description of the data qualifiers used during this validation.
J = Estimated result below the method detection limit (MDL) but above the Practical Quantitation Limit.
H = holding time exceeded.

6. Does the laboratory case narrative note any nonconformance issues with the analytical data? Please identify the nonconformance issues.
See Item #4.

7. Were sample chain-of-custody (CoC) forms complete, including a description of all samples, all analyses, and appropriate signatures?
Yes.

8. Were detection limits in accordance with the project requirements?
Yes.

9. Were the requested analytical methods in compliance with project requirements (i.e., QAPP, SAP)?
Yes.

10. Were samples received in good condition within method specified requirements? Please explain any exceptions, and how sample condition may affect the results.
Yes.

11. Were samples analyzed within method specified or technical holding times?
Yes, except for Pentachlorophenol for all water samples. H qualifier added.

12. Were reported units appropriate for the associated sample matrix/matrices and method(s) of analyses?
Yes.

13. Do the laboratory reports include all constituents requested to be analyzed on the CoC or under the QAPP, SAP, or other applicable document?
Yes.

14. Was there indication from the laboratory of whether initial or continuing calibration verification results were within acceptable limits?
Yes, all initial and continuing calibrations passed.

15. Was the total number of method blank samples prepared equal to at least 5% (1 in 20) of the total number of samples, or analyzed as required by the method?
Yes.

16. Were laboratory blank samples free of analyte contamination?
Yes.

17. Was the total number of matrix spike samples prepared equal to at least 5% of the total number of samples, or analyzed as required by the method?
Yes.

18. Please provide a discussion of project samples used for MS/MSD, if applicable.
N/A.

19. Were MS/MSD percent recoveries and MS/MSD relative percent difference (RPDs) within data validation or laboratory QC limits?

Yes, with the exception of the MS/MSD percent recoveries for mercury. No data qualification was necessary because the associated natural sample was not part of this project.

20. Was the reference material used for the laboratory control standard (LCSs) the correct matrix and concentration?
Yes.

21. Was the total number of LCSs samples analyzed equal to at least 5% (1 in 20) of the total number of samples, or analyzed as required by the method?
Yes.

22. Were LCSs prepared in the same way as the associated samples?
Yes.

23. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within laboratory QC limits?
Yes, except for C05-C08 aliphatic hydrocarbons, where the RPD was outside the QC limit. Results for this analyte in associated samples may be biased high. Results were considered estimated, and a J flag was added to the results.

24. Were surrogate recoveries within laboratory QC limits?
Yes, with the exception of the 2,4-DCPA surrogate recovery for Method 8151 in the Purge Water sample. No data were qualified.

25. Were the number of equipment, trip, or field blanks collected equal to at least 10% of the total number of samples, or as required by the project requirements, QAPP, or SAP?
Yes. An equipment rinse blank was collected along with a duplicate sample which was reported in Pace Project No. 10169815

26. Were the trip blank, field blank, and/or equipment blank samples free of analyte contamination?
Yes.

27. Were the field duplicates collected as required by the project requirements, QAPP or SAP?
Yes, one field duplicate was collected.

28. Were field duplicate RPD values within data validation QC limits (generally soil 0-50%, water 0-30%, or air 0-25%, or otherwise specified in the QAPP/SAP)? Please explain, and include discussion of how this affects the data.
Duplicate results can be found Pace Laboratory Project No. 10169815 report

29. Were laboratory duplicate RPD values within laboratory-specified limits?
Yes.

30. If any data was qualified, please provide a data qualification summary and include how data is affected/biased.
J-flag (LCS/LCSD) – data estimated.
H – hold time exceeded.

31. If DEQ collected split samples, explain how those results compare to the natural sample.
N/A.

Data Validation Report
Laboratory Work Order 10169816

1. Please provide the following information at the beginning of the data validation report:
• Project name: City of Kalispell: Knife River Property
• Name and Date of approved Quality Assurance Project Plan (QAPP), Sampling and Analysis Plan (SAP), or other applicable document: Quality Assurance Project Plan – City of Kalispell Brownfield Project (March 2011); Final (Revised) Sampling and Analysis Plan, Knife River Property (August 2011)
• Laboratory Name: Pace Analytical
• Laboratory Project ID: 10169816
• Sample Matrix: Groundwater
• Sample Start and End Dates: October 28, 2011
• Parameters Included: Dioxins (Total 2, 3, 7, 8-TCDD WHO Equivalent)
• Date Validated: October 31, 2011
• Name of Validator: Heather Grotbo

2. Please include a description of the data validation criteria used. These data validation criteria should be outlined in the appropriate QAPP, SAP, or other applicable document.

- *National Functional Guidelines for Organic Data Review*

3. Please include a table or list identifying all samples evaluated in this validation report. Please provide the associated laboratory sample identification numbers if different than the project sample ID/name.

Lab ID	Field Sample ID
10169816001	KRY 102A
10169816002	KPT-16
10169816003	DUP-1
10169816004	KRY 104A
10169816005	KRY 107A

4. Please include a description of the acceptability and usability of the data, including any qualified data. Please explain data qualification flags or any other notes used by the laboratory. Please identify and explain any exceptions (i.e., rejected data) to the acceptability and usability of the data.
All results were accepted and no data were qualified.

5. Please include a description of the data qualifiers used during this validation.
N/A

6. Does the laboratory case narrative note any nonconformance issues with the analytical data? Please identify the nonconformance issues.

- Although the OCDF dioxin congener (isomer) was detected in the laboratory blank sample, the concentration did not result in a high bias with respect to natural sample results.

7. Were sample chain-of-custody (CoC) forms complete, including a description of all samples, all analyses, and appropriate signatures?
Yes.

8. Were detection limits in accordance with the project requirements?

Yes.

9. Were the requested analytical methods in compliance with project requirements (i.e., QAPP, SAP)?
Yes.

10. Were samples received in good condition within method specified requirements? Please explain any exceptions, and how sample condition may affect the results.
Yes. All temperatures were below 6°C.

11. Were samples analyzed within method specified or technical holding times?
Yes.

12. Were reported units appropriate for the associated sample matrix/matrices and method(s) of analyses?
Yes: pg/L

13. Do the laboratory reports include all constituents requested to be analyzed on the CoC or under the QAPP, SAP, or other applicable document?
No, ERB-1 was not analyzed for Dioxins

14. Was there indication from the laboratory of whether initial or continuing calibration verification results were within acceptable limits?
N/A

15. Was the total number of method blank samples prepared equal to at least 5% (1 in 20) of the total number of samples, or analyzed as required by the method?
Yes.

16. Were laboratory blank samples free of analyte contamination?
No. In the laboratory method blank, OCDF was detected above the reporting limit. However, the concentration was less than 5 times the reporting limit, and is an estimated result. Results were not qualified, and the detections in the blank sample did not influence natural sample results.

17. Was the total number of matrix spike samples prepared equal to at least 5% of the total number of samples, or analyzed as required by the method?
Yes.

18. Please provide a discussion of project samples used for MS/MSD, if applicable.
N/A.

19. Were MS/MSD percent recoveries and MS/MSD relative percent difference (RPDs) within data validation or laboratory QC limits?
Yes all RPD values were acceptable.

20. Was the reference material used for the laboratory control standard (LCSs) the correct matrix and concentration?
Yes.

21. Was the total number of LCSs samples analyzed equal to at least 5% (1 in 20) of the total number of

samples, or analyzed as required by the method?
Yes.

22. Were LCSs prepared in the same way as the associated samples?
Yes.

23. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within laboratory QC limits?
Yes.

24. Were surrogate recoveries within laboratory QC limits?
N/A

25. Were the number of equipment, trip, or field blanks collected equal to at least 10% of the total number of samples, or as required by the project requirements, QAPP, or SAP?
Yes. A field blank and two equipment rinse blanks were collected (one for groundwater sampling and one for soil sampling). Reported findings on these QC samples can be found in Pace Project No.: 10170015, 10169815, 10165707 and 10170023.

26. Were the trip blank, field blank, and/or equipment blank samples free of analyte contamination?
See other laboratory reports. DUP-1 had several dioxin isomers above the reporting limit as follows: Total HpCDF, 1,2,3,4,6,7,8-HpCDD and Total HpCDD and OCDD. A "J" qualifier was added to the laboratory report because the results were estimated.

27. Were the field duplicates collected as required by the project requirements, QAPP or SAP?
Yes, one field duplicate was collected.

28. Were field duplicate RPD values within data validation QC limits (generally soil 0-50%, water 0-30%, or air 0-25%, or otherwise specified in the QAPP/SAP)? Please explain, and include discussion of how this affects the data.
Yes.

29. Were laboratory duplicate RPD values within laboratory-specified limits?
Yes.

30. If any data was qualified, please provide a data qualification summary and include how data is affected/biased.
No data were qualified.

31. If DEQ collected split samples, explain how those results compare to the natural sample.
N/A.

Data Validation Report
Laboratory Work Order 10170023

1. Please provide the following information at the beginning of the data validation report:
• Project name: City of Kalispell: Knife River Property
• Name and Date of approved Quality Assurance Project Plan (QAPP), Sampling and Analysis Plan (SAP), or other applicable document: Quality Assurance Project Plan – City of Kalispell Brownfield Project (March 2011); Final (Revised) Sampling and Analysis Plan, Knife River Property (August 2011)
• Laboratory Name: Pace Analytical
• Laboratory Project ID: 10170023
• Sample Matrix: Groundwater
• Sample Start and End Dates: September 16, 2011
• Parameters Included: Dioxins (Total 2, 3, 7, 8-TCDD WHO equivalent)
• Date Validated: November 1, 2011
• Name of Validator: Heather Grotbo

2. Please include a description of the data validation criteria used. These data validation criteria should be outlined in the appropriate QAPP, SAP, or other applicable document.

- *National Functional Guidelines for Organic Data Review*

3. Please include a table or list identifying all samples evaluated in this validation report. Please provide the associated laboratory sample identification numbers if different than the project sample ID/name.

Lab ID	Field Sample ID
10170023001	ERB-2
10170023002	KRY 111B
10170023003	KRY 102B
10170023004	KRY 107B

4. Please include a description of the acceptability and usability of the data, including any qualified data. Please explain data qualification flags or any other notes used by the laboratory. Please identify and explain any exceptions (i.e., rejected data) to the acceptability and usability of the data.
All results were accepted and no data were qualified.

5. Please include a description of the data qualifiers used during this validation.
N/A

6. Does the laboratory case narrative note any nonconformance issues with the analytical data? Please identify the nonconformance issues.

- Although the OCDF dioxin congener (isomer) was detected in the laboratory blank sample, the concentration did not result in a high bias with respect to natural sample results.

7. Were sample chain-of-custody (CoC) forms complete, including a description of all samples, all analyses, and appropriate signatures?
Yes.

8. Were detection limits in accordance with the project requirements?
Yes.

9. Were the requested analytical methods in compliance with project requirements (i.e., QAPP, SAP)?
Yes.

10. Were samples received in good condition within method specified requirements? Please explain any exceptions, and how sample condition may affect the results.
Yes.

11. Were samples analyzed within method specified or technical holding times?
Yes.

12. Were reported units appropriate for the associated sample matrix/matrices and method(s) of analyses?
Yes.

13. Do the laboratory reports include all constituents requested to be analyzed on the CoC or under the QAPP, SAP, or other applicable document?
Yes.

14. Was there indication from the laboratory of whether initial or continuing calibration verification results were within acceptable limits?
Not reported by the lab for this report.

15. Was the total number of method blank samples prepared equal to at least 5% (1 in 20) of the total number of samples, or analyzed as required by the method?
Yes.

16. Were laboratory blank samples free of analyte contamination?
No. In the laboratory method blank, OCDF was detected above the reporting limit. However, the concentration is an estimated result. Results were not qualified, and the detections in the blank sample did not influence natural sample results.

17. Was the total number of matrix spike samples prepared equal to at least 5% of the total number of samples, or analyzed as required by the method?
Yes.

18. Please provide a discussion of project samples used for MS/MSD, if applicable.
N/A.

19. Were MS/MSD percent recoveries and MS/MSD relative percent difference (RPDs) within data validation or laboratory QC limits?
Yes

20. Was the reference material used for the laboratory control standard (LCSs) the correct matrix and concentration?
Yes.

21. Was the total number of LCSs samples analyzed equal to at least 5% (1 in 20) of the total number of samples, or analyzed as required by the method?
Yes.

22. Were LCSs prepared in the same way as the associated samples?
Yes.

23. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within laboratory QC limits?
Yes

24. Were surrogate recoveries within laboratory QC limits?
Surrogates were not reported on this laboratory report.

25. Were the number of equipment, trip, or field blanks collected equal to at least 10% of the total number of samples, or as required by the project requirements, QAPP, or SAP?
Yes.

26. Were the trip blank, field blank, and/or equipment blank samples free of analyte contamination?
See other laboratory reports. DUP-1 had several dioxin isomers above the reporting limit as follows: Total HpCDF, 1,2,3,4,6,7,8-HpCDD and Total HpCDD and OCDD. A "J" qualifier was added to the laboratory report because the results were estimated. The presence of slight dioxin contamination in the method blank sample did not affect natural sample results.

27. Were the field duplicates collected as required by the project requirements, QAPP or SAP?
Yes, one field duplicate was collected.

28. Were field duplicate RPD values within data validation QC limits (generally soil 0-50%, water 0-30%, or air 0-25%, or otherwise specified in the QAPP/SAP)? Please explain, and include discussion of how this affects the data.
Yes, see Pace Lab Report No.: 10169816 to see duplicate values.

29. Were laboratory duplicate RPD values within laboratory-specified limits?
Yes. See Pace Laboratory Project No.: 10169816

30. If any data was qualified, please provide a data qualification summary and include how data is affected/biased.
No data were qualified.

31. If DEQ collected split samples, explain how those results compare to the natural sample.
N/A.

APPENDIX G
LABORATORY ANALYTICAL REPORTS

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

September 14, 2011

Adam Johnson
AMEC Geomatrix, Inc.
1001B South Higgins
Missoula, MT 59801

RE: Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Dear Adam Johnson:
Enclosed are the analytical results for sample(s) received by the laboratory on August 05, 2011. The results relate only to the samples included in this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kari Poehls

Kari Poehls for
Denise Jensen
denise.jensen@pacelabs.com
Project Manager

Enclosures

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Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

CERTIFICATIONS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nebraska Certification #: Pace
Nevada Certification #: MN_00064
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

Montana Certification IDs

602 South 25th Street, Billings, MT 59101
EPA Region 8 Certification #: 8TMS-Q
Idaho Certification #: MT00012
Montana Certification #: MT CERT0040
NVLAP Certification #: 101292-0
Minnesota Dept of Health Certification #: 030-999-442

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Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

SAMPLE SUMMARY

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10165707001	**TP-1 @ 4 FT**	Solid	08/03/11 12:45	08/05/11 09:45
10165707002	**TP-1 @ 6 FT**	Solid	08/03/11 12:55	08/05/11 09:45
10165707003	**TP-1 @ 9 FT**	Solid	08/03/11 13:05	08/05/11 09:45
10165707004	**TP-1 SOURCE SAMPLE**	Solid	08/03/11 13:45	08/05/11 09:45
10165707005	**TP-2 @ 0-6 INCHES**	Solid	08/03/11 15:30	08/05/11 09:45
10165707006	**TP-2 @ 2.5 FT**	Solid	08/03/11 15:45	08/05/11 09:45
10165707007	**TP-3 @ 1.5 FT**	Solid	08/03/11 15:47	08/05/11 09:45
10165707008	**TP-3 @ 4 FT**	Solid	08/03/11 15:52	08/05/11 09:45
10165707009	**SUMP SED**	Solid	08/03/11 17:00	08/05/11 09:45
10165707010	**ERB SOIL**	Water	08/03/11 17:30	08/05/11 09:45
10165707011	**TRIP BLANK**	Water	08/03/11 00:00	08/05/11 09:45

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SAMPLE ANALYTE COUNT

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10165707001	**TP-1 @ 4 FT**	EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	AML	1	PASI-M
		EPA 8260	ECB	71	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	AML	15	PASI-MT
10165707002	**TP-1 @ 6 FT**	EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	AML	1	PASI-M
		EPA 8270 by SIM	JLR	18	PASI-M
		EPA 8260	ECB	71	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP EPH	EJS	8	PASI-MT
		MADEP VPH	AML	15	PASI-MT
10165707003	**TP-1 @ 9 FT**	EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	AML	1	PASI-M
		EPA 8270 by SIM	JLR	18	PASI-M
		EPA 8260	ECB	71	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP EPH	EJS	8	PASI-MT
		MADEP VPH	AML	15	PASI-MT
10165707004	**TP-1 SOURCE SAMPLE**	EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	AML	1	PASI-M
		EPA 8270 by SIM	JLR	18	PASI-M
		EPA 8260	DJT	71	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP EPH	EJS	8	PASI-MT
		MADEP VPH	AML	15	PASI-MT
10165707005	**TP-2 @ 0-6 INCHES**	EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	AML	1	PASI-M
		EPA 8270 by SIM	JLR	18	PASI-M
		EPA 8260	ECB	71	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP EPH	EJS	8	PASI-MT

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SAMPLE ANALYTE COUNT

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		MADEP VPH	AML	15	PASI-MT
10165707006	**TP-2 @ 2.5 FT**	EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	AML	1	PASI-M
		EPA 8260	ECB	71	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	AML	15	PASI-MT
10165707007	**TP-3 @ 1.5 FT**	EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	AML	1	PASI-M
		EPA 8260	ECB	71	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	AML	15	PASI-MT
10165707008	**TP-3 @ 4 FT**	EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	AML	1	PASI-M
		EPA 8260	ECB	71	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	AML	15	PASI-MT
10165707009	**SUMP SED**	EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	AML	1	PASI-M
		EPA 8270 by SIM	JLR	18	PASI-M
		EPA 8260	CNC	71	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP EPH	EJS	8	PASI-MT
10165707010	**ERB SOIL**	EPA 6010	IP	7	PASI-M
		EPA 7470	TEM	1	PASI-M
		EPA 8260	DJT	73	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	AMH	15	PASI-MT
10165707011	**TRIP BLANK**	MADEP VPH	AMH	15	PASI-MT

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 6010**
Description: 6010 MET ICP
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
10 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

B: Analyte was detected in the associated method blank.
- SUMP SED (Lab ID: 10165707009)
- TP-1 @ 4 FT (Lab ID: 10165707001)
- TP-1 @ 6 FT (Lab ID: 10165707002)
- TP-1 @ 9 FT (Lab ID: 10165707003)
- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)
- TP-2 @ 2.5 FT (Lab ID: 10165707006)
- TP-3 @ 1.5 FT (Lab ID: 10165707007)
- TP-3 @ 4 FT (Lab ID: 10165707008)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.
The samples were prepared in accordance with EPA 3050 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/27600

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10165707003,10165818001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 1029105)
  - Barium
  - Chromium
- MS (Lab ID: 1029107)
  - Barium

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 6010**
Description: 6010 MET ICP
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

QC Batch: MPRP/27600

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10165707003,10165818001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MSD (Lab ID: 1029106)
  - Barium
  - Chromium

P6: Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

- MS (Lab ID: 1029105)
  - Lead
- MSD (Lab ID: 1029106)
  - Lead

QC Batch: MPRP/27632

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10165707001,10165753012

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1030109)
  - Cadmium
  - Chromium
  - Lead
  - Selenium
  - Silver
- MSD (Lab ID: 1030108)
  - Barium
  - Lead

P6: Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

- MS (Lab ID: 1030109)
  - Barium

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MPRP/27600

B: Analyte was detected in the associated method blank.

- TP-1 @ 6 FT (Lab ID: 10165707002)
  - Arsenic
- TP-1 @ 9 FT (Lab ID: 10165707003)
  - Arsenic

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 6010**
Description: 6010 MET ICP
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

Analyte Comments:

QC Batch: MPRP/27632

B: Analyte was detected in the associated method blank.

- SUMP SED (Lab ID: 10165707009)
  - Cadmium
  - Selenium
- TP-1 @ 4 FT (Lab ID: 10165707001)
  - Cadmium
  - Selenium
- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)
  - Cadmium
  - Selenium
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)
  - Cadmium
  - Selenium
- TP-2 @ 2.5 FT (Lab ID: 10165707006)
  - Cadmium
  - Selenium
- TP-3 @ 1.5 FT (Lab ID: 10165707007)
  - Cadmium
  - Selenium
- TP-3 @ 4 FT (Lab ID: 10165707008)
  - Cadmium
  - Selenium

- SUMP SED (Lab ID: 10165707009)
  - Cadmium
  - Selenium
- TP-1 @ 4 FT (Lab ID: 10165707001)
  - Cadmium
- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)
  - Selenium
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)
  - Cadmium
  - Selenium
- TP-2 @ 2.5 FT (Lab ID: 10165707006)
  - Cadmium
  - Selenium
- TP-3 @ 1.5 FT (Lab ID: 10165707007)
  - Cadmium
  - Selenium
- TP-3 @ 4 FT (Lab ID: 10165707008)
  - Cadmium
  - Selenium

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 6010**
Description: 6010 MET ICP
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

Analyte Comments:

QC Batch: MPRP/27633

- ERB SOIL (Lab ID: 10165707010)
  - Lead

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 7470**
Description: 7470 Mercury
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
1 sample was analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MERP/5769

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10165707010

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1030597)
  - Mercury

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 7471**
Description: 7471 Mercury
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
9 samples were analyzed for EPA 7471. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7471 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MERP/5760

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10165707001,10165740005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1029684)
  - Mercury

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
5 samples were analyzed for EPA 8270 by SIM. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H2: Extraction or preparation was conducted outside of the recognized method holding time.
- SUMP SED (Lab ID: 10165707009)
- TP-1 @ 6 FT (Lab ID: 10165707002)
- TP-1 @ 9 FT (Lab ID: 10165707003)
- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)

Sample Preparation:
The samples were prepared in accordance with EPA 3550 with any exceptions noted below.

QC Batch: OEXT/16556

P3: Sample extract could not be concentrated to the routine final volume, resulting in elevated reporting limits.
- SUMP SED (Lab ID: 10165707009)
- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 8270 by SIM**
Description: 8270 MSSV PAH by SIM
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

QC Batch: OEXT/16556

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10168383001

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1048468)
  - Acenaphthylene
  - Benzo(b)fluoranthene
  - Phenanthrene
- MSD (Lab ID: 1048469)
  - Chrysene

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: OEXT/16556

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- MS (Lab ID: 1048468)
  - 2-Fluorobiphenyl (S)
- MSD (Lab ID: 1048469)
  - 2-Fluorobiphenyl (S)

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 8260**
Description: 8260 MSV 5035 Low Level
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
8 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

B: Analyte was detected in the associated method blank.
- TP-1 @ 4 FT (Lab ID: 10165707001)
- TP-1 @ 6 FT (Lab ID: 10165707002)
- TP-1 @ 9 FT (Lab ID: 10165707003)
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)
- TP-3 @ 1.5 FT (Lab ID: 10165707007)
- TP-3 @ 4 FT (Lab ID: 10165707008)

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.
- TP-1 @ 6 FT (Lab ID: 10165707002)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 5035A with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

QC Batch: MSV/17598

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
- LCS (Lab ID: 1029231)
  - 2-Butanone (MEK)
  - Acetone
- MS (Lab ID: 1029232)
  - 2-Butanone (MEK)
  - Acetone
- MSD (Lab ID: 1029233)
  - 2-Butanone (MEK)
  - Acetone

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 8260**
Description: 8260 MSV 5035 Low Level
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: MSV/17598

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 1029231)
  - Acetone

QC Batch: MSV/17661

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 1033503)
  - Carbon tetrachloride

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/17598

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10165707002

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 1029232)
  - Acetone
- MSD (Lab ID: 1029233)
  - Acetone

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1029232)
  - 1,1,1,2-Tetrachloroethane
  - 1,1,1-Trichloroethane
  - 1,1,2-Trichlorotrifluoroethane
  - 1,1-Dichloropropene
  - 1,2,3-Trichlorobenzene
  - 1,2,4-Trichlorobenzene
  - 1,2,4-Trimethylbenzene
  - 1,2-Dibromo-3-chloropropane
  - 1,2-Dichlorobenzene
  - 1,3,5-Trimethylbenzene
  - 1,3-Dichlorobenzene
  - 1,4-Dichlorobenzene
  - 2,2-Dichloropropane
  - 2-Butanone (MEK)
  - 2-Chlorotoluene
  - 4-Chlorotoluene
  - 4-Methyl-2-pentanone (MIBK)

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 8260**
Description: 8260 MSV 5035 Low Level
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

QC Batch: MSV/17598

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10165707002

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- Carbon tetrachloride
- Chloroethane
- Dichlorodifluoromethane
- Ethylbenzene
- Hexachloro-1,3-butadiene
- Isopropylbenzene (Cumene)
- Styrene
- Tetrachloroethene
- Tetrahydrofuran
- Toluene
- Trichlorofluoromethane
- n-Butylbenzene
- n-Propylbenzene
- p-Isopropyltoluene
- sec-Butylbenzene
- tert-Butylbenzene

- MSD (Lab ID: 1029233)
  - 1,1,2-Trichlorotrifluoroethane
  - 1,2,3-Trichlorobenzene
  - 1,2,4-Trichlorobenzene
  - 1,2,4-Trimethylbenzene
  - 1,3,5-Trimethylbenzene
  - 2-Butanone (MEK)
  - 4-Methyl-2-pentanone (MIBK)
  - Carbon tetrachloride
  - Hexachloro-1,3-butadiene
  - Isopropylbenzene (Cumene)
  - Naphthalene
  - Tetrachloroethene
  - n-Butylbenzene
  - n-Propylbenzene
  - p-Isopropyltoluene
  - sec-Butylbenzene
  - tert-Butylbenzene

QC Batch: MSV/17661

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 8260**
Description: 8260 MSV 5035 Low Level
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

Analyte Comments:

QC Batch: MSV/17591

B: Analyte was detected in the associated method blank.

- TP-1 @ 4 FT (Lab ID: 10165707001)
  - Toluene
- TP-1 @ 6 FT (Lab ID: 10165707002)
  - Toluene
- TP-1 @ 9 FT (Lab ID: 10165707003)
  - Toluene
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)
  - Toluene
- TP-3 @ 1.5 FT (Lab ID: 10165707007)
  - Toluene
- TP-3 @ 4 FT (Lab ID: 10165707008)
  - Toluene

Z3: Methylene chloride is a common laboratory contaminant. Results for this analyte should be considered estimated unless the amount found in the sample is 3 to 5 times higher than that found in the method blank.

- TP-1 @ 4 FT (Lab ID: 10165707001)
  - Methylene Chloride
- TP-1 @ 9 FT (Lab ID: 10165707003)
  - Methylene Chloride
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)
  - Methylene Chloride
- TP-2 @ 2.5 FT (Lab ID: 10165707006)
  - Methylene Chloride
- TP-3 @ 1.5 FT (Lab ID: 10165707007)
  - Methylene Chloride
- TP-3 @ 4 FT (Lab ID: 10165707008)
  - Methylene Chloride

QC Batch: MSV/17598

4M: The internal standard, Pentafluorobenzene and 1,4 Diflurobenzene, result exceed the lower control limit. The reported result should be considered an estimated value.

- MS (Lab ID: 1029232)
  - Dibromofluoromethane (S)

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 8260**
Description: 8260 MSV 5030 Med Level
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
1 sample was analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 5035/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: MSV/17613

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 1030242)
  - Dichlorofluoromethane

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 8260**
Description: 8260 MSV 5030 Med Level
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

Analyte Comments:

QC Batch: MSV/17613

Z3: Methylene chloride is a common laboratory contaminant. Results for this analyte should be considered estimated unless the amount found in the sample is 3 to 5 times higher than that found in the method blank.

- SUMP SED (Lab ID: 10165707009)
  - Methylene Chloride

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 8260**
Description: 8260 VOC
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
1 sample was analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: MSV/17582

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
- LCS (Lab ID: 1028700)
  - Trichlorofluoromethane

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MSV/17582

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10165593003

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
- MS (Lab ID: 1028701)
  - Trichlorofluoromethane

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- MS (Lab ID: 1028701)
  - Tetrachloroethene

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **EPA 8260**
Description: 8260 VOC
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

Additional Comments:

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **MADEP EPH**
Description: MADEP EPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
9 samples were analyzed for MADEP EPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with MADEP EPH with any exceptions noted below.

QC Batch: MTPR/1779

P3: Sample extract could not be concentrated to the routine final volume, resulting in elevated reporting limits.
- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: MTPR/1779

S4: Surrogate recovery not evaluated against control limits due to sample dilution.
- SUMP SED (Lab ID: 10165707009)
  - 1-Chloro-octadecane (S)
- TP-1 @ 6 FT (Lab ID: 10165707002)
  - 1-Chloro-octadecane (S)
- TP-1 @ 9 FT (Lab ID: 10165707003)
  - 1-Chloro-octadecane (S)
- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)
  - 1-Chloro-octadecane (S)
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)
  - 1-Chloro-octadecane (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **MADEP EPH**
Description: MADEP EPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **MADEP EPH**
Description: MADEP EPH MA Water
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
1 sample was analyzed for MADEP EPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with MADEP EPH with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **MADEP EPH**
Description: MADEP EPH MA Fractions Soil
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
5 samples were analyzed for MADEP EPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with MADEP EPH with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: MTPR/1797

S0: Surrogate recovery outside laboratory control limits.
- BLANK (Lab ID: 1035450)
  - 2-Fluorobiphenyl (S)
- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)
  - 2-Bromonaphthalene (S)
  - 2-Fluorobiphenyl (S)

S4: Surrogate recovery not evaluated against control limits due to sample dilution.
- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)
  - 1-Chloro-octadecane (S)
  - o-Terphenyl (S)
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)
  - 1-Chloro-octadecane (S)
  - o-Terphenyl (S)

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)
  - 2-Bromonaphthalene (S)
  - 2-Fluorobiphenyl (S)

QC Batch: MTPR/1814

S0: Surrogate recovery outside laboratory control limits.
- BLANK (Lab ID: 1040851)
  - 2-Fluorobiphenyl (S)

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **MADEP EPH**
Description: MADEP EPH MA Fractions Soil
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

QC Batch: MTPR/1814

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

- SUMP SED (Lab ID: 10165707009)
  - 1-Chloro-octadecane (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MTPR/1797

1M: Fractionation performed on a 5x dilution of the sample extract.

- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-22)
  - 1-Chloro-octadecane (S)
  - o-Terphenyl (S)
- TP-2 @ 0-6 INCHES (Lab ID: 10165707005)
  - Aliphatic (C09-C18)
  - Aromatic (C11-22)
  - 1-Chloro-octadecane (S)
  - o-Terphenyl (S)

QC Batch: MTPR/1814

3M: Sample extract diluted by 2 prior to fractionation.

- SUMP SED (Lab ID: 10165707009)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-22)

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **MADEP VPH**
Description: MADEP VPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
8 samples were analyzed for MADEP VPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with MADEP VPH with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

QC Batch: MT/6610

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

- LCS (Lab ID: 1028642)
  - Naphthalene
- LCSD (Lab ID: 1028643)
  - Naphthalene
- MS (Lab ID: 1028644)
  - Naphthalene
- MSD (Lab ID: 1028645)
  - Naphthalene
- TP-1 SOURCE SAMPLE (Lab ID: 10165707004)
  - Naphthalene

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **MADEP VPH**
Description: MADEP VPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

QC Batch: MT/6610

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10165707003

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 1028644)
  - Naphthalene
- MSD (Lab ID: 1028645)
  - Naphthalene

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1028644)
  - Aromatic (C09-C10)

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MT/6610

2M: Result confirmed by re-analysis

- LCS (Lab ID: 1028642)
  - Naphthalene

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

General Information:
2 samples were analyzed for MADEP VPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: MT/6621

S2: Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).

- DUP (Lab ID: 1029002)
  - a,a,a-Trifluorotoluene (S)
- MS (Lab ID: 1029003)
  - a,a,a-Trifluorotoluene (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

QC Batch: MT/6621

D6: The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

- DUP (Lab ID: 1029002)
  - Total Purgeable Hydro Carbons

Additional Comments:

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PROJECT NARRATIVE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: September 14, 2011

Analyte Comments:

QC Batch: MT/6621

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1029003)
  - Aliphatic (C05-C08).Unadjusted
  - Benzene
  - Total Purgeable Hydro Carbons

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 4 FT **Lab ID: 10165707001** Collected: 08/03/11 12:45 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**3.3**	mg/kg	0.54	0.27	1	08/15/11 14:17	08/16/11 10:12	7440-38-2	
Barium	**85.6**	mg/kg	0.54	0.022	1	08/15/11 14:17	08/16/11 10:12	7440-39-3	M1
Cadmium	**0.13**	mg/kg	0.054	0.011	1	08/15/11 14:17	08/16/11 10:12	7440-43-9	B
Chromium	**6.7**	mg/kg	0.54	0.076	1	08/15/11 14:17	08/16/11 10:12	7440-47-3	
Lead	**20.1**	mg/kg	0.33	0.054	1	08/15/11 14:17	08/16/11 10:12	7439-92-1	M1
Selenium	**1.2**	mg/kg	0.81	0.14	1	08/15/11 14:17	08/16/11 10:12	7782-49-2	B
Silver	**<0.033**	mg/kg	0.54	0.033	1	08/15/11 14:17	08/16/11 10:12	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.011J**	mg/kg	0.019	0.0015	1	08/15/11 12:44	08/16/11 15:39	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**7.7**	%	0.10	0.10	1		08/09/11 13:30		
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Acetone	**<13.0**	ug/kg	26.0	13.0	1	08/09/11 07:24	08/09/11 20:44	67-64-1	L3
Allyl chloride	**<0.85**	ug/kg	10.4	0.85	1	08/09/11 07:24	08/09/11 20:44	107-05-1	
Benzene	**<0.64**	ug/kg	4.2	0.64	1	08/09/11 07:24	08/09/11 20:44	71-43-2	
Bromobenzene	**<0.82**	ug/kg	4.2	0.82	1	08/09/11 07:24	08/09/11 20:44	108-86-1	
Bromochloromethane	**<1.2**	ug/kg	4.2	1.2	1	08/09/11 07:24	08/09/11 20:44	74-97-5	
Bromodichloromethane	**<0.75**	ug/kg	4.2	0.75	1	08/09/11 07:24	08/09/11 20:44	75-27-4	
Bromoform	**<0.81**	ug/kg	20.8	0.81	1	08/09/11 07:24	08/09/11 20:44	75-25-2	
Bromomethane	**<2.2**	ug/kg	20.8	2.2	1	08/09/11 07:24	08/09/11 20:44	74-83-9	
2-Butanone (MEK)	**<10.4**	ug/kg	20.8	10.4	1	08/09/11 07:24	08/09/11 20:44	78-93-3	
n-Butylbenzene	**<0.99**	ug/kg	4.2	0.99	1	08/09/11 07:24	08/09/11 20:44	104-51-8	
sec-Butylbenzene	**<0.72**	ug/kg	4.2	0.72	1	08/09/11 07:24	08/09/11 20:44	135-98-8	
tert-Butylbenzene	**<1.0**	ug/kg	4.2	1.0	1	08/09/11 07:24	08/09/11 20:44	98-06-6	
Carbon tetrachloride	**<1.3**	ug/kg	4.2	1.3	1	08/09/11 07:24	08/09/11 20:44	56-23-5	
Chlorobenzene	**<0.92**	ug/kg	4.2	0.92	1	08/09/11 07:24	08/09/11 20:44	108-90-7	
Chloroethane	**<1.1**	ug/kg	10.4	1.1	1	08/09/11 07:24	08/09/11 20:44	75-00-3	
Chloroform	**<0.94**	ug/kg	4.2	0.94	1	08/09/11 07:24	08/09/11 20:44	67-66-3	
Chloromethane	**<0.74**	ug/kg	10.4	0.74	1	08/09/11 07:24	08/09/11 20:44	74-87-3	
2-Chlorotoluene	**<0.98**	ug/kg	4.2	0.98	1	08/09/11 07:24	08/09/11 20:44	95-49-8	
4-Chlorotoluene	**<0.90**	ug/kg	4.2	0.90	1	08/09/11 07:24	08/09/11 20:44	106-43-4	
1,2-Dibromo-3-chloropropane	**<2.0**	ug/kg	10.4	2.0	1	08/09/11 07:24	08/09/11 20:44	96-12-8	
Dibromochloromethane	**<1.4**	ug/kg	4.2	1.4	1	08/09/11 07:24	08/09/11 20:44	124-48-1	
1,2-Dibromoethane (EDB)	**<1.4**	ug/kg	4.2	1.4	1	08/09/11 07:24	08/09/11 20:44	106-93-4	
Dibromomethane	**<1.6**	ug/kg	4.2	1.6	1	08/09/11 07:24	08/09/11 20:44	74-95-3	
1,2-Dichlorobenzene	**<0.54**	ug/kg	4.2	0.54	1	08/09/11 07:24	08/09/11 20:44	95-50-1	
1,3-Dichlorobenzene	**<0.85**	ug/kg	4.2	0.85	1	08/09/11 07:24	08/09/11 20:44	541-73-1	
1,4-Dichlorobenzene	**<0.91**	ug/kg	4.2	0.91	1	08/09/11 07:24	08/09/11 20:44	106-46-7	
Dichlorodifluoromethane	**<1.3**	ug/kg	10.4	1.3	1	08/09/11 07:24	08/09/11 20:44	75-71-8	
1,1-Dichloroethane	**<1.0**	ug/kg	4.2	1.0	1	08/09/11 07:24	08/09/11 20:44	75-34-3	
1,2-Dichloroethane	**<1.2**	ug/kg	4.2	1.2	1	08/09/11 07:24	08/09/11 20:44	107-06-2	
1,1-Dichloroethene	**<0.83**	ug/kg	4.2	0.83	1	08/09/11 07:24	08/09/11 20:44	75-35-4	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 4 FT **Lab ID: 10165707001** Collected: 08/03/11 12:45 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
cis-1,2-Dichloroethene	**<1.1**	ug/kg	4.2	1.1	1	08/09/11 07:24	08/09/11 20:44	156-59-2	
trans-1,2-Dichloroethene	**<0.55**	ug/kg	4.2	0.55	1	08/09/11 07:24	08/09/11 20:44	156-60-5	
Dichlorofluoromethane	**<1.0**	ug/kg	4.2	1.0	1	08/09/11 07:24	08/09/11 20:44	75-43-4	
1,2-Dichloropropane	**<0.97**	ug/kg	4.2	0.97	1	08/09/11 07:24	08/09/11 20:44	78-87-5	
1,3-Dichloropropane	**<0.92**	ug/kg	4.2	0.92	1	08/09/11 07:24	08/09/11 20:44	142-28-9	
2,2-Dichloropropane	**<1.1**	ug/kg	10.4	1.1	1	08/09/11 07:24	08/09/11 20:44	594-20-7	
1,1-Dichloropropene	**<0.82**	ug/kg	4.2	0.82	1	08/09/11 07:24	08/09/11 20:44	563-58-6	
cis-1,3-Dichloropropene	**<0.82**	ug/kg	4.2	0.82	1	08/09/11 07:24	08/09/11 20:44	10061-01-5	
trans-1,3-Dichloropropene	**<1.2**	ug/kg	4.2	1.2	1	08/09/11 07:24	08/09/11 20:44	10061-02-6	
Diethyl ether (Ethyl ether)	**<1.4**	ug/kg	10.4	1.4	1	08/09/11 07:24	08/09/11 20:44	60-29-7	
Ethylbenzene	**<0.51**	ug/kg	4.2	0.51	1	08/09/11 07:24	08/09/11 20:44	100-41-4	
Hexachloro-1,3-butadiene	**<0.84**	ug/kg	10.4	0.84	1	08/09/11 07:24	08/09/11 20:44	87-68-3	
Isopropylbenzene (Cumene)	**<0.74**	ug/kg	4.2	0.74	1	08/09/11 07:24	08/09/11 20:44	98-82-8	
p-Isopropyltoluene	**<0.94**	ug/kg	4.2	0.94	1	08/09/11 07:24	08/09/11 20:44	99-87-6	
Methylene Chloride	**<10.4**	ug/kg	20.8	10.4	1	08/09/11 07:24	08/09/11 20:44	75-09-2	Z3
4-Methyl-2-pentanone (MIBK)	**<10.4**	ug/kg	20.8	10.4	1	08/09/11 07:24	08/09/11 20:44	108-10-1	
Methyl-tert-butyl ether	**<0.83**	ug/kg	4.2	0.83	1	08/09/11 07:24	08/09/11 20:44	1634-04-4	
Naphthalene	**<0.86**	ug/kg	10.4	0.86	1	08/09/11 07:24	08/09/11 20:44	91-20-3	
n-Propylbenzene	**<0.85**	ug/kg	4.2	0.85	1	08/09/11 07:24	08/09/11 20:44	103-65-1	
Styrene	**<0.64**	ug/kg	4.2	0.64	1	08/09/11 07:24	08/09/11 20:44	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.0**	ug/kg	4.2	1.0	1	08/09/11 07:24	08/09/11 20:44	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.2**	ug/kg	4.2	1.2	1	08/09/11 07:24	08/09/11 20:44	79-34-5	
Tetrachloroethene	**<1.4**	ug/kg	4.2	1.4	1	08/09/11 07:24	08/09/11 20:44	127-18-4	
Tetrahydrofuran	**<10.8**	ug/kg	41.5	10.8	1	08/09/11 07:24	08/09/11 20:44	109-99-9	
Toluene	**0.90J**	ug/kg	4.2	0.55	1	08/09/11 07:24	08/09/11 20:44	108-88-3	B
1,2,3-Trichlorobenzene	**<1.2**	ug/kg	4.2	1.2	1	08/09/11 07:24	08/09/11 20:44	87-61-6	
1,2,4-Trichlorobenzene	**<0.83**	ug/kg	4.2	0.83	1	08/09/11 07:24	08/09/11 20:44	120-82-1	
1,1,1-Trichloroethane	**<0.91**	ug/kg	4.2	0.91	1	08/09/11 07:24	08/09/11 20:44	71-55-6	
1,1,2-Trichloroethane	**<0.92**	ug/kg	4.2	0.92	1	08/09/11 07:24	08/09/11 20:44	79-00-5	
Trichloroethene	**<0.72**	ug/kg	4.2	0.72	1	08/09/11 07:24	08/09/11 20:44	79-01-6	
Trichlorofluoromethane	**<1.2**	ug/kg	10.4	1.2	1	08/09/11 07:24	08/09/11 20:44	75-69-4	
1,2,3-Trichloropropane	**<0.84**	ug/kg	4.2	0.84	1	08/09/11 07:24	08/09/11 20:44	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<1.1**	ug/kg	4.2	1.1	1	08/09/11 07:24	08/09/11 20:44	76-13-1	
1,2,4-Trimethylbenzene	**<0.85**	ug/kg	4.2	0.85	1	08/09/11 07:24	08/09/11 20:44	95-63-6	
1,3,5-Trimethylbenzene	**<0.66**	ug/kg	4.2	0.66	1	08/09/11 07:24	08/09/11 20:44	108-67-8	
Vinyl chloride	**<1.3**	ug/kg	4.2	1.3	1	08/09/11 07:24	08/09/11 20:44	75-01-4	
Xylene (Total)	**<3.0**	ug/kg	12.5	3.0	1	08/09/11 07:24	08/09/11 20:44	1330-20-7	
Dibromofluoromethane (S)	92	%	75-125		1	08/09/11 07:24	08/09/11 20:44	1868-53-7	
1,2-Dichloroethane-d4 (S)	93	%	75-138		1	08/09/11 07:24	08/09/11 20:44	17060-07-0	
Toluene-d8 (S)	101	%	75-125		1	08/09/11 07:24	08/09/11 20:44	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125		1	08/09/11 07:24	08/09/11 20:44	460-00-4	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**52.3**	mg/kg	10.6	5.3	1	08/08/11 14:00	08/10/11 03:55		
1-Chloro-octadecane (S)	98	%	40-140		1	08/08/11 14:00	08/10/11 03:55	3386-33-2	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 4 FT **Lab ID: 10165707001** Collected: 08/03/11 12:45 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.0099**	mg/kg	0.049	0.0099	1	08/08/11 11:30	08/10/11 10:46	1634-04-4	
Benzene	**<0.012**	mg/kg	0.025	0.012	1	08/08/11 11:30	08/10/11 10:46	71-43-2	
Toluene	**<0.0082**	mg/kg	0.049	0.0082	1	08/08/11 11:30	08/10/11 10:46	108-88-3	
Ethylbenzene	**<0.0084**	mg/kg	0.049	0.0084	1	08/08/11 11:30	08/10/11 10:46	100-41-4	
m&p-Xylene	**<0.012**	mg/kg	0.099	0.012	1	08/08/11 11:30	08/10/11 10:46	179601-23-1	
o-Xylene	**<0.0069**	mg/kg	0.049	0.0069	1	08/08/11 11:30	08/10/11 10:46	95-47-6	
Xylene (Total)	**<0.074**	mg/kg	0.15	0.074	1	08/08/11 11:30	08/10/11 10:46	1330-20-7	
Naphthalene	**<0.071**	mg/kg	0.59	0.071	1	08/08/11 11:30	08/10/11 10:46	91-20-3	L3
Aromatic (C09-C10)	**<0.017**	mg/kg	0.99	0.017	1	08/08/11 11:30	08/10/11 10:46		
Aliphatic (C05-C08).Unadjusted	**<2.5**	mg/kg	4.9	2.5	1	08/08/11 11:30	08/10/11 10:46		
Aliphatic (C09-C12).Unadjusted	**<0.45**	mg/kg	4.9	0.45	1	08/08/11 11:30	08/10/11 10:46		
Total Purgeable Hydro Carbons	**<4.9**	mg/kg	9.9	4.9	1	08/08/11 11:30	08/10/11 10:46		
Aliphatic (C05-C08), Adjusted	**<0.44**	mg/kg	4.9	0.44	1	08/08/11 11:30	08/10/11 10:46		
Aliphatic (C09-C12), Adjusted	**<0.45**	mg/kg	4.9	0.45	1	08/08/11 11:30	08/10/11 10:46		
a,a,a-Trifluorotoluene (S)	79	%	70-130		1	08/08/11 11:30	08/10/11 10:46	98-08-8	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 6 FT **Lab ID: 10165707002** Collected: 08/03/11 12:55 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**12.5**	mg/kg	0.45	0.23	1	08/09/11 16:38	08/10/11 16:55	7440-38-2	B
Barium	**42.8**	mg/kg	0.45	0.018	1	08/09/11 16:38	08/10/11 16:55	7440-39-3	
Cadmium	**0.35**	mg/kg	0.045	0.0090	1	08/09/11 16:38	08/10/11 16:55	7440-43-9	
Chromium	**6.2**	mg/kg	0.45	0.063	1	08/09/11 16:38	08/10/11 16:55	7440-47-3	
Lead	**7.5**	mg/kg	0.27	0.045	1	08/09/11 16:38	08/10/11 16:55	7439-92-1	
Selenium	**<0.12**	mg/kg	0.68	0.12	1	08/09/11 16:38	08/10/11 16:55	7782-49-2	
Silver	**<0.027**	mg/kg	0.45	0.027	1	08/09/11 16:38	08/10/11 16:55	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**<0.0017**	mg/kg	0.022	0.0017	1	08/15/11 12:44	08/16/11 16:10	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**8.4**	%	0.10	0.10	1		08/09/11 13:30		
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3550								
Acenaphthene	**<0.00033**	mg/kg	0.011	0.00033	1	09/06/11 06:54	09/08/11 17:10	83-32-9	
Acenaphthylene	**<0.00033**	mg/kg	0.011	0.00033	1	09/06/11 06:54	09/08/11 17:10	208-96-8	
Anthracene	**<0.0054**	mg/kg	0.011	0.0054	1	09/06/11 06:54	09/08/11 17:10	120-12-7	
Benzo(a)anthracene	**<0.0054**	mg/kg	0.011	0.0054	1	09/06/11 06:54	09/08/11 17:10	56-55-3	
Benzo(a)pyrene	**<0.0054**	mg/kg	0.011	0.0054	1	09/06/11 06:54	09/08/11 17:10	50-32-8	
Benzo(b)fluoranthene	**<0.00054**	mg/kg	0.011	0.00054	1	09/06/11 06:54	09/08/11 17:10	205-99-2	
Benzo(g,h,i)perylene	**<0.00054**	mg/kg	0.011	0.00054	1	09/06/11 06:54	09/08/11 17:10	191-24-2	
Benzo(k)fluoranthene	**<0.00065**	mg/kg	0.011	0.00065	1	09/06/11 06:54	09/08/11 17:10	207-08-9	
Chrysene	**<0.00054**	mg/kg	0.011	0.00054	1	09/06/11 06:54	09/08/11 17:10	218-01-9	
Dibenz(a,h)anthracene	**<0.00054**	mg/kg	0.011	0.00054	1	09/06/11 06:54	09/08/11 17:10	53-70-3	
Fluoranthene	**0.0071J**	mg/kg	0.011	0.0054	1	09/06/11 06:54	09/08/11 17:10	206-44-0	
Fluorene	**<0.00044**	mg/kg	0.011	0.00044	1	09/06/11 06:54	09/08/11 17:10	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.00054**	mg/kg	0.011	0.00054	1	09/06/11 06:54	09/08/11 17:10	193-39-5	
Naphthalene	**<0.00065**	mg/kg	0.011	0.00065	1	09/06/11 06:54	09/08/11 17:10	91-20-3	
Phenanthrene	**<0.0054**	mg/kg	0.011	0.0054	1	09/06/11 06:54	09/08/11 17:10	85-01-8	
Pyrene	**0.015**	mg/kg	0.011	0.00044	1	09/06/11 06:54	09/08/11 17:10	129-00-0	
2-Fluorobiphenyl (S)	69	%	30-130		1	09/06/11 06:54	09/08/11 17:10	321-60-8	H2
Terphenyl-d14 (S)	92	%	30-150		1	09/06/11 06:54	09/08/11 17:10	1718-51-0	
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Acetone	**<13.1**	ug/kg	26.3	13.1	1	08/09/11 07:24	08/09/11 20:25	67-64-1	L3,M0
Allyl chloride	**<0.86**	ug/kg	10.5	0.86	1	08/09/11 07:24	08/09/11 20:25	107-05-1	
Benzene	**<0.65**	ug/kg	4.2	0.65	1	08/09/11 07:24	08/09/11 20:25	71-43-2	
Bromobenzene	**<0.83**	ug/kg	4.2	0.83	1	08/09/11 07:24	08/09/11 20:25	108-86-1	
Bromochloromethane	**<1.2**	ug/kg	4.2	1.2	1	08/09/11 07:24	08/09/11 20:25	74-97-5	
Bromodichloromethane	**<0.76**	ug/kg	4.2	0.76	1	08/09/11 07:24	08/09/11 20:25	75-27-4	
Bromoform	**<0.82**	ug/kg	21.0	0.82	1	08/09/11 07:24	08/09/11 20:25	75-25-2	
Bromomethane	**<2.3**	ug/kg	21.0	2.3	1	08/09/11 07:24	08/09/11 20:25	74-83-9	
2-Butanone (MEK)	**<10.5**	ug/kg	21.0	10.5	1	08/09/11 07:24	08/09/11 20:25	78-93-3	M1

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 6 FT **Lab ID: 10165707002** Collected: 08/03/11 12:55 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
n-Butylbenzene	**<1.0**	ug/kg	4.2	1.0	1	08/09/11 07:24	08/09/11 20:25	104-51-8	M1
sec-Butylbenzene	**<0.73**	ug/kg	4.2	0.73	1	08/09/11 07:24	08/09/11 20:25	135-98-8	M1
tert-Butylbenzene	**<1.0**	ug/kg	4.2	1.0	1	08/09/11 07:24	08/09/11 20:25	98-06-6	M1
Carbon tetrachloride	**<1.3**	ug/kg	4.2	1.3	1	08/09/11 07:24	08/09/11 20:25	56-23-5	M1
Chlorobenzene	**<0.94**	ug/kg	4.2	0.94	1	08/09/11 07:24	08/09/11 20:25	108-90-7	
Chloroethane	**<1.1**	ug/kg	10.5	1.1	1	08/09/11 07:24	08/09/11 20:25	75-00-3	M1
Chloroform	**<0.96**	ug/kg	4.2	0.96	1	08/09/11 07:24	08/09/11 20:25	67-66-3	
Chloromethane	**<0.75**	ug/kg	10.5	0.75	1	08/09/11 07:24	08/09/11 20:25	74-87-3	
2-Chlorotoluene	**<0.99**	ug/kg	4.2	0.99	1	08/09/11 07:24	08/09/11 20:25	95-49-8	M1
4-Chlorotoluene	**<0.92**	ug/kg	4.2	0.92	1	08/09/11 07:24	08/09/11 20:25	106-43-4	M1
1,2-Dibromo-3-chloropropane	**<2.1**	ug/kg	10.5	2.1	1	08/09/11 07:24	08/09/11 20:25	96-12-8	M1
Dibromochloromethane	**<1.4**	ug/kg	4.2	1.4	1	08/09/11 07:24	08/09/11 20:25	124-48-1	
1,2-Dibromoethane (EDB)	**<1.4**	ug/kg	4.2	1.4	1	08/09/11 07:24	08/09/11 20:25	106-93-4	
Dibromomethane	**<1.6**	ug/kg	4.2	1.6	1	08/09/11 07:24	08/09/11 20:25	74-95-3	
1,2-Dichlorobenzene	**<0.55**	ug/kg	4.2	0.55	1	08/09/11 07:24	08/09/11 20:25	95-50-1	M1
1,3-Dichlorobenzene	**<0.86**	ug/kg	4.2	0.86	1	08/09/11 07:24	08/09/11 20:25	541-73-1	M1
1,4-Dichlorobenzene	**<0.93**	ug/kg	4.2	0.93	1	08/09/11 07:24	08/09/11 20:25	106-46-7	M1
Dichlorodifluoromethane	**<1.3**	ug/kg	10.5	1.3	1	08/09/11 07:24	08/09/11 20:25	75-71-8	M1
1,1-Dichloroethane	**<1.0**	ug/kg	4.2	1.0	1	08/09/11 07:24	08/09/11 20:25	75-34-3	
1,2-Dichloroethane	**<1.3**	ug/kg	4.2	1.3	1	08/09/11 07:24	08/09/11 20:25	107-06-2	
1,1-Dichloroethene	**<0.84**	ug/kg	4.2	0.84	1	08/09/11 07:24	08/09/11 20:25	75-35-4	
cis-1,2-Dichloroethene	**<1.1**	ug/kg	4.2	1.1	1	08/09/11 07:24	08/09/11 20:25	156-59-2	
trans-1,2-Dichloroethene	**<0.56**	ug/kg	4.2	0.56	1	08/09/11 07:24	08/09/11 20:25	156-60-5	
Dichlorofluoromethane	**<1.0**	ug/kg	4.2	1.0	1	08/09/11 07:24	08/09/11 20:25	75-43-4	
1,2-Dichloropropane	**<0.98**	ug/kg	4.2	0.98	1	08/09/11 07:24	08/09/11 20:25	78-87-5	
1,3-Dichloropropane	**<0.94**	ug/kg	4.2	0.94	1	08/09/11 07:24	08/09/11 20:25	142-28-9	
2,2-Dichloropropane	**<1.1**	ug/kg	10.5	1.1	1	08/09/11 07:24	08/09/11 20:25	594-20-7	M1
1,1-Dichloropropene	**<0.83**	ug/kg	4.2	0.83	1	08/09/11 07:24	08/09/11 20:25	563-58-6	M1
cis-1,3-Dichloropropene	**<0.83**	ug/kg	4.2	0.83	1	08/09/11 07:24	08/09/11 20:25	10061-01-5	
trans-1,3-Dichloropropene	**<1.2**	ug/kg	4.2	1.2	1	08/09/11 07:24	08/09/11 20:25	10061-02-6	
Diethyl ether (Ethyl ether)	**<1.5**	ug/kg	10.5	1.5	1	08/09/11 07:24	08/09/11 20:25	60-29-7	
Ethylbenzene	**<0.52**	ug/kg	4.2	0.52	1	08/09/11 07:24	08/09/11 20:25	100-41-4	M1
Hexachloro-1,3-butadiene	**<0.85**	ug/kg	10.5	0.85	1	08/09/11 07:24	08/09/11 20:25	87-68-3	M1
Isopropylbenzene (Cumene)	**<0.75**	ug/kg	4.2	0.75	1	08/09/11 07:24	08/09/11 20:25	98-82-8	M1
p-Isopropyltoluene	**<0.96**	ug/kg	4.2	0.96	1	08/09/11 07:24	08/09/11 20:25	99-87-6	M1
Methylene Chloride	**<10.5**	ug/kg	21.0	10.5	1	08/09/11 07:24	08/09/11 20:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<10.5**	ug/kg	21.0	10.5	1	08/09/11 07:24	08/09/11 20:25	108-10-1	M1
Methyl-tert-butyl ether	**<0.84**	ug/kg	4.2	0.84	1	08/09/11 07:24	08/09/11 20:25	1634-04-4	
Naphthalene	**<0.87**	ug/kg	10.5	0.87	1	08/09/11 07:24	08/09/11 20:25	91-20-3	M1
n-Propylbenzene	**<0.86**	ug/kg	4.2	0.86	1	08/09/11 07:24	08/09/11 20:25	103-65-1	M1
Styrene	**<0.65**	ug/kg	4.2	0.65	1	08/09/11 07:24	08/09/11 20:25	100-42-5	M1
1,1,1,2-Tetrachloroethane	**<1.1**	ug/kg	4.2	1.1	1	08/09/11 07:24	08/09/11 20:25	630-20-6	M1
1,1,2,2-Tetrachloroethane	**<1.2**	ug/kg	4.2	1.2	1	08/09/11 07:24	08/09/11 20:25	79-34-5	
Tetrachloroethene	**<1.4**	ug/kg	4.2	1.4	1	08/09/11 07:24	08/09/11 20:25	127-18-4	M1
Tetrahydrofuran	**<10.9**	ug/kg	42.1	10.9	1	08/09/11 07:24	08/09/11 20:25	109-99-9	M1

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602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 6 FT **Lab ID: 10165707002** Collected: 08/03/11 12:55 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Toluene	**1.2J**	ug/kg	4.2	0.56	1	08/09/11 07:24	08/09/11 20:25	108-88-3	B,M1
1,2,3-Trichlorobenzene	**<1.2**	ug/kg	4.2	1.2	1	08/09/11 07:24	08/09/11 20:25	87-61-6	M1
1,2,4-Trichlorobenzene	**<0.84**	ug/kg	4.2	0.84	1	08/09/11 07:24	08/09/11 20:25	120-82-1	M1
1,1,1-Trichloroethane	**<0.93**	ug/kg	4.2	0.93	1	08/09/11 07:24	08/09/11 20:25	71-55-6	M1
1,1,2-Trichloroethane	**<0.94**	ug/kg	4.2	0.94	1	08/09/11 07:24	08/09/11 20:25	79-00-5	
Trichloroethene	**<0.73**	ug/kg	4.2	0.73	1	08/09/11 07:24	08/09/11 20:25	79-01-6	
Trichlorofluoromethane	**<1.3**	ug/kg	10.5	1.3	1	08/09/11 07:24	08/09/11 20:25	75-69-4	M1
1,2,3-Trichloropropane	**<0.85**	ug/kg	4.2	0.85	1	08/09/11 07:24	08/09/11 20:25	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<1.1**	ug/kg	4.2	1.1	1	08/09/11 07:24	08/09/11 20:25	76-13-1	M1
1,2,4-Trimethylbenzene	**<0.86**	ug/kg	4.2	0.86	1	08/09/11 07:24	08/09/11 20:25	95-63-6	M1
1,3,5-Trimethylbenzene	**<0.67**	ug/kg	4.2	0.67	1	08/09/11 07:24	08/09/11 20:25	108-67-8	M1
Vinyl chloride	**<1.3**	ug/kg	4.2	1.3	1	08/09/11 07:24	08/09/11 20:25	75-01-4	
Xylene (Total)	**<3.0**	ug/kg	12.6	3.0	1	08/09/11 07:24	08/09/11 20:25	1330-20-7	
Dibromofluoromethane (S)	94	%	75-125		1	08/09/11 07:24	08/09/11 20:25	1868-53-7	
1,2-Dichloroethane-d4 (S)	102	%	75-138		1	08/09/11 07:24	08/09/11 20:25	17060-07-0	
Toluene-d8 (S)	99	%	75-125		1	08/09/11 07:24	08/09/11 20:25	2037-26-5	
4-Bromofluorobenzene (S)	109	%	75-125		1	08/09/11 07:24	08/09/11 20:25	460-00-4	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**1350**	mg/kg	108	54.2	10	08/08/11 14:00	08/14/11 05:45		
1-Chloro-octadecane (S)	0	%	40-140		10	08/08/11 14:00	08/14/11 05:45	3386-33-2	S4
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**1000**	mg/kg	325	163	10	08/08/11 14:00	08/18/11 15:47		
Aliphatic (C09-C18)	**85.8**	mg/kg	10.8	5.4	1	08/08/11 14:00	08/17/11 19:49		
Aliphatic (C19-C36)	**835**	mg/kg	108	54.2	10	08/08/11 14:00	08/18/11 15:47		
Aromatic (C11-22)	**81.7**	mg/kg	10.8	5.4	1	08/08/11 14:00	08/18/11 13:06		
1-Chloro-octadecane (S)	94	%	40-140		1	08/08/11 14:00	08/17/11 19:49	3386-33-2	
o-Terphenyl (S)	100	%	40-140		1	08/08/11 14:00	08/18/11 13:06	84-15-1	
2-Fluorobiphenyl (S)	103	%	40-140		1	08/08/11 14:00	08/18/11 13:06	321-60-8	
2-Bromonaphthalene (S)	49	%	40-140		1	08/08/11 14:00	08/18/11 13:06	580-13-2	
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.011**	mg/kg	0.053	0.011	1	08/08/11 11:30	08/10/11 04:58	1634-04-4	
Benzene	**<0.013**	mg/kg	0.027	0.013	1	08/08/11 11:30	08/10/11 04:58	71-43-2	
Toluene	**<0.0089**	mg/kg	0.053	0.0089	1	08/08/11 11:30	08/10/11 04:58	108-88-3	
Ethylbenzene	**<0.0091**	mg/kg	0.053	0.0091	1	08/08/11 11:30	08/10/11 04:58	100-41-4	
m&p-Xylene	**<0.013**	mg/kg	0.11	0.013	1	08/08/11 11:30	08/10/11 04:58	179601-23-1	
o-Xylene	**<0.0075**	mg/kg	0.053	0.0075	1	08/08/11 11:30	08/10/11 04:58	95-47-6	
Xylene (Total)	**<0.080**	mg/kg	0.16	0.080	1	08/08/11 11:30	08/10/11 04:58	1330-20-7	
Naphthalene	**<0.077**	mg/kg	0.64	0.077	1	08/08/11 11:30	08/10/11 04:58	91-20-3	L3
Aromatic (C09-C10)	**0.26J**	mg/kg	1.1	0.018	1	08/08/11 11:30	08/10/11 04:58		
Aliphatic (C05-C08).Unadjusted	**<2.7**	mg/kg	5.3	2.7	1	08/08/11 11:30	08/10/11 04:58		
Aliphatic (C09-C12).Unadjusted	**6.0**	mg/kg	5.3	0.49	1	08/08/11 11:30	08/10/11 04:58		
Total Purgeable Hydro Carbons	**10.6J**	mg/kg	10.7	5.3	1	08/08/11 11:30	08/10/11 04:58		

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 6 FT **Lab ID: 10165707002** Collected: 08/03/11 12:55 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Aliphatic (C05-C08), Adjusted	**<0.48**	mg/kg	5.3	0.48	1	08/08/11 11:30	08/10/11 04:58		
Aliphatic (C09-C12), Adjusted	**5.8**	mg/kg	5.3	0.49	1	08/08/11 11:30	08/10/11 04:58		
a,a,a-Trifluorotoluene (S)	77	%	70-130		1	08/08/11 11:30	08/10/11 04:58	98-08-8	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 9 FT **Lab ID: 10165707003** Collected: 08/03/11 13:05 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**11.5**	mg/kg	0.49	0.24	1	08/09/11 16:38	08/10/11 17:01	7440-38-2	B
Barium	**109**	mg/kg	0.49	0.019	1	08/09/11 16:38	08/10/11 17:01	7440-39-3	M1
Cadmium	**0.84**	mg/kg	0.049	0.0097	1	08/09/11 16:38	08/10/11 17:01	7440-43-9	
Chromium	**8.4**	mg/kg	0.49	0.068	1	08/09/11 16:38	08/10/11 17:01	7440-47-3	
Lead	**11.1**	mg/kg	0.29	0.049	1	08/09/11 16:38	08/10/11 17:01	7439-92-1	
Selenium	**<0.13**	mg/kg	0.73	0.13	1	08/09/11 16:38	08/10/11 17:01	7782-49-2	
Silver	**<0.029**	mg/kg	0.49	0.029	1	08/09/11 16:38	08/10/11 17:01	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.0059J**	mg/kg	0.024	0.0019	1	08/15/11 12:44	08/16/11 15:53	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**19.8**	%	0.10	0.10	1		08/09/11 13:30		
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3550								
Acenaphthene	**<0.00037**	mg/kg	0.012	0.00037	1	09/06/11 06:54	09/08/11 17:30	83-32-9	
Acenaphthylene	**<0.00037**	mg/kg	0.012	0.00037	1	09/06/11 06:54	09/08/11 17:30	208-96-8	
Anthracene	**<0.0062**	mg/kg	0.012	0.0062	1	09/06/11 06:54	09/08/11 17:30	120-12-7	
Benzo(a)anthracene	**<0.0062**	mg/kg	0.012	0.0062	1	09/06/11 06:54	09/08/11 17:30	56-55-3	
Benzo(a)pyrene	**<0.0062**	mg/kg	0.012	0.0062	1	09/06/11 06:54	09/08/11 17:30	50-32-8	
Benzo(b)fluoranthene	**<0.00062**	mg/kg	0.012	0.00062	1	09/06/11 06:54	09/08/11 17:30	205-99-2	
Benzo(g,h,i)perylene	**<0.00062**	mg/kg	0.012	0.00062	1	09/06/11 06:54	09/08/11 17:30	191-24-2	
Benzo(k)fluoranthene	**<0.00075**	mg/kg	0.012	0.00075	1	09/06/11 06:54	09/08/11 17:30	207-08-9	
Chrysene	**<0.00062**	mg/kg	0.012	0.00062	1	09/06/11 06:54	09/08/11 17:30	218-01-9	
Dibenz(a,h)anthracene	**<0.00062**	mg/kg	0.012	0.00062	1	09/06/11 06:54	09/08/11 17:30	53-70-3	
Fluoranthene	**<0.0062**	mg/kg	0.012	0.0062	1	09/06/11 06:54	09/08/11 17:30	206-44-0	
Fluorene	**<0.00050**	mg/kg	0.012	0.00050	1	09/06/11 06:54	09/08/11 17:30	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.00062**	mg/kg	0.012	0.00062	1	09/06/11 06:54	09/08/11 17:30	193-39-5	
Naphthalene	**<0.00075**	mg/kg	0.012	0.00075	1	09/06/11 06:54	09/08/11 17:30	91-20-3	
Phenanthrene	**<0.0062**	mg/kg	0.012	0.0062	1	09/06/11 06:54	09/08/11 17:30	85-01-8	
Pyrene	**0.011J**	mg/kg	0.012	0.00050	1	09/06/11 06:54	09/08/11 17:30	129-00-0	
2-Fluorobiphenyl (S)	71	%	30-130		1	09/06/11 06:54	09/08/11 17:30	321-60-8	H2
Terphenyl-d14 (S)	104	%	30-150		1	09/06/11 06:54	09/08/11 17:30	1718-51-0	
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Acetone	**<14.9**	ug/kg	29.9	14.9	1	08/09/11 07:24	08/09/11 21:03	67-64-1	L3
Allyl chloride	**<0.98**	ug/kg	11.9	0.98	1	08/09/11 07:24	08/09/11 21:03	107-05-1	
Benzene	**<0.74**	ug/kg	4.8	0.74	1	08/09/11 07:24	08/09/11 21:03	71-43-2	
Bromobenzene	**<0.94**	ug/kg	4.8	0.94	1	08/09/11 07:24	08/09/11 21:03	108-86-1	
Bromochloromethane	**<1.4**	ug/kg	4.8	1.4	1	08/09/11 07:24	08/09/11 21:03	74-97-5	
Bromodichloromethane	**<0.86**	ug/kg	4.8	0.86	1	08/09/11 07:24	08/09/11 21:03	75-27-4	
Bromoform	**<0.93**	ug/kg	23.9	0.93	1	08/09/11 07:24	08/09/11 21:03	75-25-2	
Bromomethane	**<2.6**	ug/kg	23.9	2.6	1	08/09/11 07:24	08/09/11 21:03	74-83-9	
2-Butanone (MEK)	**<11.9**	ug/kg	23.9	11.9	1	08/09/11 07:24	08/09/11 21:03	78-93-3	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 9 FT **Lab ID: 10165707003** Collected: 08/03/11 13:05 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
n-Butylbenzene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	104-51-8	
sec-Butylbenzene	**<0.82**	ug/kg	4.8	0.82	1	08/09/11 07:24	08/09/11 21:03	135-98-8	
tert-Butylbenzene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	98-06-6	
Carbon tetrachloride	**<1.4**	ug/kg	4.8	1.4	1	08/09/11 07:24	08/09/11 21:03	56-23-5	
Chlorobenzene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	108-90-7	
Chloroethane	**<1.3**	ug/kg	11.9	1.3	1	08/09/11 07:24	08/09/11 21:03	75-00-3	
Chloroform	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	67-66-3	
Chloromethane	**<0.85**	ug/kg	11.9	0.85	1	08/09/11 07:24	08/09/11 21:03	74-87-3	
2-Chlorotoluene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	95-49-8	
4-Chlorotoluene	**<1.0**	ug/kg	4.8	1.0	1	08/09/11 07:24	08/09/11 21:03	106-43-4	
1,2-Dibromo-3-chloropropane	**<2.3**	ug/kg	11.9	2.3	1	08/09/11 07:24	08/09/11 21:03	96-12-8	
Dibromochloromethane	**<1.6**	ug/kg	4.8	1.6	1	08/09/11 07:24	08/09/11 21:03	124-48-1	
1,2-Dibromoethane (EDB)	**<1.6**	ug/kg	4.8	1.6	1	08/09/11 07:24	08/09/11 21:03	106-93-4	
Dibromomethane	**<1.8**	ug/kg	4.8	1.8	1	08/09/11 07:24	08/09/11 21:03	74-95-3	
1,2-Dichlorobenzene	**<0.62**	ug/kg	4.8	0.62	1	08/09/11 07:24	08/09/11 21:03	95-50-1	
1,3-Dichlorobenzene	**<0.98**	ug/kg	4.8	0.98	1	08/09/11 07:24	08/09/11 21:03	541-73-1	
1,4-Dichlorobenzene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	106-46-7	
Dichlorodifluoromethane	**<1.5**	ug/kg	11.9	1.5	1	08/09/11 07:24	08/09/11 21:03	75-71-8	
1,1-Dichloroethane	**<1.2**	ug/kg	4.8	1.2	1	08/09/11 07:24	08/09/11 21:03	75-34-3	
1,2-Dichloroethane	**<1.4**	ug/kg	4.8	1.4	1	08/09/11 07:24	08/09/11 21:03	107-06-2	
1,1-Dichloroethene	**<0.96**	ug/kg	4.8	0.96	1	08/09/11 07:24	08/09/11 21:03	75-35-4	
cis-1,2-Dichloroethene	**<1.3**	ug/kg	4.8	1.3	1	08/09/11 07:24	08/09/11 21:03	156-59-2	
trans-1,2-Dichloroethene	**<0.63**	ug/kg	4.8	0.63	1	08/09/11 07:24	08/09/11 21:03	156-60-5	
Dichlorofluoromethane	**<1.2**	ug/kg	4.8	1.2	1	08/09/11 07:24	08/09/11 21:03	75-43-4	
1,2-Dichloropropane	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	78-87-5	
1,3-Dichloropropane	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	142-28-9	
2,2-Dichloropropane	**<1.2**	ug/kg	11.9	1.2	1	08/09/11 07:24	08/09/11 21:03	594-20-7	
1,1-Dichloropropene	**<0.94**	ug/kg	4.8	0.94	1	08/09/11 07:24	08/09/11 21:03	563-58-6	
cis-1,3-Dichloropropene	**<0.94**	ug/kg	4.8	0.94	1	08/09/11 07:24	08/09/11 21:03	10061-01-5	
trans-1,3-Dichloropropene	**<1.4**	ug/kg	4.8	1.4	1	08/09/11 07:24	08/09/11 21:03	10061-02-6	
Diethyl ether (Ethyl ether)	**<1.6**	ug/kg	11.9	1.6	1	08/09/11 07:24	08/09/11 21:03	60-29-7	
Ethylbenzene	**<0.59**	ug/kg	4.8	0.59	1	08/09/11 07:24	08/09/11 21:03	100-41-4	
Hexachloro-1,3-butadiene	**<0.97**	ug/kg	11.9	0.97	1	08/09/11 07:24	08/09/11 21:03	87-68-3	
Isopropylbenzene (Cumene)	**<0.85**	ug/kg	4.8	0.85	1	08/09/11 07:24	08/09/11 21:03	98-82-8	
p-Isopropyltoluene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	99-87-6	
Methylene Chloride	**12.5J**	ug/kg	23.9	11.9	1	08/09/11 07:24	08/09/11 21:03	75-09-2	Z3
4-Methyl-2-pentanone (MIBK)	**<11.9**	ug/kg	23.9	11.9	1	08/09/11 07:24	08/09/11 21:03	108-10-1	
Methyl-tert-butyl ether	**<0.96**	ug/kg	4.8	0.96	1	08/09/11 07:24	08/09/11 21:03	1634-04-4	
Naphthalene	**<0.99**	ug/kg	11.9	0.99	1	08/09/11 07:24	08/09/11 21:03	91-20-3	
n-Propylbenzene	**<0.98**	ug/kg	4.8	0.98	1	08/09/11 07:24	08/09/11 21:03	103-65-1	
Styrene	**<0.74**	ug/kg	4.8	0.74	1	08/09/11 07:24	08/09/11 21:03	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.2**	ug/kg	4.8	1.2	1	08/09/11 07:24	08/09/11 21:03	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.4**	ug/kg	4.8	1.4	1	08/09/11 07:24	08/09/11 21:03	79-34-5	
Tetrachloroethene	**<1.6**	ug/kg	4.8	1.6	1	08/09/11 07:24	08/09/11 21:03	127-18-4	
Tetrahydrofuran	**<12.4**	ug/kg	47.8	12.4	1	08/09/11 07:24	08/09/11 21:03	109-99-9	

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602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 9 FT **Lab ID: 10165707003** Collected: 08/03/11 13:05 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Toluene	**1.2J**	ug/kg	4.8	0.63	1	08/09/11 07:24	08/09/11 21:03	108-88-3	B
1,2,3-Trichlorobenzene	**<1.3**	ug/kg	4.8	1.3	1	08/09/11 07:24	08/09/11 21:03	87-61-6	
1,2,4-Trichlorobenzene	**<0.96**	ug/kg	4.8	0.96	1	08/09/11 07:24	08/09/11 21:03	120-82-1	
1,1,1-Trichloroethane	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	71-55-6	
1,1,2-Trichloroethane	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 21:03	79-00-5	
Trichloroethene	**<0.82**	ug/kg	4.8	0.82	1	08/09/11 07:24	08/09/11 21:03	79-01-6	
Trichlorofluoromethane	**<1.4**	ug/kg	11.9	1.4	1	08/09/11 07:24	08/09/11 21:03	75-69-4	
1,2,3-Trichloropropane	**<0.97**	ug/kg	4.8	0.97	1	08/09/11 07:24	08/09/11 21:03	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<1.2**	ug/kg	4.8	1.2	1	08/09/11 07:24	08/09/11 21:03	76-13-1	
1,2,4-Trimethylbenzene	**<0.98**	ug/kg	4.8	0.98	1	08/09/11 07:24	08/09/11 21:03	95-63-6	
1,3,5-Trimethylbenzene	**<0.76**	ug/kg	4.8	0.76	1	08/09/11 07:24	08/09/11 21:03	108-67-8	
Vinyl chloride	**<1.5**	ug/kg	4.8	1.5	1	08/09/11 07:24	08/09/11 21:03	75-01-4	
Xylene (Total)	**<3.4**	ug/kg	14.3	3.4	1	08/09/11 07:24	08/09/11 21:03	1330-20-7	
Dibromofluoromethane (S)	92	%	75-125		1	08/09/11 07:24	08/09/11 21:03	1868-53-7	
1,2-Dichloroethane-d4 (S)	96	%	75-138		1	08/09/11 07:24	08/09/11 21:03	17060-07-0	
Toluene-d8 (S)	100	%	75-125		1	08/09/11 07:24	08/09/11 21:03	2037-26-5	
4-Bromofluorobenzene (S)	109	%	75-125		1	08/09/11 07:24	08/09/11 21:03	460-00-4	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**1690**	mg/kg	123	61.7	10	08/08/11 14:00	08/14/11 06:17		
1-Chloro-octadecane (S)	0	%	40-140		10	08/08/11 14:00	08/14/11 06:17	3386-33-2	S4
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**1250**	mg/kg	370	185	10	08/08/11 14:00	08/18/11 16:20		
Aliphatic (C09-C18)	**114**	mg/kg	12.3	6.2	1	08/08/11 14:00	08/17/11 20:21		
Aliphatic (C19-C36)	**1080**	mg/kg	123	61.7	10	08/08/11 14:00	08/18/11 16:20		
Aromatic (C11-22)	**54.3**	mg/kg	12.3	6.2	1	08/08/11 14:00	08/18/11 13:59		
1-Chloro-octadecane (S)	140	%	40-140		1	08/08/11 14:00	08/17/11 20:21	3386-33-2	
o-Terphenyl (S)	94	%	40-140		1	08/08/11 14:00	08/18/11 13:59	84-15-1	
2-Fluorobiphenyl (S)	71	%	40-140		1	08/08/11 14:00	08/18/11 13:59	321-60-8	
2-Bromonaphthalene (S)	56	%	40-140		1	08/08/11 14:00	08/18/11 13:59	580-13-2	
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.012**	mg/kg	0.058	0.012	1	08/08/11 11:30	08/10/11 05:41	1634-04-4	
Benzene	**<0.014**	mg/kg	0.029	0.014	1	08/08/11 11:30	08/10/11 05:41	71-43-2	
Toluene	**<0.0096**	mg/kg	0.058	0.0096	1	08/08/11 11:30	08/10/11 05:41	108-88-3	
Ethylbenzene	**<0.0098**	mg/kg	0.058	0.0098	1	08/08/11 11:30	08/10/11 05:41	100-41-4	
m&p-Xylene	**<0.014**	mg/kg	0.12	0.014	1	08/08/11 11:30	08/10/11 05:41	179601-23-1	
o-Xylene	**<0.0081**	mg/kg	0.058	0.0081	1	08/08/11 11:30	08/10/11 05:41	95-47-6	
Xylene (Total)	**<0.086**	mg/kg	0.17	0.086	1	08/08/11 11:30	08/10/11 05:41	1330-20-7	
Naphthalene	**<0.083**	mg/kg	0.69	0.083	1	08/08/11 11:30	08/10/11 05:41	91-20-3	L3,M0
Aromatic (C09-C10)	**<0.020**	mg/kg	1.2	0.020	1	08/08/11 11:30	08/10/11 05:41		M1
Aliphatic (C05-C08).Unadjusted	**<2.9**	mg/kg	5.8	2.9	1	08/08/11 11:30	08/10/11 05:41		
Aliphatic (C09-C12).Unadjusted	**1.9J**	mg/kg	5.8	0.53	1	08/08/11 11:30	08/10/11 05:41		
Total Purgeable Hydro Carbons	**<5.8**	mg/kg	11.5	5.8	1	08/08/11 11:30	08/10/11 05:41		

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Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 @ 9 FT **Lab ID: 10165707003** Collected: 08/03/11 13:05 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Aliphatic (C05-C08), Adjusted	**0.93J**	mg/kg	5.8	0.52	1	08/08/11 11:30	08/10/11 05:41		
Aliphatic (C09-C12), Adjusted	**1.9J**	mg/kg	5.8	0.53	1	08/08/11 11:30	08/10/11 05:41		
a,a,a-Trifluorotoluene (S)	72	%	70-130		1	08/08/11 11:30	08/10/11 05:41	98-08-8	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 SOURCE SAMPLE **Lab ID: 10165707004** Collected: 08/03/11 13:45 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**1.5**	mg/kg	0.52	0.26	1	08/15/11 14:17	08/16/11 10:28	7440-38-2	
Barium	**62.0**	mg/kg	0.52	0.021	1	08/15/11 14:17	08/16/11 10:28	7440-39-3	
Cadmium	**0.060**	mg/kg	0.052	0.010	1	08/15/11 14:17	08/16/11 10:28	7440-43-9	B
Chromium	**3.5**	mg/kg	0.52	0.072	1	08/15/11 14:17	08/16/11 10:28	7440-47-3	
Lead	**8.0**	mg/kg	0.31	0.052	1	08/15/11 14:17	08/16/11 10:28	7439-92-1	
Selenium	**0.75J**	mg/kg	0.78	0.13	1	08/15/11 14:17	08/16/11 10:28	7782-49-2	B
Silver	**<0.031**	mg/kg	0.52	0.031	1	08/15/11 14:17	08/16/11 10:28	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.011J**	mg/kg	0.019	0.0015	1	08/15/11 12:44	08/16/11 15:59	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**5.1**	%	0.10	0.10	1		08/09/11 13:30		
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3550								
Acenaphthene	**0.14**	mg/kg	0.11	0.0032	1	09/06/11 06:54	09/08/11 17:50	83-32-9	
Acenaphthylene	**<0.0032**	mg/kg	0.11	0.0032	1	09/06/11 06:54	09/08/11 17:50	208-96-8	
Anthracene	**<0.053**	mg/kg	0.11	0.053	1	09/06/11 06:54	09/08/11 17:50	120-12-7	
Benzo(a)anthracene	**<0.053**	mg/kg	0.11	0.053	1	09/06/11 06:54	09/08/11 17:50	56-55-3	
Benzo(a)pyrene	**<0.053**	mg/kg	0.11	0.053	1	09/06/11 06:54	09/08/11 17:50	50-32-8	
Benzo(b)fluoranthene	**<0.0053**	mg/kg	0.11	0.0053	1	09/06/11 06:54	09/08/11 17:50	205-99-2	
Benzo(g,h,i)perylene	**<0.0053**	mg/kg	0.11	0.0053	1	09/06/11 06:54	09/08/11 17:50	191-24-2	
Benzo(k)fluoranthene	**<0.0063**	mg/kg	0.11	0.0063	1	09/06/11 06:54	09/08/11 17:50	207-08-9	
Chrysene	**<0.0053**	mg/kg	0.11	0.0053	1	09/06/11 06:54	09/08/11 17:50	218-01-9	
Dibenz(a,h)anthracene	**<0.0053**	mg/kg	0.11	0.0053	1	09/06/11 06:54	09/08/11 17:50	53-70-3	
Fluoranthene	**<0.053**	mg/kg	0.11	0.053	1	09/06/11 06:54	09/08/11 17:50	206-44-0	
Fluorene	**0.23**	mg/kg	0.11	0.0042	1	09/06/11 06:54	09/08/11 17:50	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0053**	mg/kg	0.11	0.0053	1	09/06/11 06:54	09/08/11 17:50	193-39-5	
Naphthalene	**<0.0063**	mg/kg	0.11	0.0063	1	09/06/11 06:54	09/08/11 17:50	91-20-3	
Phenanthrene	**0.27**	mg/kg	0.11	0.053	1	09/06/11 06:54	09/08/11 17:50	85-01-8	
Pyrene	**0.28**	mg/kg	0.11	0.0042	1	09/06/11 06:54	09/08/11 17:50	129-00-0	
2-Fluorobiphenyl (S)	64	%	30-130		1	09/06/11 06:54	09/08/11 17:50	321-60-8	H2,P3
Terphenyl-d14 (S)	128	%	30-150		1	09/06/11 06:54	09/08/11 17:50	1718-51-0	
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Acetone	**<7.3**	ug/kg	25.7	7.3	1	08/11/11 12:54	08/16/11 12:25	67-64-1	
Allyl chloride	**<0.84**	ug/kg	10.3	0.84	1	08/11/11 12:54	08/16/11 12:25	107-05-1	
Benzene	**<0.64**	ug/kg	4.1	0.64	1	08/11/11 12:54	08/16/11 12:25	71-43-2	
Bromobenzene	**<0.81**	ug/kg	4.1	0.81	1	08/11/11 12:54	08/16/11 12:25	108-86-1	
Bromochloromethane	**<1.2**	ug/kg	4.1	1.2	1	08/11/11 12:54	08/16/11 12:25	74-97-5	
Bromodichloromethane	**<0.74**	ug/kg	4.1	0.74	1	08/11/11 12:54	08/16/11 12:25	75-27-4	
Bromoform	**<0.80**	ug/kg	20.5	0.80	1	08/11/11 12:54	08/16/11 12:25	75-25-2	
Bromomethane	**<2.2**	ug/kg	20.5	2.2	1	08/11/11 12:54	08/16/11 12:25	74-83-9	
2-Butanone (MEK)	**5.7J**	ug/kg	20.5	1.2	1	08/11/11 12:54	08/16/11 12:25	78-93-3	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 SOURCE SAMPLE **Lab ID: 10165707004** Collected: 08/03/11 13:45 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
n-Butylbenzene	**<0.98**	ug/kg	4.1	0.98	1	08/11/11 12:54	08/16/11 12:25	104-51-8	
sec-Butylbenzene	**<0.71**	ug/kg	4.1	0.71	1	08/11/11 12:54	08/16/11 12:25	135-98-8	
tert-Butylbenzene	**<0.99**	ug/kg	4.1	0.99	1	08/11/11 12:54	08/16/11 12:25	98-06-6	
Carbon tetrachloride	**<1.2**	ug/kg	4.1	1.2	1	08/11/11 12:54	08/16/11 12:25	56-23-5	L3
Chlorobenzene	**<0.91**	ug/kg	4.1	0.91	1	08/11/11 12:54	08/16/11 12:25	108-90-7	
Chloroethane	**<1.1**	ug/kg	10.3	1.1	1	08/11/11 12:54	08/16/11 12:25	75-00-3	
Chloroform	**<0.93**	ug/kg	4.1	0.93	1	08/11/11 12:54	08/16/11 12:25	67-66-3	
Chloromethane	**<0.73**	ug/kg	10.3	0.73	1	08/11/11 12:54	08/16/11 12:25	74-87-3	
2-Chlorotoluene	**<0.97**	ug/kg	4.1	0.97	1	08/11/11 12:54	08/16/11 12:25	95-49-8	
4-Chlorotoluene	**<0.89**	ug/kg	4.1	0.89	1	08/11/11 12:54	08/16/11 12:25	106-43-4	
1,2-Dibromo-3-chloropropane	**<2.0**	ug/kg	10.3	2.0	1	08/11/11 12:54	08/16/11 12:25	96-12-8	
Dibromochloromethane	**<1.4**	ug/kg	4.1	1.4	1	08/11/11 12:54	08/16/11 12:25	124-48-1	
1,2-Dibromoethane (EDB)	**<1.3**	ug/kg	4.1	1.3	1	08/11/11 12:54	08/16/11 12:25	106-93-4	
Dibromomethane	**<1.6**	ug/kg	4.1	1.6	1	08/11/11 12:54	08/16/11 12:25	74-95-3	
1,2-Dichlorobenzene	**<0.53**	ug/kg	4.1	0.53	1	08/11/11 12:54	08/16/11 12:25	95-50-1	
1,3-Dichlorobenzene	**<0.84**	ug/kg	4.1	0.84	1	08/11/11 12:54	08/16/11 12:25	541-73-1	
1,4-Dichlorobenzene	**<0.90**	ug/kg	4.1	0.90	1	08/11/11 12:54	08/16/11 12:25	106-46-7	
Dichlorodifluoromethane	**<1.3**	ug/kg	10.3	1.3	1	08/11/11 12:54	08/16/11 12:25	75-71-8	
1,1-Dichloroethane	**<1.0**	ug/kg	4.1	1.0	1	08/11/11 12:54	08/16/11 12:25	75-34-3	
1,2-Dichloroethane	**<1.2**	ug/kg	4.1	1.2	1	08/11/11 12:54	08/16/11 12:25	107-06-2	
1,1-Dichloroethene	**<0.82**	ug/kg	4.1	0.82	1	08/11/11 12:54	08/16/11 12:25	75-35-4	
cis-1,2-Dichloroethene	**<1.1**	ug/kg	4.1	1.1	1	08/11/11 12:54	08/16/11 12:25	156-59-2	
trans-1,2-Dichloroethene	**<0.54**	ug/kg	4.1	0.54	1	08/11/11 12:54	08/16/11 12:25	156-60-5	
Dichlorofluoromethane	**<1.0**	ug/kg	4.1	1.0	1	08/11/11 12:54	08/16/11 12:25	75-43-4	
1,2-Dichloropropane	**<0.96**	ug/kg	4.1	0.96	1	08/11/11 12:54	08/16/11 12:25	78-87-5	
1,3-Dichloropropane	**<0.91**	ug/kg	4.1	0.91	1	08/11/11 12:54	08/16/11 12:25	142-28-9	
2,2-Dichloropropane	**<1.1**	ug/kg	10.3	1.1	1	08/11/11 12:54	08/16/11 12:25	594-20-7	
1,1-Dichloropropene	**<0.81**	ug/kg	4.1	0.81	1	08/11/11 12:54	08/16/11 12:25	563-58-6	
cis-1,3-Dichloropropene	**<0.81**	ug/kg	4.1	0.81	1	08/11/11 12:54	08/16/11 12:25	10061-01-5	
trans-1,3-Dichloropropene	**<1.2**	ug/kg	4.1	1.2	1	08/11/11 12:54	08/16/11 12:25	10061-02-6	
Diethyl ether (Ethyl ether)	**<1.4**	ug/kg	10.3	1.4	1	08/11/11 12:54	08/16/11 12:25	60-29-7	
Ethylbenzene	**<0.50**	ug/kg	4.1	0.50	1	08/11/11 12:54	08/16/11 12:25	100-41-4	
Hexachloro-1,3-butadiene	**<0.83**	ug/kg	10.3	0.83	1	08/11/11 12:54	08/16/11 12:25	87-68-3	
Isopropylbenzene (Cumene)	**<0.73**	ug/kg	4.1	0.73	1	08/11/11 12:54	08/16/11 12:25	98-82-8	
p-Isopropyltoluene	**<0.93**	ug/kg	4.1	0.93	1	08/11/11 12:54	08/16/11 12:25	99-87-6	
Methylene Chloride	**17.8J**	ug/kg	20.5	2.2	1	08/11/11 12:54	08/16/11 12:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	**3.8J**	ug/kg	20.5	1.5	1	08/11/11 12:54	08/16/11 12:25	108-10-1	
Methyl-tert-butyl ether	**<0.82**	ug/kg	4.1	0.82	1	08/11/11 12:54	08/16/11 12:25	1634-04-4	
Naphthalene	**<0.85**	ug/kg	10.3	0.85	1	08/11/11 12:54	08/16/11 12:25	91-20-3	
n-Propylbenzene	**<0.84**	ug/kg	4.1	0.84	1	08/11/11 12:54	08/16/11 12:25	103-65-1	
Styrene	**<0.64**	ug/kg	4.1	0.64	1	08/11/11 12:54	08/16/11 12:25	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.0**	ug/kg	4.1	1.0	1	08/11/11 12:54	08/16/11 12:25	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.2**	ug/kg	4.1	1.2	1	08/11/11 12:54	08/16/11 12:25	79-34-5	
Tetrachloroethene	**<1.4**	ug/kg	4.1	1.4	1	08/11/11 12:54	08/16/11 12:25	127-18-4	
Tetrahydrofuran	**<10.7**	ug/kg	41.1	10.7	1	08/11/11 12:54	08/16/11 12:25	109-99-9	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 SOURCE SAMPLE **Lab ID: 10165707004** Collected: 08/03/11 13:45 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Toluene	**<0.54**	ug/kg	4.1	0.54	1	08/11/11 12:54	08/16/11 12:25	108-88-3	
1,2,3-Trichlorobenzene	**<1.2**	ug/kg	4.1	1.2	1	08/11/11 12:54	08/16/11 12:25	87-61-6	
1,2,4-Trichlorobenzene	**<0.82**	ug/kg	4.1	0.82	1	08/11/11 12:54	08/16/11 12:25	120-82-1	
1,1,1-Trichloroethane	**<0.90**	ug/kg	4.1	0.90	1	08/11/11 12:54	08/16/11 12:25	71-55-6	
1,1,2-Trichloroethane	**<0.91**	ug/kg	4.1	0.91	1	08/11/11 12:54	08/16/11 12:25	79-00-5	
Trichloroethene	**<0.71**	ug/kg	4.1	0.71	1	08/11/11 12:54	08/16/11 12:25	79-01-6	
Trichlorofluoromethane	**<1.2**	ug/kg	10.3	1.2	1	08/11/11 12:54	08/16/11 12:25	75-69-4	
1,2,3-Trichloropropane	**<0.83**	ug/kg	4.1	0.83	1	08/11/11 12:54	08/16/11 12:25	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<1.1**	ug/kg	4.1	1.1	1	08/11/11 12:54	08/16/11 12:25	76-13-1	
1,2,4-Trimethylbenzene	**1.2J**	ug/kg	4.1	0.84	1	08/11/11 12:54	08/16/11 12:25	95-63-6	
1,3,5-Trimethylbenzene	**1.3J**	ug/kg	4.1	0.66	1	08/11/11 12:54	08/16/11 12:25	108-67-8	
Vinyl chloride	**<1.3**	ug/kg	4.1	1.3	1	08/11/11 12:54	08/16/11 12:25	75-01-4	
Xylene (Total)	**<2.9**	ug/kg	12.3	2.9	1	08/11/11 12:54	08/16/11 12:25	1330-20-7	
Dibromofluoromethane (S)	104	%	75-125		1	08/11/11 12:54	08/16/11 12:25	1868-53-7	
1,2-Dichloroethane-d4 (S)	109	%	75-138		1	08/11/11 12:54	08/16/11 12:25	17060-07-0	
Toluene-d8 (S)	97	%	75-125		1	08/11/11 12:54	08/16/11 12:25	2037-26-5	
4-Bromofluorobenzene (S)	102	%	75-125		1	08/11/11 12:54	08/16/11 12:25	460-00-4	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**25500**	mg/kg	2570	1290	50	08/08/11 14:00	08/14/11 06:49		P3
1-Chloro-octadecane (S)	0	%	40-140		50	08/08/11 14:00	08/14/11 06:49	3386-33-2	S4
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**3510**	mg/kg	1540	772	10	08/08/11 14:00	08/18/11 16:52		
Aliphatic (C09-C18)	**230**	mg/kg	51.4	25.7	1	08/08/11 14:00	08/17/11 20:53		1M
Aliphatic (C19-C36)	**3180**	mg/kg	514	257	10	08/08/11 14:00	08/18/11 16:52		1M
Aromatic (C11-22)	**96.8**	mg/kg	51.4	25.7	1	08/08/11 14:00	08/18/11 14:52		1M
1-Chloro-octadecane (S)	0	%	40-140		1	08/08/11 14:00	08/17/11 20:53	3386-33-2	1M,S4
o-Terphenyl (S)	0	%	40-140		1	08/08/11 14:00	08/18/11 14:52	84-15-1	1M,S4
2-Fluorobiphenyl (S)	25	%	40-140		1	08/08/11 14:00	08/18/11 14:52	321-60-8	S0
2-Bromonaphthalene (S)	30	%	40-140		1	08/08/11 14:00	08/18/11 14:52	580-13-2	S0
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.010**	mg/kg	0.051	0.010	1	08/08/11 11:30	08/10/11 06:25	1634-04-4	
Benzene	**<0.013**	mg/kg	0.026	0.013	1	08/08/11 11:30	08/10/11 06:25	71-43-2	
Toluene	**<0.0085**	mg/kg	0.051	0.0085	1	08/08/11 11:30	08/10/11 06:25	108-88-3	
Ethylbenzene	**<0.0087**	mg/kg	0.051	0.0087	1	08/08/11 11:30	08/10/11 06:25	100-41-4	
m&p-Xylene	**0.020J**	mg/kg	0.10	0.012	1	08/08/11 11:30	08/10/11 06:25	179601-23-1	
o-Xylene	**<0.0072**	mg/kg	0.051	0.0072	1	08/08/11 11:30	08/10/11 06:25	95-47-6	
Xylene (Total)	**<0.077**	mg/kg	0.15	0.077	1	08/08/11 11:30	08/10/11 06:25	1330-20-7	
Naphthalene	**0.89**	mg/kg	0.61	0.074	1	08/08/11 11:30	08/10/11 06:25	91-20-3	CH,L1
Aromatic (C09-C10)	**5.0**	mg/kg	1.0	0.017	1	08/08/11 11:30	08/10/11 06:25		
Aliphatic (C05-C08).Unadjusted	**<2.6**	mg/kg	5.1	2.6	1	08/08/11 11:30	08/10/11 06:25		
Aliphatic (C09-C12).Unadjusted	**9.2**	mg/kg	5.1	0.47	1	08/08/11 11:30	08/10/11 06:25		
Total Purgeable Hydro Carbons	**15.2**	mg/kg	10.2	5.1	1	08/08/11 11:30	08/10/11 06:25		

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-1 SOURCE SAMPLE **Lab ID: 10165707004** Collected: 08/03/11 13:45 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Aliphatic (C05-C08), Adjusted	**0.89J**	mg/kg	5.1	0.46	1	08/08/11 11:30	08/10/11 06:25		
Aliphatic (C09-C12), Adjusted	**4.2J**	mg/kg	5.1	0.47	1	08/08/11 11:30	08/10/11 06:25		
a,a,a-Trifluorotoluene (S)	84	%	70-130		1	08/08/11 11:30	08/10/11 06:25	98-08-8	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-2 @ 0-6 INCHES **Lab ID: 10165707005** Collected: 08/03/11 15:30 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**4.6**	mg/kg	0.45	0.22	1	08/15/11 14:17	08/16/11 10:40	7440-38-2	
Barium	**54.7**	mg/kg	0.45	0.018	1	08/15/11 14:17	08/16/11 10:40	7440-39-3	
Cadmium	**0.12**	mg/kg	0.045	0.0089	1	08/15/11 14:17	08/16/11 10:40	7440-43-9	B
Chromium	**6.1**	mg/kg	0.45	0.062	1	08/15/11 14:17	08/16/11 10:40	7440-47-3	
Lead	**13.1**	mg/kg	0.27	0.045	1	08/15/11 14:17	08/16/11 10:40	7439-92-1	
Selenium	**1.0**	mg/kg	0.67	0.12	1	08/15/11 14:17	08/16/11 10:40	7782-49-2	B
Silver	**<0.027**	mg/kg	0.45	0.027	1	08/15/11 14:17	08/16/11 10:40	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.010J**	mg/kg	0.020	0.0016	1	08/15/11 12:44	08/16/11 16:01	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**1.7**	%	0.10	0.10	1		08/09/11 13:30		
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3550								
Acenaphthene	**<0.0015**	mg/kg	0.051	0.0015	1	09/06/11 06:54	09/08/11 18:10	83-32-9	
Acenaphthylene	**<0.0015**	mg/kg	0.051	0.0015	1	09/06/11 06:54	09/08/11 18:10	208-96-8	
Anthracene	**<0.025**	mg/kg	0.051	0.025	1	09/06/11 06:54	09/08/11 18:10	120-12-7	
Benzo(a)anthracene	**<0.025**	mg/kg	0.051	0.025	1	09/06/11 06:54	09/08/11 18:10	56-55-3	
Benzo(a)pyrene	**<0.025**	mg/kg	0.051	0.025	1	09/06/11 06:54	09/08/11 18:10	50-32-8	
Benzo(b)fluoranthene	**<0.0025**	mg/kg	0.051	0.0025	1	09/06/11 06:54	09/08/11 18:10	205-99-2	
Benzo(g,h,i)perylene	**<0.0025**	mg/kg	0.051	0.0025	1	09/06/11 06:54	09/08/11 18:10	191-24-2	
Benzo(k)fluoranthene	**<0.0030**	mg/kg	0.051	0.0030	1	09/06/11 06:54	09/08/11 18:10	207-08-9	
Chrysene	**<0.0025**	mg/kg	0.051	0.0025	1	09/06/11 06:54	09/08/11 18:10	218-01-9	
Dibenz(a,h)anthracene	**<0.0025**	mg/kg	0.051	0.0025	1	09/06/11 06:54	09/08/11 18:10	53-70-3	
Fluoranthene	**<0.025**	mg/kg	0.051	0.025	1	09/06/11 06:54	09/08/11 18:10	206-44-0	
Fluorene	**<0.0020**	mg/kg	0.051	0.0020	1	09/06/11 06:54	09/08/11 18:10	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0025**	mg/kg	0.051	0.0025	1	09/06/11 06:54	09/08/11 18:10	193-39-5	
Naphthalene	**<0.0030**	mg/kg	0.051	0.0030	1	09/06/11 06:54	09/08/11 18:10	91-20-3	
Phenanthrene	**<0.025**	mg/kg	0.051	0.025	1	09/06/11 06:54	09/08/11 18:10	85-01-8	
Pyrene	**0.053**	mg/kg	0.051	0.0020	1	09/06/11 06:54	09/08/11 18:10	129-00-0	
2-Fluorobiphenyl (S)	75	%	30-130		1	09/06/11 06:54	09/08/11 18:10	321-60-8	H2,P3
Terphenyl-d14 (S)	105	%	30-150		1	09/06/11 06:54	09/08/11 18:10	1718-51-0	
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Acetone	**<12.1**	ug/kg	24.2	12.1	1	08/09/11 07:24	08/09/11 21:22	67-64-1	L3
Allyl chloride	**<0.79**	ug/kg	9.7	0.79	1	08/09/11 07:24	08/09/11 21:22	107-05-1	
Benzene	**<0.60**	ug/kg	3.9	0.60	1	08/09/11 07:24	08/09/11 21:22	71-43-2	
Bromobenzene	**<0.77**	ug/kg	3.9	0.77	1	08/09/11 07:24	08/09/11 21:22	108-86-1	
Bromochloromethane	**<1.1**	ug/kg	3.9	1.1	1	08/09/11 07:24	08/09/11 21:22	74-97-5	
Bromodichloromethane	**<0.70**	ug/kg	3.9	0.70	1	08/09/11 07:24	08/09/11 21:22	75-27-4	
Bromoform	**<0.76**	ug/kg	19.4	0.76	1	08/09/11 07:24	08/09/11 21:22	75-25-2	
Bromomethane	**<2.1**	ug/kg	19.4	2.1	1	08/09/11 07:24	08/09/11 21:22	74-83-9	
2-Butanone (MEK)	**<9.7**	ug/kg	19.4	9.7	1	08/09/11 07:24	08/09/11 21:22	78-93-3	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-2 @ 0-6 INCHES **Lab ID: 10165707005** Collected: 08/03/11 15:30 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
n-Butylbenzene	**<0.92**	ug/kg	3.9	0.92	1	08/09/11 07:24	08/09/11 21:22	104-51-8	
sec-Butylbenzene	**<0.67**	ug/kg	3.9	0.67	1	08/09/11 07:24	08/09/11 21:22	135-98-8	
tert-Butylbenzene	**<0.93**	ug/kg	3.9	0.93	1	08/09/11 07:24	08/09/11 21:22	98-06-6	
Carbon tetrachloride	**<1.2**	ug/kg	3.9	1.2	1	08/09/11 07:24	08/09/11 21:22	56-23-5	
Chlorobenzene	**<0.86**	ug/kg	3.9	0.86	1	08/09/11 07:24	08/09/11 21:22	108-90-7	
Chloroethane	**<1.0**	ug/kg	9.7	1.0	1	08/09/11 07:24	08/09/11 21:22	75-00-3	
Chloroform	**<0.88**	ug/kg	3.9	0.88	1	08/09/11 07:24	08/09/11 21:22	67-66-3	
Chloromethane	**<0.69**	ug/kg	9.7	0.69	1	08/09/11 07:24	08/09/11 21:22	74-87-3	
2-Chlorotoluene	**<0.91**	ug/kg	3.9	0.91	1	08/09/11 07:24	08/09/11 21:22	95-49-8	
4-Chlorotoluene	**<0.84**	ug/kg	3.9	0.84	1	08/09/11 07:24	08/09/11 21:22	106-43-4	
1,2-Dibromo-3-chloropropane	**<1.9**	ug/kg	9.7	1.9	1	08/09/11 07:24	08/09/11 21:22	96-12-8	
Dibromochloromethane	**<1.3**	ug/kg	3.9	1.3	1	08/09/11 07:24	08/09/11 21:22	124-48-1	
1,2-Dibromoethane (EDB)	**<1.3**	ug/kg	3.9	1.3	1	08/09/11 07:24	08/09/11 21:22	106-93-4	
Dibromomethane	**<1.5**	ug/kg	3.9	1.5	1	08/09/11 07:24	08/09/11 21:22	74-95-3	
1,2-Dichlorobenzene	**<0.50**	ug/kg	3.9	0.50	1	08/09/11 07:24	08/09/11 21:22	95-50-1	
1,3-Dichlorobenzene	**<0.79**	ug/kg	3.9	0.79	1	08/09/11 07:24	08/09/11 21:22	541-73-1	
1,4-Dichlorobenzene	**<0.85**	ug/kg	3.9	0.85	1	08/09/11 07:24	08/09/11 21:22	106-46-7	
Dichlorodifluoromethane	**<1.2**	ug/kg	9.7	1.2	1	08/09/11 07:24	08/09/11 21:22	75-71-8	
1,1-Dichloroethane	**<0.96**	ug/kg	3.9	0.96	1	08/09/11 07:24	08/09/11 21:22	75-34-3	
1,2-Dichloroethane	**<1.2**	ug/kg	3.9	1.2	1	08/09/11 07:24	08/09/11 21:22	107-06-2	
1,1-Dichloroethene	**<0.77**	ug/kg	3.9	0.77	1	08/09/11 07:24	08/09/11 21:22	75-35-4	
cis-1,2-Dichloroethene	**<1.0**	ug/kg	3.9	1.0	1	08/09/11 07:24	08/09/11 21:22	156-59-2	
trans-1,2-Dichloroethene	**<0.51**	ug/kg	3.9	0.51	1	08/09/11 07:24	08/09/11 21:22	156-60-5	
Dichlorofluoromethane	**<0.94**	ug/kg	3.9	0.94	1	08/09/11 07:24	08/09/11 21:22	75-43-4	
1,2-Dichloropropane	**<0.90**	ug/kg	3.9	0.90	1	08/09/11 07:24	08/09/11 21:22	78-87-5	
1,3-Dichloropropane	**<0.86**	ug/kg	3.9	0.86	1	08/09/11 07:24	08/09/11 21:22	142-28-9	
2,2-Dichloropropane	**<1.0**	ug/kg	9.7	1.0	1	08/09/11 07:24	08/09/11 21:22	594-20-7	
1,1-Dichloropropene	**<0.77**	ug/kg	3.9	0.77	1	08/09/11 07:24	08/09/11 21:22	563-58-6	
cis-1,3-Dichloropropene	**<0.77**	ug/kg	3.9	0.77	1	08/09/11 07:24	08/09/11 21:22	10061-01-5	
trans-1,3-Dichloropropene	**<1.1**	ug/kg	3.9	1.1	1	08/09/11 07:24	08/09/11 21:22	10061-02-6	
Diethyl ether (Ethyl ether)	**<1.3**	ug/kg	9.7	1.3	1	08/09/11 07:24	08/09/11 21:22	60-29-7	
Ethylbenzene	**<0.47**	ug/kg	3.9	0.47	1	08/09/11 07:24	08/09/11 21:22	100-41-4	
Hexachloro-1,3-butadiene	**<0.78**	ug/kg	9.7	0.78	1	08/09/11 07:24	08/09/11 21:22	87-68-3	
Isopropylbenzene (Cumene)	**<0.69**	ug/kg	3.9	0.69	1	08/09/11 07:24	08/09/11 21:22	98-82-8	
p-Isopropyltoluene	**<0.88**	ug/kg	3.9	0.88	1	08/09/11 07:24	08/09/11 21:22	99-87-6	
Methylene Chloride	**10J**	ug/kg	19.4	9.7	1	08/09/11 07:24	08/09/11 21:22	75-09-2	Z3
4-Methyl-2-pentanone (MIBK)	**<9.7**	ug/kg	19.4	9.7	1	08/09/11 07:24	08/09/11 21:22	108-10-1	
Methyl-tert-butyl ether	**<0.77**	ug/kg	3.9	0.77	1	08/09/11 07:24	08/09/11 21:22	1634-04-4	
Naphthalene	**<0.80**	ug/kg	9.7	0.80	1	08/09/11 07:24	08/09/11 21:22	91-20-3	
n-Propylbenzene	**<0.79**	ug/kg	3.9	0.79	1	08/09/11 07:24	08/09/11 21:22	103-65-1	
Styrene	**1.7J**	ug/kg	3.9	0.60	1	08/09/11 07:24	08/09/11 21:22	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.97**	ug/kg	3.9	0.97	1	08/09/11 07:24	08/09/11 21:22	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.1**	ug/kg	3.9	1.1	1	08/09/11 07:24	08/09/11 21:22	79-34-5	
Tetrachloroethene	**<1.3**	ug/kg	3.9	1.3	1	08/09/11 07:24	08/09/11 21:22	127-18-4	
Tetrahydrofuran	**<10.1**	ug/kg	38.7	10.1	1	08/09/11 07:24	08/09/11 21:22	109-99-9	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-2 @ 0-6 INCHES **Lab ID: 10165707005** Collected: 08/03/11 15:30 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Toluene	**0.72J**	ug/kg	3.9	0.51	1	08/09/11 07:24	08/09/11 21:22	108-88-3	B
1,2,3-Trichlorobenzene	**<1.1**	ug/kg	3.9	1.1	1	08/09/11 07:24	08/09/11 21:22	87-61-6	
1,2,4-Trichlorobenzene	**<0.77**	ug/kg	3.9	0.77	1	08/09/11 07:24	08/09/11 21:22	120-82-1	
1,1,1-Trichloroethane	**<0.85**	ug/kg	3.9	0.85	1	08/09/11 07:24	08/09/11 21:22	71-55-6	
1,1,2-Trichloroethane	**<0.86**	ug/kg	3.9	0.86	1	08/09/11 07:24	08/09/11 21:22	79-00-5	
Trichloroethene	**<0.67**	ug/kg	3.9	0.67	1	08/09/11 07:24	08/09/11 21:22	79-01-6	
Trichlorofluoromethane	**<1.2**	ug/kg	9.7	1.2	1	08/09/11 07:24	08/09/11 21:22	75-69-4	
1,2,3-Trichloropropane	**<0.78**	ug/kg	3.9	0.78	1	08/09/11 07:24	08/09/11 21:22	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<1.0**	ug/kg	3.9	1.0	1	08/09/11 07:24	08/09/11 21:22	76-13-1	
1,2,4-Trimethylbenzene	**<0.79**	ug/kg	3.9	0.79	1	08/09/11 07:24	08/09/11 21:22	95-63-6	
1,3,5-Trimethylbenzene	**<0.62**	ug/kg	3.9	0.62	1	08/09/11 07:24	08/09/11 21:22	108-67-8	
Vinyl chloride	**<1.2**	ug/kg	3.9	1.2	1	08/09/11 07:24	08/09/11 21:22	75-01-4	
Xylene (Total)	**<2.8**	ug/kg	11.6	2.8	1	08/09/11 07:24	08/09/11 21:22	1330-20-7	
Dibromofluoromethane (S)	96	%	75-125		1	08/09/11 07:24	08/09/11 21:22	1868-53-7	
1,2-Dichloroethane-d4 (S)	102	%	75-138		1	08/09/11 07:24	08/09/11 21:22	17060-07-0	
Toluene-d8 (S)	99	%	75-125		1	08/09/11 07:24	08/09/11 21:22	2037-26-5	
4-Bromofluorobenzene (S)	110	%	75-125		1	08/09/11 07:24	08/09/11 21:22	460-00-4	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**7040**	mg/kg	1010	505	100	08/08/11 14:00	08/14/11 07:22		
1-Chloro-octadecane (S)	0	%	40-140		100	08/08/11 14:00	08/14/11 07:22	3386-33-2	S4
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**20100**	mg/kg	3790	1890	5	08/08/11 14:00	08/18/11 17:24		
Aliphatic (C09-C18)	**332**	mg/kg	253	126	1	08/08/11 14:00	08/17/11 21:26		1M
Aliphatic (C19-C36)	**16500**	mg/kg	1260	631	5	08/08/11 14:00	08/18/11 17:24		
Aromatic (C11-22)	**3200**	mg/kg	253	126	1	08/08/11 14:00	08/18/11 15:45		1M
1-Chloro-octadecane (S)	0	%	40-140		1	08/08/11 14:00	08/17/11 21:26	3386-33-2	1M,S4
o-Terphenyl (S)	0	%	40-140		1	08/08/11 14:00	08/18/11 15:45	84-15-1	1M,S4
2-Fluorobiphenyl (S)	552	%	40-140		1	08/08/11 14:00	08/18/11 15:45	321-60-8	S5
2-Bromonaphthalene (S)	636	%	40-140		1	08/08/11 14:00	08/18/11 15:45	580-13-2	S5
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.0097**	mg/kg	0.049	0.0097	1	08/08/11 11:30	08/10/11 07:08	1634-04-4	
Benzene	**<0.012**	mg/kg	0.024	0.012	1	08/08/11 11:30	08/10/11 07:08	71-43-2	
Toluene	**<0.0081**	mg/kg	0.049	0.0081	1	08/08/11 11:30	08/10/11 07:08	108-88-3	
Ethylbenzene	**<0.0083**	mg/kg	0.049	0.0083	1	08/08/11 11:30	08/10/11 07:08	100-41-4	
m&p-Xylene	**<0.012**	mg/kg	0.097	0.012	1	08/08/11 11:30	08/10/11 07:08	179601-23-1	
o-Xylene	**<0.0068**	mg/kg	0.049	0.0068	1	08/08/11 11:30	08/10/11 07:08	95-47-6	
Xylene (Total)	**<0.073**	mg/kg	0.15	0.073	1	08/08/11 11:30	08/10/11 07:08	1330-20-7	
Naphthalene	**<0.070**	mg/kg	0.58	0.070	1	08/08/11 11:30	08/10/11 07:08	91-20-3	L3
Aromatic (C09-C10)	**<0.017**	mg/kg	0.97	0.017	1	08/08/11 11:30	08/10/11 07:08		
Aliphatic (C05-C08).Unadjusted	**<2.4**	mg/kg	4.9	2.4	1	08/08/11 11:30	08/10/11 07:08		
Aliphatic (C09-C12).Unadjusted	**1.0J**	mg/kg	4.9	0.45	1	08/08/11 11:30	08/10/11 07:08		
Total Purgeable Hydro Carbons	**<4.9**	mg/kg	9.7	4.9	1	08/08/11 11:30	08/10/11 07:08		

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-2 @ 0-6 INCHES **Lab ID: 10165707005** Collected: 08/03/11 15:30 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Aliphatic (C05-C08), Adjusted	**0.50J**	mg/kg	4.9	0.44	1	08/08/11 11:30	08/10/11 07:08		
Aliphatic (C09-C12), Adjusted	**1.0J**	mg/kg	4.9	0.45	1	08/08/11 11:30	08/10/11 07:08		
a,a,a-Trifluorotoluene (S)	81	%	70-130		1	08/08/11 11:30	08/10/11 07:08	98-08-8	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-2 @ 2.5 FT **Lab ID: 10165707006** Collected: 08/03/11 15:45 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**2.9**	mg/kg	0.52	0.26	1	08/15/11 14:17	08/16/11 10:45	7440-38-2	
Barium	**115**	mg/kg	0.52	0.021	1	08/15/11 14:17	08/16/11 10:45	7440-39-3	
Cadmium	**0.14**	mg/kg	0.052	0.010	1	08/15/11 14:17	08/16/11 10:45	7440-43-9	B
Chromium	**7.1**	mg/kg	0.52	0.073	1	08/15/11 14:17	08/16/11 10:45	7440-47-3	
Lead	**13.7**	mg/kg	0.31	0.052	1	08/15/11 14:17	08/16/11 10:45	7439-92-1	
Selenium	**1.4**	mg/kg	0.79	0.14	1	08/15/11 14:17	08/16/11 10:45	7782-49-2	B
Silver	**<0.031**	mg/kg	0.52	0.031	1	08/15/11 14:17	08/16/11 10:45	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.0078J**	mg/kg	0.022	0.0018	1	08/15/11 12:44	08/16/11 16:03	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**13.9**	%	0.10	0.10	1		08/09/11 13:30		
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Acetone	**<14.5**	ug/kg	29.0	14.5	1	08/09/11 07:24	08/09/11 21:42	67-64-1	L3
Allyl chloride	**<0.95**	ug/kg	11.6	0.95	1	08/09/11 07:24	08/09/11 21:42	107-05-1	
Benzene	**<0.72**	ug/kg	4.6	0.72	1	08/09/11 07:24	08/09/11 21:42	71-43-2	
Bromobenzene	**<0.92**	ug/kg	4.6	0.92	1	08/09/11 07:24	08/09/11 21:42	108-86-1	
Bromochloromethane	**<1.3**	ug/kg	4.6	1.3	1	08/09/11 07:24	08/09/11 21:42	74-97-5	
Bromodichloromethane	**<0.84**	ug/kg	4.6	0.84	1	08/09/11 07:24	08/09/11 21:42	75-27-4	
Bromoform	**<0.91**	ug/kg	23.2	0.91	1	08/09/11 07:24	08/09/11 21:42	75-25-2	
Bromomethane	**<2.5**	ug/kg	23.2	2.5	1	08/09/11 07:24	08/09/11 21:42	74-83-9	
2-Butanone (MEK)	**<11.6**	ug/kg	23.2	11.6	1	08/09/11 07:24	08/09/11 21:42	78-93-3	
n-Butylbenzene	**<1.1**	ug/kg	4.6	1.1	1	08/09/11 07:24	08/09/11 21:42	104-51-8	
sec-Butylbenzene	**<0.80**	ug/kg	4.6	0.80	1	08/09/11 07:24	08/09/11 21:42	135-98-8	
tert-Butylbenzene	**<1.1**	ug/kg	4.6	1.1	1	08/09/11 07:24	08/09/11 21:42	98-06-6	
Carbon tetrachloride	**<1.4**	ug/kg	4.6	1.4	1	08/09/11 07:24	08/09/11 21:42	56-23-5	
Chlorobenzene	**<1.0**	ug/kg	4.6	1.0	1	08/09/11 07:24	08/09/11 21:42	108-90-7	
Chloroethane	**<1.2**	ug/kg	11.6	1.2	1	08/09/11 07:24	08/09/11 21:42	75-00-3	
Chloroform	**<1.1**	ug/kg	4.6	1.1	1	08/09/11 07:24	08/09/11 21:42	67-66-3	
Chloromethane	**<0.82**	ug/kg	11.6	0.82	1	08/09/11 07:24	08/09/11 21:42	74-87-3	
2-Chlorotoluene	**<1.1**	ug/kg	4.6	1.1	1	08/09/11 07:24	08/09/11 21:42	95-49-8	
4-Chlorotoluene	**<1.0**	ug/kg	4.6	1.0	1	08/09/11 07:24	08/09/11 21:42	106-43-4	
1,2-Dibromo-3-chloropropane	**<2.3**	ug/kg	11.6	2.3	1	08/09/11 07:24	08/09/11 21:42	96-12-8	
Dibromochloromethane	**<1.6**	ug/kg	4.6	1.6	1	08/09/11 07:24	08/09/11 21:42	124-48-1	
1,2-Dibromoethane (EDB)	**<1.5**	ug/kg	4.6	1.5	1	08/09/11 07:24	08/09/11 21:42	106-93-4	
Dibromomethane	**<1.8**	ug/kg	4.6	1.8	1	08/09/11 07:24	08/09/11 21:42	74-95-3	
1,2-Dichlorobenzene	**<0.60**	ug/kg	4.6	0.60	1	08/09/11 07:24	08/09/11 21:42	95-50-1	
1,3-Dichlorobenzene	**<0.95**	ug/kg	4.6	0.95	1	08/09/11 07:24	08/09/11 21:42	541-73-1	
1,4-Dichlorobenzene	**<1.0**	ug/kg	4.6	1.0	1	08/09/11 07:24	08/09/11 21:42	106-46-7	
Dichlorodifluoromethane	**<1.4**	ug/kg	11.6	1.4	1	08/09/11 07:24	08/09/11 21:42	75-71-8	
1,1-Dichloroethane	**<1.2**	ug/kg	4.6	1.2	1	08/09/11 07:24	08/09/11 21:42	75-34-3	
1,2-Dichloroethane	**<1.4**	ug/kg	4.6	1.4	1	08/09/11 07:24	08/09/11 21:42	107-06-2	
1,1-Dichloroethene	**<0.93**	ug/kg	4.6	0.93	1	08/09/11 07:24	08/09/11 21:42	75-35-4	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-2 @ 2.5 FT **Lab ID: 10165707006** Collected: 08/03/11 15:45 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
cis-1,2-Dichloroethene	**<1.2**	ug/kg	4.6	1.2	1	08/09/11 07:24	08/09/11 21:42	156-59-2	
trans-1,2-Dichloroethene	**<0.62**	ug/kg	4.6	0.62	1	08/09/11 07:24	08/09/11 21:42	156-60-5	
Dichlorofluoromethane	**<1.1**	ug/kg	4.6	1.1	1	08/09/11 07:24	08/09/11 21:42	75-43-4	
1,2-Dichloropropane	**<1.1**	ug/kg	4.6	1.1	1	08/09/11 07:24	08/09/11 21:42	78-87-5	
1,3-Dichloropropane	**<1.0**	ug/kg	4.6	1.0	1	08/09/11 07:24	08/09/11 21:42	142-28-9	
2,2-Dichloropropane	**<1.2**	ug/kg	11.6	1.2	1	08/09/11 07:24	08/09/11 21:42	594-20-7	
1,1-Dichloropropene	**<0.92**	ug/kg	4.6	0.92	1	08/09/11 07:24	08/09/11 21:42	563-58-6	
cis-1,3-Dichloropropene	**<0.92**	ug/kg	4.6	0.92	1	08/09/11 07:24	08/09/11 21:42	10061-01-5	
trans-1,3-Dichloropropene	**<1.4**	ug/kg	4.6	1.4	1	08/09/11 07:24	08/09/11 21:42	10061-02-6	
Diethyl ether (Ethyl ether)	**<1.6**	ug/kg	11.6	1.6	1	08/09/11 07:24	08/09/11 21:42	60-29-7	
Ethylbenzene	**<0.57**	ug/kg	4.6	0.57	1	08/09/11 07:24	08/09/11 21:42	100-41-4	
Hexachloro-1,3-butadiene	**<0.94**	ug/kg	11.6	0.94	1	08/09/11 07:24	08/09/11 21:42	87-68-3	
Isopropylbenzene (Cumene)	**<0.82**	ug/kg	4.6	0.82	1	08/09/11 07:24	08/09/11 21:42	98-82-8	
p-Isopropyltoluene	**<1.1**	ug/kg	4.6	1.1	1	08/09/11 07:24	08/09/11 21:42	99-87-6	
Methylene Chloride	**<11.6**	ug/kg	23.2	11.6	1	08/09/11 07:24	08/09/11 21:42	75-09-2	Z3
4-Methyl-2-pentanone (MIBK)	**<11.6**	ug/kg	23.2	11.6	1	08/09/11 07:24	08/09/11 21:42	108-10-1	
Methyl-tert-butyl ether	**<0.93**	ug/kg	4.6	0.93	1	08/09/11 07:24	08/09/11 21:42	1634-04-4	
Naphthalene	**<0.96**	ug/kg	11.6	0.96	1	08/09/11 07:24	08/09/11 21:42	91-20-3	
n-Propylbenzene	**<0.95**	ug/kg	4.6	0.95	1	08/09/11 07:24	08/09/11 21:42	103-65-1	
Styrene	**<0.72**	ug/kg	4.6	0.72	1	08/09/11 07:24	08/09/11 21:42	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.2**	ug/kg	4.6	1.2	1	08/09/11 07:24	08/09/11 21:42	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.4**	ug/kg	4.6	1.4	1	08/09/11 07:24	08/09/11 21:42	79-34-5	
Tetrachloroethene	**<1.5**	ug/kg	4.6	1.5	1	08/09/11 07:24	08/09/11 21:42	127-18-4	
Tetrahydrofuran	**<12.1**	ug/kg	46.5	12.1	1	08/09/11 07:24	08/09/11 21:42	109-99-9	
Toluene	**<0.62**	ug/kg	4.6	0.62	1	08/09/11 07:24	08/09/11 21:42	108-88-3	
1,2,3-Trichlorobenzene	**<1.3**	ug/kg	4.6	1.3	1	08/09/11 07:24	08/09/11 21:42	87-61-6	
1,2,4-Trichlorobenzene	**<0.93**	ug/kg	4.6	0.93	1	08/09/11 07:24	08/09/11 21:42	120-82-1	
1,1,1-Trichloroethane	**<1.0**	ug/kg	4.6	1.0	1	08/09/11 07:24	08/09/11 21:42	71-55-6	
1,1,2-Trichloroethane	**<1.0**	ug/kg	4.6	1.0	1	08/09/11 07:24	08/09/11 21:42	79-00-5	
Trichloroethene	**<0.80**	ug/kg	4.6	0.80	1	08/09/11 07:24	08/09/11 21:42	79-01-6	
Trichlorofluoromethane	**<1.4**	ug/kg	11.6	1.4	1	08/09/11 07:24	08/09/11 21:42	75-69-4	
1,2,3-Trichloropropane	**<0.94**	ug/kg	4.6	0.94	1	08/09/11 07:24	08/09/11 21:42	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<1.2**	ug/kg	4.6	1.2	1	08/09/11 07:24	08/09/11 21:42	76-13-1	
1,2,4-Trimethylbenzene	**<0.95**	ug/kg	4.6	0.95	1	08/09/11 07:24	08/09/11 21:42	95-63-6	
1,3,5-Trimethylbenzene	**<0.74**	ug/kg	4.6	0.74	1	08/09/11 07:24	08/09/11 21:42	108-67-8	
Vinyl chloride	**<1.5**	ug/kg	4.6	1.5	1	08/09/11 07:24	08/09/11 21:42	75-01-4	
Xylene (Total)	**<3.3**	ug/kg	13.9	3.3	1	08/09/11 07:24	08/09/11 21:42	1330-20-7	
Dibromofluoromethane (S)	96	%	75-125		1	08/09/11 07:24	08/09/11 21:42	1868-53-7	
1,2-Dichloroethane-d4 (S)	116	%	75-138		1	08/09/11 07:24	08/09/11 21:42	17060-07-0	
Toluene-d8 (S)	98	%	75-125		1	08/09/11 07:24	08/09/11 21:42	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125		1	08/09/11 07:24	08/09/11 21:42	460-00-4	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<5.7**	mg/kg	11.4	5.7	1	08/08/11 14:00	08/10/11 06:33		
1-Chloro-octadecane (S)	78	%	40-140		1	08/08/11 14:00	08/10/11 06:33	3386-33-2	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-2 @ 2.5 FT **Lab ID: 10165707006** Collected: 08/03/11 15:45 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.011**	mg/kg	0.057	0.011	1	08/08/11 11:30	08/10/11 07:52	1634-04-4	
Benzene	**<0.014**	mg/kg	0.028	0.014	1	08/08/11 11:30	08/10/11 07:52	71-43-2	
Toluene	**<0.0094**	mg/kg	0.057	0.0094	1	08/08/11 11:30	08/10/11 07:52	108-88-3	
Ethylbenzene	**<0.0096**	mg/kg	0.057	0.0096	1	08/08/11 11:30	08/10/11 07:52	100-41-4	
m&p-Xylene	**<0.014**	mg/kg	0.11	0.014	1	08/08/11 11:30	08/10/11 07:52	179601-23-1	
o-Xylene	**<0.0079**	mg/kg	0.057	0.0079	1	08/08/11 11:30	08/10/11 07:52	95-47-6	
Xylene (Total)	**<0.085**	mg/kg	0.17	0.085	1	08/08/11 11:30	08/10/11 07:52	1330-20-7	
Naphthalene	**<0.082**	mg/kg	0.68	0.082	1	08/08/11 11:30	08/10/11 07:52	91-20-3	L3
Aromatic (C09-C10)	**<0.019**	mg/kg	1.1	0.019	1	08/08/11 11:30	08/10/11 07:52		
Aliphatic (C05-C08).Unadjusted	**<2.8**	mg/kg	5.7	2.8	1	08/08/11 11:30	08/10/11 07:52		
Aliphatic (C09-C12).Unadjusted	**<0.52**	mg/kg	5.7	0.52	1	08/08/11 11:30	08/10/11 07:52		
Total Purgeable Hydro Carbons	**<5.7**	mg/kg	11.3	5.7	1	08/08/11 11:30	08/10/11 07:52		
Aliphatic (C05-C08), Adjusted	**2.4J**	mg/kg	5.7	0.51	1	08/08/11 11:30	08/10/11 07:52		
Aliphatic (C09-C12), Adjusted	**<0.52**	mg/kg	5.7	0.52	1	08/08/11 11:30	08/10/11 07:52		
a,a,a-Trifluorotoluene (S)	78	%	70-130		1	08/08/11 11:30	08/10/11 07:52	98-08-8	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-3 @ 1.5 FT **Lab ID: 10165707007** Collected: 08/03/11 15:47 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**2.0**	mg/kg	0.50	0.25	1	08/15/11 14:17	08/16/11 10:59	7440-38-2	
Barium	**146**	mg/kg	0.50	0.020	1	08/15/11 14:17	08/16/11 10:59	7440-39-3	
Cadmium	**0.17**	mg/kg	0.050	0.010	1	08/15/11 14:17	08/16/11 10:59	7440-43-9	B
Chromium	**7.7**	mg/kg	0.50	0.070	1	08/15/11 14:17	08/16/11 10:59	7440-47-3	
Lead	**14.6**	mg/kg	0.30	0.050	1	08/15/11 14:17	08/16/11 10:59	7439-92-1	
Selenium	**1.4**	mg/kg	0.75	0.13	1	08/15/11 14:17	08/16/11 10:59	7782-49-2	B
Silver	**<0.030**	mg/kg	0.50	0.030	1	08/15/11 14:17	08/16/11 10:59	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.015J**	mg/kg	0.024	0.0020	1	08/15/11 12:44	08/16/11 16:12	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**18.0**	%	0.10	0.10	1		08/09/11 13:30		
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Acetone	**<15.0**	ug/kg	30.1	15.0	1	08/09/11 07:24	08/09/11 22:01	67-64-1	L3
Allyl chloride	**<0.99**	ug/kg	12.0	0.99	1	08/09/11 07:24	08/09/11 22:01	107-05-1	
Benzene	**<0.75**	ug/kg	4.8	0.75	1	08/09/11 07:24	08/09/11 22:01	71-43-2	
Bromobenzene	**<0.95**	ug/kg	4.8	0.95	1	08/09/11 07:24	08/09/11 22:01	108-86-1	
Bromochloromethane	**<1.4**	ug/kg	4.8	1.4	1	08/09/11 07:24	08/09/11 22:01	74-97-5	
Bromodichloromethane	**<0.87**	ug/kg	4.8	0.87	1	08/09/11 07:24	08/09/11 22:01	75-27-4	
Bromoform	**<0.94**	ug/kg	24.1	0.94	1	08/09/11 07:24	08/09/11 22:01	75-25-2	
Bromomethane	**<2.6**	ug/kg	24.1	2.6	1	08/09/11 07:24	08/09/11 22:01	74-83-9	
2-Butanone (MEK)	**<12.0**	ug/kg	24.1	12.0	1	08/09/11 07:24	08/09/11 22:01	78-93-3	
n-Butylbenzene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 22:01	104-51-8	
sec-Butylbenzene	**<0.83**	ug/kg	4.8	0.83	1	08/09/11 07:24	08/09/11 22:01	135-98-8	
tert-Butylbenzene	**<1.2**	ug/kg	4.8	1.2	1	08/09/11 07:24	08/09/11 22:01	98-06-6	
Carbon tetrachloride	**<1.5**	ug/kg	4.8	1.5	1	08/09/11 07:24	08/09/11 22:01	56-23-5	
Chlorobenzene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 22:01	108-90-7	
Chloroethane	**<1.3**	ug/kg	12.0	1.3	1	08/09/11 07:24	08/09/11 22:01	75-00-3	
Chloroform	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 22:01	67-66-3	
Chloromethane	**<0.85**	ug/kg	12.0	0.85	1	08/09/11 07:24	08/09/11 22:01	74-87-3	
2-Chlorotoluene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 22:01	95-49-8	
4-Chlorotoluene	**<1.0**	ug/kg	4.8	1.0	1	08/09/11 07:24	08/09/11 22:01	106-43-4	
1,2-Dibromo-3-chloropropane	**<2.3**	ug/kg	12.0	2.3	1	08/09/11 07:24	08/09/11 22:01	96-12-8	
Dibromochloromethane	**<1.6**	ug/kg	4.8	1.6	1	08/09/11 07:24	08/09/11 22:01	124-48-1	
1,2-Dibromoethane (EDB)	**<1.6**	ug/kg	4.8	1.6	1	08/09/11 07:24	08/09/11 22:01	106-93-4	
Dibromomethane	**<1.9**	ug/kg	4.8	1.9	1	08/09/11 07:24	08/09/11 22:01	74-95-3	
1,2-Dichlorobenzene	**<0.63**	ug/kg	4.8	0.63	1	08/09/11 07:24	08/09/11 22:01	95-50-1	
1,3-Dichlorobenzene	**<0.99**	ug/kg	4.8	0.99	1	08/09/11 07:24	08/09/11 22:01	541-73-1	
1,4-Dichlorobenzene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 22:01	106-46-7	
Dichlorodifluoromethane	**<1.5**	ug/kg	12.0	1.5	1	08/09/11 07:24	08/09/11 22:01	75-71-8	
1,1-Dichloroethane	**<1.2**	ug/kg	4.8	1.2	1	08/09/11 07:24	08/09/11 22:01	75-34-3	
1,2-Dichloroethane	**<1.4**	ug/kg	4.8	1.4	1	08/09/11 07:24	08/09/11 22:01	107-06-2	
1,1-Dichloroethene	**<0.96**	ug/kg	4.8	0.96	1	08/09/11 07:24	08/09/11 22:01	75-35-4	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-3 @ 1.5 FT **Lab ID: 10165707007** Collected: 08/03/11 15:47 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
cis-1,2-Dichloroethene	**<1.3**	ug/kg	4.8	1.3	1	08/09/11 07:24	08/09/11 22:01	156-59-2	
trans-1,2-Dichloroethene	**<0.64**	ug/kg	4.8	0.64	1	08/09/11 07:24	08/09/11 22:01	156-60-5	
Dichlorofluoromethane	**<1.2**	ug/kg	4.8	1.2	1	08/09/11 07:24	08/09/11 22:01	75-43-4	
1,2-Dichloropropane	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 22:01	78-87-5	
1,3-Dichloropropane	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 22:01	142-28-9	
2,2-Dichloropropane	**<1.2**	ug/kg	12.0	1.2	1	08/09/11 07:24	08/09/11 22:01	594-20-7	
1,1-Dichloropropene	**<0.95**	ug/kg	4.8	0.95	1	08/09/11 07:24	08/09/11 22:01	563-58-6	
cis-1,3-Dichloropropene	**<0.95**	ug/kg	4.8	0.95	1	08/09/11 07:24	08/09/11 22:01	10061-01-5	
trans-1,3-Dichloropropene	**<1.4**	ug/kg	4.8	1.4	1	08/09/11 07:24	08/09/11 22:01	10061-02-6	
Diethyl ether (Ethyl ether)	**<1.7**	ug/kg	12.0	1.7	1	08/09/11 07:24	08/09/11 22:01	60-29-7	
Ethylbenzene	**<0.59**	ug/kg	4.8	0.59	1	08/09/11 07:24	08/09/11 22:01	100-41-4	
Hexachloro-1,3-butadiene	**<0.97**	ug/kg	12.0	0.97	1	08/09/11 07:24	08/09/11 22:01	87-68-3	
Isopropylbenzene (Cumene)	**<0.85**	ug/kg	4.8	0.85	1	08/09/11 07:24	08/09/11 22:01	98-82-8	
p-Isopropyltoluene	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 22:01	99-87-6	
Methylene Chloride	**<12.0**	ug/kg	24.1	12.0	1	08/09/11 07:24	08/09/11 22:01	75-09-2	Z3
4-Methyl-2-pentanone (MIBK)	**<12.0**	ug/kg	24.1	12.0	1	08/09/11 07:24	08/09/11 22:01	108-10-1	
Methyl-tert-butyl ether	**<0.96**	ug/kg	4.8	0.96	1	08/09/11 07:24	08/09/11 22:01	1634-04-4	
Naphthalene	**<1.0**	ug/kg	12.0	1.0	1	08/09/11 07:24	08/09/11 22:01	91-20-3	
n-Propylbenzene	**<0.99**	ug/kg	4.8	0.99	1	08/09/11 07:24	08/09/11 22:01	103-65-1	
Styrene	**<0.75**	ug/kg	4.8	0.75	1	08/09/11 07:24	08/09/11 22:01	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.2**	ug/kg	4.8	1.2	1	08/09/11 07:24	08/09/11 22:01	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.4**	ug/kg	4.8	1.4	1	08/09/11 07:24	08/09/11 22:01	79-34-5	
Tetrachloroethene	**<1.6**	ug/kg	4.8	1.6	1	08/09/11 07:24	08/09/11 22:01	127-18-4	
Tetrahydrofuran	**<12.5**	ug/kg	48.1	12.5	1	08/09/11 07:24	08/09/11 22:01	109-99-9	
Toluene	**0.78J**	ug/kg	4.8	0.64	1	08/09/11 07:24	08/09/11 22:01	108-88-3	B
1,2,3-Trichlorobenzene	**<1.3**	ug/kg	4.8	1.3	1	08/09/11 07:24	08/09/11 22:01	87-61-6	
1,2,4-Trichlorobenzene	**<0.96**	ug/kg	4.8	0.96	1	08/09/11 07:24	08/09/11 22:01	120-82-1	
1,1,1-Trichloroethane	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 22:01	71-55-6	
1,1,2-Trichloroethane	**<1.1**	ug/kg	4.8	1.1	1	08/09/11 07:24	08/09/11 22:01	79-00-5	
Trichloroethene	**<0.83**	ug/kg	4.8	0.83	1	08/09/11 07:24	08/09/11 22:01	79-01-6	
Trichlorofluoromethane	**<1.4**	ug/kg	12.0	1.4	1	08/09/11 07:24	08/09/11 22:01	75-69-4	
1,2,3-Trichloropropane	**<0.97**	ug/kg	4.8	0.97	1	08/09/11 07:24	08/09/11 22:01	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<1.2**	ug/kg	4.8	1.2	1	08/09/11 07:24	08/09/11 22:01	76-13-1	
1,2,4-Trimethylbenzene	**<0.99**	ug/kg	4.8	0.99	1	08/09/11 07:24	08/09/11 22:01	95-63-6	
1,3,5-Trimethylbenzene	**<0.77**	ug/kg	4.8	0.77	1	08/09/11 07:24	08/09/11 22:01	108-67-8	
Vinyl chloride	**<1.5**	ug/kg	4.8	1.5	1	08/09/11 07:24	08/09/11 22:01	75-01-4	
Xylene (Total)	**<3.4**	ug/kg	14.4	3.4	1	08/09/11 07:24	08/09/11 22:01	1330-20-7	
Dibromofluoromethane (S)	91	%	75-125		1	08/09/11 07:24	08/09/11 22:01	1868-53-7	
1,2-Dichloroethane-d4 (S)	96	%	75-138		1	08/09/11 07:24	08/09/11 22:01	17060-07-0	
Toluene-d8 (S)	99	%	75-125		1	08/09/11 07:24	08/09/11 22:01	2037-26-5	
4-Bromofluorobenzene (S)	106	%	75-125		1	08/09/11 07:24	08/09/11 22:01	460-00-4	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**95.2**	mg/kg	12.0	6.0	1	08/08/11 14:00	08/10/11 07:04		
1-Chloro-octadecane (S)	103	%	40-140		1	08/08/11 14:00	08/10/11 07:04	3386-33-2	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-3 @ 1.5 FT **Lab ID: 10165707007** Collected: 08/03/11 15:47 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.011**	mg/kg	0.057	0.011	1	08/08/11 11:30	08/10/11 08:35	1634-04-4	
Benzene	**<0.014**	mg/kg	0.028	0.014	1	08/08/11 11:30	08/10/11 08:35	71-43-2	
Toluene	**<0.0094**	mg/kg	0.057	0.0094	1	08/08/11 11:30	08/10/11 08:35	108-88-3	
Ethylbenzene	**<0.0096**	mg/kg	0.057	0.0096	1	08/08/11 11:30	08/10/11 08:35	100-41-4	
m&p-Xylene	**<0.014**	mg/kg	0.11	0.014	1	08/08/11 11:30	08/10/11 08:35	179601-23-1	
o-Xylene	**<0.0079**	mg/kg	0.057	0.0079	1	08/08/11 11:30	08/10/11 08:35	95-47-6	
Xylene (Total)	**<0.085**	mg/kg	0.17	0.085	1	08/08/11 11:30	08/10/11 08:35	1330-20-7	
Naphthalene	**<0.081**	mg/kg	0.68	0.081	1	08/08/11 11:30	08/10/11 08:35	91-20-3	L3
Aromatic (C09-C10)	**<0.019**	mg/kg	1.1	0.019	1	08/08/11 11:30	08/10/11 08:35		
Aliphatic (C05-C08).Unadjusted	**<2.8**	mg/kg	5.7	2.8	1	08/08/11 11:30	08/10/11 08:35		
Aliphatic (C09-C12).Unadjusted	**1.6J**	mg/kg	5.7	0.52	1	08/08/11 11:30	08/10/11 08:35		
Total Purgeable Hydro Carbons	**<5.7**	mg/kg	11.3	5.7	1	08/08/11 11:30	08/10/11 08:35		
Aliphatic (C05-C08), Adjusted	**0.61J**	mg/kg	5.7	0.51	1	08/08/11 11:30	08/10/11 08:35		
Aliphatic (C09-C12), Adjusted	**1.6J**	mg/kg	5.7	0.52	1	08/08/11 11:30	08/10/11 08:35		
a,a,a-Trifluorotoluene (S)	83	%	70-130		1	08/08/11 11:30	08/10/11 08:35	98-08-8	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-3 @ 4 FT **Lab ID: 10165707008** Collected: 08/03/11 15:52 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**5.7**	mg/kg	0.45	0.23	1	08/15/11 14:17	08/16/11 11:05	7440-38-2	
Barium	**55.3**	mg/kg	0.45	0.018	1	08/15/11 14:17	08/16/11 11:05	7440-39-3	
Cadmium	**0.14**	mg/kg	0.045	0.0091	1	08/15/11 14:17	08/16/11 11:05	7440-43-9	B
Chromium	**6.8**	mg/kg	0.45	0.064	1	08/15/11 14:17	08/16/11 11:05	7440-47-3	
Lead	**14.6**	mg/kg	0.27	0.045	1	08/15/11 14:17	08/16/11 11:05	7439-92-1	
Selenium	**0.71**	mg/kg	0.68	0.12	1	08/15/11 14:17	08/16/11 11:05	7782-49-2	B
Silver	**<0.027**	mg/kg	0.45	0.027	1	08/15/11 14:17	08/16/11 11:05	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.0099J**	mg/kg	0.020	0.0016	1	08/15/11 12:44	08/16/11 16:14	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**6.0**	%	0.10	0.10	1		08/09/11 13:30		
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
Acetone	**<12.8**	ug/kg	25.6	12.8	1	08/09/11 07:24	08/09/11 22:20	67-64-1	L3
Allyl chloride	**<0.84**	ug/kg	10.3	0.84	1	08/09/11 07:24	08/09/11 22:20	107-05-1	
Benzene	**<0.64**	ug/kg	4.1	0.64	1	08/09/11 07:24	08/09/11 22:20	71-43-2	
Bromobenzene	**<0.81**	ug/kg	4.1	0.81	1	08/09/11 07:24	08/09/11 22:20	108-86-1	
Bromochloromethane	**<1.2**	ug/kg	4.1	1.2	1	08/09/11 07:24	08/09/11 22:20	74-97-5	
Bromodichloromethane	**<0.74**	ug/kg	4.1	0.74	1	08/09/11 07:24	08/09/11 22:20	75-27-4	
Bromoform	**<0.80**	ug/kg	20.5	0.80	1	08/09/11 07:24	08/09/11 22:20	75-25-2	
Bromomethane	**<2.2**	ug/kg	20.5	2.2	1	08/09/11 07:24	08/09/11 22:20	74-83-9	
2-Butanone (MEK)	**<10.3**	ug/kg	20.5	10.3	1	08/09/11 07:24	08/09/11 22:20	78-93-3	
n-Butylbenzene	**<0.97**	ug/kg	4.1	0.97	1	08/09/11 07:24	08/09/11 22:20	104-51-8	
sec-Butylbenzene	**<0.71**	ug/kg	4.1	0.71	1	08/09/11 07:24	08/09/11 22:20	135-98-8	
tert-Butylbenzene	**<0.98**	ug/kg	4.1	0.98	1	08/09/11 07:24	08/09/11 22:20	98-06-6	
Carbon tetrachloride	**<1.2**	ug/kg	4.1	1.2	1	08/09/11 07:24	08/09/11 22:20	56-23-5	
Chlorobenzene	**<0.91**	ug/kg	4.1	0.91	1	08/09/11 07:24	08/09/11 22:20	108-90-7	
Chloroethane	**<1.1**	ug/kg	10.3	1.1	1	08/09/11 07:24	08/09/11 22:20	75-00-3	
Chloroform	**<0.93**	ug/kg	4.1	0.93	1	08/09/11 07:24	08/09/11 22:20	67-66-3	
Chloromethane	**<0.73**	ug/kg	10.3	0.73	1	08/09/11 07:24	08/09/11 22:20	74-87-3	
2-Chlorotoluene	**<0.96**	ug/kg	4.1	0.96	1	08/09/11 07:24	08/09/11 22:20	95-49-8	
4-Chlorotoluene	**<0.89**	ug/kg	4.1	0.89	1	08/09/11 07:24	08/09/11 22:20	106-43-4	
1,2-Dibromo-3-chloropropane	**<2.0**	ug/kg	10.3	2.0	1	08/09/11 07:24	08/09/11 22:20	96-12-8	
Dibromochloromethane	**<1.4**	ug/kg	4.1	1.4	1	08/09/11 07:24	08/09/11 22:20	124-48-1	
1,2-Dibromoethane (EDB)	**<1.3**	ug/kg	4.1	1.3	1	08/09/11 07:24	08/09/11 22:20	106-93-4	
Dibromomethane	**<1.6**	ug/kg	4.1	1.6	1	08/09/11 07:24	08/09/11 22:20	74-95-3	
1,2-Dichlorobenzene	**<0.53**	ug/kg	4.1	0.53	1	08/09/11 07:24	08/09/11 22:20	95-50-1	
1,3-Dichlorobenzene	**<0.84**	ug/kg	4.1	0.84	1	08/09/11 07:24	08/09/11 22:20	541-73-1	
1,4-Dichlorobenzene	**<0.90**	ug/kg	4.1	0.90	1	08/09/11 07:24	08/09/11 22:20	106-46-7	
Dichlorodifluoromethane	**<1.3**	ug/kg	10.3	1.3	1	08/09/11 07:24	08/09/11 22:20	75-71-8	
1,1-Dichloroethane	**<1.0**	ug/kg	4.1	1.0	1	08/09/11 07:24	08/09/11 22:20	75-34-3	
1,2-Dichloroethane	**<1.2**	ug/kg	4.1	1.2	1	08/09/11 07:24	08/09/11 22:20	107-06-2	
1,1-Dichloroethene	**<0.82**	ug/kg	4.1	0.82	1	08/09/11 07:24	08/09/11 22:20	75-35-4	

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602 S 25th Street
Billings, MT 591014549
(406)254-7226

ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-3 @ 4 FT **Lab ID: 10165707008** Collected: 08/03/11 15:52 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035 Low Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035A								
cis-1,2-Dichloroethene	**<1.1**	ug/kg	4.1	1.1	1	08/09/11 07:24	08/09/11 22:20	156-59-2	
trans-1,2-Dichloroethene	**<0.54**	ug/kg	4.1	0.54	1	08/09/11 07:24	08/09/11 22:20	156-60-5	
Dichlorofluoromethane	**<0.99**	ug/kg	4.1	0.99	1	08/09/11 07:24	08/09/11 22:20	75-43-4	
1,2-Dichloropropane	**<0.95**	ug/kg	4.1	0.95	1	08/09/11 07:24	08/09/11 22:20	78-87-5	
1,3-Dichloropropane	**<0.91**	ug/kg	4.1	0.91	1	08/09/11 07:24	08/09/11 22:20	142-28-9	
2,2-Dichloropropane	**<1.1**	ug/kg	10.3	1.1	1	08/09/11 07:24	08/09/11 22:20	594-20-7	
1,1-Dichloropropene	**<0.81**	ug/kg	4.1	0.81	1	08/09/11 07:24	08/09/11 22:20	563-58-6	
cis-1,3-Dichloropropene	**<0.81**	ug/kg	4.1	0.81	1	08/09/11 07:24	08/09/11 22:20	10061-01-5	
trans-1,3-Dichloropropene	**<1.2**	ug/kg	4.1	1.2	1	08/09/11 07:24	08/09/11 22:20	10061-02-6	
Diethyl ether (Ethyl ether)	**<1.4**	ug/kg	10.3	1.4	1	08/09/11 07:24	08/09/11 22:20	60-29-7	
Ethylbenzene	**<0.50**	ug/kg	4.1	0.50	1	08/09/11 07:24	08/09/11 22:20	100-41-4	
Hexachloro-1,3-butadiene	**<0.83**	ug/kg	10.3	0.83	1	08/09/11 07:24	08/09/11 22:20	87-68-3	
Isopropylbenzene (Cumene)	**<0.73**	ug/kg	4.1	0.73	1	08/09/11 07:24	08/09/11 22:20	98-82-8	
p-Isopropyltoluene	**<0.93**	ug/kg	4.1	0.93	1	08/09/11 07:24	08/09/11 22:20	99-87-6	
Methylene Chloride	**<10.3**	ug/kg	20.5	10.3	1	08/09/11 07:24	08/09/11 22:20	75-09-2	Z3
4-Methyl-2-pentanone (MIBK)	**<10.3**	ug/kg	20.5	10.3	1	08/09/11 07:24	08/09/11 22:20	108-10-1	
Methyl-tert-butyl ether	**<0.82**	ug/kg	4.1	0.82	1	08/09/11 07:24	08/09/11 22:20	1634-04-4	
Naphthalene	**<0.85**	ug/kg	10.3	0.85	1	08/09/11 07:24	08/09/11 22:20	91-20-3	
n-Propylbenzene	**<0.84**	ug/kg	4.1	0.84	1	08/09/11 07:24	08/09/11 22:20	103-65-1	
Styrene	**<0.64**	ug/kg	4.1	0.64	1	08/09/11 07:24	08/09/11 22:20	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.0**	ug/kg	4.1	1.0	1	08/09/11 07:24	08/09/11 22:20	630-20-6	
1,1,2,2-Tetrachloroethane	**<1.2**	ug/kg	4.1	1.2	1	08/09/11 07:24	08/09/11 22:20	79-34-5	
Tetrachloroethene	**<1.4**	ug/kg	4.1	1.4	1	08/09/11 07:24	08/09/11 22:20	127-18-4	
Tetrahydrofuran	**<10.7**	ug/kg	41.0	10.7	1	08/09/11 07:24	08/09/11 22:20	109-99-9	
Toluene	**1.4J**	ug/kg	4.1	0.54	1	08/09/11 07:24	08/09/11 22:20	108-88-3	B
1,2,3-Trichlorobenzene	**<1.1**	ug/kg	4.1	1.1	1	08/09/11 07:24	08/09/11 22:20	87-61-6	
1,2,4-Trichlorobenzene	**<0.82**	ug/kg	4.1	0.82	1	08/09/11 07:24	08/09/11 22:20	120-82-1	
1,1,1-Trichloroethane	**<0.90**	ug/kg	4.1	0.90	1	08/09/11 07:24	08/09/11 22:20	71-55-6	
1,1,2-Trichloroethane	**<0.91**	ug/kg	4.1	0.91	1	08/09/11 07:24	08/09/11 22:20	79-00-5	
Trichloroethene	**<0.71**	ug/kg	4.1	0.71	1	08/09/11 07:24	08/09/11 22:20	79-01-6	
Trichlorofluoromethane	**<1.2**	ug/kg	10.3	1.2	1	08/09/11 07:24	08/09/11 22:20	75-69-4	
1,2,3-Trichloropropane	**<0.83**	ug/kg	4.1	0.83	1	08/09/11 07:24	08/09/11 22:20	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<1.1**	ug/kg	4.1	1.1	1	08/09/11 07:24	08/09/11 22:20	76-13-1	
1,2,4-Trimethylbenzene	**<0.84**	ug/kg	4.1	0.84	1	08/09/11 07:24	08/09/11 22:20	95-63-6	
1,3,5-Trimethylbenzene	**<0.66**	ug/kg	4.1	0.66	1	08/09/11 07:24	08/09/11 22:20	108-67-8	
Vinyl chloride	**<1.3**	ug/kg	4.1	1.3	1	08/09/11 07:24	08/09/11 22:20	75-01-4	
Xylene (Total)	**<2.9**	ug/kg	12.3	2.9	1	08/09/11 07:24	08/09/11 22:20	1330-20-7	
Dibromofluoromethane (S)	93	%	75-125		1	08/09/11 07:24	08/09/11 22:20	1868-53-7	
1,2-Dichloroethane-d4 (S)	94	%	75-138		1	08/09/11 07:24	08/09/11 22:20	17060-07-0	
Toluene-d8 (S)	100	%	75-125		1	08/09/11 07:24	08/09/11 22:20	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-125		1	08/09/11 07:24	08/09/11 22:20	460-00-4	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<5.2**	mg/kg	10.4	5.2	1	08/08/11 14:00	08/10/11 07:36		
1-Chloro-octadecane (S)	90	%	40-140		1	08/08/11 14:00	08/10/11 07:36	3386-33-2	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TP-3 @ 4 FT **Lab ID: 10165707008** Collected: 08/03/11 15:52 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.010**	mg/kg	0.051	0.010	1	08/08/11 11:30	08/10/11 09:19	1634-04-4	
Benzene	**<0.013**	mg/kg	0.026	0.013	1	08/08/11 11:30	08/10/11 09:19	71-43-2	
Toluene	**<0.0085**	mg/kg	0.051	0.0085	1	08/08/11 11:30	08/10/11 09:19	108-88-3	
Ethylbenzene	**<0.0087**	mg/kg	0.051	0.0087	1	08/08/11 11:30	08/10/11 09:19	100-41-4	
m&p-Xylene	**<0.012**	mg/kg	0.10	0.012	1	08/08/11 11:30	08/10/11 09:19	179601-23-1	
o-Xylene	**<0.0072**	mg/kg	0.051	0.0072	1	08/08/11 11:30	08/10/11 09:19	95-47-6	
Xylene (Total)	**<0.077**	mg/kg	0.15	0.077	1	08/08/11 11:30	08/10/11 09:19	1330-20-7	
Naphthalene	**<0.074**	mg/kg	0.61	0.074	1	08/08/11 11:30	08/10/11 09:19	91-20-3	L3
Aromatic (C09-C10)	**<0.017**	mg/kg	1.0	0.017	1	08/08/11 11:30	08/10/11 09:19		
Aliphatic (C05-C08).Unadjusted	**<2.6**	mg/kg	5.1	2.6	1	08/08/11 11:30	08/10/11 09:19		
Aliphatic (C09-C12).Unadjusted	**<0.47**	mg/kg	5.1	0.47	1	08/08/11 11:30	08/10/11 09:19		
Total Purgeable Hydro Carbons	**<5.1**	mg/kg	10.2	5.1	1	08/08/11 11:30	08/10/11 09:19		
Aliphatic (C05-C08), Adjusted	**<0.46**	mg/kg	5.1	0.46	1	08/08/11 11:30	08/10/11 09:19		
Aliphatic (C09-C12), Adjusted	**<0.47**	mg/kg	5.1	0.47	1	08/08/11 11:30	08/10/11 09:19		
a,a,a-Trifluorotoluene (S)	81	%	70-130		1	08/08/11 11:30	08/10/11 09:19	98-08-8	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: SUMP SED **Lab ID: 10165707009** Collected: 08/03/11 17:00 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**3.1**	mg/kg	0.92	0.46	1	08/15/11 14:17	08/16/11 11:11	7440-38-2	
Barium	**257**	mg/kg	0.92	0.037	1	08/15/11 14:17	08/16/11 11:11	7440-39-3	
Cadmium	**3.4**	mg/kg	0.092	0.018	1	08/15/11 14:17	08/16/11 11:11	7440-43-9	B
Chromium	**27.0**	mg/kg	0.92	0.13	1	08/15/11 14:17	08/16/11 11:11	7440-47-3	
Lead	**39.7**	mg/kg	0.55	0.092	1	08/15/11 14:17	08/16/11 11:11	7439-92-1	
Selenium	**2.3**	mg/kg	1.4	0.24	1	08/15/11 14:17	08/16/11 11:11	7782-49-2	B
Silver	**<0.055**	mg/kg	0.92	0.055	1	08/15/11 14:17	08/16/11 11:11	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.015J**	mg/kg	0.034	0.0027	1	08/15/11 12:44	08/16/11 16:20	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**48.1**	%	0.10	0.10	1		08/09/11 13:30		
8270 MSSV PAH by SIM	Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3550								
Acenaphthene	**0.079J**	mg/kg	0.096	0.0029	1	09/06/11 06:54	09/08/11 18:30	83-32-9	
Acenaphthylene	**<0.0029**	mg/kg	0.096	0.0029	1	09/06/11 06:54	09/08/11 18:30	208-96-8	
Anthracene	**<0.048**	mg/kg	0.096	0.048	1	09/06/11 06:54	09/08/11 18:30	120-12-7	
Benzo(a)anthracene	**<0.048**	mg/kg	0.096	0.048	1	09/06/11 06:54	09/08/11 18:30	56-55-3	
Benzo(a)pyrene	**0.098**	mg/kg	0.096	0.048	1	09/06/11 06:54	09/08/11 18:30	50-32-8	
Benzo(b)fluoranthene	**0.099**	mg/kg	0.096	0.0048	1	09/06/11 06:54	09/08/11 18:30	205-99-2	
Benzo(g,h,i)perylene	**0.090J**	mg/kg	0.096	0.0048	1	09/06/11 06:54	09/08/11 18:30	191-24-2	
Benzo(k)fluoranthene	**<0.0058**	mg/kg	0.096	0.0058	1	09/06/11 06:54	09/08/11 18:30	207-08-9	
Chrysene	**0.16**	mg/kg	0.096	0.0048	1	09/06/11 06:54	09/08/11 18:30	218-01-9	
Dibenz(a,h)anthracene	**<0.0048**	mg/kg	0.096	0.0048	1	09/06/11 06:54	09/08/11 18:30	53-70-3	
Fluoranthene	**0.11**	mg/kg	0.096	0.048	1	09/06/11 06:54	09/08/11 18:30	206-44-0	
Fluorene	**0.17**	mg/kg	0.096	0.0039	1	09/06/11 06:54	09/08/11 18:30	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0048**	mg/kg	0.096	0.0048	1	09/06/11 06:54	09/08/11 18:30	193-39-5	
Naphthalene	**0.084J**	mg/kg	0.096	0.0058	1	09/06/11 06:54	09/08/11 18:30	91-20-3	
Phenanthrene	**0.24**	mg/kg	0.096	0.048	1	09/06/11 06:54	09/08/11 18:30	85-01-8	
Pyrene	**0.32**	mg/kg	0.096	0.0039	1	09/06/11 06:54	09/08/11 18:30	129-00-0	
2-Fluorobiphenyl (S)	80	%	30-130		1	09/06/11 06:54	09/08/11 18:30	321-60-8	H2,P3
Terphenyl-d14 (S)	112	%	30-150		1	09/06/11 06:54	09/08/11 18:30	1718-51-0	
8260 MSV 5030 Med Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Acetone	**436J**	ug/kg	955	23.9	1	08/10/11 11:04	08/15/11 15:41	67-64-1	
Allyl chloride	**<1.6**	ug/kg	382	1.6	1	08/10/11 11:04	08/15/11 15:41	107-05-1	
Benzene	**<1.2**	ug/kg	38.2	1.2	1	08/10/11 11:04	08/15/11 15:41	71-43-2	
Bromobenzene	**<1.5**	ug/kg	95.5	1.5	1	08/10/11 11:04	08/15/11 15:41	108-86-1	
Bromochloromethane	**<2.2**	ug/kg	95.5	2.2	1	08/10/11 11:04	08/15/11 15:41	74-97-5	
Bromodichloromethane	**<1.4**	ug/kg	95.5	1.4	1	08/10/11 11:04	08/15/11 15:41	75-27-4	
Bromoform	**<1.5**	ug/kg	382	1.5	1	08/10/11 11:04	08/15/11 15:41	75-25-2	
Bromomethane	**<4.1**	ug/kg	955	4.1	1	08/10/11 11:04	08/15/11 15:41	74-83-9	
2-Butanone (MEK)	**<19.1**	ug/kg	955	19.1	1	08/10/11 11:04	08/15/11 15:41	78-93-3	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: SUMP SED **Lab ID: 10165707009** Collected: 08/03/11 17:00 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5030 Med Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
n-Butylbenzene	**<1.8**	ug/kg	95.5	1.8	1	08/10/11 11:04	08/15/11 15:41	104-51-8	
sec-Butylbenzene	**19.7J**	ug/kg	95.5	1.3	1	08/10/11 11:04	08/15/11 15:41	135-98-8	
tert-Butylbenzene	**<1.8**	ug/kg	95.5	1.8	1	08/10/11 11:04	08/15/11 15:41	98-06-6	
Carbon tetrachloride	**<2.3**	ug/kg	95.5	2.3	1	08/10/11 11:04	08/15/11 15:41	56-23-5	
Chlorobenzene	**<1.7**	ug/kg	95.5	1.7	1	08/10/11 11:04	08/15/11 15:41	108-90-7	
Chloroethane	**<2.0**	ug/kg	955	2.0	1	08/10/11 11:04	08/15/11 15:41	75-00-3	
Chloroform	**<1.7**	ug/kg	95.5	1.7	1	08/10/11 11:04	08/15/11 15:41	67-66-3	
Chloromethane	**<1.4**	ug/kg	382	1.4	1	08/10/11 11:04	08/15/11 15:41	74-87-3	
2-Chlorotoluene	**<1.8**	ug/kg	95.5	1.8	1	08/10/11 11:04	08/15/11 15:41	95-49-8	
4-Chlorotoluene	**<1.7**	ug/kg	95.5	1.7	1	08/10/11 11:04	08/15/11 15:41	106-43-4	
1,2-Dibromo-3-chloropropane	**<3.7**	ug/kg	382	3.7	1	08/10/11 11:04	08/15/11 15:41	96-12-8	
Dibromochloromethane	**<2.6**	ug/kg	95.5	2.6	1	08/10/11 11:04	08/15/11 15:41	124-48-1	
1,2-Dibromoethane (EDB)	**<2.5**	ug/kg	95.5	2.5	1	08/10/11 11:04	08/15/11 15:41	106-93-4	
Dibromomethane	**<2.9**	ug/kg	95.5	2.9	1	08/10/11 11:04	08/15/11 15:41	74-95-3	
1,2-Dichlorobenzene	**<0.99**	ug/kg	95.5	0.99	1	08/10/11 11:04	08/15/11 15:41	95-50-1	
1,3-Dichlorobenzene	**<1.6**	ug/kg	95.5	1.6	1	08/10/11 11:04	08/15/11 15:41	541-73-1	
1,4-Dichlorobenzene	**<1.7**	ug/kg	95.5	1.7	1	08/10/11 11:04	08/15/11 15:41	106-46-7	
Dichlorodifluoromethane	**<2.4**	ug/kg	95.5	2.4	1	08/10/11 11:04	08/15/11 15:41	75-71-8	
1,1-Dichloroethane	**<1.9**	ug/kg	95.5	1.9	1	08/10/11 11:04	08/15/11 15:41	75-34-3	
1,2-Dichloroethane	**<2.3**	ug/kg	95.5	2.3	1	08/10/11 11:04	08/15/11 15:41	107-06-2	
1,1-Dichloroethene	**<1.5**	ug/kg	95.5	1.5	1	08/10/11 11:04	08/15/11 15:41	75-35-4	
cis-1,2-Dichloroethene	**<2.0**	ug/kg	95.5	2.0	1	08/10/11 11:04	08/15/11 15:41	156-59-2	
trans-1,2-Dichloroethene	**<1.0**	ug/kg	95.5	1.0	1	08/10/11 11:04	08/15/11 15:41	156-60-5	
Dichlorofluoromethane	**<1.9**	ug/kg	955	1.9	1	08/10/11 11:04	08/15/11 15:41	75-43-4	L3
1,2-Dichloropropane	**<1.8**	ug/kg	95.5	1.8	1	08/10/11 11:04	08/15/11 15:41	78-87-5	
1,3-Dichloropropane	**<1.7**	ug/kg	95.5	1.7	1	08/10/11 11:04	08/15/11 15:41	142-28-9	
2,2-Dichloropropane	**<2.0**	ug/kg	382	2.0	1	08/10/11 11:04	08/15/11 15:41	594-20-7	
1,1-Dichloropropene	**<1.5**	ug/kg	95.5	1.5	1	08/10/11 11:04	08/15/11 15:41	563-58-6	
cis-1,3-Dichloropropene	**<1.5**	ug/kg	95.5	1.5	1	08/10/11 11:04	08/15/11 15:41	10061-01-5	
trans-1,3-Dichloropropene	**<2.2**	ug/kg	95.5	2.2	1	08/10/11 11:04	08/15/11 15:41	10061-02-6	
Diethyl ether (Ethyl ether)	**<2.6**	ug/kg	382	2.6	1	08/10/11 11:04	08/15/11 15:41	60-29-7	
Ethylbenzene	**43.9J**	ug/kg	95.5	0.94	1	08/10/11 11:04	08/15/11 15:41	100-41-4	
Hexachloro-1,3-butadiene	**<1.5**	ug/kg	478	1.5	1	08/10/11 11:04	08/15/11 15:41	87-68-3	
Isopropylbenzene (Cumene)	**<1.4**	ug/kg	95.5	1.4	1	08/10/11 11:04	08/15/11 15:41	98-82-8	
p-Isopropyltoluene	**2500**	ug/kg	95.5	1.7	1	08/10/11 11:04	08/15/11 15:41	99-87-6	
Methylene Chloride	**120J**	ug/kg	382	19.1	1	08/10/11 11:04	08/15/11 15:41	75-09-2	Z3
4-Methyl-2-pentanone (MIBK)	**<19.1**	ug/kg	955	19.1	1	08/10/11 11:04	08/15/11 15:41	108-10-1	
Methyl-tert-butyl ether	**<1.5**	ug/kg	95.5	1.5	1	08/10/11 11:04	08/15/11 15:41	1634-04-4	
Naphthalene	**337J**	ug/kg	382	1.6	1	08/10/11 11:04	08/15/11 15:41	91-20-3	
n-Propylbenzene	**45.7J**	ug/kg	95.5	1.6	1	08/10/11 11:04	08/15/11 15:41	103-65-1	
Styrene	**<1.2**	ug/kg	95.5	1.2	1	08/10/11 11:04	08/15/11 15:41	100-42-5	
1,1,1,2-Tetrachloroethane	**<1.9**	ug/kg	95.5	1.9	1	08/10/11 11:04	08/15/11 15:41	630-20-6	
1,1,2,2-Tetrachloroethane	**<2.2**	ug/kg	95.5	2.2	1	08/10/11 11:04	08/15/11 15:41	79-34-5	
Tetrachloroethene	**<2.5**	ug/kg	95.5	2.5	1	08/10/11 11:04	08/15/11 15:41	127-18-4	
Tetrahydrofuran	**<19.9**	ug/kg	3820	19.9	1	08/10/11 11:04	08/15/11 15:41	109-99-9	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: SUMP SED **Lab ID: 10165707009** Collected: 08/03/11 17:00 Received: 08/05/11 09:45 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5030 Med Level	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Toluene	**2230**	ug/kg	95.5	1.0	1	08/10/11 11:04	08/15/11 15:41	108-88-3	
1,2,3-Trichlorobenzene	**<2.1**	ug/kg	95.5	2.1	1	08/10/11 11:04	08/15/11 15:41	87-61-6	
1,2,4-Trichlorobenzene	**<1.5**	ug/kg	95.5	1.5	1	08/10/11 11:04	08/15/11 15:41	120-82-1	
1,1,1-Trichloroethane	**<1.7**	ug/kg	95.5	1.7	1	08/10/11 11:04	08/15/11 15:41	71-55-6	
1,1,2-Trichloroethane	**<1.7**	ug/kg	95.5	1.7	1	08/10/11 11:04	08/15/11 15:41	79-00-5	
Trichloroethene	**<1.3**	ug/kg	95.5	1.3	1	08/10/11 11:04	08/15/11 15:41	79-01-6	
Trichlorofluoromethane	**<2.3**	ug/kg	382	2.3	1	08/10/11 11:04	08/15/11 15:41	75-69-4	
1,2,3-Trichloropropane	**<1.5**	ug/kg	382	1.5	1	08/10/11 11:04	08/15/11 15:41	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<2.0**	ug/kg	95.5	2.0	1	08/10/11 11:04	08/15/11 15:41	76-13-1	
1,2,4-Trimethylbenzene	**279**	ug/kg	95.5	1.6	1	08/10/11 11:04	08/15/11 15:41	95-63-6	
1,3,5-Trimethylbenzene	**133**	ug/kg	95.5	1.2	1	08/10/11 11:04	08/15/11 15:41	108-67-8	
Vinyl chloride	**<2.4**	ug/kg	38.2	2.4	1	08/10/11 11:04	08/15/11 15:41	75-01-4	
Xylene (Total)	**171J**	ug/kg	287	5.4	1	08/10/11 11:04	08/15/11 15:41	1330-20-7	
Dibromofluoromethane (S)	73	%	30-150		1	08/10/11 11:04	08/15/11 15:41	1868-53-7	
1,2-Dichloroethane-d4 (S)	69	%	30-150		1	08/10/11 11:04	08/15/11 15:41	17060-07-0	
Toluene-d8 (S)	57	%	30-150		1	08/10/11 11:04	08/15/11 15:41	2037-26-5	
4-Bromofluorobenzene (S)	58	%	30-150		1	08/10/11 11:04	08/15/11 15:41	460-00-4	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**12900**	mg/kg	578	289	10	08/08/11 14:00	08/13/11 17:47		
1-Chloro-octadecane (S)	0	%	40-140		10	08/08/11 14:00	08/13/11 17:47	3386-33-2	S4
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**8690**	mg/kg	3470	1730	10	08/25/11 12:45	08/26/11 09:12		
Aliphatic (C09-C18)	**519**	mg/kg	116	57.8	1	08/25/11 12:45	08/25/11 23:56		3M
Aliphatic (C19-C36)	**7200**	mg/kg	1160	578	10	08/25/11 12:45	08/26/11 09:12		3M
Aromatic (C11-22)	**966**	mg/kg	116	57.8	1	08/25/11 12:45	08/27/11 10:55		3M
1-Chloro-octadecane (S)	183	%	40-140		1	08/25/11 12:45	08/25/11 23:56	3386-33-2	S5
o-Terphenyl (S)	82	%	40-140		1	08/25/11 12:45	08/27/11 10:55	84-15-1	
2-Fluorobiphenyl (S)	67	%	40-140		1	08/25/11 12:45	08/27/11 10:55	321-60-8	
2-Bromonaphthalene (S)	104	%	40-140		1	08/25/11 12:45	08/27/11 10:55	580-13-2	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: ERB SOIL **Lab ID: 10165707010** Collected: 08/03/11 17:30 Received: 08/05/11 09:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<3.4**	ug/L	10.0	3.4	1	08/12/11 11:09	08/12/11 17:31	7440-38-2	
Barium	**<0.37**	ug/L	10.0	0.37	1	08/12/11 11:09	08/12/11 17:31	7440-39-3	
Cadmium	**<0.23**	ug/L	1.0	0.23	1	08/12/11 11:09	08/12/11 17:31	7440-43-9	
Chromium	**<1.7**	ug/L	10.0	1.7	1	08/12/11 11:09	08/12/11 17:31	7440-47-3	
Lead	**2.4J**	ug/L	3.0	1.3	1	08/12/11 11:09	08/12/11 17:31	7439-92-1	
Selenium	**<2.7**	ug/L	15.0	2.7	1	08/12/11 11:09	08/12/11 17:31	7782-49-2	
Silver	**<0.29**	ug/L	10.0	0.29	1	08/12/11 11:09	08/12/11 17:31	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.037**	ug/L	0.20	0.037	1	08/11/11 13:17	08/12/11 14:40	7439-97-6	M1
8260 VOC	Analytical Method: EPA 8260								
Acetone	**<12.5**	ug/L	25.0	12.5	1		08/08/11 15:23	67-64-1	
Allyl chloride	**<0.51**	ug/L	4.0	0.51	1		08/08/11 15:23	107-05-1	
Benzene	**<0.36**	ug/L	1.0	0.36	1		08/08/11 15:23	71-43-2	
Bromobenzene	**<0.31**	ug/L	1.0	0.31	1		08/08/11 15:23	108-86-1	
Bromochloromethane	**<0.22**	ug/L	1.0	0.22	1		08/08/11 15:23	74-97-5	
Bromodichloromethane	**<0.23**	ug/L	1.0	0.23	1		08/08/11 15:23	75-27-4	
Bromoform	**<2.0**	ug/L	4.0	2.0	1		08/08/11 15:23	75-25-2	
Bromomethane	**<0.36**	ug/L	4.0	0.36	1		08/08/11 15:23	74-83-9	
2-Butanone (MEK)	**<2.0**	ug/L	4.0	2.0	1		08/08/11 15:23	78-93-3	
n-Butylbenzene	**<0.38**	ug/L	1.0	0.38	1		08/08/11 15:23	104-51-8	
sec-Butylbenzene	**<0.37**	ug/L	1.0	0.37	1		08/08/11 15:23	135-98-8	
tert-Butylbenzene	**<0.47**	ug/L	1.0	0.47	1		08/08/11 15:23	98-06-6	
Carbon tetrachloride	**<0.38**	ug/L	1.0	0.38	1		08/08/11 15:23	56-23-5	
Chlorobenzene	**<0.33**	ug/L	1.0	0.33	1		08/08/11 15:23	108-90-7	
Chloroethane	**<0.32**	ug/L	1.0	0.32	1		08/08/11 15:23	75-00-3	
Chloroform	**<0.34**	ug/L	1.0	0.34	1		08/08/11 15:23	67-66-3	
Chloromethane	**<0.36**	ug/L	4.0	0.36	1		08/08/11 15:23	74-87-3	
2-Chlorotoluene	**<0.37**	ug/L	1.0	0.37	1		08/08/11 15:23	95-49-8	
4-Chlorotoluene	**<0.29**	ug/L	1.0	0.29	1		08/08/11 15:23	106-43-4	
1,2-Dibromo-3-chloropropane	**<1.2**	ug/L	4.0	1.2	1		08/08/11 15:23	96-12-8	
Dibromochloromethane	**<0.36**	ug/L	1.0	0.36	1		08/08/11 15:23	124-48-1	
1,2-Dibromoethane (EDB)	**<0.26**	ug/L	1.0	0.26	1		08/08/11 15:23	106-93-4	
Dibromomethane	**<0.48**	ug/L	4.0	0.48	1		08/08/11 15:23	74-95-3	
1,2-Dichlorobenzene	**<0.31**	ug/L	1.0	0.31	1		08/08/11 15:23	95-50-1	
1,3-Dichlorobenzene	**<0.40**	ug/L	1.0	0.40	1		08/08/11 15:23	541-73-1	
1,4-Dichlorobenzene	**<0.34**	ug/L	1.0	0.34	1		08/08/11 15:23	106-46-7	
Dichlorodifluoromethane	**<0.23**	ug/L	1.0	0.23	1		08/08/11 15:23	75-71-8	
1,1-Dichloroethane	**<0.23**	ug/L	1.0	0.23	1		08/08/11 15:23	75-34-3	
1,2-Dichloroethane	**<0.23**	ug/L	1.0	0.23	1		08/08/11 15:23	107-06-2	
1,1-Dichloroethene	**<0.47**	ug/L	1.0	0.47	1		08/08/11 15:23	75-35-4	
cis-1,2-Dichloroethene	**<0.37**	ug/L	1.0	0.37	1		08/08/11 15:23	156-59-2	
trans-1,2-Dichloroethene	**<0.21**	ug/L	4.0	0.21	1		08/08/11 15:23	156-60-5	
Dichlorofluoromethane	**<0.25**	ug/L	1.0	0.25	1		08/08/11 15:23	75-43-4	
1,2-Dichloropropane	**<0.41**	ug/L	4.0	0.41	1		08/08/11 15:23	78-87-5	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: ERB SOIL **Lab ID: 10165707010** Collected: 08/03/11 17:30 Received: 08/05/11 09:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC	Analytical Method: EPA 8260								
1,3-Dichloropropane	**<0.36**	ug/L	1.0	0.36	1		08/08/11 15:23	142-28-9	
2,2-Dichloropropane	**<0.42**	ug/L	4.0	0.42	1		08/08/11 15:23	594-20-7	
1,1-Dichloropropene	**<0.46**	ug/L	1.0	0.46	1		08/08/11 15:23	563-58-6	
cis-1,3-Dichloropropene	**<0.27**	ug/L	4.0	0.27	1		08/08/11 15:23	10061-01-5	
trans-1,3-Dichloropropene	**<0.18**	ug/L	4.0	0.18	1		08/08/11 15:23	10061-02-6	
Diethyl ether (Ethyl ether)	**<0.28**	ug/L	4.0	0.28	1		08/08/11 15:23	60-29-7	
Ethylbenzene	**<0.38**	ug/L	1.0	0.38	1		08/08/11 15:23	100-41-4	
Hexachloro-1,3-butadiene	**<0.20**	ug/L	5.0	0.20	1		08/08/11 15:23	87-68-3	
Isopropylbenzene (Cumene)	**<0.36**	ug/L	1.0	0.36	1		08/08/11 15:23	98-82-8	
p-Isopropyltoluene	**<0.36**	ug/L	1.0	0.36	1		08/08/11 15:23	99-87-6	
Methylene Chloride	**<2.0**	ug/L	4.0	2.0	1		08/08/11 15:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<2.0**	ug/L	4.0	2.0	1		08/08/11 15:23	108-10-1	
Methyl-tert-butyl ether	**<0.24**	ug/L	1.0	0.24	1		08/08/11 15:23	1634-04-4	
Naphthalene	**<0.57**	ug/L	4.0	0.57	1		08/08/11 15:23	91-20-3	
n-Propylbenzene	**<0.42**	ug/L	1.0	0.42	1		08/08/11 15:23	103-65-1	
Styrene	**<0.35**	ug/L	1.0	0.35	1		08/08/11 15:23	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.35**	ug/L	1.0	0.35	1		08/08/11 15:23	630-20-6	
1,1,2,2-Tetrachloroethane	**<0.17**	ug/L	1.0	0.17	1		08/08/11 15:23	79-34-5	
Tetrachloroethene	**<0.26**	ug/L	1.0	0.26	1		08/08/11 15:23	127-18-4	
Tetrahydrofuran	**<4.1**	ug/L	10.0	4.1	1		08/08/11 15:23	109-99-9	
Toluene	**<0.39**	ug/L	1.0	0.39	1		08/08/11 15:23	108-88-3	
1,2,3-Trichlorobenzene	**<0.29**	ug/L	1.0	0.29	1		08/08/11 15:23	87-61-6	
1,2,4-Trichlorobenzene	**<0.33**	ug/L	1.0	0.33	1		08/08/11 15:23	120-82-1	
1,1,1-Trichloroethane	**<0.26**	ug/L	1.0	0.26	1		08/08/11 15:23	71-55-6	
1,1,2-Trichloroethane	**<0.38**	ug/L	1.0	0.38	1		08/08/11 15:23	79-00-5	
Trichloroethene	**<0.20**	ug/L	1.0	0.20	1		08/08/11 15:23	79-01-6	
Trichlorofluoromethane	**<0.30**	ug/L	1.0	0.30	1		08/08/11 15:23	75-69-4	L3
1,2,3-Trichloropropane	**<0.25**	ug/L	4.0	0.25	1		08/08/11 15:23	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<0.49**	ug/L	1.0	0.49	1		08/08/11 15:23	76-13-1	
1,2,4-Trimethylbenzene	**<0.26**	ug/L	1.0	0.26	1		08/08/11 15:23	95-63-6	
1,3,5-Trimethylbenzene	**<0.38**	ug/L	1.0	0.38	1		08/08/11 15:23	108-67-8	
Vinyl chloride	**<0.17**	ug/L	0.40	0.17	1		08/08/11 15:23	75-01-4	
Xylene (Total)	**<1.1**	ug/L	3.0	1.1	1		08/08/11 15:23	1330-20-7	
m&p-Xylene	**<0.66**	ug/L	2.0	0.66	1		08/08/11 15:23	179601-23-1	
o-Xylene	**<0.46**	ug/L	1.0	0.46	1		08/08/11 15:23	95-47-6	
Dibromofluoromethane (S)	106	%	75-125		1		08/08/11 15:23	1868-53-7	
1,2-Dichloroethane-d4 (S)	98	%	75-125		1		08/08/11 15:23	17060-07-0	
Toluene-d8 (S)	97	%	75-125		1		08/08/11 15:23	2037-26-5	
4-Bromofluorobenzene (S)	97	%	75-125		1		08/08/11 15:23	460-00-4	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<107**	ug/L	215	107	1	08/08/11 08:30	08/09/11 08:30		
1-Chloro-octadecane (S)	80	%	40-140		1	08/08/11 08:30	08/09/11 08:30	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.15**	ug/L	0.50	0.15	1		08/09/11 07:16	1634-04-4	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: ERB SOIL **Lab ID: 10165707010** Collected: 08/03/11 17:30 Received: 08/05/11 09:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Benzene	**0.27J**	ug/L	0.50	0.11	1		08/09/11 07:16	71-43-2	
Toluene	**<0.089**	ug/L	0.50	0.089	1		08/09/11 07:16	108-88-3	
Ethylbenzene	**<0.13**	ug/L	0.50	0.13	1		08/09/11 07:16	100-41-4	
m&p-Xylene	**<0.25**	ug/L	1.0	0.25	1		08/09/11 07:16	179601-23-1	
o-Xylene	**<0.11**	ug/L	0.50	0.11	1		08/09/11 07:16	95-47-6	
Xylene (Total)	**<0.36**	ug/L	1.5	0.36	1		08/09/11 07:16	1330-20-7	
Naphthalene	**<2.5**	ug/L	5.0	2.5	1		08/09/11 07:16	91-20-3	
Aliphatic (C05-C08), Adjusted	**<10.0**	ug/L	20.0	10.0	1		08/09/11 07:16		
Aliphatic (C09-C12), Adjusted	**<2.4**	ug/L	20.0	2.4	1		08/09/11 07:16		
Aromatic (C09-C10)	**<0.16**	ug/L	20.0	0.16	1		08/09/11 07:16		
Total Purgeable Hydro Carbons	**<5.4**	ug/L	20.0	5.4	1		08/09/11 07:16		
Aliphatic (C09-C12).Unadjusted	**<2.4**	ug/L	20.0	2.4	1		08/09/11 07:16		
Aliphatic (C05-C08).Unadjusted	**<10.0**	ug/L	20.0	10.0	1		08/09/11 07:16		
a,a,a-Trifluorotoluene (S)	96	%	70-130		1		08/09/11 07:16	98-08-8	

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ANALYTICAL RESULTS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Sample: TRIP BLANK **Lab ID: 10165707011** Collected: 08/03/11 00:00 Received: 08/05/11 09:45 Matrix: Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.15**	ug/L	0.50	0.15	1		08/09/11 12:19	1634-04-4	
Benzene	**<0.11**	ug/L	0.50	0.11	1		08/09/11 12:19	71-43-2	
Toluene	**0.13J**	ug/L	0.50	0.089	1		08/09/11 12:19	108-88-3	
Ethylbenzene	**<0.13**	ug/L	0.50	0.13	1		08/09/11 12:19	100-41-4	
m&p-Xylene	**<0.25**	ug/L	1.0	0.25	1		08/09/11 12:19	179601-23-1	
o-Xylene	**<0.11**	ug/L	0.50	0.11	1		08/09/11 12:19	95-47-6	
Xylene (Total)	**<0.36**	ug/L	1.5	0.36	1		08/09/11 12:19	1330-20-7	
Naphthalene	**<2.5**	ug/L	5.0	2.5	1		08/09/11 12:19	91-20-3	
Aliphatic (C05-C08), Adjusted	**<10.0**	ug/L	20.0	10.0	1		08/09/11 12:19		
Aliphatic (C09-C12), Adjusted	**<2.4**	ug/L	20.0	2.4	1		08/09/11 12:19		
Aromatic (C09-C10)	**<0.16**	ug/L	20.0	0.16	1		08/09/11 12:19		
Total Purgeable Hydro Carbons	**<5.4**	ug/L	20.0	5.4	1		08/09/11 12:19		
Aliphatic (C09-C12).Unadjusted	**<2.4**	ug/L	20.0	2.4	1		08/09/11 12:19		
Aliphatic (C05-C08).Unadjusted	**<10.0**	ug/L	20.0	10.0	1		08/09/11 12:19		
a,a,a-Trifluorotoluene (S)	97	%	70-130		1		08/09/11 12:19	98-08-8	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MPRP/27600 | Analysis Method: EPA 6010
QC Batch Method: EPA 3050 | Analysis Description: 6010 MET
Associated Lab Samples: 10165707002, 10165707003

METHOD BLANK: 1029103 | Matrix: Solid
Associated Lab Samples: 10165707002, 10165707003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	0.25J	0.50	08/10/11 15:24	
Barium	mg/kg	<0.020	0.50	08/10/11 15:24	
Cadmium	mg/kg	<0.0099	0.050	08/10/11 15:24	
Chromium	mg/kg	<0.069	0.50	08/10/11 15:24	
Lead	mg/kg	<0.050	0.30	08/10/11 15:24	
Selenium	mg/kg	<0.13	0.74	08/10/11 15:24	
Silver	mg/kg	<0.030	0.50	08/10/11 15:24	

LABORATORY CONTROL SAMPLE: 1029104

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	45	43.0	96	80-120	
Barium	mg/kg	45	42.3	94	80-120	
Cadmium	mg/kg	45	40.0	89	80-120	
Chromium	mg/kg	45	42.6	95	80-120	
Lead	mg/kg	45	42.1	93	80-120	
Selenium	mg/kg	45	39.4	87	80-120	
Silver	mg/kg	22.5	20.6	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1029105 1029106

Parameter	Units	10165818001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	23.0	58.7	54.8	76.6	70.5	91	87	75-125	8	30	
Barium	mg/kg	255	58.7	54.8	275	255	34	.2	75-125	7	30	M1
Cadmium	mg/kg	1.3	58.7	54.8	47.9	44.9	79	80	75-125	7	30	
Chromium	mg/kg	28.1	58.7	54.8	64.5	60.4	62	59	75-125	7	30	M1
Lead	mg/kg	397	58.7	54.8	385	346	-20	-93	75-125	11	30	P6
Selenium	mg/kg	ND	58.7	54.8	46.7	42.5	78	76	75-125	9	30	
Silver	mg/kg	ND	29.4	27.4	24.9	23.5	85	86	75-125	6	30	

MATRIX SPIKE SAMPLE: 1029107

Parameter	Units	10165707003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	11.5	43.7	45.8	79	75-125	
Barium	mg/kg	109	43.7	139	68	75-125	M1
Cadmium	mg/kg	0.84	43.7	34.2	77	75-125	
Chromium	mg/kg	8.4	43.7	41.4	76	75-125	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

MATRIX SPIKE SAMPLE: 1029107

Parameter	Units	10165707003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	mg/kg	11.1	43.7	43.8	75	75-125	
Selenium	mg/kg	<0.13	43.7	32.8	75	75-125	
Silver	mg/kg	<0.029	21.8	17.4	80	75-125	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MPRP/27632 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 10165707001, 10165707004, 10165707005, 10165707006, 10165707007, 10165707008, 10165707009

METHOD BLANK: 1030105 Matrix: Solid
Associated Lab Samples: 10165707001, 10165707004, 10165707005, 10165707006, 10165707007, 10165707008, 10165707009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	<0.24	0.48	08/16/11 10:04	
Barium	mg/kg	<0.019	0.48	08/16/11 10:04	
Cadmium	mg/kg	0.019J	0.048	08/16/11 10:04	
Chromium	mg/kg	<0.067	0.48	08/16/11 10:04	
Lead	mg/kg	<0.048	0.29	08/16/11 10:04	
Selenium	mg/kg	0.17J	0.72	08/16/11 10:04	
Silver	mg/kg	<0.029	0.48	08/16/11 10:04	

LABORATORY CONTROL SAMPLE: 1030106

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	50	43.3	87	80-120	
Barium	mg/kg	50	46.4	93	80-120	
Cadmium	mg/kg	50	44.6	89	80-120	
Chromium	mg/kg	50	46.9	94	80-120	
Lead	mg/kg	50	44.7	89	80-120	
Selenium	mg/kg	50	41.5	83	80-120	
Silver	mg/kg	25	22.7	91	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1030107 1030108

Parameter	Units	10165707001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	3.3	47.1	50.6	41.5	45.3	81	83	75-125	9	30	
Barium	mg/kg	85.6	47.1	50.6	122	114	78	55	75-125	7	30	M1
Cadmium	mg/kg	0.13	47.1	50.6	40.9	44.1	87	87	75-125	8	30	
Chromium	mg/kg	6.7	47.1	50.6	47.4	48.3	86	82	75-125	2	30	
Lead	mg/kg	20.1	47.1	50.6	56.4	53.9	77	67	75-125	5	30	M1
Selenium	mg/kg	1.2	47.1	50.6	38.1	40.6	78	78	75-125	6	30	
Silver	mg/kg	<0.033	23.5	25.4	21.0	22.8	89	90	75-125	8	30	

MATRIX SPIKE SAMPLE: 1030109

Parameter	Units	10165753012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	6.3	54.6	51.8	83	75-125	
Barium	mg/kg	600	54.6	534	-122	75-125	P6
Cadmium	mg/kg	2.5	54.6	41.9	72	75-125	M1
Chromium	mg/kg	56.0	54.6	82.5	49	75-125	M1

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

MATRIX SPIKE SAMPLE: 1030109

Parameter	Units	10165753012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Lead	mg/kg	217	54.6	895	1240	75-125	M1
Selenium	mg/kg	ND	54.6	34.5	63	75-125	M1
Silver	mg/kg	111	27.2	23.2	-320	75-125	M1

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MPRP/27633 | Analysis Method: EPA 6010
QC Batch Method: EPA 3010 | Analysis Description: 6010 MET
Associated Lab Samples: 10165707010

METHOD BLANK: 1030110 | Matrix: Water
Associated Lab Samples: 10165707010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<3.4	10.0	08/12/11 17:10	
Barium	ug/L	<0.37	10.0	08/12/11 17:10	
Cadmium	ug/L	<0.23	1.0	08/12/11 17:10	
Chromium	ug/L	<1.7	10.0	08/12/11 17:10	
Lead	ug/L	2.2J	3.0	08/12/11 17:10	
Selenium	ug/L	<2.7	15.0	08/12/11 17:10	
Silver	ug/L	<0.29	10.0	08/12/11 17:10	

LABORATORY CONTROL SAMPLE: 1030111

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	970	97	80-120	
Barium	ug/L	1000	977	98	80-120	
Cadmium	ug/L	1000	971	97	80-120	
Chromium	ug/L	1000	961	96	80-120	
Lead	ug/L	1000	1010	101	80-120	
Selenium	ug/L	1000	977	98	80-120	
Silver	ug/L	500	487	97	80-120	

MATRIX SPIKE SAMPLE: 1030114

Parameter	Units	10165694021 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	<10.0	1000	948	95	80-120	
Barium	ug/L	<10.0	1000	976	98	80-120	
Cadmium	ug/L	<1.0	1000	963	96	80-120	
Chromium	ug/L	<10.0	1000	965	96	80-120	
Lead	ug/L	<3.0	1000	972	97	80-120	
Selenium	ug/L	<15.0	1000	953	95	80-120	
Silver	ug/L	<10.0	500	484	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1032129 1032130

Parameter	Units	10165742001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	1000	1000	970	960	97	96	80-120	1	30	
Barium	ug/L	17.2	1000	1000	985	973	97	96	80-120	1	30	
Cadmium	ug/L	ND	1000	1000	968	956	97	96	80-120	1	30	
Chromium	ug/L	ND	1000	1000	957	947	96	95	80-120	1	30	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1032129 1032130

Parameter	Units	10165742001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Lead	ug/L	ND	1000	1000	989	974	99	97	80-120	1	30	
Selenium	ug/L	ND	1000	1000	969	964	96	96	80-120	.5	30	
Silver	ug/L	ND	500	500	487	482	97	96	80-120	1	30	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MERP/5769 | Analysis Method: EPA 7470
QC Batch Method: EPA 7470 | Analysis Description: 7470 Mercury
Associated Lab Samples: 10165707010

METHOD BLANK: 1030595 | Matrix: Water
Associated Lab Samples: 10165707010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.037	0.20	08/12/11 14:32	

LABORATORY CONTROL SAMPLE: 1030596

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.9	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1030597 1030598

Parameter	Units	10165707010 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	<0.037	5	5	3.6	4.4	72	87	80-120	19	20	M1

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MERP/5760 Analysis Method: EPA 7471
QC Batch Method: EPA 7471 Analysis Description: 7471 Mercury
Associated Lab Samples: 10165707001, 10165707002, 10165707003, 10165707004, 10165707005, 10165707006, 10165707007, 10165707008, 10165707009

METHOD BLANK: 1029680 Matrix: Solid
Associated Lab Samples: 10165707001, 10165707002, 10165707003, 10165707004, 10165707005, 10165707006, 10165707007, 10165707008, 10165707009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	<0.0016	0.020	08/16/11 15:34	

LABORATORY CONTROL SAMPLE: 1029681

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	.48	0.47	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1029682 1029683

Parameter	Units	10165707001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.011J	.49	.54	0.55	0.58	109	105	80-120	6	20	

MATRIX SPIKE SAMPLE: 1029684

Parameter	Units	10165740005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	1.9	2.2	3.4	64	80-120	M1

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MPRP/27598 Analysis Method: % Moisture
QC Batch Method: % Moisture Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10165707001, 10165707002, 10165707003, 10165707004, 10165707005, 10165707006, 10165707007, 10165707008, 10165707009

SAMPLE DUPLICATE: 1029033

Parameter	Units	10165373001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	25.9	25.5	2	30	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: OEXT/16556 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3550 Analysis Description: 8270 Solid PAH by SIM MSSV
Associated Lab Samples: 10165707002, 10165707003, 10165707004, 10165707005, 10165707009

METHOD BLANK: 1048466 Matrix: Solid
Associated Lab Samples: 10165707002, 10165707003, 10165707004, 10165707005, 10165707009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/kg	<0.00030	0.010	09/08/11 16:29	
Acenaphthylene	mg/kg	<0.00030	0.010	09/08/11 16:29	
Anthracene	mg/kg	<0.0050	0.010	09/08/11 16:29	
Benzo(a)anthracene	mg/kg	<0.0050	0.010	09/08/11 16:29	
Benzo(a)pyrene	mg/kg	<0.0050	0.010	09/08/11 16:29	
Benzo(b)fluoranthene	mg/kg	<0.00050	0.010	09/08/11 16:29	
Benzo(g,h,i)perylene	mg/kg	<0.00050	0.010	09/08/11 16:29	
Benzo(k)fluoranthene	mg/kg	<0.00060	0.010	09/08/11 16:29	
Chrysene	mg/kg	<0.00050	0.010	09/08/11 16:29	
Dibenz(a,h)anthracene	mg/kg	<0.00050	0.010	09/08/11 16:29	
Fluoranthene	mg/kg	<0.0050	0.010	09/08/11 16:29	
Fluorene	mg/kg	<0.00040	0.010	09/08/11 16:29	
Indeno(1,2,3-cd)pyrene	mg/kg	<0.00050	0.010	09/08/11 16:29	
Naphthalene	mg/kg	<0.00060	0.010	09/08/11 16:29	
Phenanthrene	mg/kg	<0.0050	0.010	09/08/11 16:29	
Pyrene	mg/kg	<0.00040	0.010	09/08/11 16:29	
2-Fluorobiphenyl (S)	%	77	30-130	09/08/11 16:29	
Terphenyl-d14 (S)	%	91	30-150	09/08/11 16:29	

LABORATORY CONTROL SAMPLE: 1048467

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	mg/kg	.033	0.019	57	56-125	
Acenaphthylene	mg/kg	.033	0.019	57	49-125	
Anthracene	mg/kg	.033	0.022	67	49-125	
Benzo(a)anthracene	mg/kg	.033	0.025	74	60-125	
Benzo(a)pyrene	mg/kg	.033	0.029	87	58-125	
Benzo(b)fluoranthene	mg/kg	.033	0.030	90	63-125	
Benzo(g,h,i)perylene	mg/kg	.033	0.027	80	56-125	
Benzo(k)fluoranthene	mg/kg	.033	0.025	76	56-127	
Chrysene	mg/kg	.033	0.026	77	60-125	
Dibenz(a,h)anthracene	mg/kg	.033	0.027	80	57-125	
Fluoranthene	mg/kg	.033	0.026	79	58-125	
Fluorene	mg/kg	.033	0.021	62	53-125	
Indeno(1,2,3-cd)pyrene	mg/kg	.033	0.026	79	56-125	
Naphthalene	mg/kg	.033	0.019	57	56-125	
Phenanthrene	mg/kg	.033	0.023	68	53-125	
Pyrene	mg/kg	.033	0.027	81	60-125	
2-Fluorobiphenyl (S)	%			59	30-130	
Terphenyl-d14 (S)	%			79	30-150	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1048468 1048469

Parameter	Units	10168383001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	mg/kg	<26.0 ug/kg	.043	.043	0.048	0.036	111	84	30-150	29	30	
Acenaphthylene	mg/kg	<26.0 ug/kg	.043	.043	0.066	0.042	153	96	30-150	45	30	D6,M1
Anthracene	mg/kg	<26.0 ug/kg	.043	.043	0.061	0.036	141	83	30-150	52	30	D6
Benzo(a)anthracene	mg/kg	<26.0 ug/kg	.043	.043	0.045	0.041	103	96	30-150	8	30	
Benzo(a)pyrene	mg/kg	<26.0 ug/kg	.043	.043	0.055	0.045	126	104	30-150	19	30	
Benzo(b)fluoranthene	mg/kg	<26.0 ug/kg	.043	.043	0.077	0.060	178	139	30-150	25	30	M1
Benzo(g,h,i)perylene	mg/kg	<26.0 ug/kg	.043	.043	0.030	0.030	70	70	30-150	.2	30	
Benzo(k)fluoranthene	mg/kg	<26.0 ug/kg	.043	.043	0.039	0.041	90	94	30-150	4	30	
Chrysene	mg/kg	82.5 ug/kg	.043	.043	0.14	0.086	142	7	30-150	51	30	D6,M1
Dibenz(a,h)anthracene	mg/kg	<26.0 ug/kg	.043	.043	0.028	0.030	65	69	30-150	6	30	
Fluoranthene	mg/kg	<26.0 ug/kg	.043	.043	0.054	0.045	124	105	30-150	17	30	
Fluorene	mg/kg	<26.0 ug/kg	.043	.043	0.049	0.033	113	77	30-150	39	30	D6
Indeno(1,2,3-cd)pyrene	mg/kg	<26.0 ug/kg	.043	.043	0.030	0.029	68	67	30-150	2	30	
Naphthalene	mg/kg	<26.0 ug/kg	.043	.043	0.033	0.035	77	81	30-150	5	30	
Phenanthrene	mg/kg	<26.0 ug/kg	.043	.043	0.14	0.058	320	134	30-150	82	30	D6,M1
Pyrene	mg/kg	36.8 ug/kg	.043	.043	0.097	0.066	138	67	30-150	38	30	D6
2-Fluorobiphenyl (S)	%						78	81	30-130			D3
Terphenyl-d14 (S)	%						76	89	30-150			

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MSV/17598 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 5035 Low Level
Associated Lab Samples: 10165707001, 10165707002, 10165707003, 10165707005, 10165707006, 10165707007, 10165707008

METHOD BLANK: 1029230 Matrix: Solid
Associated Lab Samples: 10165707001, 10165707002, 10165707003, 10165707005, 10165707006, 10165707007, 10165707008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	<1.0	4.0	08/09/11 19:28	
1,1,1-Trichloroethane	ug/kg	<0.88	4.0	08/09/11 19:28	
1,1,2,2-Tetrachloroethane	ug/kg	<1.2	4.0	08/09/11 19:28	
1,1,2-Trichloroethane	ug/kg	<0.89	4.0	08/09/11 19:28	
1,1,2-Trichlorotrifluoroethane	ug/kg	<1.0	4.0	08/09/11 19:28	
1,1-Dichloroethane	ug/kg	<0.99	4.0	08/09/11 19:28	
1,1-Dichloroethene	ug/kg	<0.80	4.0	08/09/11 19:28	
1,1-Dichloropropene	ug/kg	<0.79	4.0	08/09/11 19:28	
1,2,3-Trichlorobenzene	ug/kg	<1.1	4.0	08/09/11 19:28	
1,2,3-Trichloropropane	ug/kg	<0.81	4.0	08/09/11 19:28	
1,2,4-Trichlorobenzene	ug/kg	<0.80	4.0	08/09/11 19:28	
1,2,4-Trimethylbenzene	ug/kg	<0.82	4.0	08/09/11 19:28	
1,2-Dibromo-3-chloropropane	ug/kg	<2.0	10.0	08/09/11 19:28	
1,2-Dibromoethane (EDB)	ug/kg	<1.3	4.0	08/09/11 19:28	
1,2-Dichlorobenzene	ug/kg	<0.52	4.0	08/09/11 19:28	
1,2-Dichloroethane	ug/kg	<1.2	4.0	08/09/11 19:28	
1,2-Dichloropropane	ug/kg	<0.93	4.0	08/09/11 19:28	
1,3,5-Trimethylbenzene	ug/kg	<0.64	4.0	08/09/11 19:28	
1,3-Dichlorobenzene	ug/kg	<0.82	4.0	08/09/11 19:28	
1,3-Dichloropropane	ug/kg	<0.89	4.0	08/09/11 19:28	
1,4-Dichlorobenzene	ug/kg	<0.88	4.0	08/09/11 19:28	
2,2-Dichloropropane	ug/kg	<1.0	10.0	08/09/11 19:28	
2-Butanone (MEK)	ug/kg	<10.0	20.0	08/09/11 19:28	
2-Chlorotoluene	ug/kg	<0.94	4.0	08/09/11 19:28	
4-Chlorotoluene	ug/kg	<0.87	4.0	08/09/11 19:28	
4-Methyl-2-pentanone (MIBK)	ug/kg	<10.0	20.0	08/09/11 19:28	
Acetone	ug/kg	<12.5	25.0	08/09/11 19:28	
Allyl chloride	ug/kg	<0.82	10.0	08/09/11 19:28	
Benzene	ug/kg	<0.62	4.0	08/09/11 19:28	
Bromobenzene	ug/kg	<0.79	4.0	08/09/11 19:28	
Bromochloromethane	ug/kg	<1.2	4.0	08/09/11 19:28	
Bromodichloromethane	ug/kg	<0.72	4.0	08/09/11 19:28	
Bromoform	ug/kg	<0.78	20.0	08/09/11 19:28	
Bromomethane	ug/kg	<2.1	20.0	08/09/11 19:28	
Carbon tetrachloride	ug/kg	<1.2	4.0	08/09/11 19:28	
Chlorobenzene	ug/kg	<0.89	4.0	08/09/11 19:28	
Chloroethane	ug/kg	<1.1	10.0	08/09/11 19:28	
Chloroform	ug/kg	<0.91	4.0	08/09/11 19:28	
Chloromethane	ug/kg	<0.71	10.0	08/09/11 19:28	
cis-1,2-Dichloroethene	ug/kg	<1.1	4.0	08/09/11 19:28	
cis-1,3-Dichloropropene	ug/kg	<0.79	4.0	08/09/11 19:28	
Dibromochloromethane	ug/kg	<1.4	4.0	08/09/11 19:28	
Dibromomethane	ug/kg	<1.5	4.0	08/09/11 19:28	

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(406)254-7226

QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

METHOD BLANK: 1029230 Matrix: Solid

Associated Lab Samples: 10165707001, 10165707002, 10165707003, 10165707005, 10165707006, 10165707007, 10165707008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/kg	<1.2	10.0	08/09/11 19:28	
Dichlorofluoromethane	ug/kg	<0.97	4.0	08/09/11 19:28	
Diethyl ether (Ethyl ether)	ug/kg	<1.4	10.0	08/09/11 19:28	
Ethylbenzene	ug/kg	<0.49	4.0	08/09/11 19:28	
Hexachloro-1,3-butadiene	ug/kg	<0.81	10.0	08/09/11 19:28	
Isopropylbenzene (Cumene)	ug/kg	<0.71	4.0	08/09/11 19:28	
Methyl-tert-butyl ether	ug/kg	<0.80	4.0	08/09/11 19:28	
Methylene Chloride	ug/kg	<10.0	20.0	08/09/11 19:28	
n-Butylbenzene	ug/kg	<0.95	4.0	08/09/11 19:28	
n-Propylbenzene	ug/kg	<0.82	4.0	08/09/11 19:28	
Naphthalene	ug/kg	<0.83	10.0	08/09/11 19:28	
p-Isopropyltoluene	ug/kg	<0.91	4.0	08/09/11 19:28	
sec-Butylbenzene	ug/kg	<0.69	4.0	08/09/11 19:28	
Styrene	ug/kg	<0.62	4.0	08/09/11 19:28	
tert-Butylbenzene	ug/kg	<0.96	4.0	08/09/11 19:28	
Tetrachloroethene	ug/kg	<1.3	4.0	08/09/11 19:28	
Tetrahydrofuran	ug/kg	<10.4	40.0	08/09/11 19:28	
Toluene	ug/kg	1.6J	4.0	08/09/11 19:28	
trans-1,2-Dichloroethene	ug/kg	<0.53	4.0	08/09/11 19:28	
trans-1,3-Dichloropropene	ug/kg	<1.2	4.0	08/09/11 19:28	
Trichloroethene	ug/kg	<0.69	4.0	08/09/11 19:28	
Trichlorofluoromethane	ug/kg	<1.2	10.0	08/09/11 19:28	
Vinyl chloride	ug/kg	<1.3	4.0	08/09/11 19:28	
Xylene (Total)	ug/kg	<2.8	12.0	08/09/11 19:28	
1,2-Dichloroethane-d4 (S)	%	97	75-138	08/09/11 19:28	
4-Bromofluorobenzene (S)	%	106	75-125	08/09/11 19:28	
Dibromofluoromethane (S)	%	92	75-125	08/09/11 19:28	
Toluene-d8 (S)	%	100	75-125	08/09/11 19:28	

LABORATORY CONTROL SAMPLE: 1029231

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	50	42.7	85	75-125	
1,1,1-Trichloroethane	ug/kg	50	42.7	85	70-134	
1,1,2,2-Tetrachloroethane	ug/kg	50	48.9	98	75-130	
1,1,2-Trichloroethane	ug/kg	50	47.9	96	75-125	
1,1,2-Trichlorotrifluoroethane	ug/kg	50	38.3	77	70-130	
1,1-Dichloroethane	ug/kg	50	43.1	86	75-126	
1,1-Dichloroethene	ug/kg	50	45.2	90	70-130	
1,1-Dichloropropene	ug/kg	50	42.5	85	70-130	
1,2,3-Trichlorobenzene	ug/kg	50	42.9	86	75-130	
1,2,3-Trichloropropane	ug/kg	50	43.4	87	75-130	
1,2,4-Trichlorobenzene	ug/kg	50	41.6	83	75-130	
1,2,4-Trimethylbenzene	ug/kg	50	43.8	88	75-126	
1,2-Dibromo-3-chloropropane	ug/kg	50	46.9	94	70-130	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

LABORATORY CONTROL SAMPLE: 1029231

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromoethane (EDB)	ug/kg	50	49.0	98	75-125	
1,2-Dichlorobenzene	ug/kg	50	44.6	89	75-125	
1,2-Dichloroethane	ug/kg	50	43.1	86	75-128	
1,2-Dichloropropane	ug/kg	50	44.9	90	75-125	
1,3,5-Trimethylbenzene	ug/kg	50	45.1	90	75-130	
1,3-Dichlorobenzene	ug/kg	50	44.2	88	75-125	
1,3-Dichloropropane	ug/kg	50	46.7	93	75-125	
1,4-Dichlorobenzene	ug/kg	50	42.9	86	75-125	
2,2-Dichloropropane	ug/kg	50	41.2	82	70-130	
2-Butanone (MEK)	ug/kg	50	57.3	115	70-130	CH
2-Chlorotoluene	ug/kg	50	45.4	91	75-130	
4-Chlorotoluene	ug/kg	50	45.5	91	75-130	
4-Methyl-2-pentanone (MIBK)	ug/kg	50	47.3	95	70-130	
Acetone	ug/kg	125	178	142	70-130	CH,L0
Allyl chloride	ug/kg	50	45.3	91	75-130	
Benzene	ug/kg	50	44.0	88	71-130	
Bromobenzene	ug/kg	50	45.1	90	75-125	
Bromochloromethane	ug/kg	50	45.2	90	72-130	
Bromodichloromethane	ug/kg	50	44.0	88	75-128	
Bromoform	ug/kg	50	40.3	81	75-129	
Bromomethane	ug/kg	50	43.7	87	70-130	
Carbon tetrachloride	ug/kg	50	38.6	77	70-130	
Chlorobenzene	ug/kg	50	44.1	88	75-125	
Chloroethane	ug/kg	50	39.5	79	70-130	
Chloroform	ug/kg	50	42.5	85	73-130	
Chloromethane	ug/kg	50	43.1	86	70-128	
cis-1,2-Dichloroethene	ug/kg	50	43.0	86	70-130	
cis-1,3-Dichloropropene	ug/kg	50	45.4	91	75-126	
Dibromochloromethane	ug/kg	50	41.8	84	75-126	
Dibromomethane	ug/kg	50	44.8	90	72-129	
Dichlorodifluoromethane	ug/kg	50	37.6	75	70-130	
Dichlorofluoromethane	ug/kg	50	44.2	88	70-130	
Diethyl ether (Ethyl ether)	ug/kg	50	46.5	93	72-130	
Ethylbenzene	ug/kg	50	44.7	89	75-128	
Hexachloro-1,3-butadiene	ug/kg	25	19.6	78	70-130	
Isopropylbenzene (Cumene)	ug/kg	50	45.1	90	75-128	
Methyl-tert-butyl ether	ug/kg	50	42.5	85	74-128	
Methylene Chloride	ug/kg	50	43.4	87	70-130	
n-Butylbenzene	ug/kg	50	45.2	90	75-130	
n-Propylbenzene	ug/kg	50	45.6	91	75-130	
Naphthalene	ug/kg	50	46.5	93	75-130	
p-Isopropyltoluene	ug/kg	50	45.0	90	75-130	
sec-Butylbenzene	ug/kg	50	45.9	92	75-130	
Styrene	ug/kg	50	44.6	89	75-126	
tert-Butylbenzene	ug/kg	50	45.3	91	75-130	
Tetrachloroethene	ug/kg	50	43.7	87	74-130	
Tetrahydrofuran	ug/kg	500	450	90	70-130	
Toluene	ug/kg	50	45.7	91	75-125	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

LABORATORY CONTROL SAMPLE: 1029231

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
trans-1,2-Dichloroethene	ug/kg	50	43.3	87	75-128	
trans-1,3-Dichloropropene	ug/kg	50	46.0	92	70-130	
Trichloroethene	ug/kg	50	45.5	91	75-126	
Trichlorofluoromethane	ug/kg	50	43.8	88	70-130	
Vinyl chloride	ug/kg	50	44.0	88	70-126	
Xylene (Total)	ug/kg	150	134	90	75-128	
1,2-Dichloroethane-d4 (S)	%			93	75-138	
4-Bromofluorobenzene (S)	%			104	75-125	
Dibromofluoromethane (S)	%			92	75-125	
Toluene-d8 (S)	%			100	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1029232 1029233

Parameter	Units	10165707002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/kg	<1.1	50.6	52.3	35.0	40.9	69	78	70-130	16	20	M1
1,1,1-Trichloroethane	ug/kg	<0.93	50.6	52.3	33.3	41.1	66	79	70-130	21	20	D6,M1
1,1,2,2-Tetrachloroethane	ug/kg	<1.2	50.6	52.3	65.5	60.6	130	116	70-130	8	20	
1,1,2-Trichloroethane	ug/kg	<0.94	50.6	52.3	51.4	49.0	102	94	70-130	5	20	
1,1,2-Trichlorotrifluoroethane	ug/kg	<1.1	50.6	52.3	25.6	31.1	51	59	70-130	19	20	M1
1,1-Dichloroethane	ug/kg	<1.0	50.6	52.3	38.5	45.1	76	86	70-130	16	20	
1,1-Dichloroethene	ug/kg	<0.84	50.6	52.3	35.7	43.7	71	84	70-130	20	20	
1,1-Dichloropropene	ug/kg	<0.83	50.6	52.3	33.4	40.4	66	77	70-130	19	20	M1
1,2,3-Trichlorobenzene	ug/kg	<1.2	50.6	52.3	34.0	28.0	67	53	70-130	20	20	M1
1,2,3-Trichloropropane	ug/kg	<0.85	50.6	52.3	59.6	49.3	118	94	70-130	19	20	
1,2,4-Trichlorobenzene	ug/kg	<0.84	50.6	52.3	27.9	22.6	55	43	70-130	21	20	D6,M1
1,2,4-Trimethylbenzene	ug/kg	<0.86	50.6	52.3	28.1	35.5	56	68	70-130	23	20	D6,M1
1,2-Dibromo-3-chloropropane	ug/kg	<2.1	50.6	52.3	78.0	54.3	154	104	70-130	36	20	D6,M1
1,2-Dibromoethane (EDB)	ug/kg	<1.4	50.6	52.3	56.8	50.9	112	97	70-130	11	20	
1,2-Dichlorobenzene	ug/kg	<0.55	50.6	52.3	34.2	37.6	68	72	70-130	10	20	M1
1,2-Dichloroethane	ug/kg	<1.3	50.6	52.3	48.7	45.4	96	87	70-130	7	20	
1,2-Dichloropropane	ug/kg	<0.98	50.6	52.3	43.6	46.2	86	88	70-130	6	20	
1,3,5-Trimethylbenzene	ug/kg	<0.67	50.6	52.3	27.4	35.2	54	67	70-130	25	20	D6,M1
1,3-Dichlorobenzene	ug/kg	<0.86	50.6	52.3	31.8	36.7	63	70	70-130	14	20	M1
1,3-Dichloropropane	ug/kg	<0.94	50.6	52.3	50.6	49.2	100	94	70-130	3	20	
1,4-Dichlorobenzene	ug/kg	<0.93	50.6	52.3	32.1	36.7	63	70	70-130	13	20	M1
2,2-Dichloropropane	ug/kg	<1.1	50.6	52.3	32.0	39.1	63	75	70-130	20	20	M1
2-Butanone (MEK)	ug/kg	<10.5	50.6	52.3	177	118	351	226	70-130	40	20	CH,D6,M1
2-Chlorotoluene	ug/kg	<0.99	50.6	52.3	30.3	39.7	60	76	70-130	27	20	D6,M1
4-Chlorotoluene	ug/kg	<0.92	50.6	52.3	32.1	39.1	63	75	70-130	20	20	M1
4-Methyl-2-pentanone (MIBK)	ug/kg	<10.5	50.6	52.3	177	127	350	242	70-130	33	20	D6,M1
Acetone	ug/kg	<13.1	127	131	484	290	383	222	70-130	50	20	CH,D6,M0
Allyl chloride	ug/kg	<0.86	50.6	52.3	39.0	46.4	77	89	70-130	17	20	
Benzene	ug/kg	<0.65	50.6	52.3	38.6	44.5	76	85	70-130	14	20	
Bromobenzene	ug/kg	<0.83	50.6	52.3	36.4	42.4	72	81	70-130	15	20	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1029232 1029233

Parameter	Units	10165707002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromochloromethane	ug/kg	<1.2	50.6	52.3	48.8	47.9	97	92	70-130	2	20	
Bromodichloromethane	ug/kg	<0.76	50.6	52.3	45.0	43.3	89	83	70-130	4	20	
Bromoform	ug/kg	<0.82	50.6	52.3	46.5	41.0	92	78	70-130	13	20	
Bromomethane	ug/kg	<2.3	50.6	52.3	36.4	44.2	72	85	70-130	19	20	
Carbon tetrachloride	ug/kg	<1.3	50.6	52.3	26.1	34.3	52	66	70-130	27	20	D6,M1
Chlorobenzene	ug/kg	<0.94	50.6	52.3	35.5	40.8	70	78	70-130	14	20	
Chloroethane	ug/kg	<1.1	50.6	52.3	34.9	41.5	69	79	70-130	17	20	M1
Chloroform	ug/kg	<0.96	50.6	52.3	38.3	43.9	76	84	70-130	14	20	
Chloromethane	ug/kg	<0.75	50.6	52.3	39.3	47.0	78	90	70-130	18	20	
cis-1,2-Dichloroethene	ug/kg	<1.1	50.6	52.3	39.4	45.0	78	86	70-130	13	20	
cis-1,3-Dichloropropene	ug/kg	<0.83	50.6	52.3	44.4	45.3	88	87	70-130	2	20	
Dibromochloromethane	ug/kg	<1.4	50.6	52.3	42.8	43.2	85	83	70-130	1	20	
Dibromomethane	ug/kg	<1.6	50.6	52.3	54.3	46.9	107	90	70-130	15	20	
Dichlorodifluoromethane	ug/kg	<1.3	50.6	52.3	30.7	38.6	61	74	70-130	23	20	D6,M1
Dichlorofluoromethane	ug/kg	<1.0	50.6	52.3	38.9	45.2	77	86	70-130	15	20	
Diethyl ether (Ethyl ether)	ug/kg	<1.5	50.6	52.3	54.4	47.9	108	92	70-130	13	20	
Ethylbenzene	ug/kg	<0.52	50.6	52.3	30.8	37.6	61	72	70-130	20	20	M1
Hexachloro-1,3-butadiene	ug/kg	<0.85	25.2	26.1	8.6J	7.8J	34	30	70-130		20	M1
Isopropylbenzene (Cumene)	ug/kg	<0.75	50.6	52.3	26.6	34.0	53	65	70-130	24	20	D6,M1
Methyl-tert-butyl ether	ug/kg	<0.84	50.6	52.3	51.4	46.5	102	89	70-130	10	20	
Methylene Chloride	ug/kg	<10.5	50.6	52.3	45.2	50.1	70	77	70-130	10	20	
n-Butylbenzene	ug/kg	<1.0	50.6	52.3	24.5	29.7	49	57	70-130	19	20	M1
n-Propylbenzene	ug/kg	<0.86	50.6	52.3	26.6	35.9	53	69	70-130	30	20	D6,M1
Naphthalene	ug/kg	<0.87	50.6	52.3	46.6	35.7	92	68	70-130	26	20	D6,M1
p-Isopropyltoluene	ug/kg	<0.96	50.6	52.3	25.2	31.0	50	59	70-130	21	20	D6,M1
sec-Butylbenzene	ug/kg	<0.73	50.6	52.3	24.4	32.0	48	61	70-130	27	20	D6,M1
Styrene	ug/kg	<0.65	50.6	52.3	33.7	39.8	67	76	70-130	16	20	M1
tert-Butylbenzene	ug/kg	<1.0	50.6	52.3	26.2	33.6	52	64	70-130	25	20	D6,M1
Tetrachloroethene	ug/kg	<1.4	50.6	52.3	27.0	34.9	53	67	70-130	25	20	D6,M1
Tetrahydrofuran	ug/kg	<10.9	506	523	872	507	173	97	70-130	53	20	D6,M1
Toluene	ug/kg	1.2J	50.6	52.3	34.3	42.3	66	79	70-130	21	20	D6,M1
trans-1,2-Dichloroethene	ug/kg	<0.56	50.6	52.3	37.3	45.4	74	87	70-130	19	20	
trans-1,3-Dichloropropene	ug/kg	<1.2	50.6	52.3	46.2	46.6	91	89	70-130	1	20	
Trichloroethene	ug/kg	<0.73	50.6	52.3	37.4	44.1	74	84	70-130	16	20	
Trichlorofluoromethane	ug/kg	<1.3	50.6	52.3	34.7	41.1	69	79	70-130	17	20	M1
Vinyl chloride	ug/kg	<1.3	50.6	52.3	36.4	45.7	72	87	70-130	23	20	D6
Xylene (Total)	ug/kg	<3.0	152	157	93.8	113	62	72	70-130	18	20	ES
1,2-Dichloroethane-d4 (S)	%						109	93	75-138			
4-Bromofluorobenzene (S)	%						104	113	75-125			
Dibromofluoromethane (S)	%						97	94	75-125			4M
Toluene-d8 (S)	%						95	102	75-125			

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(406)254-7226

QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MSV/17661 | Analysis Method: EPA 8260
QC Batch Method: EPA 8260 | Analysis Description: 8260 MSV 5035 Low Level
Associated Lab Samples: 10165707004

METHOD BLANK: 1033502 | Matrix: Solid
Associated Lab Samples: 10165707004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	<1.0	4.0	08/16/11 09:19	
1,1,1-Trichloroethane	ug/kg	<0.88	4.0	08/16/11 09:19	
1,1,2,2-Tetrachloroethane	ug/kg	<1.2	4.0	08/16/11 09:19	
1,1,2-Trichloroethane	ug/kg	<0.89	4.0	08/16/11 09:19	
1,1,2-Trichlorotrifluoroethane	ug/kg	<1.0	4.0	08/16/11 09:19	
1,1-Dichloroethane	ug/kg	<0.99	4.0	08/16/11 09:19	
1,1-Dichloroethene	ug/kg	<0.80	4.0	08/16/11 09:19	
1,1-Dichloropropene	ug/kg	<0.79	4.0	08/16/11 09:19	
1,2,3-Trichlorobenzene	ug/kg	<1.1	4.0	08/16/11 09:19	
1,2,3-Trichloropropane	ug/kg	<0.81	4.0	08/16/11 09:19	
1,2,4-Trichlorobenzene	ug/kg	<0.80	4.0	08/16/11 09:19	
1,2,4-Trimethylbenzene	ug/kg	<0.82	4.0	08/16/11 09:19	
1,2-Dibromo-3-chloropropane	ug/kg	<2.0	10.0	08/16/11 09:19	
1,2-Dibromoethane (EDB)	ug/kg	<1.3	4.0	08/16/11 09:19	
1,2-Dichlorobenzene	ug/kg	<0.52	4.0	08/16/11 09:19	
1,2-Dichloroethane	ug/kg	<1.2	4.0	08/16/11 09:19	
1,2-Dichloropropane	ug/kg	<0.93	4.0	08/16/11 09:19	
1,3,5-Trimethylbenzene	ug/kg	<0.64	4.0	08/16/11 09:19	
1,3-Dichlorobenzene	ug/kg	<0.82	4.0	08/16/11 09:19	
1,3-Dichloropropane	ug/kg	<0.89	4.0	08/16/11 09:19	
1,4-Dichlorobenzene	ug/kg	<0.88	4.0	08/16/11 09:19	
2,2-Dichloropropane	ug/kg	<1.0	10.0	08/16/11 09:19	
2-Butanone (MEK)	ug/kg	<1.2	20.0	08/16/11 09:19	
2-Chlorotoluene	ug/kg	<0.94	4.0	08/16/11 09:19	
4-Chlorotoluene	ug/kg	<0.87	4.0	08/16/11 09:19	
4-Methyl-2-pentanone (MIBK)	ug/kg	<1.4	20.0	08/16/11 09:19	
Acetone	ug/kg	<7.1	25.0	08/16/11 09:19	
Allyl chloride	ug/kg	<0.82	10.0	08/16/11 09:19	
Benzene	ug/kg	<0.62	4.0	08/16/11 09:19	
Bromobenzene	ug/kg	<0.79	4.0	08/16/11 09:19	
Bromochloromethane	ug/kg	<1.2	4.0	08/16/11 09:19	
Bromodichloromethane	ug/kg	<0.72	4.0	08/16/11 09:19	
Bromoform	ug/kg	<0.78	20.0	08/16/11 09:19	
Bromomethane	ug/kg	<2.1	20.0	08/16/11 09:19	
Carbon tetrachloride	ug/kg	<1.2	4.0	08/16/11 09:19	
Chlorobenzene	ug/kg	<0.89	4.0	08/16/11 09:19	
Chloroethane	ug/kg	<1.1	10.0	08/16/11 09:19	
Chloroform	ug/kg	<0.91	4.0	08/16/11 09:19	
Chloromethane	ug/kg	<0.71	10.0	08/16/11 09:19	
cis-1,2-Dichloroethene	ug/kg	<1.1	4.0	08/16/11 09:19	
cis-1,3-Dichloropropene	ug/kg	<0.79	4.0	08/16/11 09:19	
Dibromochloromethane	ug/kg	<1.4	4.0	08/16/11 09:19	
Dibromomethane	ug/kg	<1.5	4.0	08/16/11 09:19	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

METHOD BLANK: 1033502 Matrix: Solid

Associated Lab Samples: 10165707004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/kg	<1.2	10.0	08/16/11 09:19	
Dichlorofluoromethane	ug/kg	<0.97	4.0	08/16/11 09:19	
Diethyl ether (Ethyl ether)	ug/kg	<1.4	10.0	08/16/11 09:19	
Ethylbenzene	ug/kg	<0.49	4.0	08/16/11 09:19	
Hexachloro-1,3-butadiene	ug/kg	<0.81	10.0	08/16/11 09:19	
Isopropylbenzene (Cumene)	ug/kg	<0.71	4.0	08/16/11 09:19	
Methyl-tert-butyl ether	ug/kg	<0.80	4.0	08/16/11 09:19	
Methylene Chloride	ug/kg	<2.1	20.0	08/16/11 09:19	
n-Butylbenzene	ug/kg	<0.95	4.0	08/16/11 09:19	
n-Propylbenzene	ug/kg	<0.82	4.0	08/16/11 09:19	
Naphthalene	ug/kg	<0.83	10.0	08/16/11 09:19	
p-Isopropyltoluene	ug/kg	<0.91	4.0	08/16/11 09:19	
sec-Butylbenzene	ug/kg	<0.69	4.0	08/16/11 09:19	
Styrene	ug/kg	<0.62	4.0	08/16/11 09:19	
tert-Butylbenzene	ug/kg	<0.96	4.0	08/16/11 09:19	
Tetrachloroethene	ug/kg	<1.3	4.0	08/16/11 09:19	
Tetrahydrofuran	ug/kg	<10.4	40.0	08/16/11 09:19	
Toluene	ug/kg	<0.53	4.0	08/16/11 09:19	
trans-1,2-Dichloroethene	ug/kg	<0.53	4.0	08/16/11 09:19	
trans-1,3-Dichloropropene	ug/kg	<1.2	4.0	08/16/11 09:19	
Trichloroethene	ug/kg	<0.69	4.0	08/16/11 09:19	
Trichlorofluoromethane	ug/kg	<1.2	10.0	08/16/11 09:19	
Vinyl chloride	ug/kg	<1.3	4.0	08/16/11 09:19	
Xylene (Total)	ug/kg	<2.8	12.0	08/16/11 09:19	
1,2-Dichloroethane-d4 (S)	%	104	75-138	08/16/11 09:19	
4-Bromofluorobenzene (S)	%	101	75-125	08/16/11 09:19	
Dibromofluoromethane (S)	%	103	75-125	08/16/11 09:19	
Toluene-d8 (S)	%	99	75-125	08/16/11 09:19	

LABORATORY CONTROL SAMPLE: 1033503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	50	55.8	112	75-125	
1,1,1-Trichloroethane	ug/kg	50	62.1	124	70-134	
1,1,2,2-Tetrachloroethane	ug/kg	50	45.6	91	75-130	
1,1,2-Trichloroethane	ug/kg	50	51.6	103	75-125	
1,1,2-Trichlorotrifluoroethane	ug/kg	50	53.1	106	70-130	
1,1-Dichloroethane	ug/kg	50	56.6	113	75-126	
1,1-Dichloroethene	ug/kg	50	47.7	95	70-130	
1,1-Dichloropropene	ug/kg	50	59.7	119	70-130	
1,2,3-Trichlorobenzene	ug/kg	50	55.2	110	75-130	
1,2,3-Trichloropropane	ug/kg	50	48.7	97	75-130	
1,2,4-Trichlorobenzene	ug/kg	50	59.1	118	75-130	
1,2,4-Trimethylbenzene	ug/kg	50	58.5	117	75-126	
1,2-Dibromo-3-chloropropane	ug/kg	50	49.5	99	70-130	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

LABORATORY CONTROL SAMPLE: 1033503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromoethane (EDB)	ug/kg	50	53.6	107	75-125	
1,2-Dichlorobenzene	ug/kg	50	55.0	110	75-125	
1,2-Dichloroethane	ug/kg	50	55.7	111	75-128	
1,2-Dichloropropane	ug/kg	50	54.0	108	75-125	
1,3,5-Trimethylbenzene	ug/kg	50	59.4	119	75-130	
1,3-Dichlorobenzene	ug/kg	50	56.5	113	75-125	
1,3-Dichloropropane	ug/kg	50	49.6	99	75-125	
1,4-Dichlorobenzene	ug/kg	50	53.3	107	75-125	
2,2-Dichloropropane	ug/kg	50	62.7	125	70-130	
2-Butanone (MEK)	ug/kg	50	43.9	88	70-130	
2-Chlorotoluene	ug/kg	50	56.0	112	75-130	
4-Chlorotoluene	ug/kg	50	55.5	111	75-130	
4-Methyl-2-pentanone (MIBK)	ug/kg	50	46.6	93	70-130	
Acetone	ug/kg	125	101	81	70-130	
Allyl chloride	ug/kg	50	47.7	95	75-130	
Benzene	ug/kg	50	54.9	110	71-130	
Bromobenzene	ug/kg	50	55.4	111	75-125	
Bromochloromethane	ug/kg	50	58.2	116	72-130	
Bromodichloromethane	ug/kg	50	54.4	109	75-128	
Bromoform	ug/kg	50	52.6	105	75-129	
Bromomethane	ug/kg	50	45.8	92	70-130	
Carbon tetrachloride	ug/kg	50	68.3	137	70-130	L0
Chlorobenzene	ug/kg	50	54.2	108	75-125	
Chloroethane	ug/kg	50	52.0	104	70-130	
Chloroform	ug/kg	50	53.8	108	73-130	
Chloromethane	ug/kg	50	49.1	98	70-128	
cis-1,2-Dichloroethene	ug/kg	50	59.5	119	70-130	
cis-1,3-Dichloropropene	ug/kg	50	56.8	114	75-126	
Dibromochloromethane	ug/kg	50	55.4	111	75-126	
Dibromomethane	ug/kg	50	52.7	105	72-129	
Dichlorodifluoromethane	ug/kg	50	49.6	99	70-130	
Dichlorofluoromethane	ug/kg	50	49.5	99	70-130	
Diethyl ether (Ethyl ether)	ug/kg	50	41.1	82	72-130	
Ethylbenzene	ug/kg	50	55.6	111	75-128	
Hexachloro-1,3-butadiene	ug/kg	25	30.8	123	70-130	
Isopropylbenzene (Cumene)	ug/kg	50	60.0	120	75-128	
Methyl-tert-butyl ether	ug/kg	50	57.6	115	74-128	
Methylene Chloride	ug/kg	50	45.8	92	70-130	
n-Butylbenzene	ug/kg	50	57.4	115	75-130	
n-Propylbenzene	ug/kg	50	56.8	114	75-130	
Naphthalene	ug/kg	50	53.8	108	75-130	
p-Isopropyltoluene	ug/kg	50	60.1	120	75-130	
sec-Butylbenzene	ug/kg	50	57.8	116	75-130	
Styrene	ug/kg	50	57.5	115	75-126	
tert-Butylbenzene	ug/kg	50	60.6	121	75-130	
Tetrachloroethene	ug/kg	50	59.4	119	74-130	
Tetrahydrofuran	ug/kg	500	493	99	70-130	
Toluene	ug/kg	50	52.2	104	75-125	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

LABORATORY CONTROL SAMPLE: 1033503

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
trans-1,2-Dichloroethene	ug/kg	50	57.7	115	75-128	
trans-1,3-Dichloropropene	ug/kg	50	53.0	106	70-130	
Trichloroethene	ug/kg	50	59.5	119	75-126	
Trichlorofluoromethane	ug/kg	50	47.9	96	70-130	
Vinyl chloride	ug/kg	50	50.7	101	70-126	
Xylene (Total)	ug/kg	150	172	115	75-128	
1,2-Dichloroethane-d4 (S)	%			103	75-138	
4-Bromofluorobenzene (S)	%			103	75-125	
Dibromofluoromethane (S)	%			106	75-125	
Toluene-d8 (S)	%			98	75-125	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MSV/17613
Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B
Analysis Description: 8260 MSV 5030 Med Level
Associated Lab Samples: 10165707009

METHOD BLANK: 1030241
Matrix: Solid
Associated Lab Samples: 10165707009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	<1.0	50.0	08/11/11 03:13	
1,1,1-Trichloroethane	ug/kg	<0.88	50.0	08/11/11 03:13	
1,1,2,2-Tetrachloroethane	ug/kg	<1.2	50.0	08/11/11 03:13	
1,1,2-Trichloroethane	ug/kg	<0.89	50.0	08/11/11 03:13	
1,1,2-Trichlorotrifluoroethane	ug/kg	<1.0	50.0	08/11/11 03:13	
1,1-Dichloroethane	ug/kg	<0.99	50.0	08/11/11 03:13	
1,1-Dichloroethene	ug/kg	<0.80	50.0	08/11/11 03:13	
1,1-Dichloropropene	ug/kg	<0.79	50.0	08/11/11 03:13	
1,2,3-Trichlorobenzene	ug/kg	<1.1	50.0	08/11/11 03:13	
1,2,3-Trichloropropane	ug/kg	<0.81	200	08/11/11 03:13	
1,2,4-Trichlorobenzene	ug/kg	<0.80	50.0	08/11/11 03:13	
1,2,4-Trimethylbenzene	ug/kg	<0.82	50.0	08/11/11 03:13	
1,2-Dibromo-3-chloropropane	ug/kg	<2.0	200	08/11/11 03:13	
1,2-Dibromoethane (EDB)	ug/kg	<1.3	50.0	08/11/11 03:13	
1,2-Dichlorobenzene	ug/kg	<0.52	50.0	08/11/11 03:13	
1,2-Dichloroethane	ug/kg	<1.2	50.0	08/11/11 03:13	
1,2-Dichloropropane	ug/kg	<0.93	50.0	08/11/11 03:13	
1,3,5-Trimethylbenzene	ug/kg	<0.64	50.0	08/11/11 03:13	
1,3-Dichlorobenzene	ug/kg	<0.82	50.0	08/11/11 03:13	
1,3-Dichloropropane	ug/kg	<0.89	50.0	08/11/11 03:13	
1,4-Dichlorobenzene	ug/kg	<0.88	50.0	08/11/11 03:13	
2,2-Dichloropropane	ug/kg	<1.0	200	08/11/11 03:13	
2-Butanone (MEK)	ug/kg	<10.0	500	08/11/11 03:13	
2-Chlorotoluene	ug/kg	<0.94	50.0	08/11/11 03:13	
4-Chlorotoluene	ug/kg	<0.87	50.0	08/11/11 03:13	
4-Methyl-2-pentanone (MIBK)	ug/kg	<10.0	500	08/11/11 03:13	
Acetone	ug/kg	<12.5	500	08/11/11 03:13	
Allyl chloride	ug/kg	<0.82	200	08/11/11 03:13	
Benzene	ug/kg	<0.62	20.0	08/11/11 03:13	
Bromobenzene	ug/kg	<0.79	50.0	08/11/11 03:13	
Bromochloromethane	ug/kg	<1.2	50.0	08/11/11 03:13	
Bromodichloromethane	ug/kg	<0.72	50.0	08/11/11 03:13	
Bromoform	ug/kg	<0.78	200	08/11/11 03:13	
Bromomethane	ug/kg	<2.1	500	08/11/11 03:13	
Carbon tetrachloride	ug/kg	<1.2	50.0	08/11/11 03:13	
Chlorobenzene	ug/kg	<0.89	50.0	08/11/11 03:13	
Chloroethane	ug/kg	<1.1	500	08/11/11 03:13	
Chloroform	ug/kg	<0.91	50.0	08/11/11 03:13	
Chloromethane	ug/kg	<0.71	200	08/11/11 03:13	
cis-1,2-Dichloroethene	ug/kg	<1.1	50.0	08/11/11 03:13	
cis-1,3-Dichloropropene	ug/kg	<0.79	50.0	08/11/11 03:13	
Dibromochloromethane	ug/kg	<1.4	50.0	08/11/11 03:13	
Dibromomethane	ug/kg	<1.5	50.0	08/11/11 03:13	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

METHOD BLANK: 1030241 Matrix: Solid

Associated Lab Samples: 10165707009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/kg	<1.2	50.0	08/11/11 03:13	
Dichlorofluoromethane	ug/kg	<0.97	500	08/11/11 03:13	
Diethyl ether (Ethyl ether)	ug/kg	<1.4	200	08/11/11 03:13	
Ethylbenzene	ug/kg	<0.49	50.0	08/11/11 03:13	
Hexachloro-1,3-butadiene	ug/kg	<0.81	250	08/11/11 03:13	
Isopropylbenzene (Cumene)	ug/kg	<0.71	50.0	08/11/11 03:13	
Methyl-tert-butyl ether	ug/kg	<0.80	50.0	08/11/11 03:13	
Methylene Chloride	ug/kg	<10.0	200	08/11/11 03:13	
n-Butylbenzene	ug/kg	<0.95	50.0	08/11/11 03:13	
n-Propylbenzene	ug/kg	<0.82	50.0	08/11/11 03:13	
Naphthalene	ug/kg	<0.83	200	08/11/11 03:13	
p-Isopropyltoluene	ug/kg	<0.91	50.0	08/11/11 03:13	
sec-Butylbenzene	ug/kg	<0.69	50.0	08/11/11 03:13	
Styrene	ug/kg	<0.62	50.0	08/11/11 03:13	
tert-Butylbenzene	ug/kg	<0.96	50.0	08/11/11 03:13	
Tetrachloroethene	ug/kg	<1.3	50.0	08/11/11 03:13	
Tetrahydrofuran	ug/kg	<10.4	2000	08/11/11 03:13	
Toluene	ug/kg	<0.53	50.0	08/11/11 03:13	
trans-1,2-Dichloroethene	ug/kg	<0.53	50.0	08/11/11 03:13	
trans-1,3-Dichloropropene	ug/kg	<1.2	50.0	08/11/11 03:13	
Trichloroethene	ug/kg	<0.69	50.0	08/11/11 03:13	
Trichlorofluoromethane	ug/kg	<1.2	200	08/11/11 03:13	
Vinyl chloride	ug/kg	<1.3	20.0	08/11/11 03:13	
Xylene (Total)	ug/kg	<2.8	150	08/11/11 03:13	
1,2-Dichloroethane-d4 (S)	%	87	30-150	08/11/11 03:13	
4-Bromofluorobenzene (S)	%	105	30-150	08/11/11 03:13	
Dibromofluoromethane (S)	%	98	30-150	08/11/11 03:13	
Toluene-d8 (S)	%	99	30-150	08/11/11 03:13	

LABORATORY CONTROL SAMPLE & LCSD: 1030242 1030243

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	1000	1070	1050	107	105	75-125	2	20	
1,1,1-Trichloroethane	ug/kg	1000	1000	997	100	100	75-126	.5	20	
1,1,2,2-Tetrachloroethane	ug/kg	1000	1200	1170	120	117	75-125	3	20	
1,1,2-Trichloroethane	ug/kg	1000	1180	1140	118	114	75-125	4	20	
1,1,2-Trichlorotrifluoroethane	ug/kg	1000	1020	1000	102	100	62-150	2	20	
1,1-Dichloroethane	ug/kg	1000	1030	1050	103	105	75-130	2	20	
1,1-Dichloroethene	ug/kg	1000	1000	968	100	97	67-142	4	20	
1,1-Dichloropropene	ug/kg	1000	1150	1140	115	114	73-136	.9	20	
1,2,3-Trichlorobenzene	ug/kg	1000	1160	1180	116	118	75-125	2	20	
1,2,3-Trichloropropane	ug/kg	1000	1040	1010	104	101	75-125	3	20	
1,2,4-Trichlorobenzene	ug/kg	1000	1210	1220	121	122	75-125	.5	20	
1,2,4-Trimethylbenzene	ug/kg	1000	1060	1060	106	106	75-125	.3	20	
1,2-Dibromo-3-chloropropane	ug/kg	1000	1050	1010	105	101	66-125	4	20	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

LABORATORY CONTROL SAMPLE & LCSD: 1030242 1030243

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/kg	1000	1150	1120	115	112	75-125	2	20	
1,2-Dichlorobenzene	ug/kg	1000	1170	1150	117	115	75-125	1	20	
1,2-Dichloroethane	ug/kg	1000	992	978	99	98	75-125	1	20	
1,2-Dichloropropane	ug/kg	1000	1150	1180	115	118	75-126	3	20	
1,3,5-Trimethylbenzene	ug/kg	1000	1070	1070	107	107	75-125	.3	20	
1,3-Dichlorobenzene	ug/kg	1000	1180	1150	118	115	75-125	2	20	
1,3-Dichloropropane	ug/kg	1000	1170	1140	117	114	75-125	2	20	
1,4-Dichlorobenzene	ug/kg	1000	1090	1120	109	112	75-125	2	20	
2,2-Dichloropropane	ug/kg	1000	858	843	86	84	43-137	2	20	
2-Butanone (MEK)	ug/kg	1000	844	755	84	75	63-129	11	20	
2-Chlorotoluene	ug/kg	1000	1210	1210	121	121	75-125	.2	20	
4-Chlorotoluene	ug/kg	1000	1190	1180	119	118	75-125	.5	20	
4-Methyl-2-pentanone (MIBK)	ug/kg	1000	1160	1090	116	109	70-125	6	20	
Acetone	ug/kg	2500	2860	2860	114	114	64-138	.006	20	
Allyl chloride	ug/kg	1000	1090	1080	109	108	73-134	1	20	
Benzene	ug/kg	1000	1170	1170	117	117	75-125	.03	20	
Bromobenzene	ug/kg	1000	1220	1210	122	121	75-125	.9	20	
Bromochloromethane	ug/kg	1000	1170	1220	117	122	75-129	4	20	
Bromodichloromethane	ug/kg	1000	1050	1080	105	108	75-125	3	20	
Bromoform	ug/kg	1000	1080	1070	108	107	62-125	1	20	
Bromomethane	ug/kg	1000	1220	1020	122	102	53-150	17	20	
Carbon tetrachloride	ug/kg	1000	1100	1090	110	109	72-127	.8	20	
Chlorobenzene	ug/kg	1000	1100	1100	110	110	75-125	.2	20	
Chloroethane	ug/kg	1000	924	961	92	96	36-150	4	20	
Chloroform	ug/kg	1000	1030	1040	103	104	75-126	1	20	
Chloromethane	ug/kg	1000	912	875	91	88	57-140	4	20	
cis-1,2-Dichloroethene	ug/kg	1000	1160	1180	116	118	75-131	2	20	
cis-1,3-Dichloropropene	ug/kg	1000	1100	1100	110	110	75-125	.08	20	
Dibromochloromethane	ug/kg	1000	1120	1100	112	110	75-125	2	20	
Dibromomethane	ug/kg	1000	1080	1050	108	105	75-125	3	20	
Dichlorodifluoromethane	ug/kg	1000	620	612	62	61	30-150	1	20	
Dichlorofluoromethane	ug/kg	1000	1430	1230	143	123	72-133	15	20	L0
Diethyl ether (Ethyl ether)	ug/kg	1000	1080	1090	108	109	59-150	.7	20	
Ethylbenzene	ug/kg	1000	1150	1140	115	114	75-129	.9	20	
Hexachloro-1,3-butadiene	ug/kg	500	523	534	105	107	69-137	2	20	
Isopropylbenzene (Cumene)	ug/kg	1000	1200	1210	120	121	75-130	.08	20	
Methyl-tert-butyl ether	ug/kg	1000	1110	1100	111	110	73-128	1	20	
Methylene Chloride	ug/kg	1000	1040	1050	104	105	68-128	1	20	
n-Butylbenzene	ug/kg	1000	1200	1190	120	119	75-128	1	20	
n-Propylbenzene	ug/kg	1000	1230	1240	123	124	75-126	.8	20	
Naphthalene	ug/kg	1000	1070	1090	107	109	75-125	2	20	
p-Isopropyltoluene	ug/kg	1000	1090	1100	109	110	75-125	.2	20	
sec-Butylbenzene	ug/kg	1000	1210	1240	121	124	75-128	2	20	
Styrene	ug/kg	1000	1210	1220	121	122	75-125	1	20	
tert-Butylbenzene	ug/kg	1000	1110	1120	111	112	75-126	1	20	
Tetrachloroethene	ug/kg	1000	1180	1140	118	114	73-132	3	20	
Tetrahydrofuran	ug/kg	10000	12000	11900	120	119	63-134	.9	20	
Toluene	ug/kg	1000	1190	1160	119	116	74-128	2	20	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

LABORATORY CONTROL SAMPLE & LCSD: 1030242 1030243

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
trans-1,2-Dichloroethene	ug/kg	1000	1100	1100	110	110	75-136	.2	20	
trans-1,3-Dichloropropene	ug/kg	1000	1140	1090	114	109	71-125	5	20	
Trichloroethene	ug/kg	1000	1120	1100	112	110	75-131	1	20	
Trichlorofluoromethane	ug/kg	1000	850	840	85	84	65-148	1	20	
Vinyl chloride	ug/kg	1000	1050	1030	105	103	58-146	2	20	
Xylene (Total)	ug/kg	3000	3600	3560	120	119	73-129	1	20	
1,2-Dichloroethane-d4 (S)	%				84	88	30-150			
4-Bromofluorobenzene (S)	%				104	109	30-150			
Dibromofluoromethane (S)	%				95	98	30-150			
Toluene-d8 (S)	%				101	103	30-150			

MATRIX SPIKE SAMPLE: 1030244

Parameter	Units	10165790001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	1120	1010	91	48-136	
1,1,1-Trichloroethane	ug/kg	ND	1120	937	84	57-143	
1,1,2,2-Tetrachloroethane	ug/kg	ND	1120	1110	99	47-146	
1,1,2-Trichloroethane	ug/kg	ND	1120	1060	95	59-130	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	1120	969	87	38-150	
1,1-Dichloroethane	ug/kg	ND	1120	988	88	59-139	
1,1-Dichloroethene	ug/kg	ND	1120	939	84	44-150	
1,1-Dichloropropene	ug/kg	ND	1120	1110	99	68-141	
1,2,3-Trichlorobenzene	ug/kg	ND	1120	1110	100	40-144	
1,2,3-Trichloropropane	ug/kg	ND	1120	971	87	49-146	
1,2,4-Trichlorobenzene	ug/kg	ND	1120	1140	102	42-141	
1,2,4-Trimethylbenzene	ug/kg	ND	1120	1000	90	54-141	
1,2-Dibromo-3-chloropropane	ug/kg	ND	1120	1030	93	30-150	
1,2-Dibromoethane (EDB)	ug/kg	ND	1120	1020	91	55-130	
1,2-Dichlorobenzene	ug/kg	ND	1120	1090	97	61-129	
1,2-Dichloroethane	ug/kg	ND	1120	903	81	57-137	
1,2-Dichloropropane	ug/kg	ND	1120	1090	98	54-136	
1,3,5-Trimethylbenzene	ug/kg	ND	1120	1010	91	51-147	
1,3-Dichlorobenzene	ug/kg	ND	1120	1070	96	59-133	
1,3-Dichloropropane	ug/kg	ND	1120	1070	96	52-135	
1,4-Dichlorobenzene	ug/kg	ND	1120	1030	92	56-135	
2,2-Dichloropropane	ug/kg	ND	1120	796	71	30-150	
2-Butanone (MEK)	ug/kg	ND	1120	725	65	43-147	
2-Chlorotoluene	ug/kg	ND	1120	1140	102	54-144	
4-Chlorotoluene	ug/kg	ND	1120	1110	99	57-147	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	1120	1020	91	51-136	
Acetone	ug/kg	ND	2790	2750	98	40-147	
Allyl chloride	ug/kg	ND	1120	987	88	58-136	
Benzene	ug/kg	ND	1120	1090	97	53-138	
Bromobenzene	ug/kg	ND	1120	1140	102	56-133	
Bromochloromethane	ug/kg	ND	1120	1100	98	58-139	
Bromodichloromethane	ug/kg	ND	1120	1000	89	59-129	
Bromoform	ug/kg	ND	1120	1000	90	36-137	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

MATRIX SPIKE SAMPLE: 1030244

Parameter	Units	10165790001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromomethane	ug/kg	ND	1120	1020	91	30-150	
Carbon tetrachloride	ug/kg	ND	1120	1010	90	42-150	
Chlorobenzene	ug/kg	ND	1120	1020	91	60-134	
Chloroethane	ug/kg	ND	1120	837	75	30-150	
Chloroform	ug/kg	ND	1120	967	86	59-138	
Chloromethane	ug/kg	ND	1120	782	70	55-128	
cis-1,2-Dichloroethene	ug/kg	ND	1120	1120	100	52-143	
cis-1,3-Dichloropropene	ug/kg	ND	1120	1040	93	55-135	
Dibromochloromethane	ug/kg	ND	1120	1020	91	47-136	
Dibromomethane	ug/kg	ND	1120	1040	93	50-136	
Dichlorodifluoromethane	ug/kg	ND	1120	538	48	30-150	
Dichlorofluoromethane	ug/kg	ND	1120	1270	114	56-142	
Diethyl ether (Ethyl ether)	ug/kg	ND	1120	970	87	53-142	
Ethylbenzene	ug/kg	ND	1120	1060	95	54-144	
Hexachloro-1,3-butadiene	ug/kg	ND	559	500	89	31-150	
Isopropylbenzene (Cumene)	ug/kg	ND	1120	1130	102	58-140	
Methyl-tert-butyl ether	ug/kg	ND	1120	1020	92	56-132	
Methylene Chloride	ug/kg	ND	1120	979	88	48-137	
n-Butylbenzene	ug/kg	ND	1120	1130	101	50-150	
n-Propylbenzene	ug/kg	ND	1120	1150	103	64-142	
Naphthalene	ug/kg	ND	1120	1020	92	44-139	
p-Isopropyltoluene	ug/kg	ND	1120	1030	92	54-145	
sec-Butylbenzene	ug/kg	ND	1120	1150	103	72-135	
Styrene	ug/kg	ND	1120	1140	102	57-135	
tert-Butylbenzene	ug/kg	ND	1120	1060	95	58-148	
Tetrachloroethene	ug/kg	ND	1120	1070	96	54-141	
Tetrahydrofuran	ug/kg	ND	11200	11000	98	52-137	
Toluene	ug/kg	ND	1120	1080	97	55-141	
trans-1,2-Dichloroethene	ug/kg	ND	1120	1020	91	48-148	
trans-1,3-Dichloropropene	ug/kg	ND	1120	1010	91	57-130	
Trichloroethene	ug/kg	ND	1120	1110	99	51-142	
Trichlorofluoromethane	ug/kg	ND	1120	775	69	50-150	
Vinyl chloride	ug/kg	ND	1120	903	81	55-133	
Xylene (Total)	ug/kg	ND	3350	3350	100	52-141	
1,2-Dichloroethane-d4 (S)	%				68	30-150	
4-Bromofluorobenzene (S)	%				84	30-150	
Dibromofluoromethane (S)	%				75	30-150	
Toluene-d8 (S)	%				79	30-150	

SAMPLE DUPLICATE: 1030245

Parameter	Units	10165790002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	<1.2		30	
1,1,1-Trichloroethane	ug/kg	ND	<1.0		30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	<1.4		30	
1,1,2-Trichloroethane	ug/kg	ND	<1.0		30	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	<1.2		30	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

SAMPLE DUPLICATE: 1030245

Parameter	Units	10165790002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1-Dichloroethane	ug/kg	ND	32.1J		30	
1,1-Dichloroethene	ug/kg	ND	<0.94		30	
1,1-Dichloropropene	ug/kg	ND	<0.93		30	
1,2,3-Trichlorobenzene	ug/kg	ND	<1.3		30	
1,2,3-Trichloropropane	ug/kg	ND	<0.95		30	
1,2,4-Trichlorobenzene	ug/kg	ND	<0.94		30	
1,2,4-Trimethylbenzene	ug/kg	ND	<0.96		30	
1,2-Dibromo-3-chloropropane	ug/kg	ND	<2.3		30	
1,2-Dibromoethane (EDB)	ug/kg	ND	<1.5		30	
1,2-Dichlorobenzene	ug/kg	ND	<0.61		30	
1,2-Dichloroethane	ug/kg	ND	<1.4		30	
1,2-Dichloropropane	ug/kg	ND	<1.1		30	
1,3,5-Trimethylbenzene	ug/kg	ND	<0.75		30	
1,3-Dichlorobenzene	ug/kg	ND	<0.96		30	
1,3-Dichloropropane	ug/kg	ND	<1.0		30	
1,4-Dichlorobenzene	ug/kg	ND	<1.0		30	
2,2-Dichloropropane	ug/kg	ND	<1.2		30	
2-Butanone (MEK)	ug/kg	ND	<11.7		30	
2-Chlorotoluene	ug/kg	ND	<1.1		30	
4-Chlorotoluene	ug/kg	ND	<1.0		30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	<11.7		30	
Acetone	ug/kg	ND	<14.7		30	
Allyl chloride	ug/kg	ND	<0.96		30	
Benzene	ug/kg	ND	<0.73		30	
Bromobenzene	ug/kg	ND	<0.93		30	
Bromochloromethane	ug/kg	ND	<1.3		30	
Bromodichloromethane	ug/kg	ND	<0.84		30	
Bromoform	ug/kg	ND	<0.91		30	
Bromomethane	ug/kg	ND	<2.5		30	
Carbon tetrachloride	ug/kg	ND	<1.4		30	
Chlorobenzene	ug/kg	ND	<1.0		30	
Chloroethane	ug/kg	ND	<1.2		30	
Chloroform	ug/kg	ND	<1.1		30	
Chloromethane	ug/kg	ND	<0.83		30	
cis-1,2-Dichloroethene	ug/kg	401	530	28	30	
cis-1,3-Dichloropropene	ug/kg	ND	<0.93		30	
Dibromochloromethane	ug/kg	ND	<1.6		30	
Dibromomethane	ug/kg	ND	<1.8		30	
Dichlorodifluoromethane	ug/kg	ND	<1.4		30	
Dichlorofluoromethane	ug/kg	ND	<1.1		30	
Diethyl ether (Ethyl ether)	ug/kg	ND	<1.6		30	
Ethylbenzene	ug/kg	ND	<0.57		30	
Hexachloro-1,3-butadiene	ug/kg	ND	<0.95		30	
Isopropylbenzene (Cumene)	ug/kg	ND	<0.83		30	
Methyl-tert-butyl ether	ug/kg	ND	<0.94		30	
Methylene Chloride	ug/kg	ND	<11.7		30	
n-Butylbenzene	ug/kg	ND	<1.1		30	
n-Propylbenzene	ug/kg	ND	<0.96		30	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

SAMPLE DUPLICATE: 1030245

Parameter	Units	10165790002 Result	Dup Result	RPD	Max RPD	Qualifiers
Naphthalene	ug/kg	ND	<0.97		30	
p-Isopropyltoluene	ug/kg	ND	<1.1		30	
sec-Butylbenzene	ug/kg	ND	<0.81		30	
Styrene	ug/kg	ND	<0.73		30	
tert-Butylbenzene	ug/kg	ND	<1.1		30	
Tetrachloroethene	ug/kg	63.5	<1.6		30	
Tetrahydrofuran	ug/kg	ND	<12.2		30	
Toluene	ug/kg	ND	<0.62		30	
trans-1,2-Dichloroethene	ug/kg	ND	<0.62		30	
trans-1,3-Dichloropropene	ug/kg	ND	<1.4		30	
Trichloroethene	ug/kg	4260	4730	10	30	
Trichlorofluoromethane	ug/kg	ND	<1.4		30	
Vinyl chloride	ug/kg	ND	<1.5		30	
Xylene (Total)	ug/kg	ND	<3.3		30	
1,2-Dichloroethane-d4 (S)	%	67	90	27		
4-Bromofluorobenzene (S)	%	76	99	24		
Dibromofluoromethane (S)	%	74	96	25		
Toluene-d8 (S)	%	72	95	25		

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MSV/17582 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 465 W
Associated Lab Samples: 10165707010

METHOD BLANK: 1028699 Matrix: Water
Associated Lab Samples: 10165707010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.35	1.0	08/08/11 11:14	
1,1,1-Trichloroethane	ug/L	<0.26	1.0	08/08/11 11:14	
1,1,2,2-Tetrachloroethane	ug/L	<0.17	1.0	08/08/11 11:14	
1,1,2-Trichloroethane	ug/L	<0.38	1.0	08/08/11 11:14	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.49	1.0	08/08/11 11:14	
1,1-Dichloroethane	ug/L	<0.23	1.0	08/08/11 11:14	
1,1-Dichloroethene	ug/L	<0.47	1.0	08/08/11 11:14	
1,1-Dichloropropene	ug/L	<0.46	1.0	08/08/11 11:14	
1,2,3-Trichlorobenzene	ug/L	0.38J	1.0	08/08/11 11:14	
1,2,3-Trichloropropane	ug/L	<0.25	4.0	08/08/11 11:14	
1,2,4-Trichlorobenzene	ug/L	<0.33	1.0	08/08/11 11:14	
1,2,4-Trimethylbenzene	ug/L	<0.26	1.0	08/08/11 11:14	
1,2-Dibromo-3-chloropropane	ug/L	<1.2	4.0	08/08/11 11:14	
1,2-Dibromoethane (EDB)	ug/L	<0.26	1.0	08/08/11 11:14	
1,2-Dichlorobenzene	ug/L	<0.31	1.0	08/08/11 11:14	
1,2-Dichloroethane	ug/L	<0.23	1.0	08/08/11 11:14	
1,2-Dichloropropane	ug/L	<0.41	4.0	08/08/11 11:14	
1,3,5-Trimethylbenzene	ug/L	<0.38	1.0	08/08/11 11:14	
1,3-Dichlorobenzene	ug/L	<0.40	1.0	08/08/11 11:14	
1,3-Dichloropropane	ug/L	<0.36	1.0	08/08/11 11:14	
1,4-Dichlorobenzene	ug/L	<0.34	1.0	08/08/11 11:14	
2,2-Dichloropropane	ug/L	<0.42	4.0	08/08/11 11:14	
2-Butanone (MEK)	ug/L	<2.0	4.0	08/08/11 11:14	
2-Chlorotoluene	ug/L	<0.37	1.0	08/08/11 11:14	
4-Chlorotoluene	ug/L	<0.29	1.0	08/08/11 11:14	
4-Methyl-2-pentanone (MIBK)	ug/L	<2.0	4.0	08/08/11 11:14	
Acetone	ug/L	<12.5	25.0	08/08/11 11:14	
Allyl chloride	ug/L	<0.51	4.0	08/08/11 11:14	
Benzene	ug/L	<0.36	1.0	08/08/11 11:14	
Bromobenzene	ug/L	<0.31	1.0	08/08/11 11:14	
Bromochloromethane	ug/L	<0.22	1.0	08/08/11 11:14	
Bromodichloromethane	ug/L	<0.23	1.0	08/08/11 11:14	
Bromoform	ug/L	<2.0	4.0	08/08/11 11:14	
Bromomethane	ug/L	<0.36	4.0	08/08/11 11:14	
Carbon tetrachloride	ug/L	<0.38	1.0	08/08/11 11:14	
Chlorobenzene	ug/L	<0.33	1.0	08/08/11 11:14	
Chloroethane	ug/L	<0.32	1.0	08/08/11 11:14	
Chloroform	ug/L	<0.34	1.0	08/08/11 11:14	
Chloromethane	ug/L	<0.36	4.0	08/08/11 11:14	
cis-1,2-Dichloroethene	ug/L	<0.37	1.0	08/08/11 11:14	
cis-1,3-Dichloropropene	ug/L	<0.27	4.0	08/08/11 11:14	
Dibromochloromethane	ug/L	<0.36	1.0	08/08/11 11:14	
Dibromomethane	ug/L	<0.48	4.0	08/08/11 11:14	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

METHOD BLANK: 1028699 Matrix: Water

Associated Lab Samples: 10165707010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/L	<0.23	1.0	08/08/11 11:14	
Dichlorofluoromethane	ug/L	<0.25	1.0	08/08/11 11:14	
Diethyl ether (Ethyl ether)	ug/L	<0.28	4.0	08/08/11 11:14	
Ethylbenzene	ug/L	<0.38	1.0	08/08/11 11:14	
Hexachloro-1,3-butadiene	ug/L	<0.20	5.0	08/08/11 11:14	
Isopropylbenzene (Cumene)	ug/L	<0.36	1.0	08/08/11 11:14	
m&p-Xylene	ug/L	<0.66	2.0	08/08/11 11:14	
Methyl-tert-butyl ether	ug/L	<0.24	1.0	08/08/11 11:14	
Methylene Chloride	ug/L	<2.0	4.0	08/08/11 11:14	
n-Butylbenzene	ug/L	<0.38	1.0	08/08/11 11:14	
n-Propylbenzene	ug/L	<0.42	1.0	08/08/11 11:14	
Naphthalene	ug/L	<0.57	4.0	08/08/11 11:14	
o-Xylene	ug/L	<0.46	1.0	08/08/11 11:14	
p-Isopropyltoluene	ug/L	<0.36	1.0	08/08/11 11:14	
sec-Butylbenzene	ug/L	<0.37	1.0	08/08/11 11:14	
Styrene	ug/L	<0.35	1.0	08/08/11 11:14	
tert-Butylbenzene	ug/L	<0.47	1.0	08/08/11 11:14	
Tetrachloroethene	ug/L	<0.26	1.0	08/08/11 11:14	
Tetrahydrofuran	ug/L	<4.1	10.0	08/08/11 11:14	
Toluene	ug/L	<0.39	1.0	08/08/11 11:14	
trans-1,2-Dichloroethene	ug/L	<0.21	4.0	08/08/11 11:14	
trans-1,3-Dichloropropene	ug/L	<0.18	4.0	08/08/11 11:14	
Trichloroethene	ug/L	<0.20	1.0	08/08/11 11:14	
Trichlorofluoromethane	ug/L	<0.30	1.0	08/08/11 11:14	
Vinyl chloride	ug/L	<0.17	0.40	08/08/11 11:14	
Xylene (Total)	ug/L	<1.1	3.0	08/08/11 11:14	
1,2-Dichloroethane-d4 (S)	%	98	75-125	08/08/11 11:14	
4-Bromofluorobenzene (S)	%	101	75-125	08/08/11 11:14	
Dibromofluoromethane (S)	%	106	75-125	08/08/11 11:14	
Toluene-d8 (S)	%	97	75-125	08/08/11 11:14	

LABORATORY CONTROL SAMPLE: 1028700

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	57.4	115	75-125	
1,1,1-Trichloroethane	ug/L	50	57.4	115	75-125	
1,1,2,2-Tetrachloroethane	ug/L	50	46.6	93	75-125	
1,1,2-Trichloroethane	ug/L	50	51.7	103	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	50	50.1	100	75-126	
1,1-Dichloroethane	ug/L	50	53.3	107	75-125	
1,1-Dichloroethene	ug/L	50	49.3	99	75-125	
1,1-Dichloropropene	ug/L	50	57.7	115	75-125	
1,2,3-Trichlorobenzene	ug/L	50	47.1	94	68-128	
1,2,3-Trichloropropane	ug/L	50	44.9	90	75-125	
1,2,4-Trichlorobenzene	ug/L	50	52.4	105	75-125	

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(406)254-7226

QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

LABORATORY CONTROL SAMPLE: 1028700

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	50	53.2	106	75-125	
1,2-Dibromo-3-chloropropane	ug/L	50	39.8	80	68-125	
1,2-Dibromoethane (EDB)	ug/L	50	54.1	108	75-125	
1,2-Dichlorobenzene	ug/L	50	51.2	102	75-125	
1,2-Dichloroethane	ug/L	50	51.1	102	71-125	
1,2-Dichloropropane	ug/L	50	50.6	101	75-125	
1,3,5-Trimethylbenzene	ug/L	50	52.7	105	75-125	
1,3-Dichlorobenzene	ug/L	50	52.2	104	75-125	
1,3-Dichloropropane	ug/L	50	53.3	107	75-125	
1,4-Dichlorobenzene	ug/L	50	52.0	104	75-125	
2,2-Dichloropropane	ug/L	50	56.9	114	69-132	
2-Butanone (MEK)	ug/L	50	39.7	79	56-137	
2-Chlorotoluene	ug/L	50	52.7	105	75-125	
4-Chlorotoluene	ug/L	50	52.0	104	75-125	
4-Methyl-2-pentanone (MIBK)	ug/L	50	42.2	84	67-125	
Acetone	ug/L	125	94.5	76	41-130	
Allyl chloride	ug/L	50	55.4	111	59-130	
Benzene	ug/L	50	53.9	108	75-125	
Bromobenzene	ug/L	50	53.6	107	75-125	
Bromochloromethane	ug/L	50	56.5	113	75-125	
Bromodichloromethane	ug/L	50	53.4	107	75-125	
Bromoform	ug/L	50	53.1	106	75-125	
Bromomethane	ug/L	50	63.4	127	45-138	
Carbon tetrachloride	ug/L	50	58.8	118	75-125	
Chlorobenzene	ug/L	50	55.6	111	75-125	
Chloroethane	ug/L	50	54.8	110	72-125	
Chloroform	ug/L	50	54.5	109	75-125	
Chloromethane	ug/L	50	54.9	110	65-125	
cis-1,2-Dichloroethene	ug/L	50	55.4	111	75-125	
cis-1,3-Dichloropropene	ug/L	50	53.6	107	75-125	
Dibromochloromethane	ug/L	50	57.2	114	75-125	
Dibromomethane	ug/L	50	52.1	104	75-125	
Dichlorodifluoromethane	ug/L	50	41.2	82	55-143	
Dichlorofluoromethane	ug/L	50	50.2	100	75-125	
Diethyl ether (Ethyl ether)	ug/L	50	47.0	94	75-125	
Ethylbenzene	ug/L	50	56.0	112	75-125	
Hexachloro-1,3-butadiene	ug/L	25	24.7	99	69-132	
Isopropylbenzene (Cumene)	ug/L	50	56.3	113	75-125	
m&p-Xylene	ug/L	100	111	111	75-125	
Methyl-tert-butyl ether	ug/L	50	49.7	99	75-125	
Methylene Chloride	ug/L	50	52.1	104	75-125	
n-Butylbenzene	ug/L	50	49.1	98	75-125	
n-Propylbenzene	ug/L	50	53.5	107	75-125	
Naphthalene	ug/L	50	45.3	91	74-129	
o-Xylene	ug/L	50	55.4	111	75-125	
p-Isopropyltoluene	ug/L	50	53.3	107	75-125	
sec-Butylbenzene	ug/L	50	53.9	108	75-125	
Styrene	ug/L	50	54.9	110	75-125	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

LABORATORY CONTROL SAMPLE: 1028700

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
tert-Butylbenzene	ug/L	50	53.4	107	75-125	
Tetrachloroethene	ug/L	50	58.8	118	75-125	
Tetrahydrofuran	ug/L	500	391	78	64-128	
Toluene	ug/L	50	52.8	106	75-125	
trans-1,2-Dichloroethene	ug/L	50	54.8	110	75-125	
trans-1,3-Dichloropropene	ug/L	50	55.3	111	75-125	
Trichloroethene	ug/L	50	57.7	115	75-125	
Trichlorofluoromethane	ug/L	50	63.8	128	75-125	L0
Vinyl chloride	ug/L	50	50.3	101	74-125	
Xylene (Total)	ug/L	150	166	111	75-125	
1,2-Dichloroethane-d4 (S)	%			99	75-125	
4-Bromofluorobenzene (S)	%			101	75-125	
Dibromofluoromethane (S)	%			103	75-125	
Toluene-d8 (S)	%			103	75-125	

MATRIX SPIKE SAMPLE: 1028701

Parameter	Units	10165593003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	50	56.7	113	75-125	
1,1,1-Trichloroethane	ug/L	ND	50	63.5	127	75-128	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	48.9	98	75-125	
1,1,2-Trichloroethane	ug/L	ND	50	52.4	105	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	50	72.7	145	75-150	
1,1-Dichloroethane	ug/L	ND	50	57.0	114	75-125	
1,1-Dichloroethene	ug/L	ND	50	59.2	118	75-134	
1,1-Dichloropropene	ug/L	ND	50	63.9	128	75-131	
1,2,3-Trichlorobenzene	ug/L	ND	50	48.5	97	67-145	
1,2,3-Trichloropropane	ug/L	ND	50	46.8	94	75-125	
1,2,4-Trichlorobenzene	ug/L	ND	50	53.1	106	74-138	
1,2,4-Trimethylbenzene	ug/L	ND	50	54.1	108	75-126	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	41.0	82	68-129	
1,2-Dibromoethane (EDB)	ug/L	ND	50	54.5	109	75-125	
1,2-Dichlorobenzene	ug/L	ND	50	53.7	107	75-125	
1,2-Dichloroethane	ug/L	ND	50	52.6	105	69-129	
1,2-Dichloropropane	ug/L	ND	50	51.5	103	75-125	
1,3,5-Trimethylbenzene	ug/L	ND	50	55.2	110	75-125	
1,3-Dichlorobenzene	ug/L	ND	50	54.0	108	75-125	
1,3-Dichloropropane	ug/L	ND	50	52.6	105	75-125	
1,4-Dichlorobenzene	ug/L	ND	50	53.5	107	75-125	
2,2-Dichloropropane	ug/L	ND	50	62.7	125	69-141	
2-Butanone (MEK)	ug/L	ND	50	40.2	80	42-137	
2-Chlorotoluene	ug/L	ND	50	55.5	111	68-147	
4-Chlorotoluene	ug/L	ND	50	54.3	109	75-130	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	50	44.4	89	57-126	
Acetone	ug/L	ND	125	86.4	66	34-130	
Allyl chloride	ug/L	ND	50	60.3	121	53-140	
Benzene	ug/L	ND	50	57.6	115	73-136	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

MATRIX SPIKE SAMPLE: 1028701

Parameter	Units	10165593003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromobenzene	ug/L	ND	50	55.2	110	75-125	
Bromochloromethane	ug/L	ND	50	58.6	117	75-125	
Bromodichloromethane	ug/L	ND	50	54.1	108	75-125	
Bromoform	ug/L	ND	50	54.1	108	75-125	
Bromomethane	ug/L	ND	50	70.1	140	41-150	
Carbon tetrachloride	ug/L	ND	50	66.9	134	75-135	
Chlorobenzene	ug/L	ND	50	56.3	113	75-125	
Chloroethane	ug/L	ND	50	59.6	119	71-139	
Chloroform	ug/L	ND	50	56.1	112	75-125	
Chloromethane	ug/L	ND	50	58.6	117	65-144	
cis-1,2-Dichloroethene	ug/L	ND	50	58.1	116	75-125	
cis-1,3-Dichloropropene	ug/L	ND	50	54.3	109	75-125	
Dibromochloromethane	ug/L	ND	50	55.5	111	75-125	
Dibromomethane	ug/L	ND	50	52.6	105	75-125	
Dichlorodifluoromethane	ug/L	ND	50	60.6	121	55-150	
Dichlorofluoromethane	ug/L	ND	50	54.5	109	75-129	
Diethyl ether (Ethyl ether)	ug/L	ND	50	47.9	96	75-125	
Ethylbenzene	ug/L	ND	50	57.9	116	75-137	
Hexachloro-1,3-butadiene	ug/L	ND	25	25.5	102	69-150	
Isopropylbenzene (Cumene)	ug/L	ND	50	58.6	117	75-125	
m&p-Xylene	ug/L	ND	100	115	115	71-133	
Methyl-tert-butyl ether	ug/L	ND	50	51.9	104	75-125	
Methylene Chloride	ug/L	ND	50	54.2	108	75-125	
n-Butylbenzene	ug/L	ND	50	51.0	102	75-141	
n-Propylbenzene	ug/L	ND	50	57.7	115	75-132	
Naphthalene	ug/L	ND	50	47.5	95	74-138	
o-Xylene	ug/L	ND	50	56.6	113	75-128	
p-Isopropyltoluene	ug/L	ND	50	56.2	112	75-133	
sec-Butylbenzene	ug/L	ND	50	56.5	113	75-136	
Styrene	ug/L	ND	50	54.9	110	72-125	
tert-Butylbenzene	ug/L	ND	50	56.4	113	75-132	
Tetrachloroethene	ug/L	ND	50	63.3	127	75-126	M1
Tetrahydrofuran	ug/L	ND	500	411	82	64-128	
Toluene	ug/L	ND	50	55.1	110	75-125	
trans-1,2-Dichloroethene	ug/L	ND	50	58.9	118	75-127	
trans-1,3-Dichloropropene	ug/L	ND	50	54.6	109	75-125	
Trichloroethene	ug/L	ND	50	61.8	124	75-125	
Trichlorofluoromethane	ug/L	ND	50	79.2	158	75-150	M0
Vinyl chloride	ug/L	ND	50	57.3	115	74-142	
Xylene (Total)	ug/L	ND	150	171	114	73-132	
1,2-Dichloroethane-d4 (S)	%				100	75-125	
4-Bromofluorobenzene (S)	%				101	75-125	
Dibromofluoromethane (S)	%				102	75-125	
Toluene-d8 (S)	%				101	75-125	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

SAMPLE DUPLICATE: 1028702

Parameter	Units	10165593004 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	<0.35		30	
1,1,1-Trichloroethane	ug/L	ND	<0.26		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	<0.17		30	
1,1,2-Trichloroethane	ug/L	ND	<0.38		30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	<0.49		30	
1,1-Dichloroethane	ug/L	ND	<0.23		30	
1,1-Dichloroethene	ug/L	ND	<0.47		30	
1,1-Dichloropropene	ug/L	ND	<0.46		30	
1,2,3-Trichlorobenzene	ug/L	ND	<0.29		30	
1,2,3-Trichloropropane	ug/L	ND	<0.25		30	
1,2,4-Trichlorobenzene	ug/L	ND	<0.33		30	
1,2,4-Trimethylbenzene	ug/L	ND	<0.26		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	<1.2		30	
1,2-Dibromoethane (EDB)	ug/L	ND	<0.26		30	
1,2-Dichlorobenzene	ug/L	ND	<0.31		30	
1,2-Dichloroethane	ug/L	ND	<0.23		30	
1,2-Dichloropropane	ug/L	ND	<0.41		30	
1,3,5-Trimethylbenzene	ug/L	ND	<0.38		30	
1,3-Dichlorobenzene	ug/L	ND	<0.40		30	
1,3-Dichloropropane	ug/L	ND	<0.36		30	
1,4-Dichlorobenzene	ug/L	ND	<0.34		30	
2,2-Dichloropropane	ug/L	ND	<0.42		30	
2-Butanone (MEK)	ug/L	ND	<2.0		30	
2-Chlorotoluene	ug/L	ND	<0.37		30	
4-Chlorotoluene	ug/L	ND	<0.29		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	<2.0		30	
Acetone	ug/L	ND	<12.5		30	
Allyl chloride	ug/L	ND	<0.51		30	
Benzene	ug/L	ND	<0.36		30	
Bromobenzene	ug/L	ND	<0.31		30	
Bromochloromethane	ug/L	ND	<0.22		30	
Bromodichloromethane	ug/L	ND	<0.23		30	
Bromoform	ug/L	ND	<2.0		30	
Bromomethane	ug/L	ND	<0.36		30	
Carbon tetrachloride	ug/L	ND	<0.38		30	
Chlorobenzene	ug/L	ND	<0.33		30	
Chloroethane	ug/L	ND	<0.32		30	
Chloroform	ug/L	ND	<0.34		30	
Chloromethane	ug/L	ND	<0.36		30	
cis-1,2-Dichloroethene	ug/L	ND	<0.37		30	
cis-1,3-Dichloropropene	ug/L	ND	<0.27		30	
Dibromochloromethane	ug/L	ND	<0.36		30	
Dibromomethane	ug/L	ND	<0.48		30	
Dichlorodifluoromethane	ug/L	ND	<0.23		30	
Dichlorofluoromethane	ug/L	ND	<0.25		30	
Diethyl ether (Ethyl ether)	ug/L	ND	<0.28		30	
Ethylbenzene	ug/L	ND	<0.38		30	
Hexachloro-1,3-butadiene	ug/L	ND	<0.20		30	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

SAMPLE DUPLICATE: 1028702

Parameter	Units	10165593004 Result	Dup Result	RPD	Max RPD	Qualifiers
Isopropylbenzene (Cumene)	ug/L	ND	<0.36		30	
m&p-Xylene	ug/L	ND	<0.66		30	
Methyl-tert-butyl ether	ug/L	ND	<0.24		30	
Methylene Chloride	ug/L	ND	<2.0		30	
n-Butylbenzene	ug/L	ND	<0.38		30	
n-Propylbenzene	ug/L	ND	<0.42		30	
Naphthalene	ug/L	ND	<0.57		30	
o-Xylene	ug/L	ND	<0.46		30	
p-Isopropyltoluene	ug/L	ND	<0.36		30	
sec-Butylbenzene	ug/L	ND	<0.37		30	
Styrene	ug/L	ND	<0.35		30	
tert-Butylbenzene	ug/L	ND	<0.47		30	
Tetrachloroethene	ug/L	ND	<0.26		30	
Tetrahydrofuran	ug/L	ND	<4.1		30	
Toluene	ug/L	ND	<0.39		30	
trans-1,2-Dichloroethene	ug/L	ND	<0.21		30	
trans-1,3-Dichloropropene	ug/L	ND	<0.18		30	
Trichloroethene	ug/L	ND	<0.20		30	
Trichlorofluoromethane	ug/L	ND	<0.30		30	
Vinyl chloride	ug/L	ND	<0.17		30	
Xylene (Total)	ug/L	ND	<1.1		30	
1,2-Dichloroethane-d4 (S)	%	97	100	3		
4-Bromofluorobenzene (S)	%	100	98	2		
Dibromofluoromethane (S)	%	105	108	2		
Toluene-d8 (S)	%	98	99	.4		

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MTPR/1779 Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH Analysis Description: MADEP EPH MA Soil
Associated Lab Samples: 10165707001, 10165707002, 10165707003, 10165707004, 10165707005, 10165707006, 10165707007, 10165707008, 10165707009

METHOD BLANK: 1028975 Matrix: Solid
Associated Lab Samples: 10165707001, 10165707002, 10165707003, 10165707004, 10165707005, 10165707006, 10165707007, 10165707008, 10165707009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Extractable Hydrocarbons	mg/kg	<4.9	9.9	08/10/11 02:21	
1-Chloro-octadecane (S)	%	83	40-140	08/10/11 02:21	

LABORATORY CONTROL SAMPLE & LCSD: 1028976 1028977

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Extractable Hydrocarbons	mg/kg	102	75.2	73.5	74	72	40-140	2	50	
1-Chloro-octadecane (S)	%				95	94	40-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1028978 1028979

Parameter	Units	10165707001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Extractable Hydrocarbons	mg/kg	52.3	109	108	136	124	76	66	40-140	9	50	
1-Chloro-octadecane (S)	%						101	92	40-140			

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MTPR/1777 | Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH | Analysis Description: MADEP EPH MA Water
Associated Lab Samples: 10165707010

METHOD BLANK: 1028636 | Matrix: Water
Associated Lab Samples: 10165707010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Extractable Hydrocarbons	ug/L	<100	200	08/09/11 05:16	
1-Chloro-octadecane (S)	%	64	40-140	08/09/11 05:16	

LABORATORY CONTROL SAMPLE & LCSD: 1028637 1028638

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Extractable Hydrocarbons	ug/L	3100	1930	2140	62	69	40-140	10	50	
1-Chloro-octadecane (S)	%				82	91	40-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1028639 1028640

Parameter	Units	10165680001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Extractable Hydrocarbons	ug/L	<213	3300	3290	2110	1610	64	49	40-140	27	50	
1-Chloro-octadecane (S)	%						84	62	40-140			

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MTPR/1797 Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH Analysis Description: MADEP EPH MA Fractions Soil
Associated Lab Samples: 10165707002, 10165707003, 10165707004, 10165707005

METHOD BLANK: 1035450 Matrix: Solid
Associated Lab Samples: 10165707002, 10165707003, 10165707004, 10165707005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C09-C18)	mg/kg	<4.9	9.9	08/17/11 18:12	
Aliphatic (C19-C36)	mg/kg	<4.9	9.9	08/17/11 18:12	
Aromatic (C11-22)	mg/kg	5.4J	9.9	08/18/11 09:34	
1-Chloro-octadecane (S)	%	92	40-140	08/17/11 18:12	
2-Bromonaphthalene (S)	%	56	40-140	08/18/11 09:34	
2-Fluorobiphenyl (S)	%	26	40-140	08/18/11 09:34	S0
o-Terphenyl (S)	%	74	40-140	08/18/11 09:34	

LABORATORY CONTROL SAMPLE & LCSD: 1035451 1035452

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C09-C18)	mg/kg	19.8	11.0	11.4	56	58	40-140	3	50	
Aliphatic (C19-C36)	mg/kg	26.4	24.2	26.3	92	100	40-140	9	50	
Aromatic (C11-22)	mg/kg	56	56.7	48.3	101	87	40-140	16	50	
1-Chloro-octadecane (S)	%				83	94	40-140			
2-Bromonaphthalene (S)	%				117	98	40-140			
2-Fluorobiphenyl (S)	%				104	94	40-140			
o-Terphenyl (S)	%				93	74	40-140			

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MTPR/1814 | Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH | Analysis Description: MADEP EPH MA Fractions Soil
Associated Lab Samples: 10165707009

METHOD BLANK: 1040851 | Matrix: Solid
Associated Lab Samples: 10165707009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C09-C18)	mg/kg	<4.9	9.9	08/17/11 18:12	
Aliphatic (C19-C36)	mg/kg	<4.9	9.9	08/17/11 18:12	
Aromatic (C11-22)	mg/kg	5.4J	9.9	08/18/11 09:34	
1-Chloro-octadecane (S)	%	92	40-140	08/17/11 18:12	
2-Bromonaphthalene (S)	%	56	40-140	08/18/11 09:34	
2-Fluorobiphenyl (S)	%	26	40-140	08/18/11 09:34	S0
o-Terphenyl (S)	%	74	40-140	08/18/11 09:34	

LABORATORY CONTROL SAMPLE & LCSD: 1040852 1040853

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C09-C18)	mg/kg	19.8	11.0	11.4	56	58	40-140	3	50	
Aliphatic (C19-C36)	mg/kg	26.4	24.2	26.3	92	100	40-140	9	50	
Aromatic (C11-22)	mg/kg	56	56.7	48.3	101	87	40-140	16	50	
1-Chloro-octadecane (S)	%				83	94	40-140			
2-Bromonaphthalene (S)	%				117	98	40-140			
2-Fluorobiphenyl (S)	%				104	94	40-140			
o-Terphenyl (S)	%				93	74	40-140			

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MT/6610 Analysis Method: MADEP VPH
QC Batch Method: MADEP VPH Analysis Description: MADEP VPH MA Soil
Associated Lab Samples: 10165707001, 10165707002, 10165707003, 10165707004, 10165707005, 10165707006, 10165707007, 10165707008

METHOD BLANK: 1028641 Matrix: Solid
Associated Lab Samples: 10165707001, 10165707002, 10165707003, 10165707004, 10165707005, 10165707006, 10165707007, 10165707008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C05-C08).Unadjusted	mg/kg	<2.4	4.8	08/09/11 20:53	
Aliphatic (C09-C12).Unadjusted	mg/kg	<0.44	4.8	08/09/11 20:53	
Aromatic (C09-C10)	mg/kg	<0.016	0.96	08/09/11 20:53	
Benzene	mg/kg	<0.012	0.024	08/09/11 20:53	
Ethylbenzene	mg/kg	<0.0082	0.048	08/09/11 20:53	
m&p-Xylene	mg/kg	<0.012	0.096	08/09/11 20:53	
Methyl-tert-butyl ether	mg/kg	<0.0096	0.048	08/09/11 20:53	
Naphthalene	mg/kg	<0.069	0.58	08/09/11 20:53	
o-Xylene	mg/kg	<0.0067	0.048	08/09/11 20:53	
Toluene	mg/kg	<0.0080	0.048	08/09/11 20:53	
Total Purgeable Hydro Carbons	mg/kg	<4.8	9.6	08/09/11 20:53	
Xylene (Total)	mg/kg	<0.072	0.14	08/09/11 20:53	
a,a,a-Trifluorotoluene (S)	%	75	70-130	08/09/11 20:53	

LABORATORY CONTROL SAMPLE & LCSD: 1028642 1028643

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08).Unadjusted	mg/kg	28.6	30.3	27.7	106	98	70-130	9	25	
Aliphatic (C09-C12).Unadjusted	mg/kg	28.6	29.8	27.8	104	98	70-130	7	25	
Aromatic (C09-C10)	mg/kg	4.8	4.6	4.2	96	89	70-130	8	25	
Benzene	mg/kg	4.8	4.0	3.8	84	81	70-130	5	25	
Ethylbenzene	mg/kg	4.8	3.7	3.5	77	74	70-130	5	25	
m&p-Xylene	mg/kg	9.5	10.5	9.8	110	104	70-130	6	25	
Methyl-tert-butyl ether	mg/kg	4.8	5.1	5.0	108	107	70-130	2	25	
Naphthalene	mg/kg	4.8	6.2	5.8	131	122	70-130	8	25	2M,CH
o-Xylene	mg/kg	4.8	5.1	4.8	108	102	70-130	6	25	
Toluene	mg/kg	4.8	4.8	4.6	101	97	70-130	5	25	
Total Purgeable Hydro Carbons	mg/kg	61.9	65.3	60.4	105	98	70-130	8	25	
Xylene (Total)	mg/kg	14.3	15.6	14.6	109	103	70-130	6	25	
a,a,a-Trifluorotoluene (S)	%				86	83	70-130			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1028644 1028645

Parameter	Units	10165707003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aliphatic (C05-C08).Unadjusted	mg/kg	<2.9	35.4	36.3	32.6	44.1	89	119	70-130	30	30	
Aliphatic (C09-C12).Unadjusted	mg/kg	1.9J	35.4	36.3	36.6	38.0	98	100	70-130	4	30	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1028644 1028645

Parameter	Units	10165707003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aromatic (C09-C10)	mg/kg	<0.020	5.9	6	8.2	5.6	138	93	70-130	37	30	D6,M1
Benzene	mg/kg	<0.014	5.9	6	4.4	4.5	75	75	70-130	2	30	
Ethylbenzene	mg/kg	<0.0098	5.9	6	4.4	4.5	75	74	70-130	.3	30	
m&p-Xylene	mg/kg	<0.014	11.9	12.1	11.4	11.9	97	99	70-130	4	30	
Methyl-tert-butyl ether	mg/kg	<0.012	5.9	6	5.8	5.8	99	95	70-130	.9	30	
Naphthalene	mg/kg	<0.083	5.9	6	8.9	8.0	151	133	70-130	10	30	CH,M0
o-Xylene	mg/kg	<0.0081	5.9	6	5.7	5.9	96	97	70-130	3	30	
Toluene	mg/kg	<0.0096	5.9	6	5.4	5.6	91	93	70-130	4	30	
Total Purgeable Hydro Carbons	mg/kg	<5.8	76.7	78.5	76.9	88.0	96	108	70-130	13	30	
Xylene (Total)	mg/kg	<0.086	17.7	18.1	17.1	17.8	97	98	70-130	4	30	
a,a,a-Trifluorotoluene (S)	%						80	82	70-130			

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

QC Batch: MT/6621 Analysis Method: MADEP VPH
QC Batch Method: MADEP VPH Analysis Description: MADEP VPH MA Water
Associated Lab Samples: 10165707010, 10165707011

METHOD BLANK: 1028999 Matrix: Water
Associated Lab Samples: 10165707010, 10165707011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C05-C08).Unadjusted	ug/L	<10.0	20.0	08/09/11 00:43	
Aliphatic (C09-C12).Unadjusted	ug/L	<2.4	20.0	08/09/11 00:43	
Aromatic (C09-C10)	ug/L	<0.16	20.0	08/09/11 00:43	
Benzene	ug/L	<0.11	0.50	08/09/11 00:43	
Ethylbenzene	ug/L	<0.13	0.50	08/09/11 00:43	
m&p-Xylene	ug/L	<0.25	1.0	08/09/11 00:43	
Methyl-tert-butyl ether	ug/L	<0.15	0.50	08/09/11 00:43	
Naphthalene	ug/L	<2.5	5.0	08/09/11 00:43	
o-Xylene	ug/L	<0.11	0.50	08/09/11 00:43	
Toluene	ug/L	<0.089	0.50	08/09/11 00:43	
Total Purgeable Hydro Carbons	ug/L	<5.4	20.0	08/09/11 00:43	
Xylene (Total)	ug/L	<0.36	1.5	08/09/11 00:43	
a,a,a-Trifluorotoluene (S)	%	96	70-130	08/09/11 00:43	

LABORATORY CONTROL SAMPLE & LCSD: 1029000 1029001

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08).Unadjusted	ug/L	600	520	624	87	104	70-130	18	25	
Aliphatic (C09-C12).Unadjusted	ug/L	600	583	633	97	106	70-130	8	25	
Aromatic (C09-C10)	ug/L	100	93.5	100	94	100	70-130	7	25	
Benzene	ug/L	100	92.5	102	92	102	70-130	9	25	
Ethylbenzene	ug/L	100	95.0	103	95	103	70-130	8	25	
m&p-Xylene	ug/L	200	192	201	96	101	70-130	5	25	
Methyl-tert-butyl ether	ug/L	100	96.2	103	96	103	70-130	6	25	
Naphthalene	ug/L	100	92.8	98.5	93	98	70-130	6	25	
o-Xylene	ug/L	100	93.4	101	93	101	70-130	8	25	
Toluene	ug/L	100	93.2	101	93	101	70-130	8	25	
Total Purgeable Hydro Carbons	ug/L	1300	1200	1360	92	105	70-130	12	25	
Xylene (Total)	ug/L	300	285	302	95	101	70-130	6	25	
a,a,a-Trifluorotoluene (S)	%				99	99	70-130			

MATRIX SPIKE SAMPLE: 1029003

Parameter	Units	10165651004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aliphatic (C05-C08).Unadjusted	ug/L	2060	600	3010	159	70-130	E
Aliphatic (C09-C12).Unadjusted	ug/L	72.1	600	668	99	70-130	
Aromatic (C09-C10)	ug/L	ND	100	103	95	70-130	
Benzene	ug/L	388	100	521	133	70-130	E
Ethylbenzene	ug/L	34.1	100	130	96	70-130	
m&p-Xylene	ug/L	3.0	200	195	96	70-130	

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QUALITY CONTROL DATA

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

MATRIX SPIKE SAMPLE: 1029003

Parameter	Units	10165651004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Methyl-tert-butyl ether	ug/L	ND	100	93.4	93	70-130	
Naphthalene	ug/L	ND	100	106	106	70-130	
o-Xylene	ug/L	4.9	100	103	98	70-130	
Toluene	ug/L	0.73	100	104	104	70-130	
Total Purgeable Hydro Carbons	ug/L	2180	1300	3650	113	70-130	E
Xylene (Total)	ug/L	7.9	300	298	97	70-130	
a,a,a-Trifluorotoluene (S)	%				143	70-130	S2

SAMPLE DUPLICATE: 1029002

Parameter	Units	10165651003 Result	Dup Result	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08).Unadjusted	ug/L	1520	733	70	50	
Aliphatic (C09-C12).Unadjusted	ug/L	ND	4.0J		50	
Aromatic (C09-C10)	ug/L	ND	2.5J		50	
Benzene	ug/L	39.8	40.0	.6	50	
Ethylbenzene	ug/L	1.9	1.7	9	50	
m&p-Xylene	ug/L	ND	0.26J		50	
Methyl-tert-butyl ether	ug/L	ND	<0.15		50	
Naphthalene	ug/L	ND	<2.5		50	
o-Xylene	ug/L	ND	0.14J		50	
Toluene	ug/L	0.82	0.22J		50	
Total Purgeable Hydro Carbons	ug/L	1450	696	70	50	D6
Xylene (Total)	ug/L	ND	0.40J		50	
a,a,a-Trifluorotoluene (S)	%	179	187	5		S2

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QUALIFIERS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana

BATCH QUALIFIERS

Batch: MSV/17661

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1M	Fractionation performed on a 5x dilution of the sample extract.
2M	Result confirmed by re-analysis
3M	Sample extract diluted by 2 prior to fractionation.
4M	The internal standard, Pentafluorobenzene and 1,4 Diflurobenzene, result exceed the lower control limit. The reported result should be considered an estimated value.
B	Analyte was detected in the associated method blank.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
D3	Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
ES	The reported result is estimated because one or more of the constituent results are qualified as such.
H2	Extraction or preparation was conducted outside of the recognized method holding time.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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QUALIFIERS

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P3	Sample extract could not be concentrated to the routine final volume, resulting in elevated reporting limits.
P6	Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.
S0	Surrogate recovery outside laboratory control limits.
S2	Surrogate recovery outside laboratory control limits due to matrix interferences (confirmed by similar results from sample re-analysis).
S4	Surrogate recovery not evaluated against control limits due to sample dilution.
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).
Z3	Methylene chloride is a common laboratory contaminant. Results for this analyte should be considered estimated unless the amount found in the sample is 3 to 5 times higher than that found in the method blank.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10165707001	**TP-1 @ 4 FT**	EPA 3050	MPRP/27632	EPA 6010	ICP/11751
10165707002	**TP-1 @ 6 FT**	EPA 3050	MPRP/27600	EPA 6010	ICP/11706
10165707003	**TP-1 @ 9 FT**	EPA 3050	MPRP/27600	EPA 6010	ICP/11706
10165707004	**TP-1 SOURCE SAMPLE**	EPA 3050	MPRP/27632	EPA 6010	ICP/11751
10165707005	**TP-2 @ 0-6 INCHES**	EPA 3050	MPRP/27632	EPA 6010	ICP/11751
10165707006	**TP-2 @ 2.5 FT**	EPA 3050	MPRP/27632	EPA 6010	ICP/11751
10165707007	**TP-3 @ 1.5 FT**	EPA 3050	MPRP/27632	EPA 6010	ICP/11751
10165707008	**TP-3 @ 4 FT**	EPA 3050	MPRP/27632	EPA 6010	ICP/11751
10165707009	**SUMP SED**	EPA 3050	MPRP/27632	EPA 6010	ICP/11751
10165707010	**ERB SOIL**	EPA 3010	MPRP/27633	EPA 6010	ICP/11736
10165707010	**ERB SOIL**	EPA 7470	MERP/5769	EPA 7470	MERC/6571
10165707001	**TP-1 @ 4 FT**	EPA 7471	MERP/5760	EPA 7471	MERC/6601
10165707002	**TP-1 @ 6 FT**	EPA 7471	MERP/5760	EPA 7471	MERC/6601
10165707003	**TP-1 @ 9 FT**	EPA 7471	MERP/5760	EPA 7471	MERC/6601
10165707004	**TP-1 SOURCE SAMPLE**	EPA 7471	MERP/5760	EPA 7471	MERC/6601
10165707005	**TP-2 @ 0-6 INCHES**	EPA 7471	MERP/5760	EPA 7471	MERC/6601
10165707006	**TP-2 @ 2.5 FT**	EPA 7471	MERP/5760	EPA 7471	MERC/6601
10165707007	**TP-3 @ 1.5 FT**	EPA 7471	MERP/5760	EPA 7471	MERC/6601
10165707008	**TP-3 @ 4 FT**	EPA 7471	MERP/5760	EPA 7471	MERC/6601
10165707009	**SUMP SED**	EPA 7471	MERP/5760	EPA 7471	MERC/6601
10165707001	**TP-1 @ 4 FT**	% Moisture	MPRP/27598		
10165707002	**TP-1 @ 6 FT**	% Moisture	MPRP/27598		
10165707003	**TP-1 @ 9 FT**	% Moisture	MPRP/27598		
10165707004	**TP-1 SOURCE SAMPLE**	% Moisture	MPRP/27598		
10165707005	**TP-2 @ 0-6 INCHES**	% Moisture	MPRP/27598		
10165707006	**TP-2 @ 2.5 FT**	% Moisture	MPRP/27598		
10165707007	**TP-3 @ 1.5 FT**	% Moisture	MPRP/27598		
10165707008	**TP-3 @ 4 FT**	% Moisture	MPRP/27598		
10165707009	**SUMP SED**	% Moisture	MPRP/27598		
10165707002	**TP-1 @ 6 FT**	EPA 3550	OEXT/16556	EPA 8270 by SIM	MSSV/7119
10165707003	**TP-1 @ 9 FT**	EPA 3550	OEXT/16556	EPA 8270 by SIM	MSSV/7119
10165707004	**TP-1 SOURCE SAMPLE**	EPA 3550	OEXT/16556	EPA 8270 by SIM	MSSV/7119
10165707005	**TP-2 @ 0-6 INCHES**	EPA 3550	OEXT/16556	EPA 8270 by SIM	MSSV/7119
10165707009	**SUMP SED**	EPA 3550	OEXT/16556	EPA 8270 by SIM	MSSV/7119
10165707001	**TP-1 @ 4 FT**	EPA 5035A	MSV/17591	EPA 8260	MSV/17598
10165707002	**TP-1 @ 6 FT**	EPA 5035A	MSV/17591	EPA 8260	MSV/17598
10165707003	**TP-1 @ 9 FT**	EPA 5035A	MSV/17591	EPA 8260	MSV/17598
10165707004	**TP-1 SOURCE SAMPLE**	EPA 5035A	MSV/17629	EPA 8260	MSV/17661
10165707005	**TP-2 @ 0-6 INCHES**	EPA 5035A	MSV/17591	EPA 8260	MSV/17598
10165707006	**TP-2 @ 2.5 FT**	EPA 5035A	MSV/17591	EPA 8260	MSV/17598
10165707007	**TP-3 @ 1.5 FT**	EPA 5035A	MSV/17591	EPA 8260	MSV/17598
10165707008	**TP-3 @ 4 FT**	EPA 5035A	MSV/17591	EPA 8260	MSV/17598
10165707009	**SUMP SED**	EPA 5035/5030B	MSV/17613	EPA 8260	MSV/17614

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Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MT10160050 City of Kalispell-K
Pace Project No.: 10165707

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10165707010	**ERB SOIL**	EPA 8260	MSV/17582		
10165707001	**TP-1 @ 4 FT**	MADEP EPH	MTPR/1779	MADEP EPH	MT/6643
10165707002	**TP-1 @ 6 FT**	MADEP EPH	MTPR/1779	MADEP EPH	MT/6643
10165707003	**TP-1 @ 9 FT**	MADEP EPH	MTPR/1779	MADEP EPH	MT/6643
10165707004	**TP-1 SOURCE SAMPLE**	MADEP EPH	MTPR/1779	MADEP EPH	MT/6643
10165707005	**TP-2 @ 0-6 INCHES**	MADEP EPH	MTPR/1779	MADEP EPH	MT/6643
10165707006	**TP-2 @ 2.5 FT**	MADEP EPH	MTPR/1779	MADEP EPH	MT/6643
10165707007	**TP-3 @ 1.5 FT**	MADEP EPH	MTPR/1779	MADEP EPH	MT/6643
10165707008	**TP-3 @ 4 FT**	MADEP EPH	MTPR/1779	MADEP EPH	MT/6643
10165707009	**SUMP SED**	MADEP EPH	MTPR/1779	MADEP EPH	MT/6643
10165707010	**ERB SOIL**	MADEP EPH	MTPR/1777	MADEP EPH	MT/6628
10165707002	**TP-1 @ 6 FT**	MADEP EPH	MTPR/1797	MADEP EPH	MT/6737
10165707003	**TP-1 @ 9 FT**	MADEP EPH	MTPR/1797	MADEP EPH	MT/6737
10165707004	**TP-1 SOURCE SAMPLE**	MADEP EPH	MTPR/1797	MADEP EPH	MT/6737
10165707005	**TP-2 @ 0-6 INCHES**	MADEP EPH	MTPR/1797	MADEP EPH	MT/6737
10165707009	**SUMP SED**	MADEP EPH	MTPR/1814	MADEP EPH	MT/6836
10165707001	**TP-1 @ 4 FT**	MADEP VPH	MT/6610	MADEP VPH	MT/6641
10165707002	**TP-1 @ 6 FT**	MADEP VPH	MT/6610	MADEP VPH	MT/6641
10165707003	**TP-1 @ 9 FT**	MADEP VPH	MT/6610	MADEP VPH	MT/6641
10165707004	**TP-1 SOURCE SAMPLE**	MADEP VPH	MT/6610	MADEP VPH	MT/6641
10165707005	**TP-2 @ 0-6 INCHES**	MADEP VPH	MT/6610	MADEP VPH	MT/6641
10165707006	**TP-2 @ 2.5 FT**	MADEP VPH	MT/6610	MADEP VPH	MT/6641
10165707007	**TP-3 @ 1.5 FT**	MADEP VPH	MT/6610	MADEP VPH	MT/6641
10165707008	**TP-3 @ 4 FT**	MADEP VPH	MT/6610	MADEP VPH	MT/6641
10165707010	**ERB SOIL**	MADEP VPH	MT/6621		
10165707011	**TRIP BLANK**	MADEP VPH	MT/6621		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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1321703

Section A Required Client Information:

Company: Amec Geomatrix
Address: 1001 S. HIGGINS AVE, MISSOULA MT 59801
Email To: adam.n.johnson@amec.com
Phone: (406) 542-0129 Fax:
Requested Due Date/TAT: Normal

Section B Required Project Information:

Report To: Adam N. Johnson
Copy To:
Purchase Order No.:
Project Name: City of Kalispell - Kniferiver
Project Number: MT10160050

Section C Invoice Information:

Attention: Donna McCannon
Company Name: Amec
Address: Same
Pace Quote Reference:
Pace Project Manager: Deniese Jensen
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: MT

Requested Analysis Filtered (Y/N)

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N) VPH	EPH	RCRA METALS	VOCs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TP-1 @ 4ft	SL	G			8/3/11	1245		3	X								X	X	X	X		10165707-001
2	TP-1 @ 10ft						1255		3														-002
3	TP-1 @ 9ft						305		3														-003
4	TP-1 Source Sample						1345		4														-004
5	TP-2 @ 0-6 inches						1530		4														-005
6	TP-2 @ 2.5ft						1545		3														-006
7	TP-3 @ 1.5ft						1547		3														-007
8	TP-3 @ 4ft						1552		3														-008
9	Sump Sed						1700		3										X	X	X		-009
10	FRB Soil	WT					1730		11			1	10					X	X	X	X		-010
11	TRIP BLANK	WT							2				2					X					-011
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
*See attached tables for	Heather Grotbo/Amec	8/4/11	1430							
recording limits.	Fedex	8/5/11	0945	Norma C Frankle/Pace for Ray Varley	8/5/11	0945				
*for the containers with 3 jars							4.8	Y	Y	Y
test need to be analyzed for							2.3°	Y	Y	Y
EPH & VPH from 9oz jar							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

2

SAMPLER NAME AND SIGNATURE: [signature]
PRINT Name of SAMPLER: HEATHER GROTBO
SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY): 08/04/2011

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Table 6a. Metals and VOC Reporting Limits Compared to Soil Screening Levels						
Knife River Property, Kalispell, Montana						
Analyte	Analytical Method	Reporting Limit mg/kg	Residential Direct Contact SSL mg/kg	Industrial Direct Contact SSL mg/kg	Leaching SSL mg/kg	Is the reporting limit less than or equal to the screening levels?
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	EPA 8260LL	0.004	1.9	9.3	0.002	no, will request MDL of 0.001
1,1,1-Trichloroethane	EPA 8260LL	0.004	870	3800	0.7	yes
1,1,2,2-Tetrachloroethane	EPA 8260LL	0.004	0.56	2.8	0.0078	yes
1,1,2-Trichloroethane	EPA 8260LL	0.004	1.1	5.3	0.0098	yes
1,1,2-Trichlorotrifluoroethane	EPA 8260LL	0.004	na	na	na	na
1,1-Dichloroethane	EPA 8260LL	0.004	3.3	17	0.0069	yes
1,1-Dichloroethene	EPA 8260LL	0.004	240	1100	0.0021	no, will request MDL of 0.0008
1,1-Dichloropropene	EPA 8260LL	0.004	na	na	na	na
1,2,3-Trichlorobenzene	EPA 8260LL	0.004	4.9	49	0.87	yes
1,2,3-Trichloropropane	EPA 8260LL	0.004	0.005	0.095	0.0027	no, will request MDL of 0.00081
1,2,4-Trichlorobenzene	EPA 8260LL	0.004	22	99	2	yes
1,2,4-Trimethylbenzene	EPA 8260LL	0.004	6.2	26	0.21	yes
1,2-Dibromo-3-chloropropane	EPA 8260LL	0.01	0.0054	0.069	0.00086	no, will request MDL of 0.00195
1,2-Dibromoethane (EDB)	EPA 8260LL	0.004	0.034	0.17	0.000011	no will request MDL of 0.00131
1,2-Dichlorobenzene	EPA 8260LL	0.004	190	980	5.8	yes
1,2-Dichloroethane	EPA 8260LL	0.004	0.43	2.2	0.0112	yes
1,2-Dichloropropane	EPA 8260LL	0.004	0.94	4.7	0.017	yes
1,3,5-Trimethylbenzene	EPA 8260LL	0.004	78	1000	5.2	yes
1,3-Dichlorobenzene	EPA 8260LL	0.004	na	na	na	na
1,3-Dichloropropane	EPA 8260LL	0.004	160	2000	2.5	yes
1,4-Dichlorobenzene	EPA 8260LL	0.004	2.4	12	0.72	yes
2,2-Dichloropropane	EPA 8260LL	0.01	na	na	na	na
2-Butanone (MEK)	EPA 8260LL	0.02	na	na	na	na
2-Chlorotoluene	EPA 8260LL	0.004	160	2000	7.1	yes
4-Chlorotoluene	EPA 8260LL	0.004	160	2000	7.1	yes
4-Methyl-2-pentanone (MIBK)	EPA 8260LL	0.02	na	na	na	na
Acetone	EPA 8260LL	0.025	6100	63000	45	yes
Allyl chloride	EPA 8260LL	0.004	0.68	3.4	0.0021	no, will request MDL of 0.00082
Benzene	EPA 8260LL	0.0047	a	a	a	yes
Bromobenzene	EPA 8260LL	0.004	30	180	0.59	yes
Bromochloromethane	EPA 8260LL	0.004	16	68	0.21	yes
Bromodichloromethane	EPA 8260LL	0.004	0.27	1.4	0.0267	yes
Bromoform	EPA 8260LL	0.02	62	220	0.21	yes
Bromomethane	EPA 8260LL	0.02	7.3	32	0.0025	no, will request MDL of 0.00214
Carbon tetrachloride	EPA 8260LL	0.004	0.61	3	0.0116	yes
Chlorobenzene	EPA 8260LL	0.004	29	140	0.68	yes
Chloroethane	EPA 8260LL	0.01	na	na	na	na
Chloroform	EPA 8260LL	0.004	0.29	1.5	0.195	yes
Chloromethane	EPA 8260LL	0.01	12	50	0.077	yes
cis-1,3-Dichloropropene	EPA 8260LL	0.004	1.7	8.3	0.014	yes
Dibromochloromethane	EPA 8260LL	0.004	0.68	3.3	0.01	yes

Table 6a. Metals and VOC Reporting Limits Compared to Soil Screening Levels						
Knife River Property, Kalispell, Montana						
Analyte	Analytical Method	Reporting Limit	Residential Direct Contact SSL	Industrial Direct Contact SSL	Leaching SSL	Is the reporting limit less than or equal to the screening level?
		mg/kg	mg/kg	mg/kg	mg/kg	
Dibromomethane	EPA 8260LL	0.004	2.5	11	0.02	yes
Dichlorodifluoromethane	EPA 8260LL	0.004	9.4	40	15.5	yes
Dichlorofluoromethane	EPA 8260LL	0.004	na	na	na	na
Diethyl ether (Ethyl ether)	EPA 8260LL	0.004	1600	20000	16	yes
Ethylbenzene	EPA 8260LL	0.004	a	a	a	yes
Hexachloro-1,3-butadiene	EPA 8260LL	0.01	0.054	0.26	0.07	yes
Isopropylbenzene (Cumene)	EPA 8260LL	0.004	210	1100	11	yes
Methyl-tert-butyl ether	EPA 8260LL	0.004	a	a	a	yes
Methylene Chloride	EPA 8260LL	0.02	11	53	0.013	no, will request MDL of 0.00213
Naphthalene	EPA 8260LL	0.01	a	a	a	yes
Styrene	EPA 8260LL	0.004	630	3600	1.1	yes
Tetrachloroethene	EPA 8260LL	0.004	0.55	2.6	0.023	yes
Tetrahydrofuran	EPA 8260LL	0.04	na	na	na	na
Toluene	EPA 8260LL	0.004	a	a	a	yes
Trichloroethene	EPA 8260LL	0.004	2.8	14	0.018	yes
Trichlorofluoromethane	EPA 8260LL	0.004	79	340	63.85	yes
Vinyl chloride	EPA 8260LL	0.004	0.06	1.7	0.0007	no, will request MDL of 0.00126
Xylene (Total)	EPA 8260LL	0.012	a	a	a	yes
cis-1,2-Dichloroethene	EPA 8260LL	0.004	16	200	0.21	yes
m- + p- Xylene[b]	EPA 8260LL	0.008	59	250	100	yes
n-Butylbenzene	EPA 8260LL	0.00095	na	na	na	na
n-Propylbenzene	EPA 8260LL	0.00082	340	2100	25	yes
o-Xylene	EPA 8260LL	0.00095	69	300	100	yes
p-Isopropyltoluene	EPA 8260LL	0.00091	na	na	na	na
sec-Butylbenzene	EPA 8260LL	0.00069	390	5100	59	yes
tert-Butylbenzene	EPA 8260LL	0.00096	na	na	na	na
trans-1,2-Dichloroethene	EPA 8260LL	0.00117	15	69	0.29	yes
trans-1,3-Dichloropropene	EPA 8260LL	0.00053	1.7	8.3	0.007	yes
Pesticides						
Pentachlorophenol	EPA 8151	0.00095	0.89	2.7	0.1	yes
Metals						
Arsenic*	EPA 6010b	0.5	40	40	40	yes
Barium	EPA 6010b	0.5	1,500	19,000	411	yes
Cadmium	EPA 6010b	0.02	70	800	3.8	yes
Chromium**	EPA 6010b	0.5	0.29	5.6	1.80E+06	no, will request MDL of 0.07 mg/kg
Lead	EPA 6010b	0.3	400	800	140	yes
Mercury	EPA 7471	0.02	1.0	4.3	2.60	yes
Selenium	EPA 6010b	0.75	39	510	8.90	yes
Silver	EPA 6010b	0.5	39	510	1.0	yes

Notes:

Screening levels for VOCs and metals are based on EPA RSLs and adjusted according to DEQ's April 2011 soil screening flow charts.

RSL = EPA Regional Screening Level (May 2011)

SSL = Soil Screening Level

na = not available. No EPA Regional Screening Levels exist for this compound

a = DEQ RBSLs apply. See Table 6b for screening levels

b = the more conservative SSL bewteen p-xylene and m-xylene was used

** = DEQ action level for arsenic (April 2005)*

*** = Direct Contact RSL is for Chromium VI species*

Table 6b. Petroleum Hydrocarbon and PAH Reporting Limits Compared to Soil Screening Levels							
Knife River Property, Kalispell, Montana							
Analyte	Analytical Method	Reporting Limit	Surface Soil SSL (10-20 ft to groundwater)		Subsurface Soil SSL		Is the reporting limit less than the screening level?
			Residential	Industrial	<10 ft to groundwater	10-20 feet to groundwater	
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Petroleum Hydrocarbons							
C5-C8 Aliphatics	MDEP VPH	10	60	300	200	500	yes
C9-C12 Aliphatics	MDEP VPH	10	100	700	1000	1000	yes
C9-C10 Aromatics	MDEP VPH	10	100	500	100	500	yes
MTBE	MDEP VPH	0.06	0.2	0.2	0.08	0.2	yes
Benzene	MDEP VPH	0.025	0.1	0.1	0.04	0.1	yes
Toluene	MDEP VPH	0.1	40	40	10	40	yes
Ethylbenzene	MDEP VPH	0.1	6	30	10	40	yes
Xylenes	MDEP VPH	0.3	70	300	200	600	yes
Naphthalene	MDEP VPH	0.5	4	20	9	30	yes
EPH Screen	MDEP EPH	10	200	200	200	200	yes
C9-C18 Aliphatics	MDEP EPH	10	200	1000	2000	2000	yes
C19-C36 Aliphatics	MDEP EPH	10	20,000	100,000	100,000	100,000	yes
C11-C22 Aromatics	MDEP EPH	10	500	1000	400	1000	yes
Polynuclear Aromatic Hydrocarbons							
Acenapthene	8270c SIM	0.01	400	800	200	800	yes
Acenapthylene[a]	8270c SIM	0.01	400	800	200	800	yes
Anthracene	8270c SIM	0.01	2,000	10,000	4,000	10,000	yes
Benz(a)anthracene	8270c SIM	0.01	0.20	2	10	50	yes
Benzo(a)pyrene	8270c SIM	0.01	0.02	0.2	4.0	5.0	yes
Benzo(b)fluoranthene	8270c SIM	0.01	0.20	2	50	50	yes
Benzo(k)fluoranthene	8270c SIM	0.01	2	20	500	500	yes
Benzo(g,h,i)perylene[a]	8270c SIM	0.01	400	800	200	800	yes
Chrysene	8270c SIM	0.01	20	200	2000	5,000	yes
Dibenzo(a,h)anthracene	8270c SIM	0.01	0.02	0.20	5	5	yes
Fluoranthene	8270c SIM	0.01	300	2,000	500	2,000	yes
Fluorene	8270c SIM	0.01	300	2,000	600	2,000	yes

Table 6b. Petroleum Hydrocarbon and PAH Reporting Limits Compared to Soil Screening Levels							
Knife River Property, Kalispell, Montana							
Analyte	Analytical Method	Reporting Limit	Surface Soil SSL (10-20 ft to groundwater)		Subsurface Soil SSL		Is the reporting limit less than the screening level?
			Residential	Industrial	<10 ft to groundwater	10-20 feet to groundwater	
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Indeno(1,2,3-cd)pyrene	8270c SIM	0.01	0.20	2	50	50	yes
Naphthalene	8270c SIM	0.01	4	20	9	30	yes
Phenanthrene[a]	8270c SIM	0.01	300	2,000	500	2,000	yes
Pyrene	8270c SIM	0.01	200	2,000	2,000	2,000	yes

SSL = Soil Screening Level

MDEP = Massachusetts Department of Environmental Protection

The screening levels are Montana Department of Environmental Quality Risk-Based Screening Levels (RBSLs; September 2009). The RBSLs listed are the most conservative for the direct contact and leaching scenarios. DEQ does not distinguish between direct contact and leaching screening levels. The RBSLs listed are based on depths to water in local monitoring wells of approximately 20 feet below ground surface.

a = Surrogate PAH screening levels were used based on similar structure. Acenaphthene screening levels for benzo(g,h,i)perylene and acenaphthylene. Fluoranthene screening levels for phenanthrene.

Table 7. Reporting Limits Compared to Groundwater Standards
Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit ug/L	Screening Level ug/L	Is the reporting limit less or equal to the screening level?
Polynuclear Aromatic Hydrocarbons				
Acenaphthene	8270c SIM	0.04	670	yes
Acenaphthylene	8270c SIM	0.04	670**	yes
Anthracene	8270c SIM	0.04	2,100	yes
Benz(a)anthracene	8270c SIM	0.04	0.50	yes
Benzo(a)pyrene	8270c SIM	0.04	0.05	yes
Benzo(b)fluoranthene	8270c SIM	0.08	0.5	yes
Benzo(k)fluoranthene	8270c SIM	0.04	5	yes
Benzo(g,h,i)perylene	8270c SIM	0.04	na	na
Chrysene	8270c SIM	0.04	50	yes
Dibenzo(a,h)anthracene	8270c SIM	0.04	0.05	yes
Fluoranthene	8270c SIM	0.04	130	yes
Fluorene	8270c SIM	0.04	1100	yes
Indeno(1,2,3-cd)pyrene	8270c SIM	0.04	0.5	yes
Naphthalene	8270c SIM	0.04	100	yes
Phenanthrene	8270c SIM	0.04	na	na
Pyrene	8270c SIM	0.04	830	yes
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	EPA 8260	1.0	na	na
1,1,1-Trichloroethane	EPA 8260	1.0	200	yes
1,1,2,2-Tetrachloroethane	EPA 8260	1.0	2	yes
1,1,2-Trichloroethane	EPA 8260	1.0	3	yes
1,1,2-Trichlorotrifluoroethane	EPA 8260	1.0	na	na
1,1-Dichloroethane	EPA 8260	1.0	na	na
1,1-Dichloroethene	EPA 8260	1.0	0.6	no, will request MDL of 0.47
1,1-Dichloropropene	EPA 8260	1.0	na	na
1,2,3-Trichlorobenzene	EPA 8260	1.0	na	na
1,2,3-Trichloropropane	EPA 8260	4.0	na	na
1,2,4-Trichlorobenzene	EPA 8260	1.0	70	yes
1,2,4-Trimethylbenzene	EPA 8260	1	na	na
1,2-Dibromo-3-chloropropane	EPA 8260	4	0.2	no, will request MDL of 1.23
1,2-Dibromoethane (EDB)	EPA 8260 or 8011	1	0.004	no, will request MDL of 0.26
1,2-Dichlorobenzene	EPA 8260	1	600	yes
1,2-Dichloroethane	EPA 8260	1	4	yes

Table 7. Reporting Limits Compared to Groundwater Standards
Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit µg/L	Screening Level µg/L	Is the reporting limit less or equal to the screening level?
1,2-Dichloropropane	EPA 8260	4	5	yes
1,3,5-Trimethylbenzene	EPA 8260	1	na	na
1,3-Dichlorobenzene	EPA 8260	1	600	yes
1,3-Dichloropropane	EPA 8260	1	na	na
1,4-Dichlorobenzene	EPA 8260	1	75	yes
2,2-Dichloropropane	EPA 8260	4	na	na
2-Butanone (MEK)	EPA 8260	4	na	na
2-Chlorotoluene	EPA 8260	1	na	na
4-Chlorotoluene	EPA 8260	1	na	na
4-Methyl-2-pentanone (MIBK)	EPA 8260	4	na	na
Acetone	EPA 8260	25	na	na
Allyl chloride	EPA 8260	4	na	na
Benzene	EPA 8260	1	5	yes
Bromobenzene	EPA 8260	1	na	na
Bromochloromethane	EPA 8260	1	na	na
Bromodichloromethane	EPA 8260	1	10	yes
Bromoform	EPA 8260	4	80	yes
Bromomethane	EPA 8260	4	10	yes
Carbon tetrachloride	EPA 8260	1	3	yes
Chlorobenzene	EPA 8260	1	100	yes
Chloroethane	EPA 8260	1	na	na
Chloroform	EPA 8260	1	70	yes
Chloromethane	EPA 8260	4	30	yes
cis-1,3-Dichloropropene	EPA 8260	4	4	yes
Dibromochloromethane	EPA 8260	1	4	yes
Dibromomethane	EPA 8260	4	na	na
Dichlorodifluoromethane	EPA 8260	1	1000	yes
Dichlorofluoromethane	EPA 8260	1	na	na
Diethyl ether (Ethyl ether)	EPA 8260	4	na	na
Ethylbenzene	EPA 8260	1	700	yes
Hexachloro-1,3-butadiene	EPA 8260	5	5	yes
Isopropylbenzene (Cumene)	EPA 8260	1	na	na
Methyl-tert-butyl ether	EPA 8260	1	30	yes
Methylene Chloride	EPA 8260	4	5	yes
Naphthalene	EPA 8260	4	100	yes
Styrene	EPA 8260	1	100	yes

Table 7. Reporting Limits Compared to Groundwater Standards
Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit µg/L	Screening Level µg/L	Is the reporting limit less or equal to the screening level?
Tetrachloroethene	EPA 8260	1	5	yes
Tetrahydrofuran	EPA 8260	10	na	na
Toluene	EPA 8260	1	1,000	yes
Trichloroethene	EPA 8260	1	5	yes
Trichlorofluoromethane	EPA 8260	1	10,000	yes
Vinyl chloride	EPA 8260	0.4	0.2	no, will request MDL of 0.17
Xylene (Total)	EPA 8260	3	10,000	yes
cis-1,2-Dichloroethene	EPA 8260	1	70	yes
m- + p- Xylene	EPA 8260	2	10,000	yes
n-Butylbenzene	EPA 8260	1	na	na
n-Propylbenzene	EPA 8260	1	na	na
o-Xylene	EPA 8260	1	10,000	yes
p-Isopropyltoluene	EPA 8260	1	na	na
sec-Butylbenzene	EPA 8260	1	na	na
tert-Butylbenzene	EPA 8260	1	na	na
trans-1,2-Dichloroethene	EPA 8260	4	100	yes
trans-1,3-Dichloropropene	EPA 8260	4	2	no, will request MDL of 0.18
Petroleum Hydrocarbons				
Total Purgeable Hydrocarbons	MDEP VPH	20	1000	yes
C5-C8 Aliphatics	MDEP VPH	20	700	yes
C9-C12 Aliphatics	MDEP VPH	20	1,000	yes
C9-C10 Aromatics	MDEP VPH	20	1,000	yes
MTBE	MDEP VPH	0.5	30	yes
Benzene	MDEP VPH	0.5	5	yes
Toluene	MDEP VPH	0.5	1,000	yes
Ethylbenzene	MDEP VPH	0.5	700	yes
Xylenes	MDEP VPH	1.5	10,000	yes
Naphthalene	MDEP VPH	5	100	yes
EPH Screen	MDEP EPH	200	1,000	yes
C9-C18 Aliphatics	MDEP EPH	200	1,000	yes
C19-C36 Aliphatics	MDEP EPH	200	1,000	yes
C11-C22 Aromatics	MDEP EPH	200	1,000	yes

Table 7. Reporting Limits Compared to Groundwater Standards
Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit µg/L	Screening Level * µg/L	Is the reporting limit less or equal to the screening level?
Pesticides				
Pentachlorophenol	EPA 8151	0.0284	1	yes
Metals				
Arsenic	EPA 6010b	10	10	yes
Barium	EPA 6010b	10	1,000	yes
Cadmium	EPA 6010b	1	5	yes
Chromium	EPA 6010b	10	na	yes
Lead	EPA 6010b	3	15	yes
Mercury	EPA 7471	0.2	2	yes
Selenium	EPA 6010b	15	50	yes
Silver	EPA 6010b	10	100	yes

Notes:

** = Screening Levels are Montana Numeric Water Quality Standards (Circular DEQ-7, August 2010). The screening levels for petroleum constituents are Montana Department of Environmental Quality Risk-Based Screening Levels (RBSLs; September 2009).*

*** = Acenapthene screening level was used for acenapthylene because a DEQ-7 number is not a available and they have similar toxicity.*

na = not available or not applicable because no DEQ-7 standard exists for this analyte

MDL = method detection limit

MDEP = Massachusetts Department of Environmental Protection

Sample Condition Upon Receipt

Pace Analytical

Client Name: AMEC

Project # 10165707

Courier: [X] Fed Ex [ ] UPS [ ] USPS [ ] Client [ ] Commercial [ ] Pace Other _____

Tracking #: 791376883930/3941

Custody Seal on Cooler/Box Present: [X] yes [ ] no Seals intact: [X] yes [ ] no

Packing Material: [X] Bubble Wrap [X] Bubble Bags [ ] None [X] Other absorbent pad Temp Blank: Yes X No _____

Thermometer Used 1383045 or 135 Type of Ice: (Wet) Blue None [X] Samples on ice, cooling process has begun

Cooler Temperature 4.8 2.3° Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: NCT 8/5/11

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	[X] Yes [ ] No [ ] N/A	1.
Chain of Custody Filled Out:	[X] Yes [ ] No [ ] N/A	2.
Chain of Custody Relinquished:	[X] Yes [ ] No [ ] N/A	3.
Sampler Name & Signature on COC:	[X] Yes [ ] No [ ] N/A	4.
Samples Arrived within Hold Time:	[X] Yes [ ] No [ ] N/A	5.
Short Hold Time Analysis (<72hr):	[ ] Yes [X] No [ ] N/A	6.
Rush Turn Around Time Requested:	[ ] Yes [X] No [ ] N/A	7. NORMAL
Sufficient Volume:	[X] Yes [ ] No [ ] N/A	8. Received 4 vials for VOC analysis -010
Correct Containers Used:	[X] Yes [ ] No [ ] N/A	9.
-Pace Containers Used:	[X] Yes [ ] No [ ] N/A	
Containers Intact:	[X] Yes [ ] No [ ] N/A	10.
Filtered volume received for Dissolved tests	[ ] Yes [ ] No [X] N/A	11.
Sample Labels match COC:	[X] Yes [ ] No [ ] N/A	12.
-Includes date/time/ID/Analysis Matrix: SOIL & H_2O		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	[X] Yes [ ] No [ ] N/A	13. [X] HNO3 [ ] H2SO4 [ ] NaOH [ ] HCl Samp # -010, HNO_3 (✓)
All containers needing preservation are found to be in compliance with EPA recommendation.	[X] Yes [ ] No [ ] N/A	Initial when completed NCT / Lot # of added preservative
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	[X] Yes [X] No NCT 8/5/11	
Samples checked for dechlorination:	[ ] Yes [ ] No [X] N/A	14.
Headspace in VOA Vials (>6mm):	[ ] Yes [X] No [ ] N/A	15.
Trip Blank Present:	[X] Yes [ ] No [ ] N/A	16.
Trip Blank Custody Seals Present	[X] Yes [ ] No [ ] N/A	
Pace Trip Blank Lot # (if purchased): pace lot # 062811-1		

Field Data Required? Y / N

Client Notification/ Resolution:

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Kari Behl **Date:** 8/5/11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

EPH 10165707

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i
Lab File ID: FRT22116.D
Analysis Type: WATER
Lab Sample ID: eph ccv 7658-102 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\080911a.b\3EscF072311.m

Injection Date: 10-AUG-2011 01:50
Init. Cal. Date(s): 23-JUL-2011 23-JUL-2011
Init. Cal. Times: 19:10 21:48

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3275	3550	0.010	8.39212	25.00000	Averaged
S 57 Aliphatic (C9-C18)	4297	4308	0.010	0.23763	25.00000	Averaged
S 58 Aliphatic (C19-C36)	2582	2981	0.010	15.45984	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3483	3393	0.010	-2.58154	25.00000	Averaged
$ 54 o-Terphenyl (S)	4430	4262	0.010	-3.78447	25.00000	Averaged

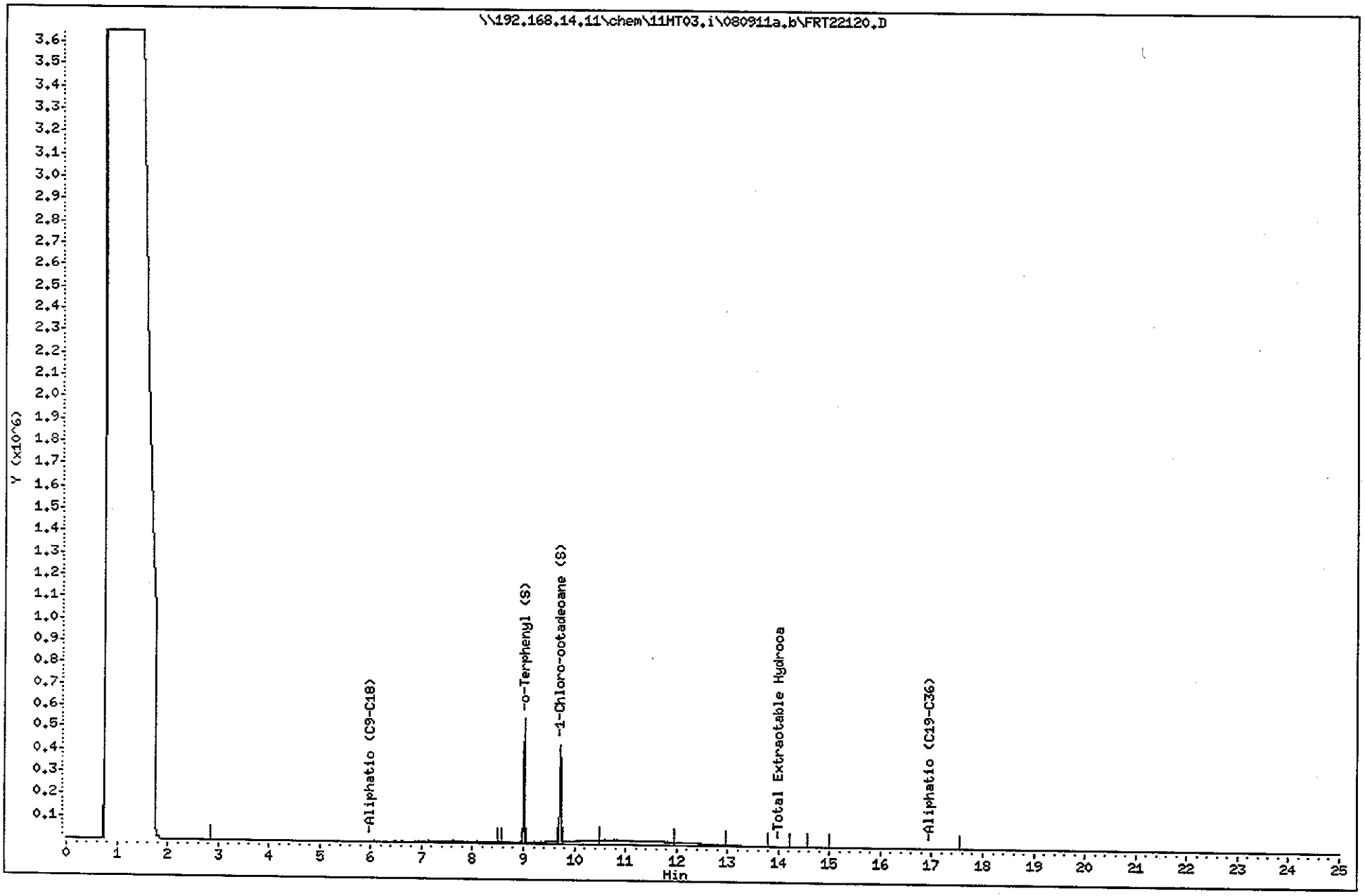
Average %D / Drift Results.

Calculated Average %D/Drift = 6.09112
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT03.i\080911a.b\FRT22120.D
Date : 10-AUG-2011 03:55
Client ID:
Sample Info: 10165707001
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

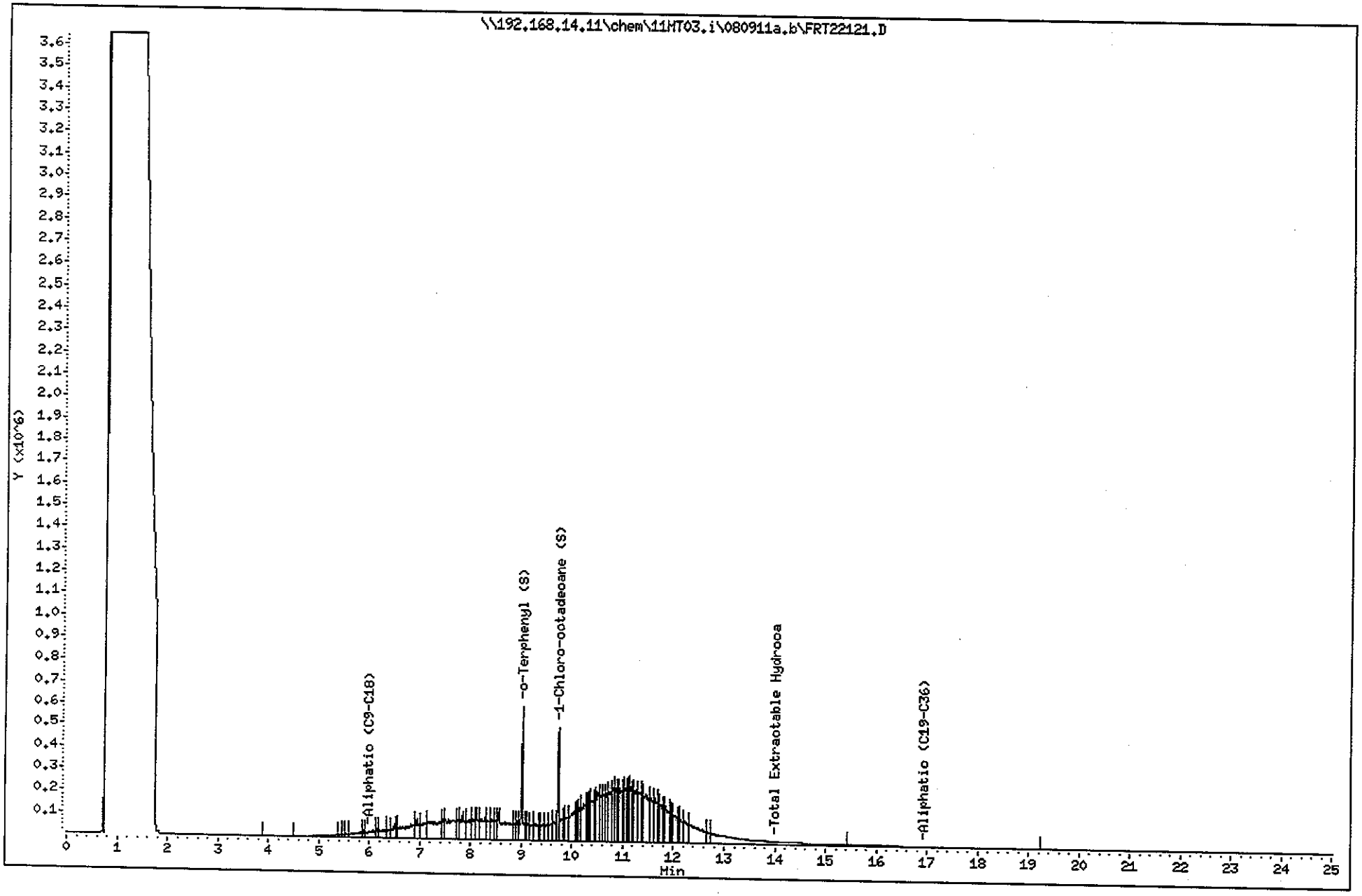
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\080911a.b\FRT22121.D
Date : 10-AUG-2011 04:27
Client ID:
Sample Info: 10165707002
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

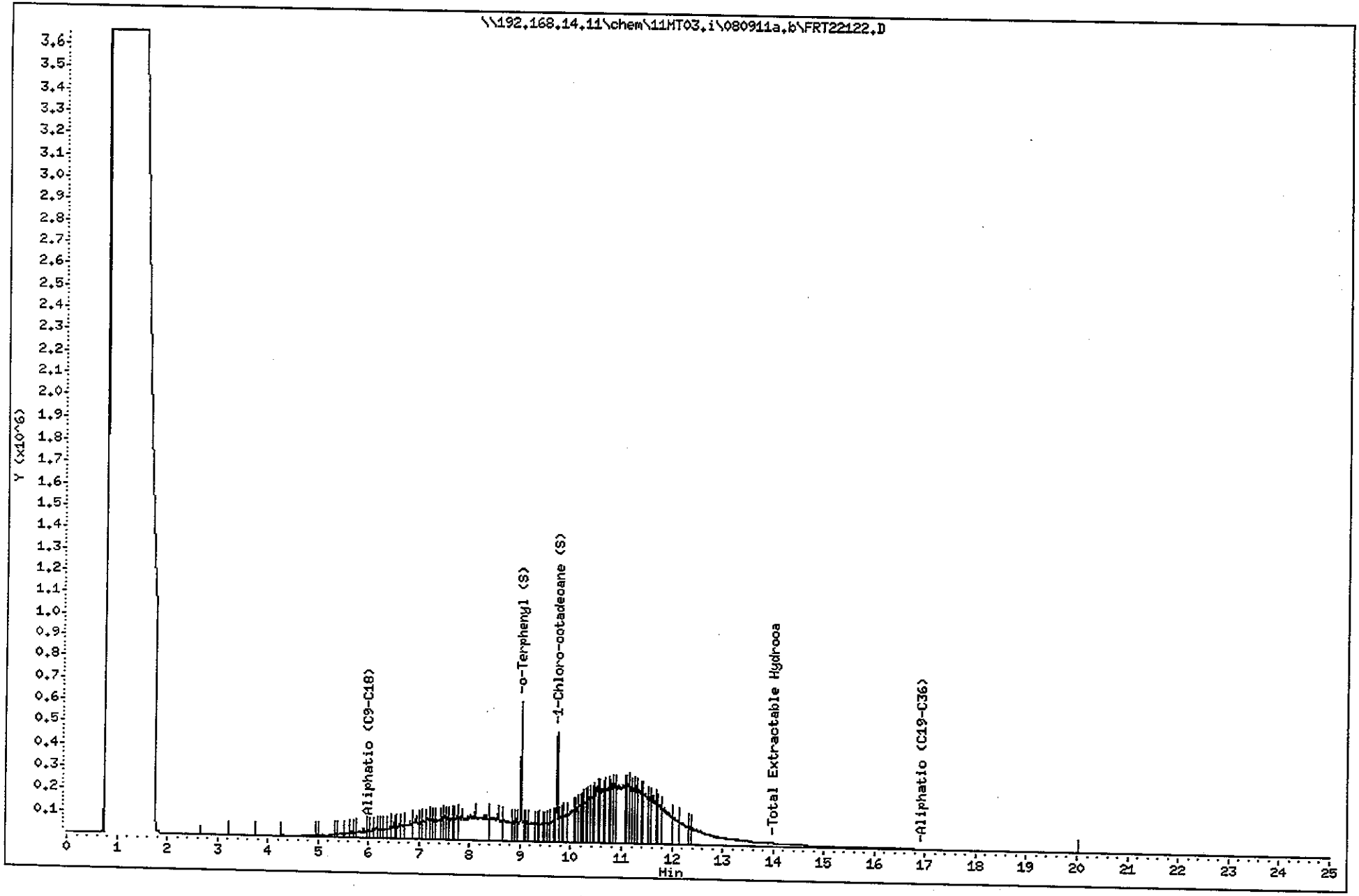
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\080911a.b\FRT22122.D
Date : 10-AUG-2011 04:58
Client ID:
Sample Info: 10165707003
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

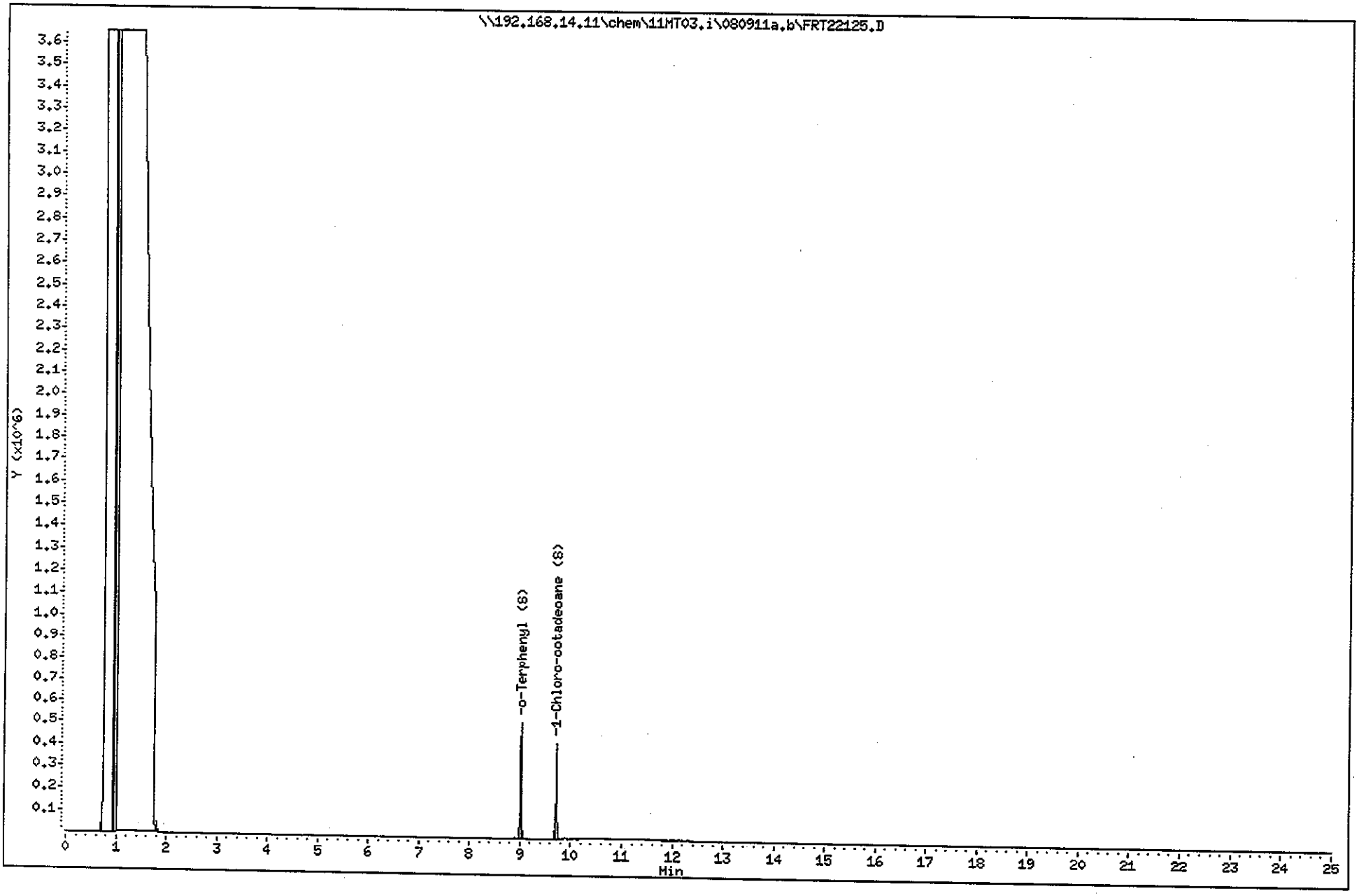
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\080911a.b\FRT22125.D
Date : 10-AUG-2011 06:33
Client ID:
Sample Info: 10165707006
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

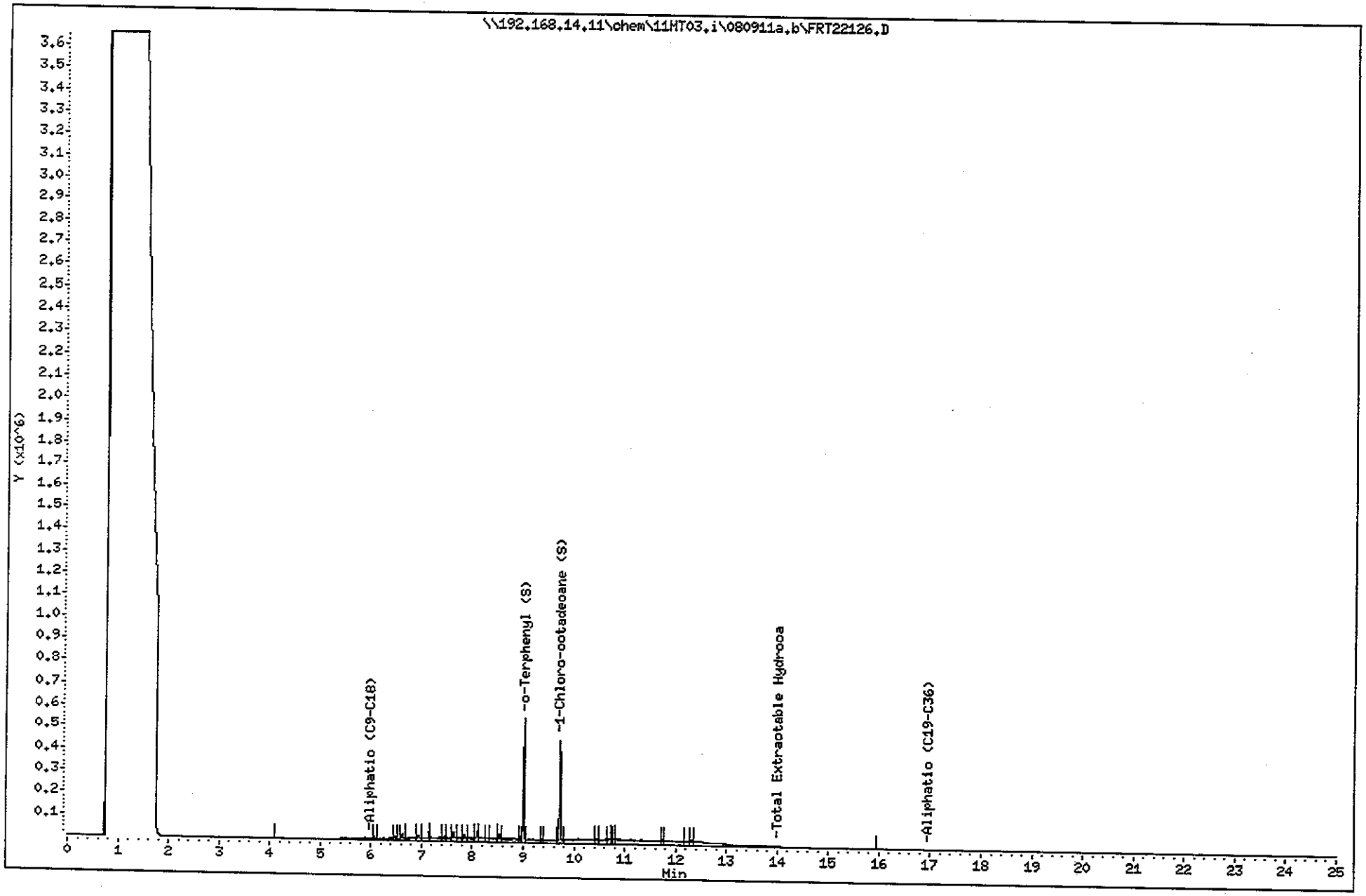
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\080911a.b\FRT22126.D
Date : 10-AUG-2011 07:04
Client ID:
Sample Info: 10165707007
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

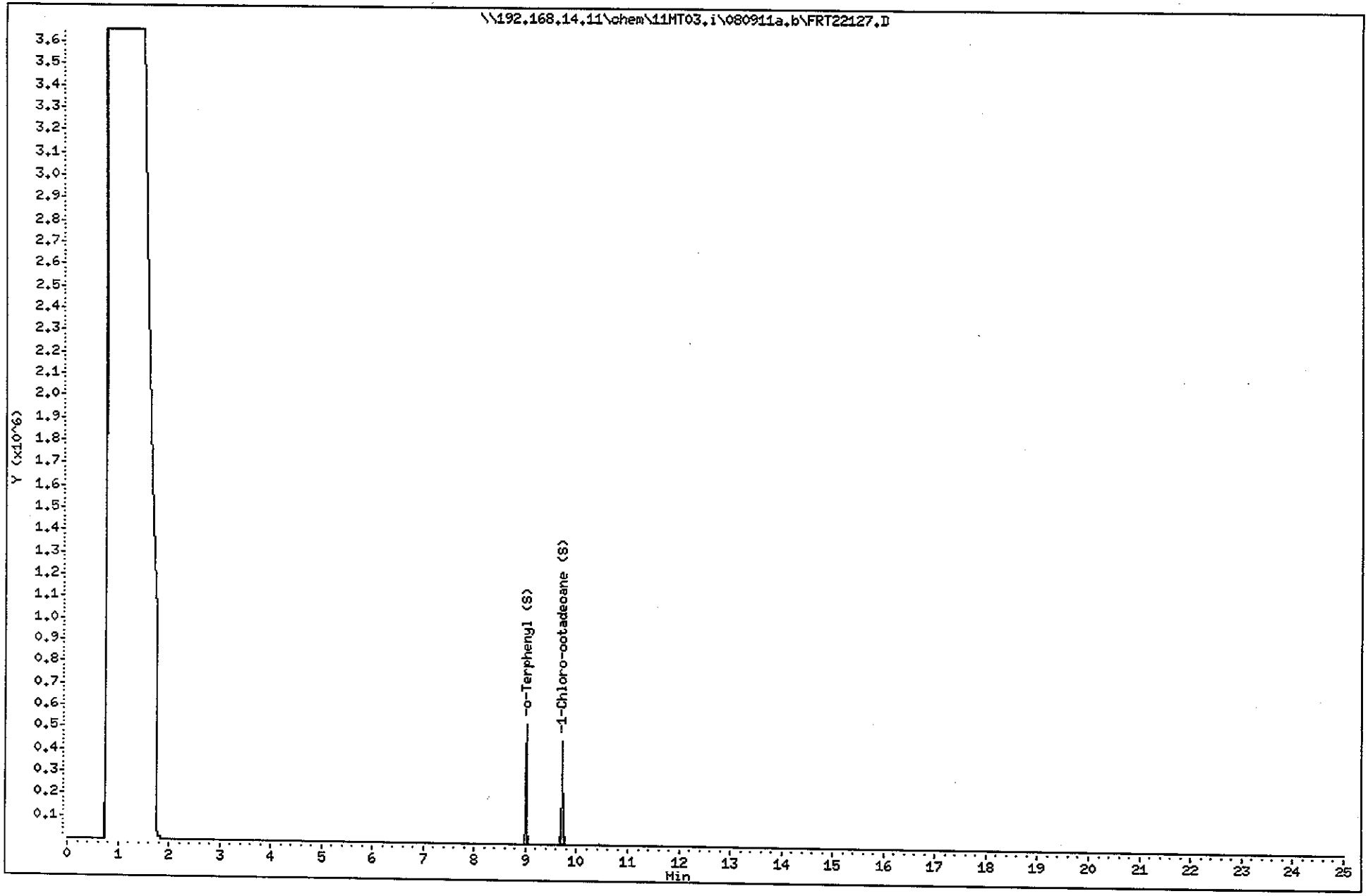
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\080911a.b\FRT22127.D
Date : 10-AUG-2011 07:36
Client ID:
Sample Info: 10165707008
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 10-AUG-2011 08:39
Lab File ID: FRT22129.D Init. Cal. Date(s): 23-JUL-2011 23-JUL-2011
Analysis Type: WATER Init. Cal. Times: 19:10 / 21:48
Lab Sample ID: eph ccv 7658-102 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\080911a.b\3EscF072311.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3275	3621	0.010	10.56668	25.00000	Averaged
S 57 Aliphatic (C9-C18)	4297	4329	0.010	0.73852	25.00000	Averaged
S 58 Aliphatic (C19-C36)	2582	3090	0.010	19.66101	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3483	3442	0.010	-1.16135	25.00000	Averaged
$ 54 o-Terphenyl (S)	4430	4314	0.010	-2.61990	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 6.94949
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

EPH (10165 707-10)

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 09-AUG-2011 04:43
Lab File ID: FRT22029.D Init. Cal. Date(s): 23-JUL-2011 23-JUL-2011
Analysis Type: WATER Init. Cal. Times: 19:10 21:48
Lab Sample ID: eph ccv 7658-102 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\080811a.b\3EscF072311.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3275	3453	0.010	5.43540	25.00000	Averaged
S 57 Aliphatic (C9-C18)	4297	4386	0.010	2.06169	25.00000	Averaged
S 58 Aliphatic (C19-C36)	2582	2753	0.010	6.62081	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3483	3292	0.010	-5.47317	25.00000	Averaged
$ 54 o-Terphenyl (S)	4430	4226	0.010	-4.61225	25.00000	Averaged

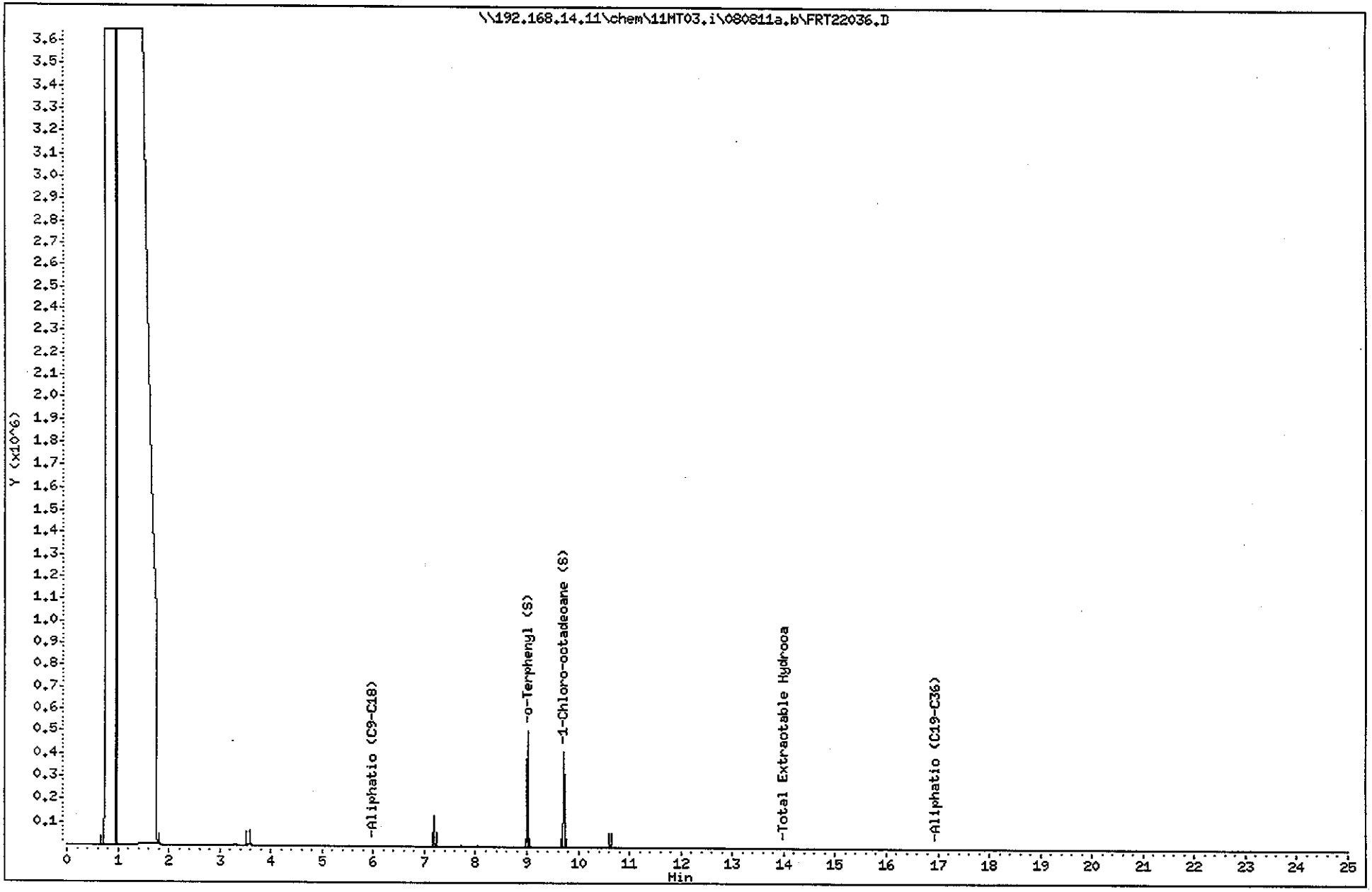
Average %D / Drift Results.

Calculated Average %D/Drift = 6.31646
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT03.i\080811a.b\FRT22036.D
Date : 09-AUG-2011 08:30
Client ID:
Sample Info: 10165707010
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 09-AUG-2011 09:45
Lab File ID: FRT22038.D Init. Cal. Date(s): 23-JUL-2011 23-JUL-2011
Analysis Type: WATER Init. Cal. Times: 19:10 21:48
Lab Sample ID: eph ccv 7658-102 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\080811a.b\3EscF072311.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3275	3527	0.010	7.68878	25.00000	Averaged
S 57 Aliphatic (C9-C18)	4297	4252	0.010	-1.05134	25.00000	Averaged
S 58 Aliphatic (C19-C36)	2582	2983	0.010	15.50757	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3483	3367	0.010	-3.31346	25.00000	Averaged
$ 54 o-Terphenyl (S)	4430	4252	0.010	-4.02115	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 6.31646
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

EPH (10165 707-10)

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 09-AUG-2011 04:43
Lab File ID: FRT22029.D Init. Cal. Date(s): 23-JUL-2011 23-JUL-2011
Analysis Type: WATER Init. Cal. Times: 19:10 21:48
Lab Sample ID: eph ccv 7658-102 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\080811a.b\3EscF072311.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3275	3453	0.010	5.43540	25.00000	Averaged
S 57 Aliphatic (C9-C18)	4297	4386	0.010	2.06169	25.00000	Averaged
S 58 Aliphatic (C19-C36)	2582	2753	0.010	6.62081	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3483	3292	0.010	-5.47317	25.00000	Averaged
$ 54 o-Terphenyl (S)	4430	4226	0.010	-4.61225	25.00000	Averaged

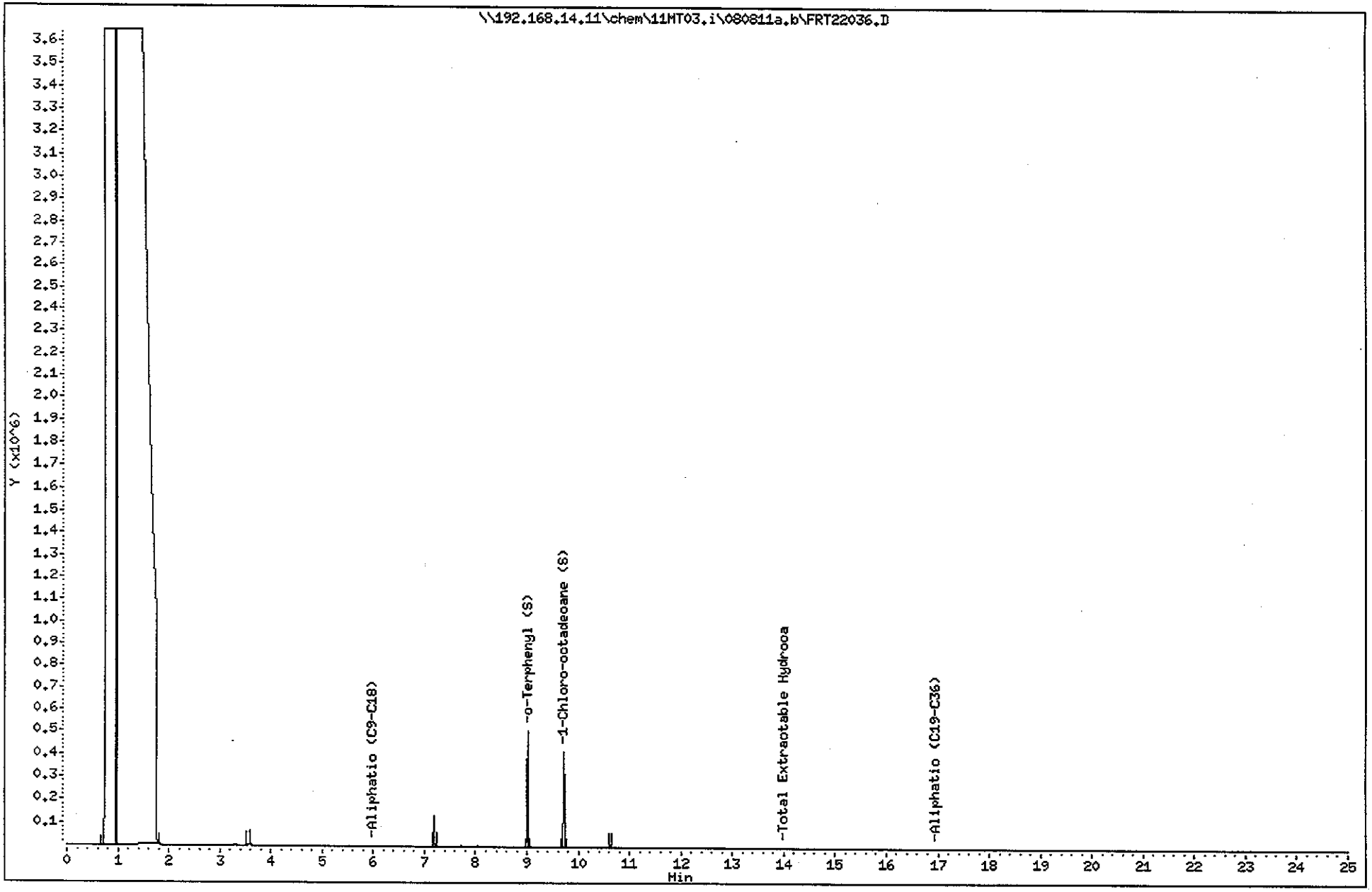
Average %D / Drift Results.

Calculated Average %D/Drift = 6.31646
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT03.i\080811a.b\FRT22036.D
Date : 09-AUG-2011 08:30
Client ID:
Sample Info: 10165707010
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 09-AUG-2011 09:45
Lab File ID: FRT22038.D Init. Cal. Date(s): 23-JUL-2011 23-JUL-2011
Analysis Type: WATER Init. Cal. Times: 19:10 21:48
Lab Sample ID: eph ccv 7658-102 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\080811a.b\3EscF072311.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3275	3527	0.010	7.68878	25.00000	Averaged
S 57 Aliphatic (C9-C18)	4297	4252	0.010	-1.05134	25.00000	Averaged
S 58 Aliphatic (C19-C36)	2582	2983	0.010	15.50757	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3483	3367	0.010	-3.31346	25.00000	Averaged
$ 54 o-Terphenyl (S)	4430	4252	0.010	-4.02115	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 6.31646
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

EPH 10165707 dilutions

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 14-AUG-2011 01:20
Lab File ID: FRT22522.D Init. Cal. Date(s): 11-AUG-2011 11-AUG-2011
Analysis Type: SOIL Init. Cal. Times: 15:00 17:42
Lab Sample ID: ccv 7658-124 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\081311a.b\3EscF081111.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	4098	3956	0.010	-3.47556	25.00000	Averaged
S 57 Aliphatic (C9-C18)	3978	3835	0.010	-3.60299	25.00000	Averaged
S 58 Aliphatic (C19-C36)	4188	4047	0.010	-3.38480	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3907	3542	0.010	-9.34866	25.00000	Averaged
$ 54 o-Terphenyl (S)	4800	4546	0.010	-5.28165	25.00000	Averaged

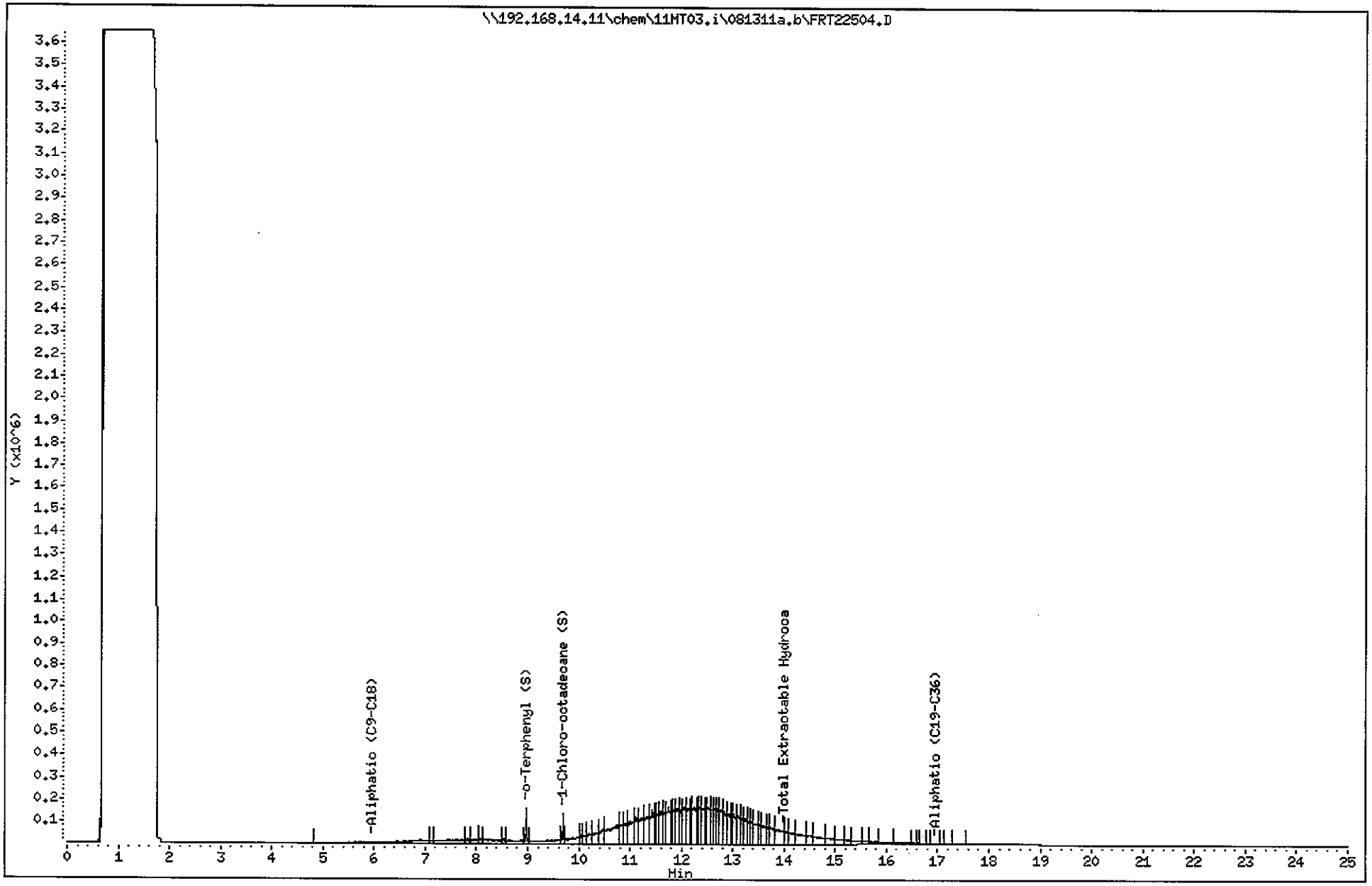
Average %D / Drift Results.

Calculated Average %D/Drift = 5.01873
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT03.i\081311a.b\FRT22504.D
Date : 13-AUG-2011 15:38
Client ID:
Sample Info: 10165707002,5
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

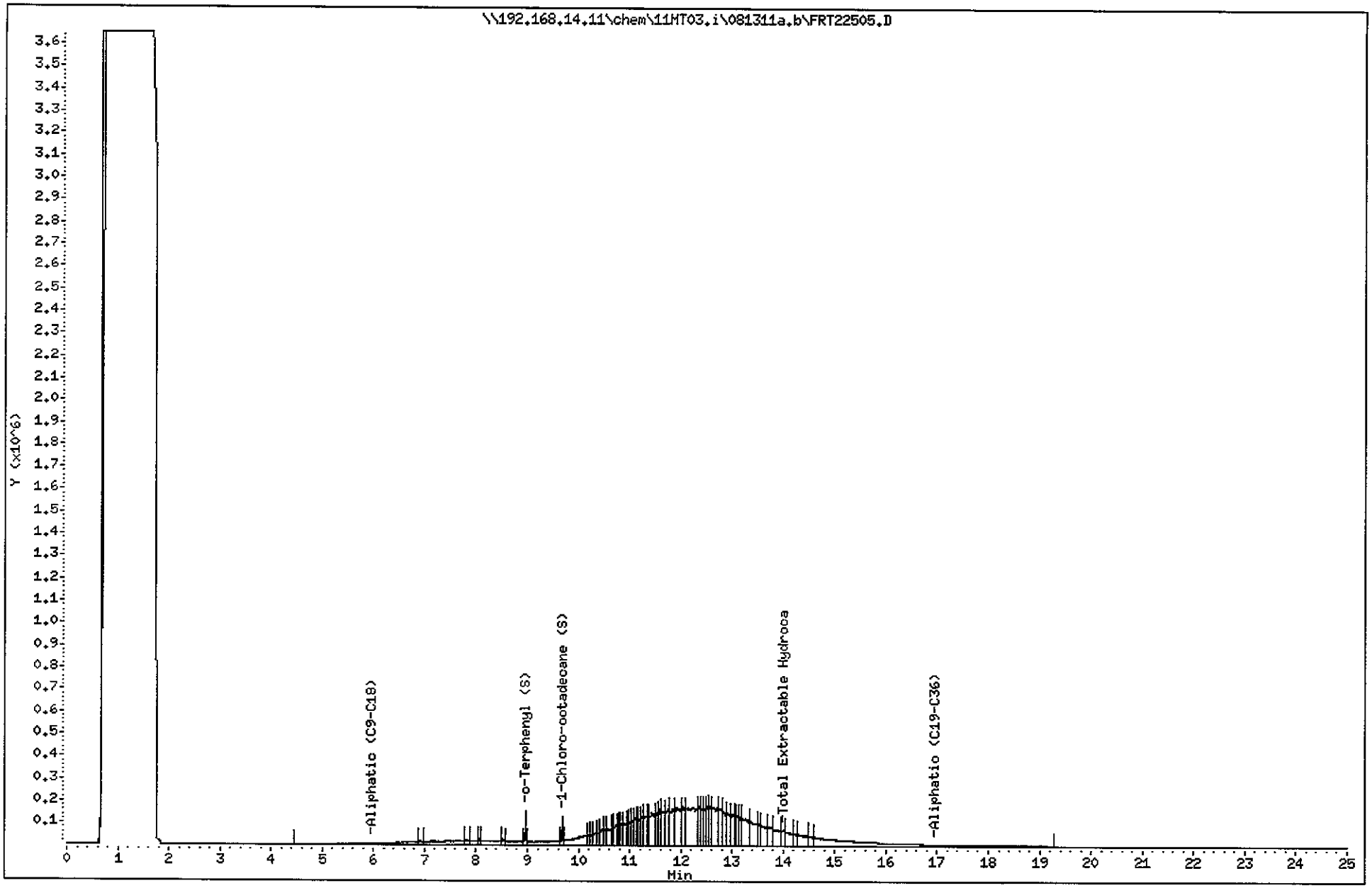
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081311a.b\FRT22505.D
Date : 13-AUG-2011 16:10
Client ID:
Sample Info: 10165707003.5
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

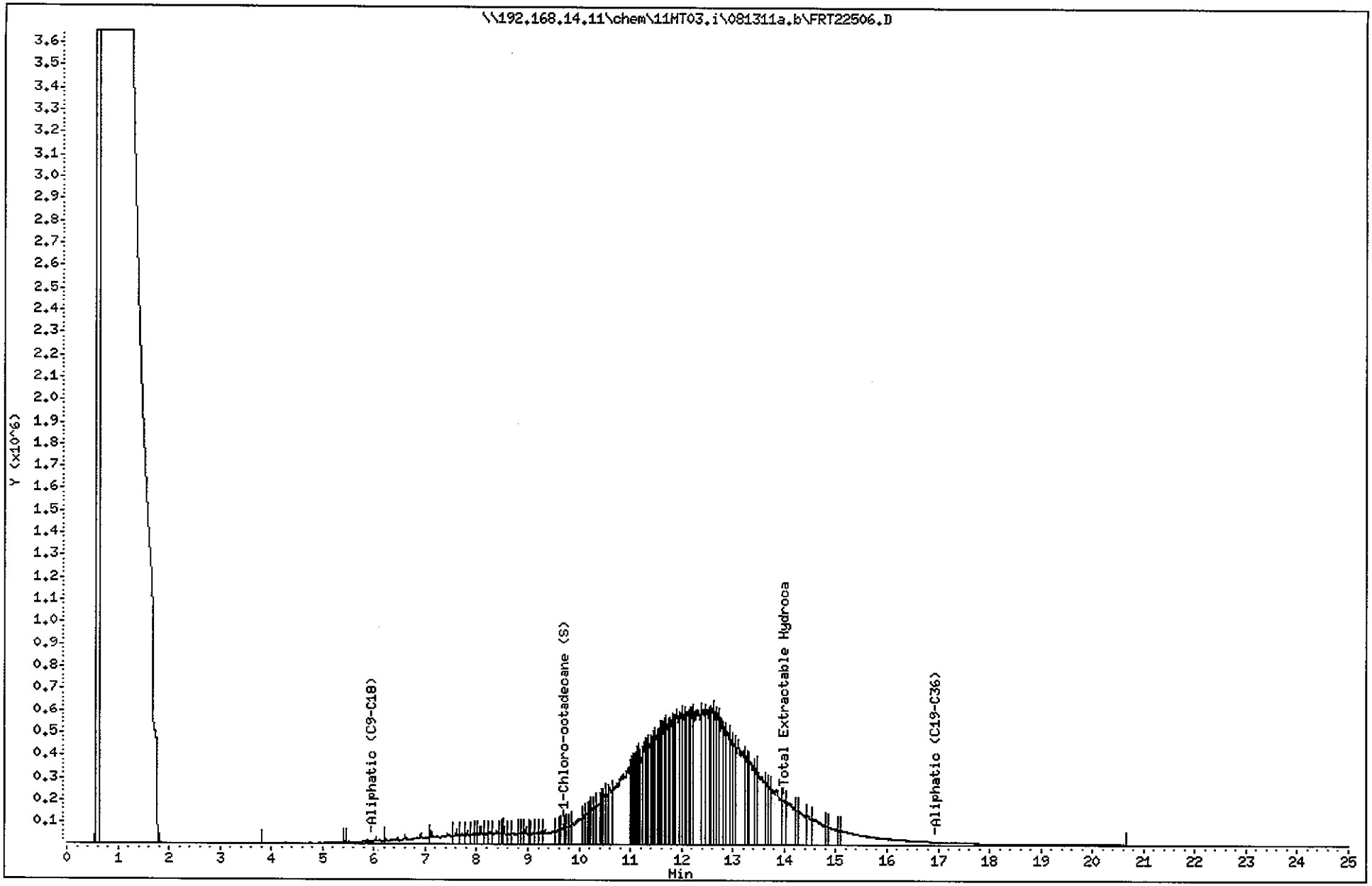
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081311a.b\FRT22506.D
Date : 13-AUG-2011 16:43
Client ID:
Sample Info: 10165707004,5
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

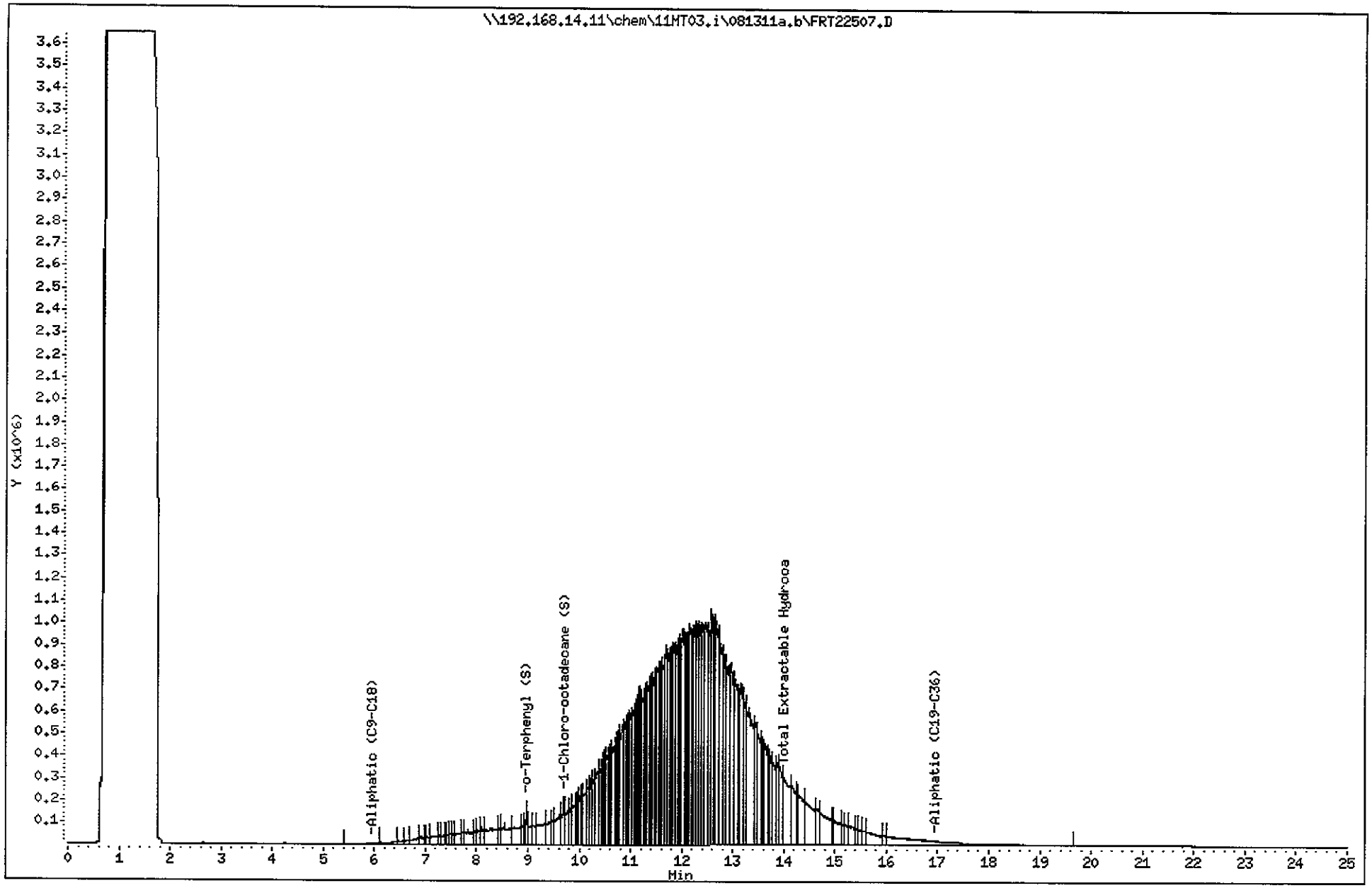
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081311a.b\FRT22507.D
Date : 13-AUG-2011 17:15
Client ID:
Sample Info: 10165707005,5
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

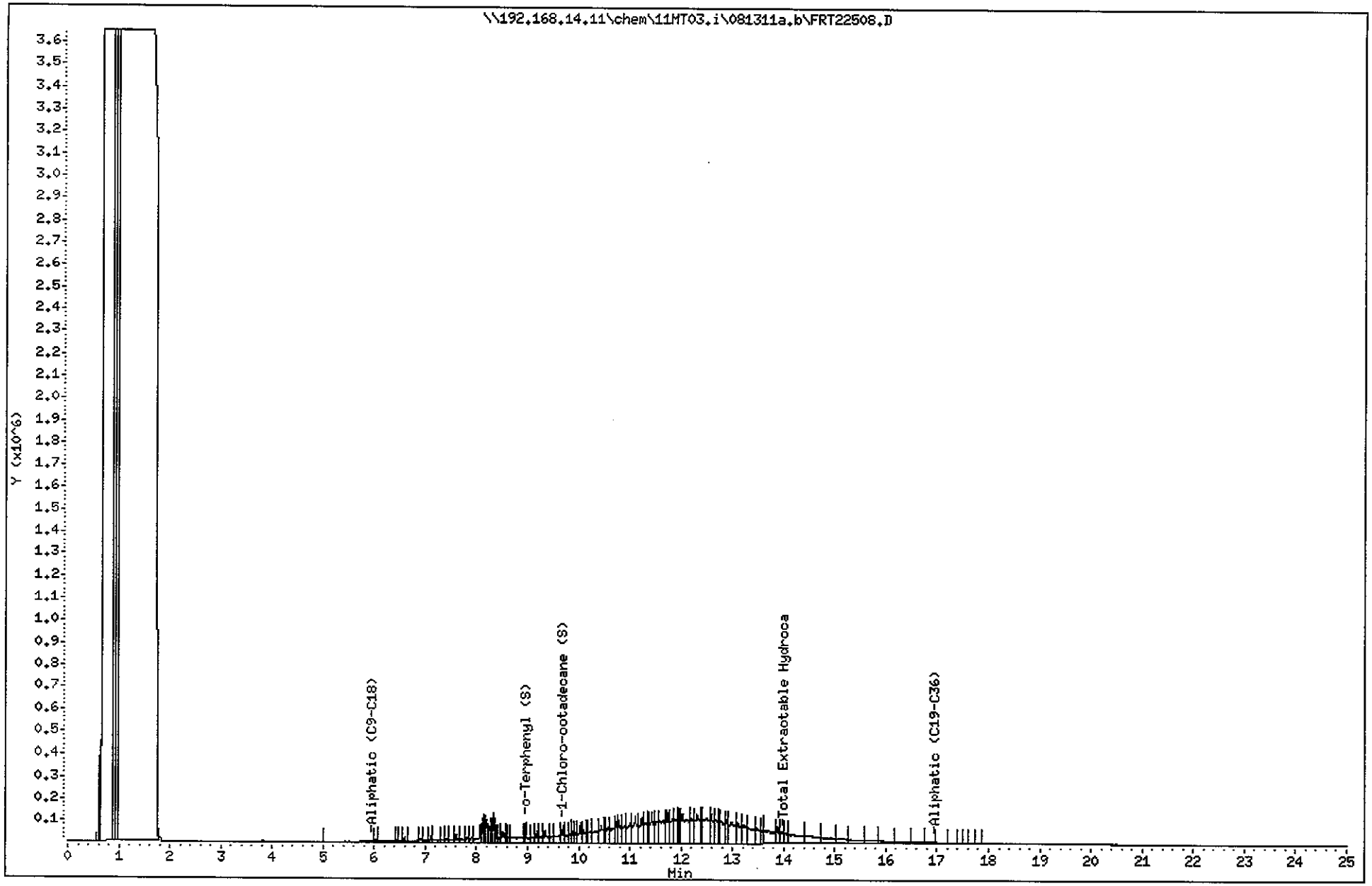
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081311a.b\FRT22508.D
Date : 13-AUG-2011 17:47
Client ID:
Sample Info: 10165707009,10
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 13-AUG-2011 14:01
Lab File ID: FRT22501.D Init. Cal. Date(s): 11-AUG-2011 11-AUG-2011
Analysis Type: WATER Init. Cal. Times: 15:00 17:42
Lab Sample ID: eph ccv 7658-124 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\081311a.b\3EscF081111.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	4098	4265	0.010	4.08009	25.00000	Averaged
S 57 Aliphatic (C9-C18)	3978	3851	0.010	-3.19675	25.00000	Averaged
S 58 Aliphatic (C19-C36)	4188	4576	0.010	9.26354	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3907	3588	0.010	-8.18359	25.00000	Averaged
$ 54 o-Terphenyl (S)	4800	4543	0.010	-5.35280	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 5.01873
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 25-AUG-2011 17:39
Lab File ID: BCK23701.D Init. Cal. Date(s): 22-JUN-2011 22-JUN-2011
Analysis Type: SOIL Init. Cal. Times: 19:08 23:40
Lab Sample ID: ali ccv 7658-134 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\082511b.b\11mt04ALIB062211.m

COMPOUND	RRF / AMOUNT	RF800	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 57 Aliphatic (C9-C18)	9072	10812	0.010	19.18427	25.00000	Averaged
S 58 Aliphatic (C19-C36)	9650	11054	0.010	14.55346	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	8610	9363	0.010	8.74637	25.00000	Averaged

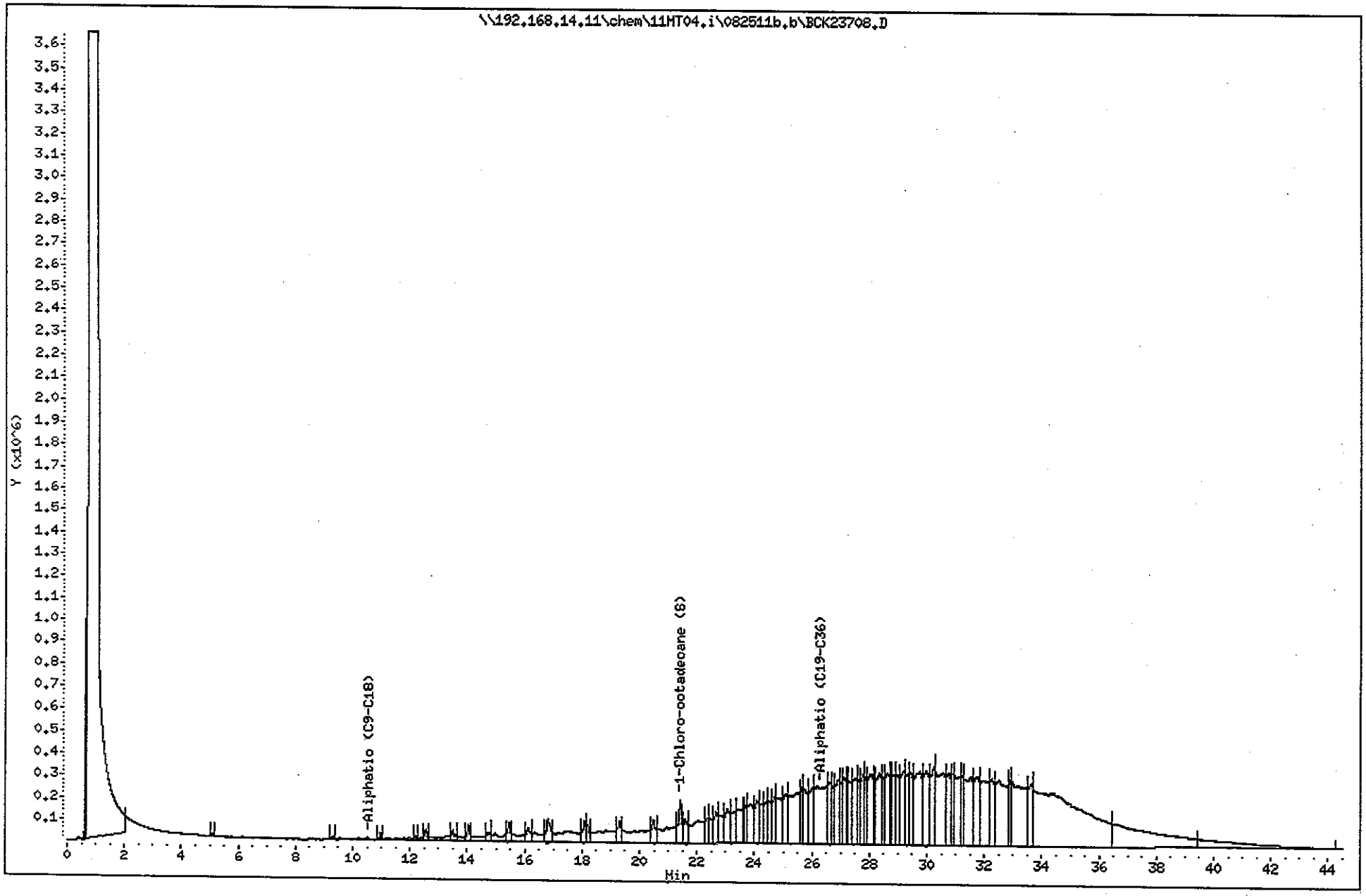
Average %D / Drift Results.

Calculated Average %D/Drift = 12.12675
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT04.i\082511b.b\BCK23708.D
Date : 25-AUG-2011 23:56
Client ID:
Sample Info: 10165707009
Volume Injected (uL): 1.0
Column phase: RTX-5 0.53mm

Instrument: 11MT04.i

Operator: EJS
Column diameter: 0.50



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 26-AUG-2011 06:13
Lab File ID: BCK23715.D Init. Cal. Date(s): 22-JUN-2011 22-JUN-2011
Analysis Type: WATER Init. Cal. Times: 19:08 23:40
Lab Sample ID: ali ccv 7658-133 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\082511b.b\11mt04ALIB062211.m

COMPOUND	RRF / AMOUNT	RF800	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 57 Aliphatic (C9-C18)	9072	10634	0.010	17.22192	25.00000	Averaged
S 58 Aliphatic (C19-C36)	9650	10772	0.010	11.62594	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	8610	9026	0.010	4.83264	25.00000	Averaged

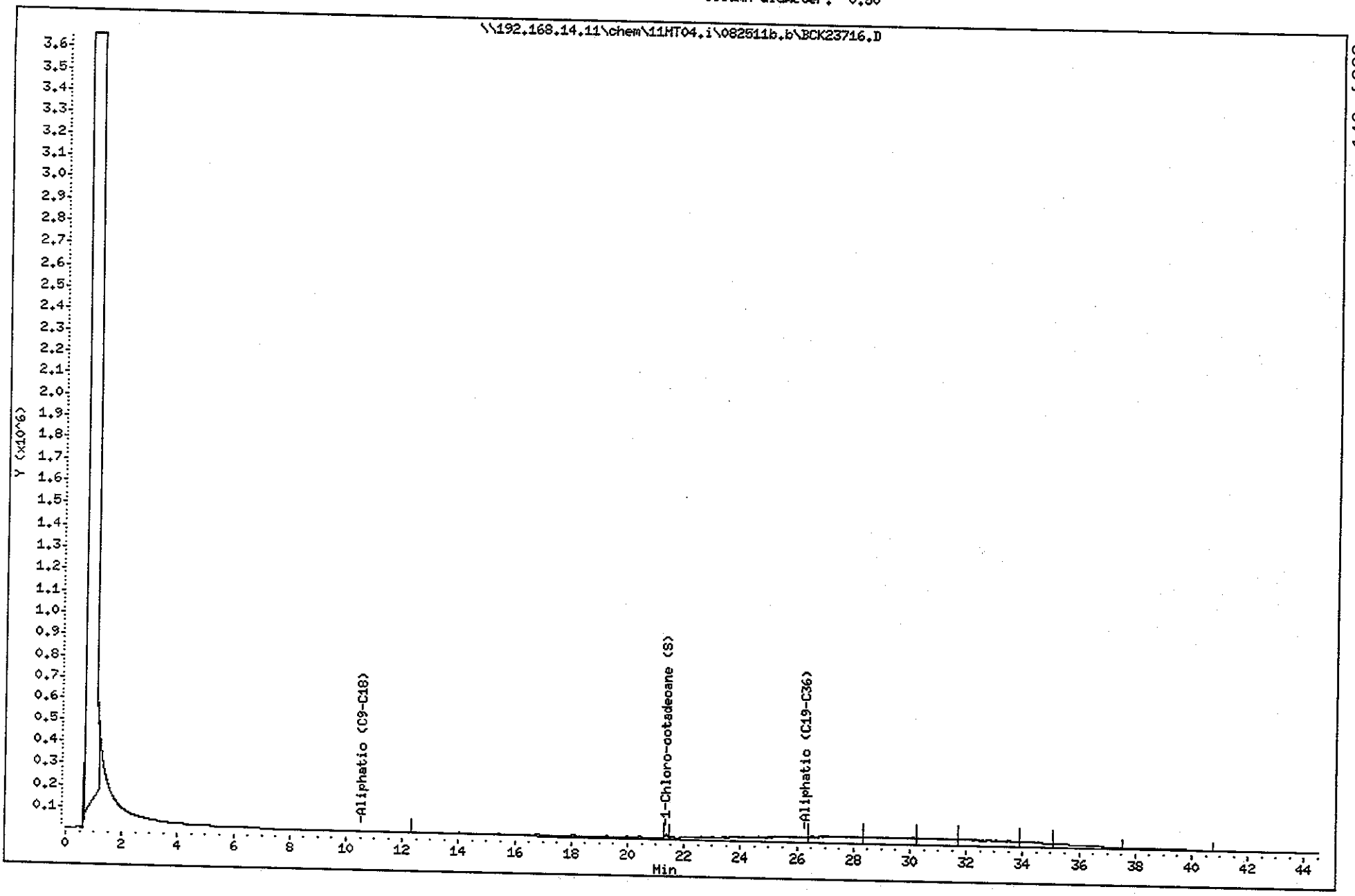
Average %D / Drift Results.

Calculated Average %D/Drift = 11.22683
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT04.i\082511b.b\BCK23716.D
Date : 26-AUG-2011 09:12
Client ID:
Sample Info: 10165707009,10
Volume Injected (uL): 1.0
Column phase: RTX-5 0.53mm

Instrument: 11MT04.i

Operator: EJS
Column diameter: 0.50



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 26-AUG-2011 10:07
Lab File ID: BCK23717.D Init. Cal. Date(s): 22-JUN-2011 22-JUN-2011
Analysis Type: SOIL Init. Cal. Times: 19:08 23:40
Lab Sample ID: ali ccv 7658-133 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\082511b.b\11mt04ALIB062211.m

COMPOUND	RRF / AMOUNT	RF800	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 57 Aliphatic (C9-C18)	9072	10637	0.010	17.25644	25.00000	Averaged
S 58 Aliphatic (C19-C36)	9650	10834	0.010	12.27460	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	8610	9071	0.010	5.35464	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 11.22683
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 27-AUG-2011 09:07
Lab File ID: FRT23801.D Init. Cal. Date(s): 03-AUG-2011 03-AUG-2011
Analysis Type: WATER Init. Cal. Times: 09:26 13:59
Lab Sample ID: aro ccv 7658-133 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\082611a.b\4AROFr080311.m

COMPOUND	RRF / AMOUNT	RF1700	CCAL RRF1700	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Aromatic (C11-C22)	1700	1566	62214	0.010	-7.87259	25.00000	Linear
S 6 Range #1	200	178	59538	0.010	-10.80825	25.00000	Linear
S 7 Range #2	100	174	125554	0.010	73.98208	25.00000	Linear <-
S 8 Range #3	400	288	49753	0.010	-28.00185	25.00000	Linear <-
S 9 Range #4	1000	906	61400	0.010	-9.40649	25.00000	Linear
$ 3 o-Terphenyl (S)	68489	76833	76833	0.010	12.18344	25.00000	Averaged
$ 4 2-Fluorobiphenyl (S)	200	179	49198	0.010	-10.29597	25.00000	Linear
$ 5 2-Bromonaphthalene (S)	200	172	30978	0.010	-13.77958	25.00000	Linear

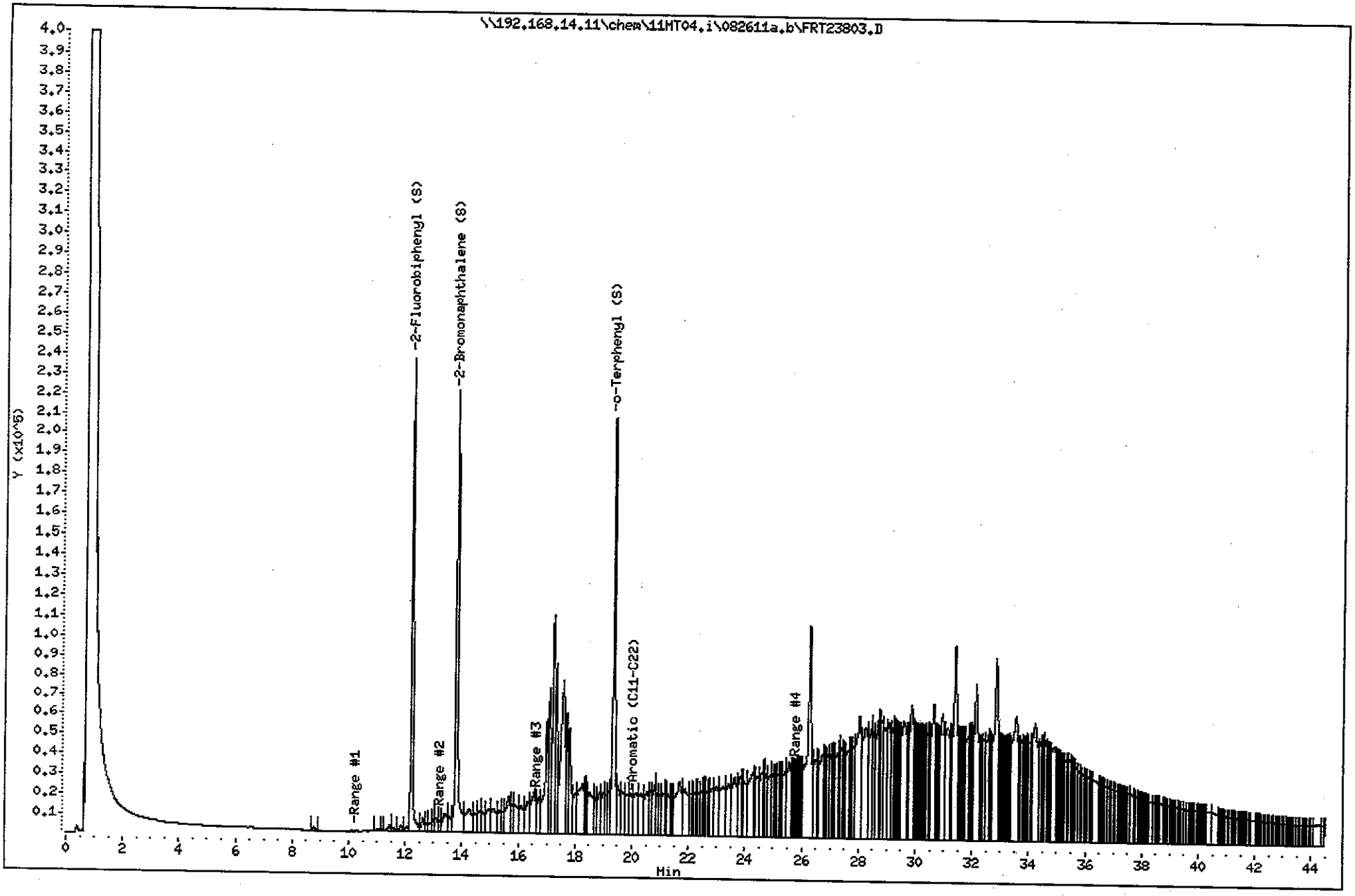
Average %D / Drift Results.

Calculated Average %D/Drift = 20.79128
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT04.i\082611a.b\FRT23803.D
Date : 27-AUG-2011 10:55
Client ID:
Sample Info: 10165707009
Volume Injected (uL): 1.0
Column phase: RTX-5 0.5

Instrument: 11MT04.i

Operator: EJS
Column diameter: 0.53



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i
Lab File ID: FRT23806.D
Analysis Type: WATER
Lab Sample ID: aro ccv 7658-133
Method: \\192.168.14.11\chem\11MT04.i\082611a.b\4AROFr080311.m

Injection Date: 27-AUG-2011 13:37
Init. Cal. Date(s): 03-AUG-2011 03-AUG-2011
Init. Cal. Times: 09:26 13:59
Quant Type: ESTD

COMPOUND	RRF / AMOUNT	RF1700	CCAL RRF1700	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
S 1 Aromatic (C11-C22)	1700	1552	61605	0.010	-8.71874	25.00000	Linear	
S 6 Range #1	200	177	59040	0.010	-11.50536	25.00000	Linear	
S 7 Range #2	100	175	126068	0.010	74.74606	25.00000	Linear	
S 8 Range #3	400	266	45868	0.010	-33.49613	25.00000	Linear	<-
S 9 Range #4	1000	914	61967	0.010	-8.62367	25.00000	Linear	<-
$ 3 o-Terphenyl (S)	68489	76413	76413	0.010	11.57041	25.00000	Averaged	
$ 4 2-Fluorobiphenyl (S)	200	179	49191	0.010	-10.30710	25.00000	Linear	
$ 5 2-Bromonaphthalene (S)	200	171	30703	0.010	-14.38477	25.00000	Linear	

Average %D / Drift Results.

Calculated Average %D/Drift = 21.66903
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Sample ID: 1016570701D 011

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i
Lab File ID: FID22012.D
Analysis Type: WATER
Lab Sample ID: 8543-61i
Method: \\192.168.14.11\chem\11MT27.i\080811b.b\F27VPH080811.m

Injection Date: 08-AUG-2011 23:15
Init. Cal. Date(s): 08-AUG-2011 08-AUG-2011
Init. Cal. Times: 16:42 21:48
CCV Quant Type: ESTD

COMPOUND	RRF / AMOUNT	RF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	9912	9166	0.010	-7.52353	25.00000	Averaged
$ 9 a,a,a-Trifluorotoluene (S)	10274	10196	0.010	-0.75015	25.00000	Averaged
S 4 Aliphatic (C05-C08)	9349	8106	0.010	-13.29532	25.00000	Averaged
S 5 Aliphatic (C09-C12)	11693	11353	0.010	-2.90401	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 6.11825
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 08-AUG-2011 23:15
Lab File ID: PID22012.D Init. Cal. Date(s): 08-AUG-2011 08-AUG-2011
Analysis Type: WATER Init. Cal. Times: 16:42 21:48
Lab Sample ID: 8543-61i CCV Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\080811b.b\P27BTEX0080811.m

COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	497	478	0.010	-3.75899	25.00000	Averaged
2 Benzene	26222	24252	0.010	-7.51534	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	10844	10698	0.010	-1.34900	25.00000	Averaged
4 Toluene	27524	25660	0.010	-6.77343	25.00000	Averaged
5 Ethylbenzene	26024	24724	0.010	-4.99399	25.00000	Averaged
6 m&p-Xylene	30444	29193	0.010	-4.10852	25.00000	Averaged
7 o-Xylene	26173	24448	0.010	-6.58936	25.00000	Averaged
T 8 Aromatic (C09-C10)	29614	27690	0.010	-6.49875	25.00000	Averaged
9 Naphthalene	10229	9490	0.010	-7.22771	25.00000	Averaged

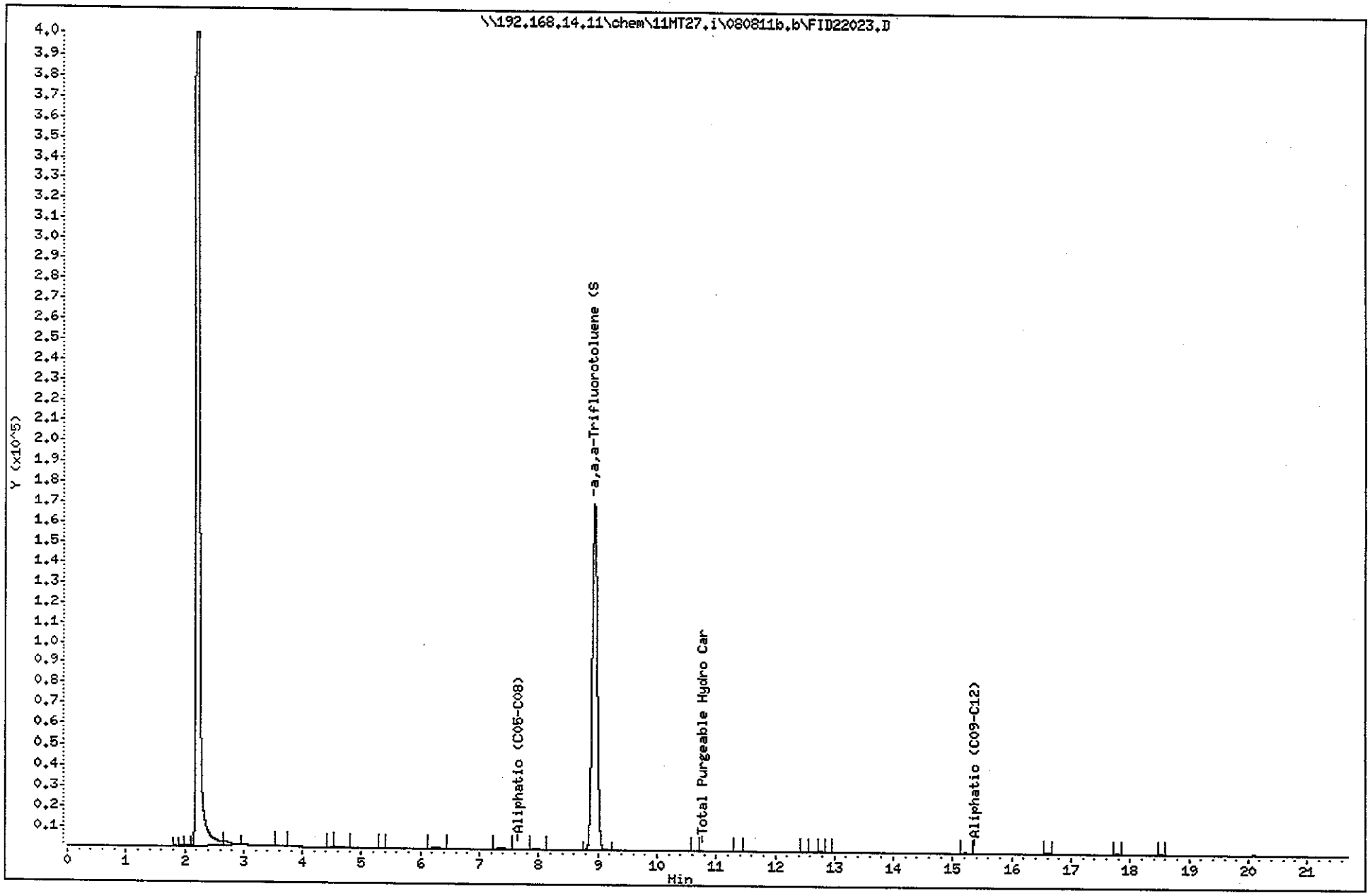
Average %D / Drift Results.

Calculated Average %D/Drift = 5.42390
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT27.i\080811b.b\FID22023.D
Date : 09-AUG-2011 07:16
Client ID:
Sample Info: 10165707010
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

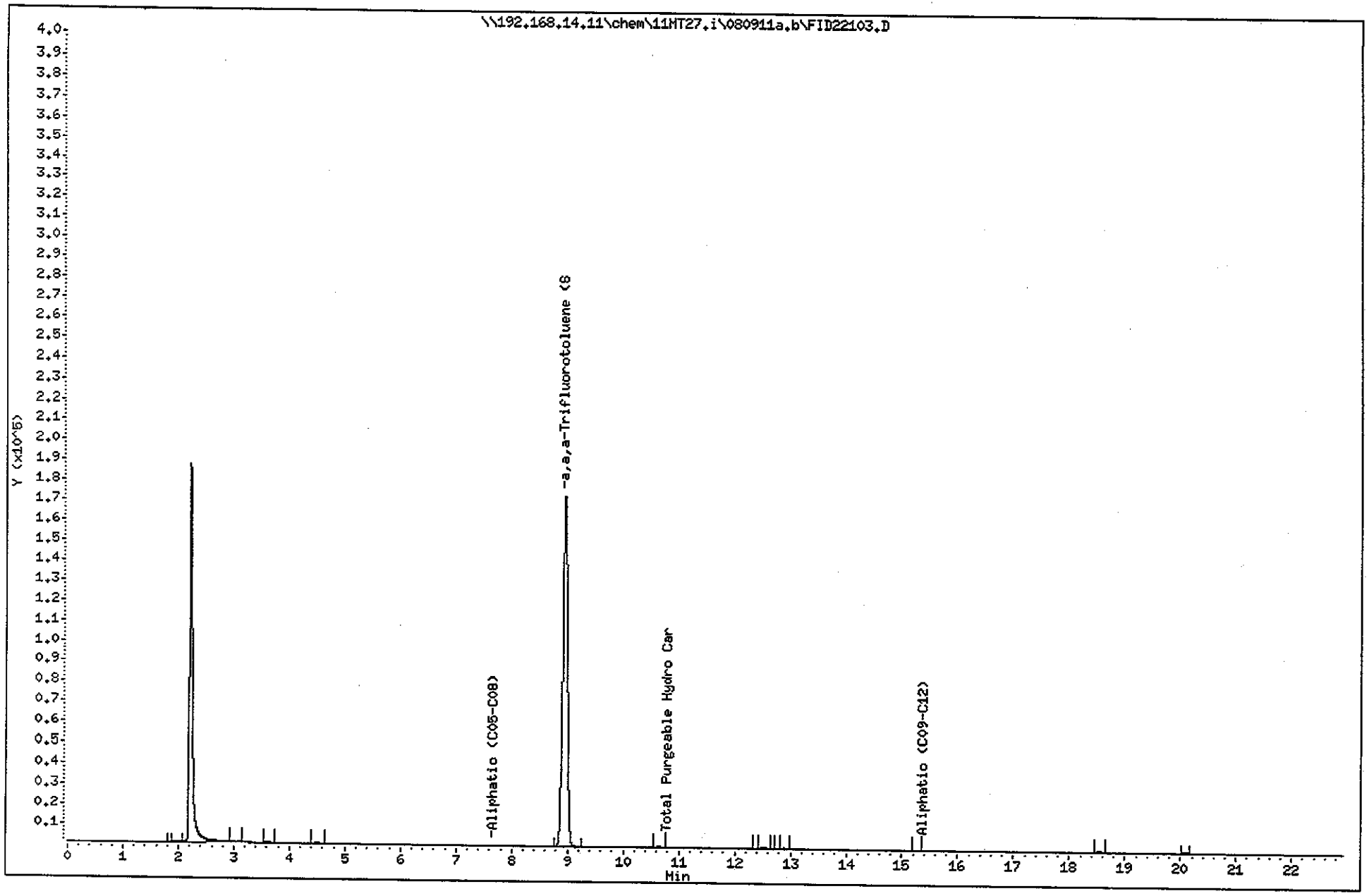
Operator: AMH
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\080911a.b\FID22103.D
Date : 09-AUG-2011 12:19
Client ID:
Sample Info: 10165707011
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

Operator: AHH
Column diameter: 0.53



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 09-AUG-2011 10:52
Lab File ID: FID22101.D Init. Cal. Date(s): 08-AUG-2011 08-AUG-2011
Analysis Type: WATER Init. Cal. Times: 16:42 21:48
Lab Sample ID: ccv 8859-0156 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\080911a.b\F27VPH080811.m

COMPOUND	RRF / AMOUNT	RF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	9912	10378	0.010	4.70446	25.00000	Averaged
$ 9 a,a,a-Trifluorotoluene (S)	10274	10244	0.010	-0.28838	25.00000	Averaged
S 4 Aliphatic (C05-C08)	9349	9719	0.010	3.95197	25.00000	Averaged
S 5 Aliphatic (C09-C12)	11693	12340	0.010	5.53474	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 3.61989
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 09-AUG-2011 10:52
Lab File ID: PID22101.D Init. Cal. Date(s): 08-AUG-2011 08-AUG-2011
Analysis Type: WATER Init. Cal. Times: 16:42 21:48
Lab Sample ID: ccv 8859-0156 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\080911a.b\P27BTEX0080811.m

COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	497	510	0.010	2.59535	25.00000	Averaged
2 Benzene	26222	26655	0.010	1.65141	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	10844	10728	0.010	-1.07558	25.00000	Averaged
4 Toluene	27524	27915	0.010	1.41856	25.00000	Averaged
5 Ethylbenzene	26024	26718	0.010	2.66917	25.00000	Averaged
6 m&p-Xylene	30444	30612	0.010	0.55164	25.00000	Averaged
7 o-Xylene	26173	26422	0.010	0.95202	25.00000	Averaged
T 8 Aromatic (C09-C10)	29614	29752	0.010	0.46472	25.00000	Averaged
9 Naphthalene	10229	10076	0.010	-1.50171	25.00000	Averaged

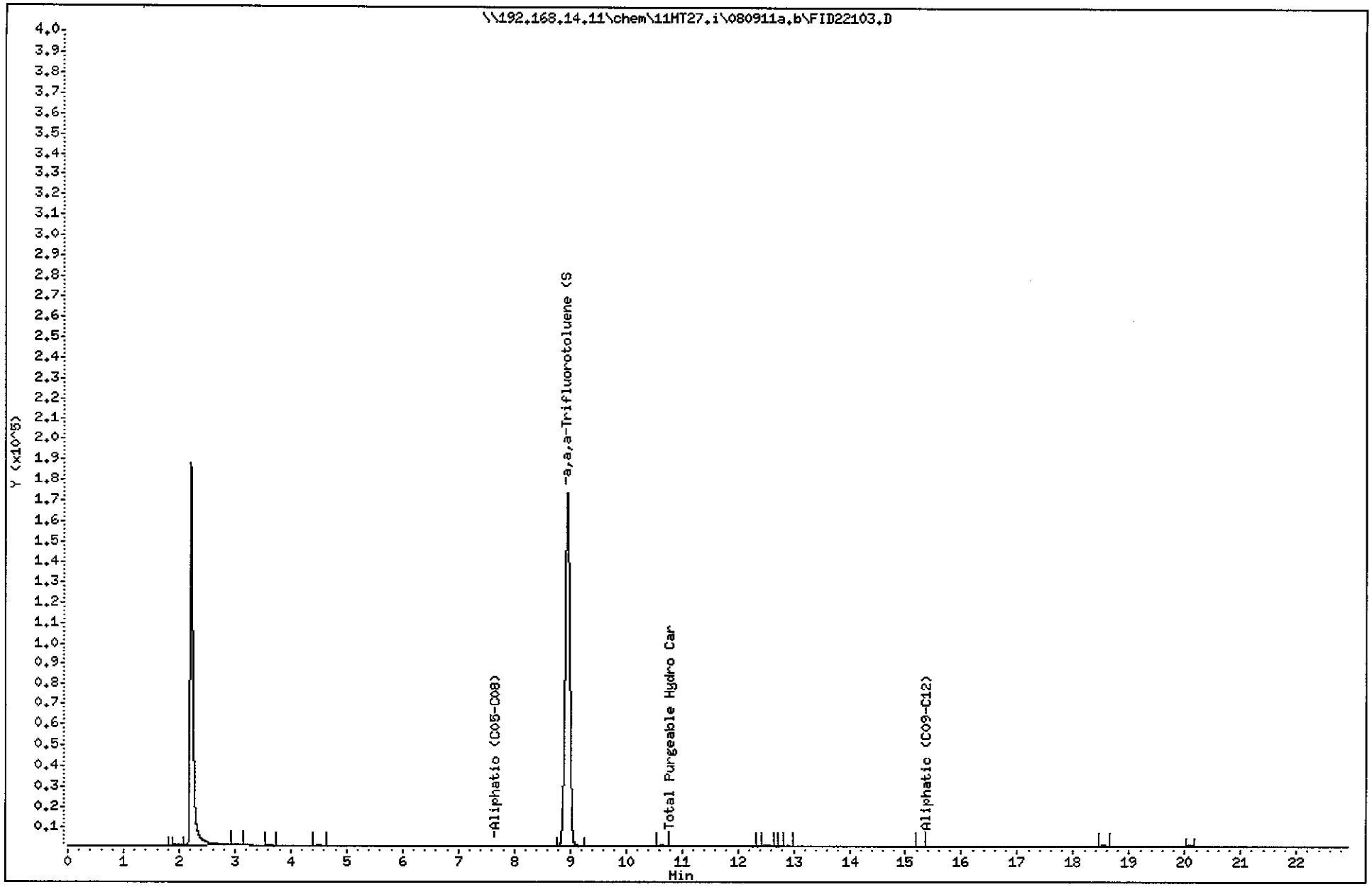
Average %D / Drift Results.

Calculated Average %D/Drift = 1.43113
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT27.i\080911a.b\FID22103.D
Date : 09-AUG-2011 12:19
Client ID:
Sample Info: 10165707011
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

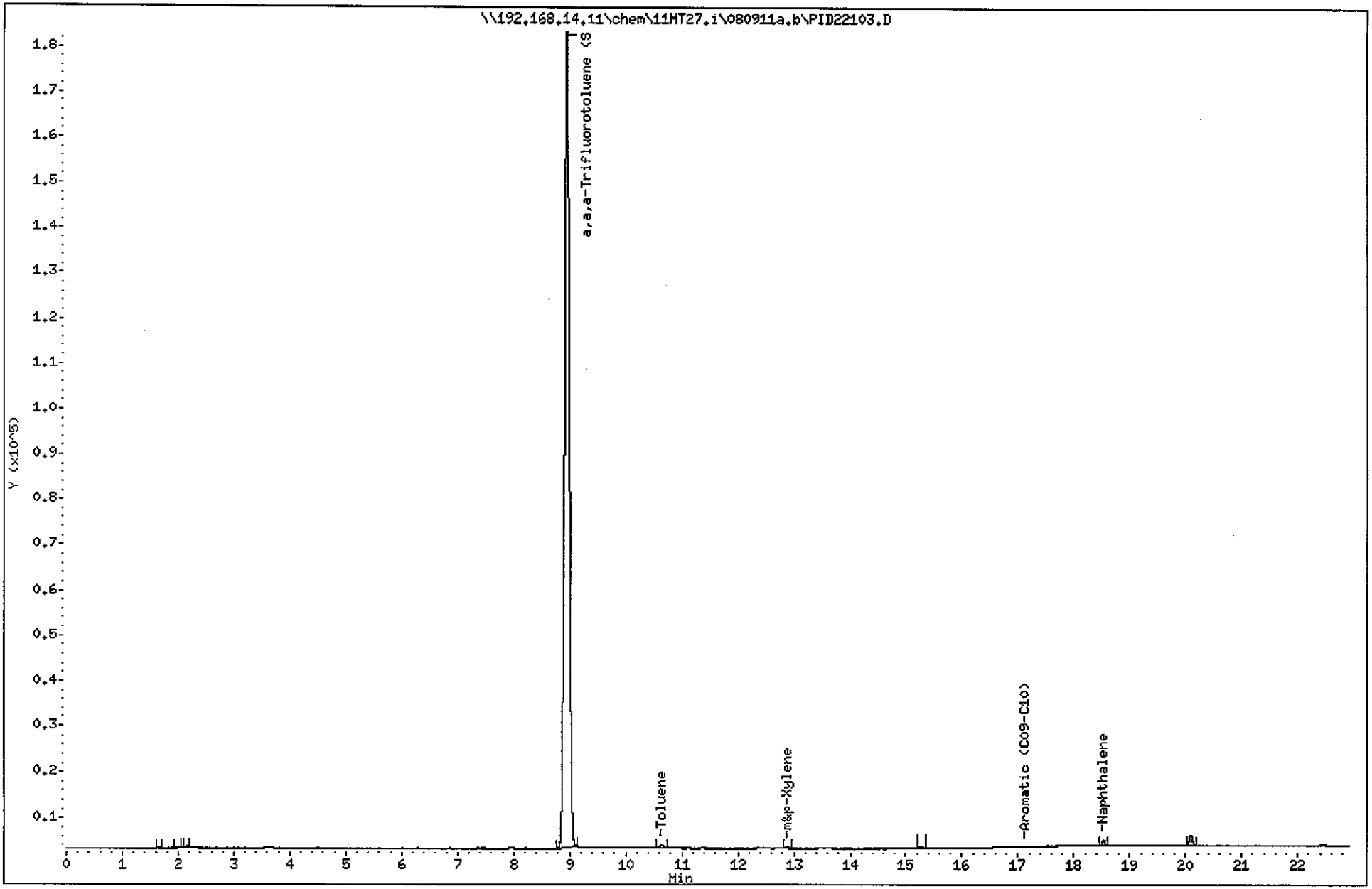
Instrument: 11MT27.i

Operator: AMH
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\080911a.b\PID22103.D
Date : 09-AUG-2011 12:19
Client ID:
Sample Info: 10165707011
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i
Operator: AMH
Column diameter: 0.53



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 10-AUG-2011 02:29
Lab File ID: FID22122.D Init. Cal. Date(s): 08-AUG-2011 08-AUG-2011
Analysis Type: WATER Init. Cal. Times: 16:42 21:48
Lab Sample ID: ccv 8859-0156 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\080911a.b\F27VPH080811.m

COMPOUND	RRF / AMOUNT	RF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	9912	9727	0.010	-1.86947	25.00000	Averaged
$ 9 a,a,a-Trifluorotoluene (S)	10274	10244	0.010	-0.28312	25.00000	Averaged
S 4 Aliphatic (C05-C08)	9349	9015	0.010	-3.57115	25.00000	Averaged
S 5 Aliphatic (C09-C12)	11693	11625	0.010	-0.58222	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 1.57649
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 10-AUG-2011 02:29
Lab File ID: PID22122.D Init. Cal. Date(s): 08-AUG-2011 08-AUG-2011
Analysis Type: WATER Init. Cal. Times: 16:42 21:48
Lab Sample ID: ccv 8859-0156 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\080911a.b\P27BTEX0080811.m

COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	497	516	0.010	3.90165	25.00000	Averaged
2 Benzene	26222	25832	0.010	-1.48839	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	10844	10485	0.010	-3.30978	25.00000	Averaged
4 Toluene	27524	26911	0.010	-2.22658	25.00000	Averaged
5 Ethylbenzene	26024	25271	0.010	-2.89263	25.00000	Averaged
6 m&p-Xylene	30444	29171	0.010	-4.17981	25.00000	Averaged
7 o-Xylene	26173	25377	0.010	-3.03797	25.00000	Averaged
T 8 Aromatic (C09-C10)	29614	27976	0.010	-5.53290	25.00000	Averaged
9 Naphthalene	10229	10028	0.010	-1.96831	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 3.17089
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Sample ID: ~~10167~~ 10165707 OR 003100411.005

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 17-AUG-2011 15:29
Lab File ID: BCK22903.D Init. Cal. Date(s): 11-AUG-2011 11-AUG-2011
Analysis Type: WATER Init. Cal. Times: 15:00 17:42
Lab Sample ID: ali ccv 7658-123 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\081711a.b\3ALIB081111.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 57 Aliphatic (C9-C18)	4831	4976	0.010	2.99013	25.00000	Averaged
S 58 Aliphatic (C19-C36)	4470	5240	0.010	17.24436	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	4229	4245	0.010	0.38095	25.00000	Averaged

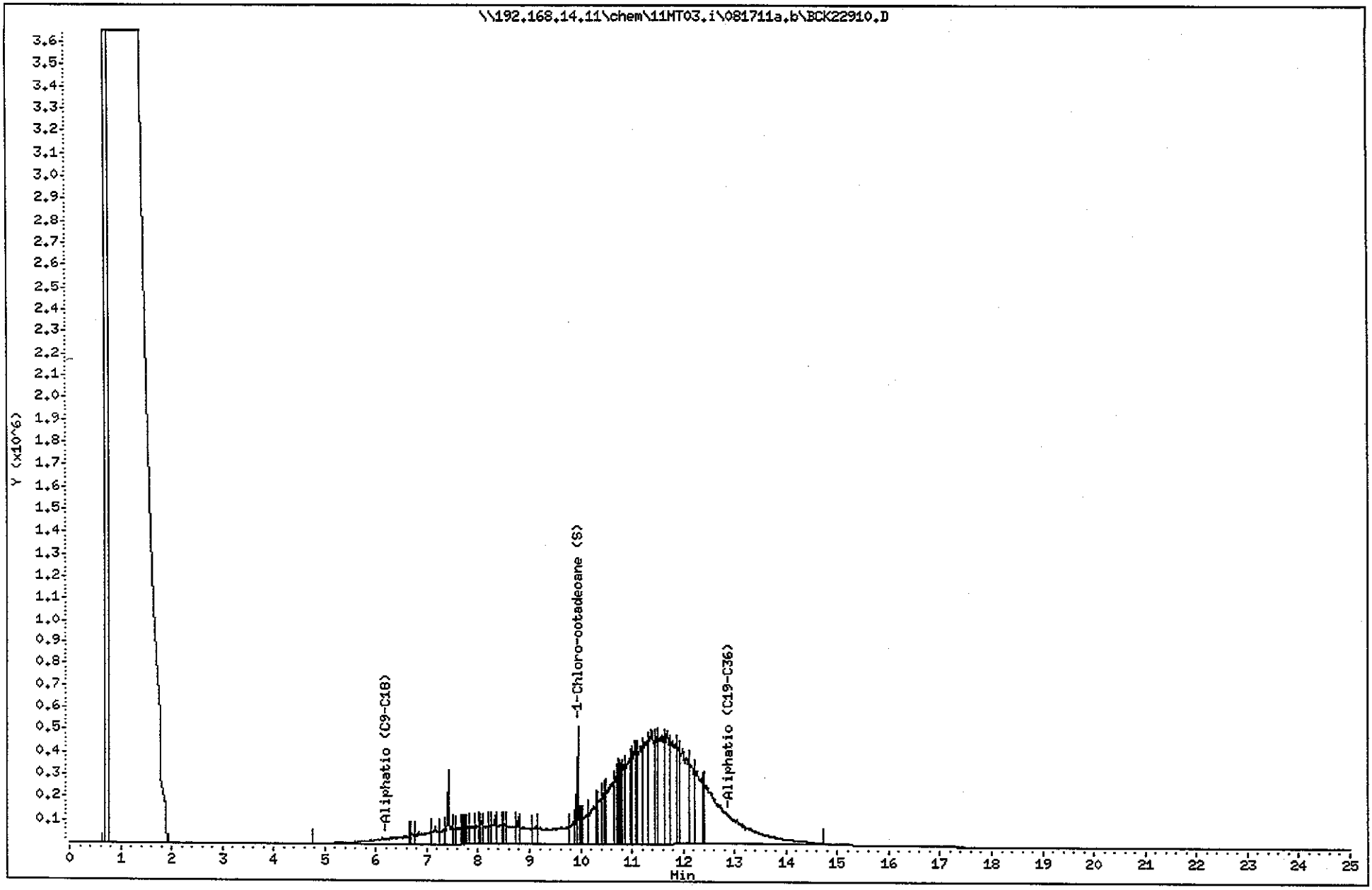
Average %D / Drift Results.

Calculated Average %D/Drift = 6.87181
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT03.i\081711a.b\BCK22910.D
Date : 17-AUG-2011 19:49
Client ID:
Sample Info: 10165707002
Volume Injected (uL): 1.0
Column phase: DB-5MS

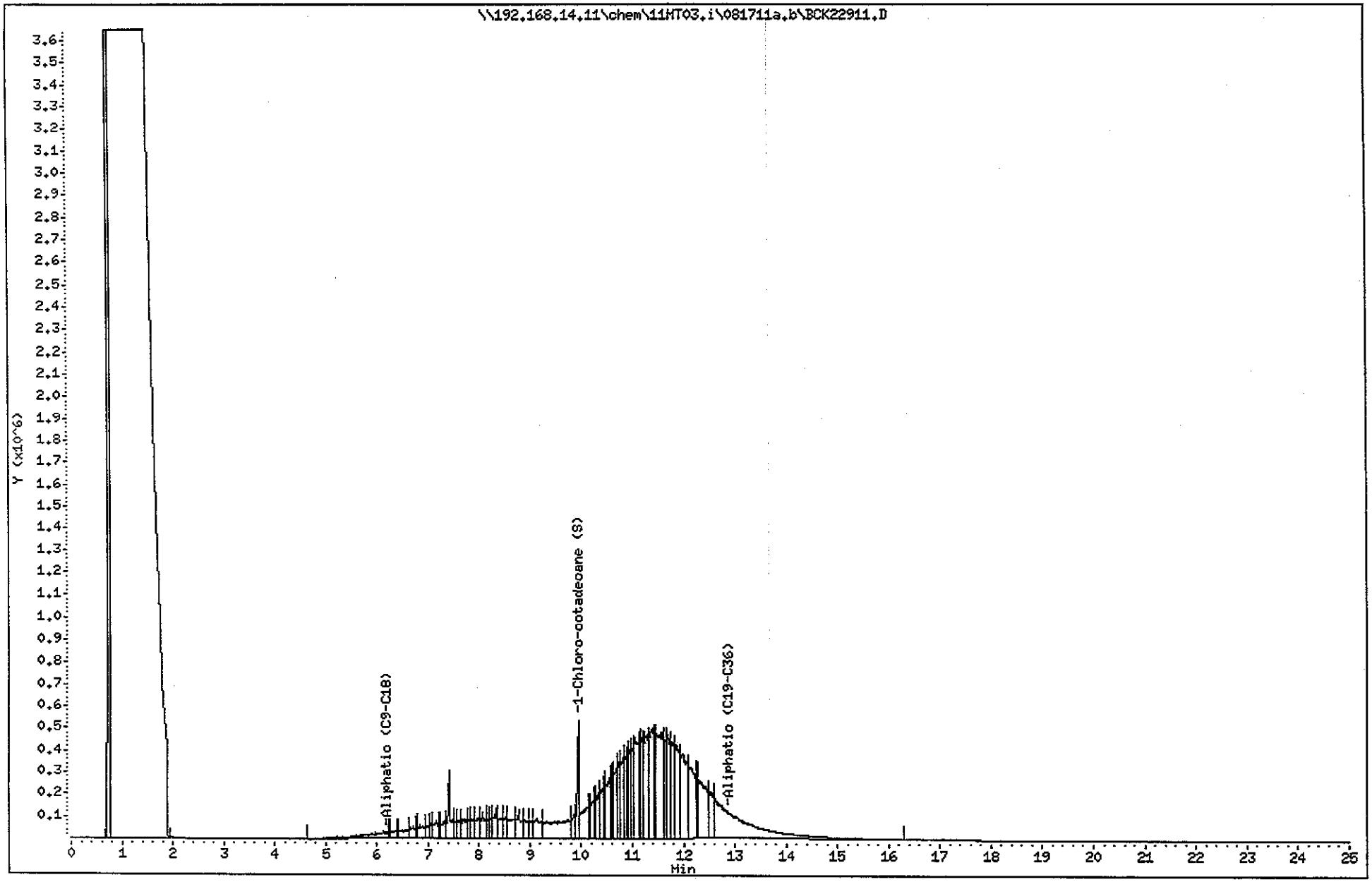
Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



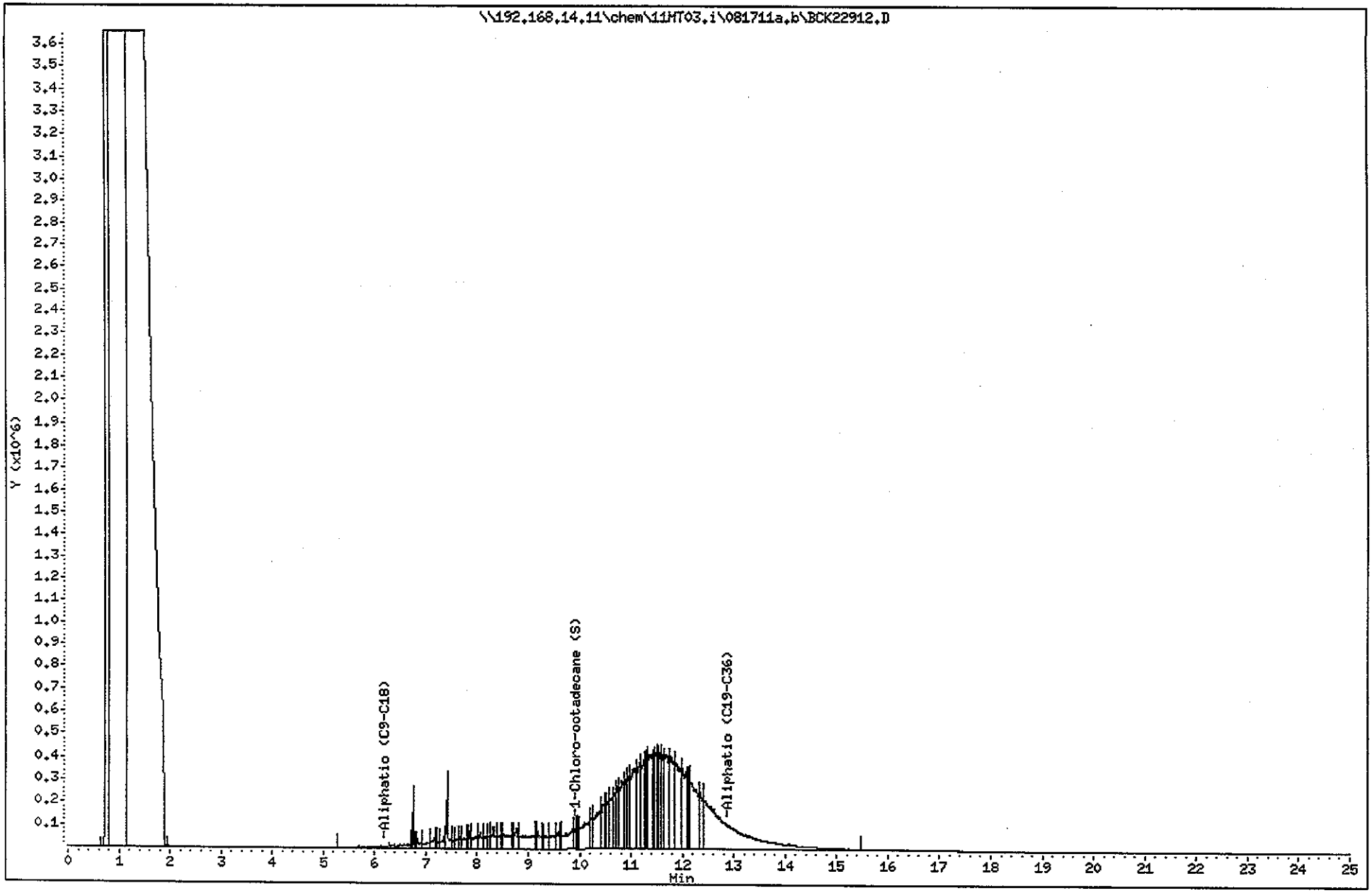
Data File: \\192.168.14.11\chem\11MT03.i\081711a.b\BCK22911.D
Date : 17-AUG-2011 20:21
Client ID:
Sample Info: 10165707003
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i
Operator: EJS
Column diameter: 0.25



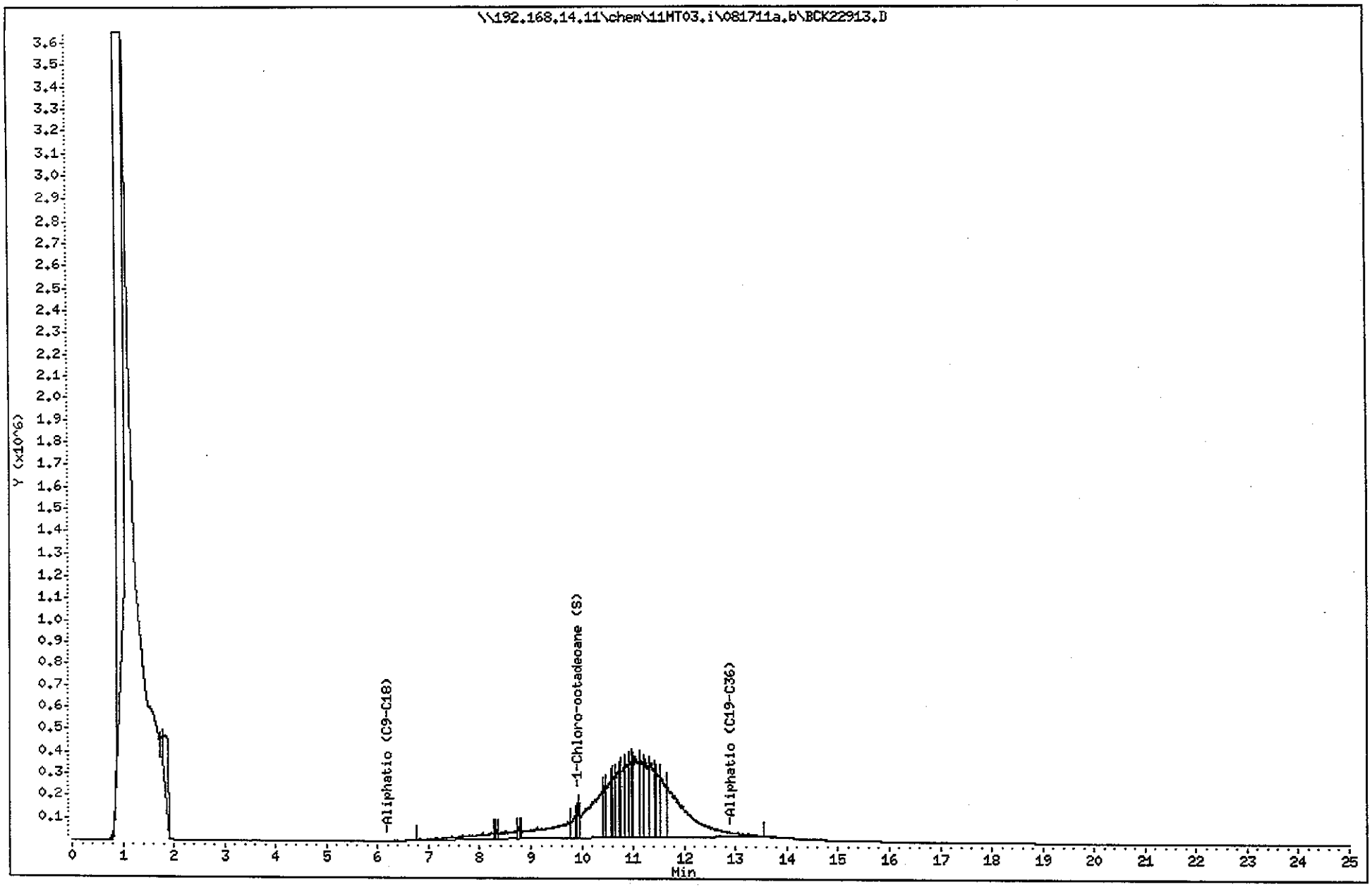
Data File: \\192.168.14.11\chem\11HT03.i\081711a.b\BCK22912.D
Date : 17-AUG-2011 20:53
Client ID:
Sample Info: 10165707004
Volume Injected (uL): 1.0
Column phase: DB-5HS

Instrument: 11HT03.i
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081711a.b\BCK22913.D
Date : 17-AUG-2011 21:26
Client ID:
Sample Info: 10165707005
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i
Operator: EJS
Column diameter: 0.25



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 18-AUG-2011 00:07
Lab File ID: BCK22918.D Init. Cal. Date(s): 11-AUG-2011 11-AUG-2011
Analysis Type: WATER Init. Cal. Times: 15:00 17:42
Lab Sample ID: ali ccv 7658-128 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\081711a.b\3ALIB081111.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 57 Aliphatic (C9-C18)	4831	4941	0.010	2.26838	25.00000	Averaged
S 58 Aliphatic (C19-C36)	4470	5191	0.010	16.14028	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	4229	4232	0.010	0.06493	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 6.15787
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 18-AUG-2011 15:15
Lab File ID: BCK23001.D Init. Cal. Date(s): 12-AUG-2011 12-AUG-2011
Analysis Type: WATER Init. Cal. Times: 16:05 18:47
Lab Sample ID: ali ccv 7658-128 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\081811a.b\3EscB081211.m

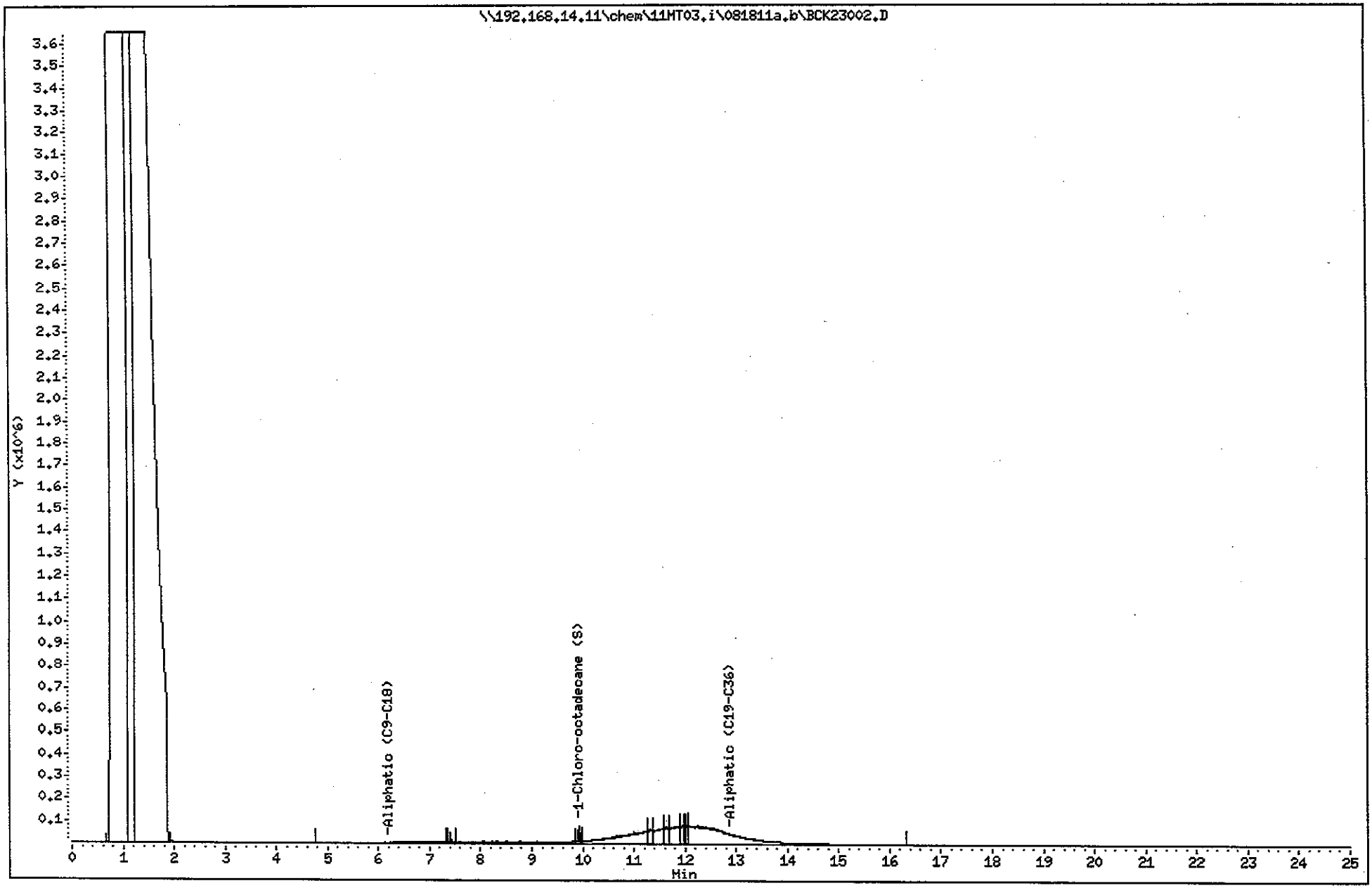
COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
S 4 Total Extractable Hydrocarb	4601	5049	0.010	9.72658	25.00000	Averaged	
S 57 Aliphatic (C9-C18)	5239	5803	0.010	10.76920	25.00000	Averaged	
S 58 Aliphatic (C19-C36)	4123	4483	0.010	8.73297	25.00000	Averaged	
$ 7 1-Chloro-octadecane (S)	4376	4245	0.010	-2.99915	25.00000	Averaged	
$ 54 o-Terphenyl (S)	5636	++++	0.010	++++	25.00000	Averaged	<-

Average %D / Drift Results.

Calculated Average %D/Drift = 8.05698
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

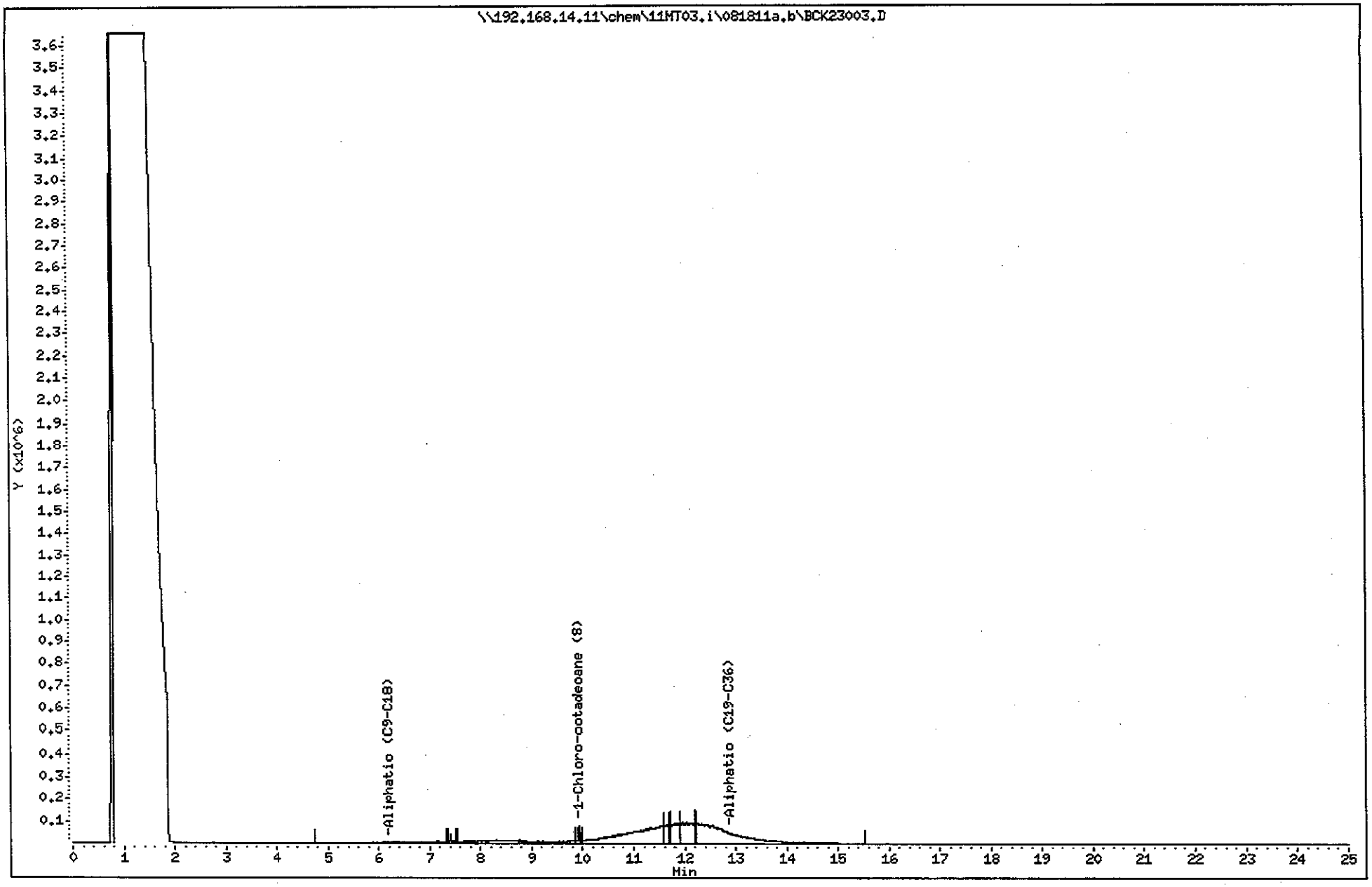
Data File: \\192.168.14.11\chem\11MT03.i\081811a.b\BCK23002.D
Date : 18-AUG-2011 15:47
Client ID:
Sample Info: 10165707002,10
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i
Operator: EJS
Column diameter: 0.25



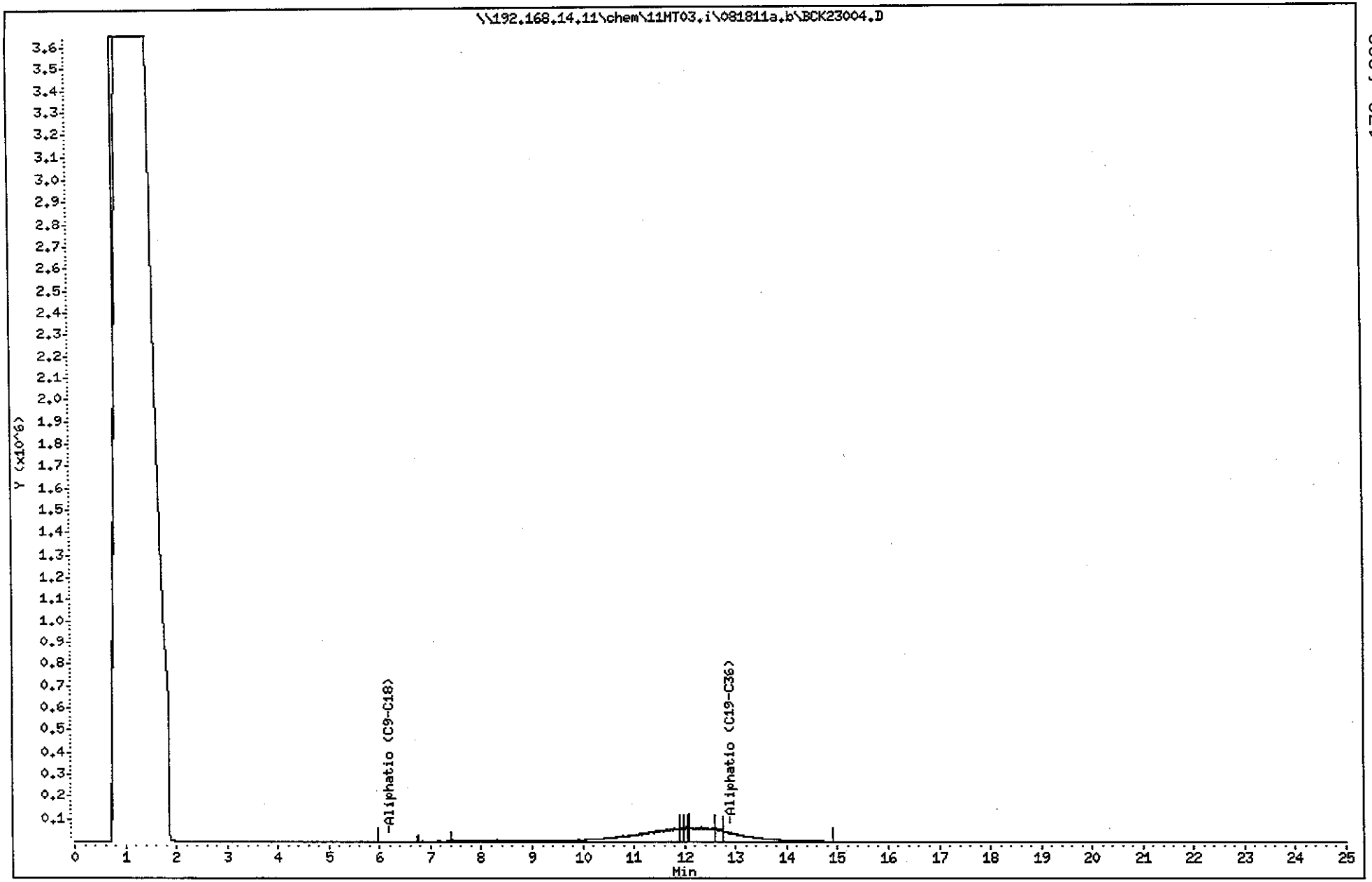
Data File: \\192.168.14.11\chem\11MT03.i\081811a.b\BCK23003.D
Date : 18-AUG-2011 16:20
Client ID:
Sample Info: 10165707003,10
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i
Operator: EJS
Column diameter: 0.25



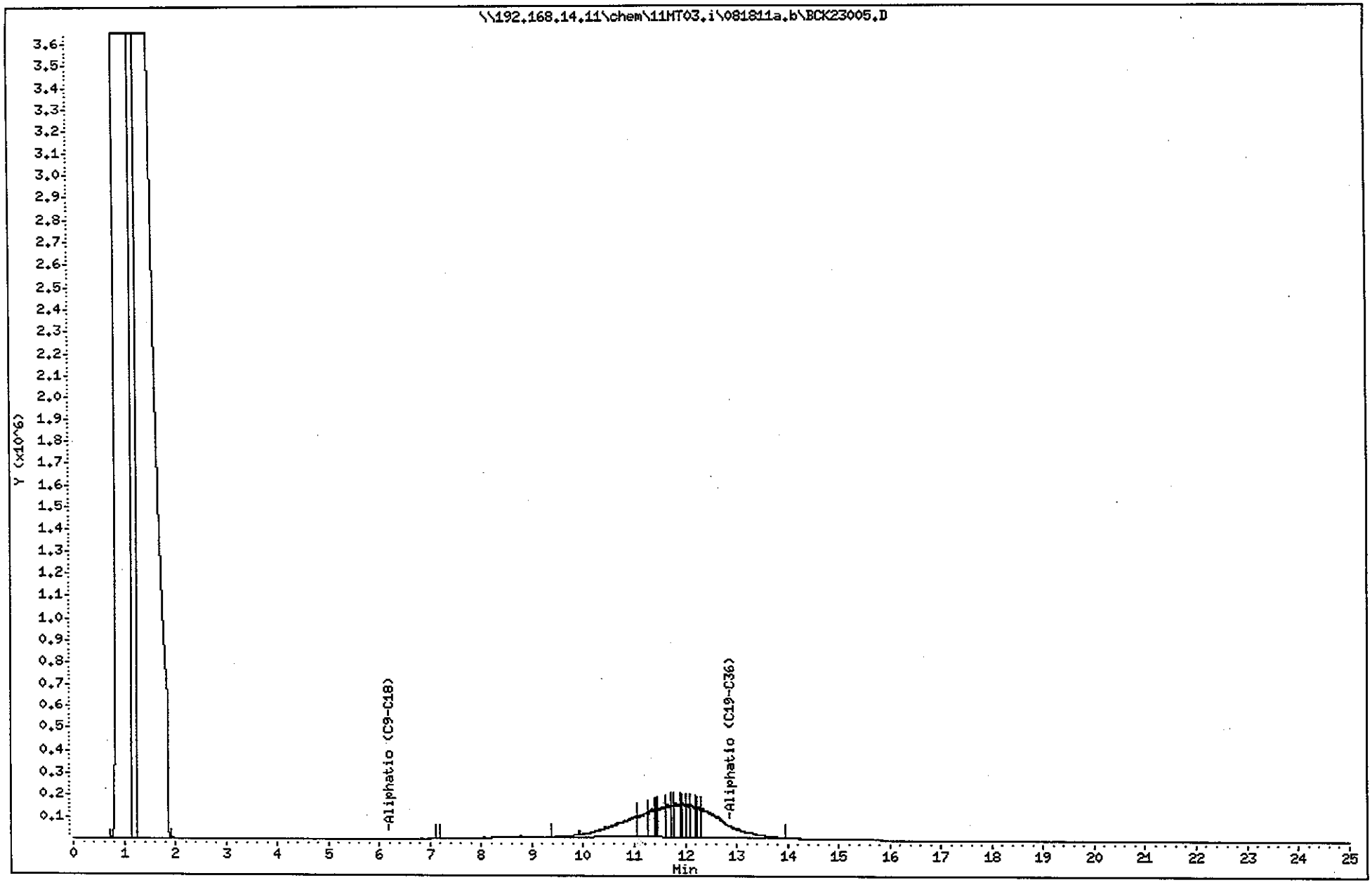
Data File: \\192.168.14.11\chem\11MT03.i\081811a.b\BCK23004.D
Date : 18-AUG-2011 16:52
Client ID:
Sample Info: 10165707004,10
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081811a.b\BCK23005.D
Date : 18-AUG-2011 17:24
Client ID:
Sample Info: 10165707005,5
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i
Operator: EJS
Column diameter: 0.25



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 17-AUG-2011 15:29
Lab File ID: BCK22903.D Init. Cal. Date(s): 11-AUG-2011 11-AUG-2011
Analysis Type: WATER Init. Cal. Times: 15:00 17:42
Lab Sample ID: ali ccv 7658-123 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\081711a.b\3ALIB081111.m

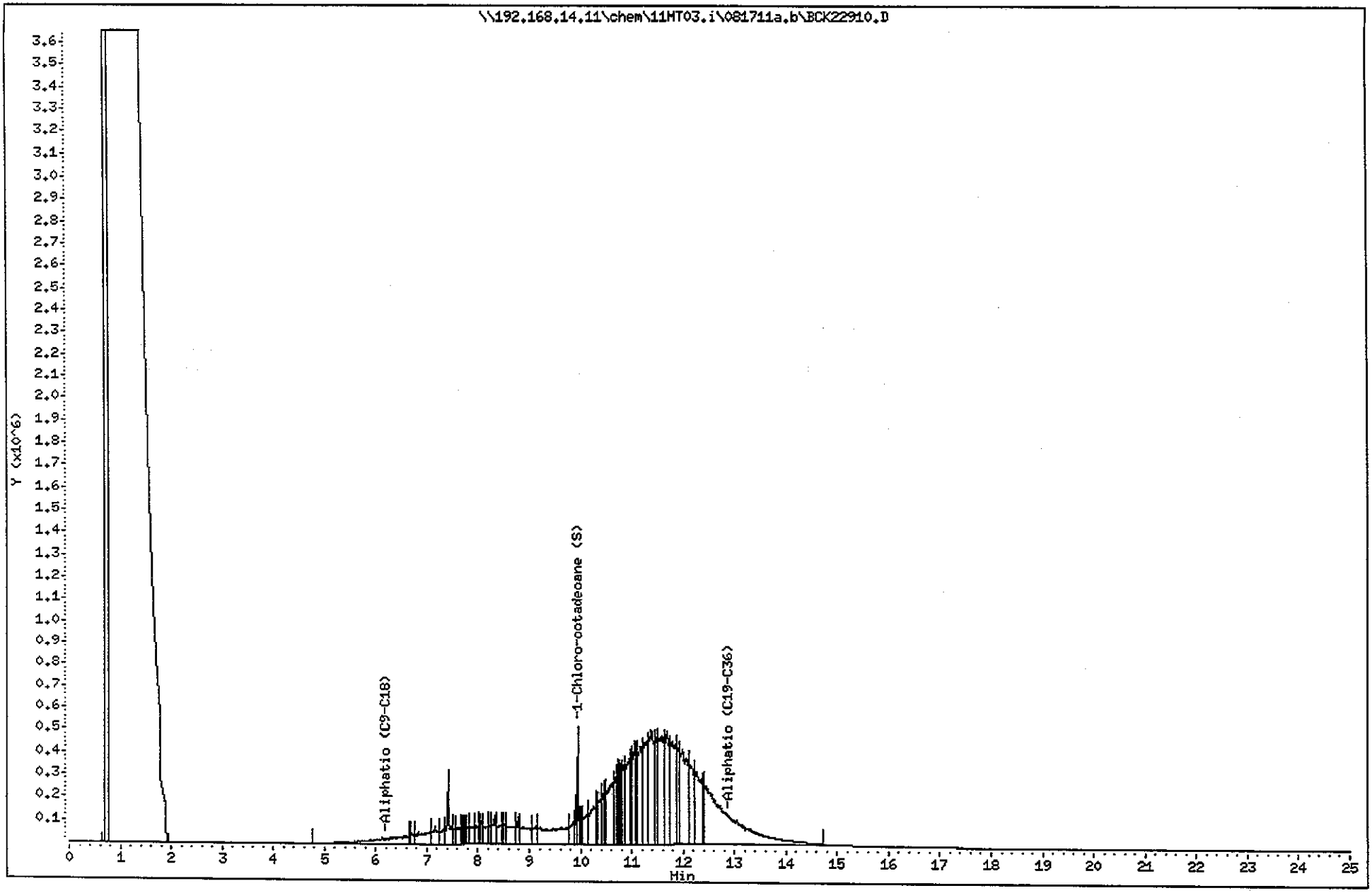
COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 57 Aliphatic (C9-C18)	4831	4976	0.010	2.99013	25.00000	Averaged
S 58 Aliphatic (C19-C36)	4470	5240	0.010	17.24436	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	4229	4245	0.010	0.38095	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 6.87181
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

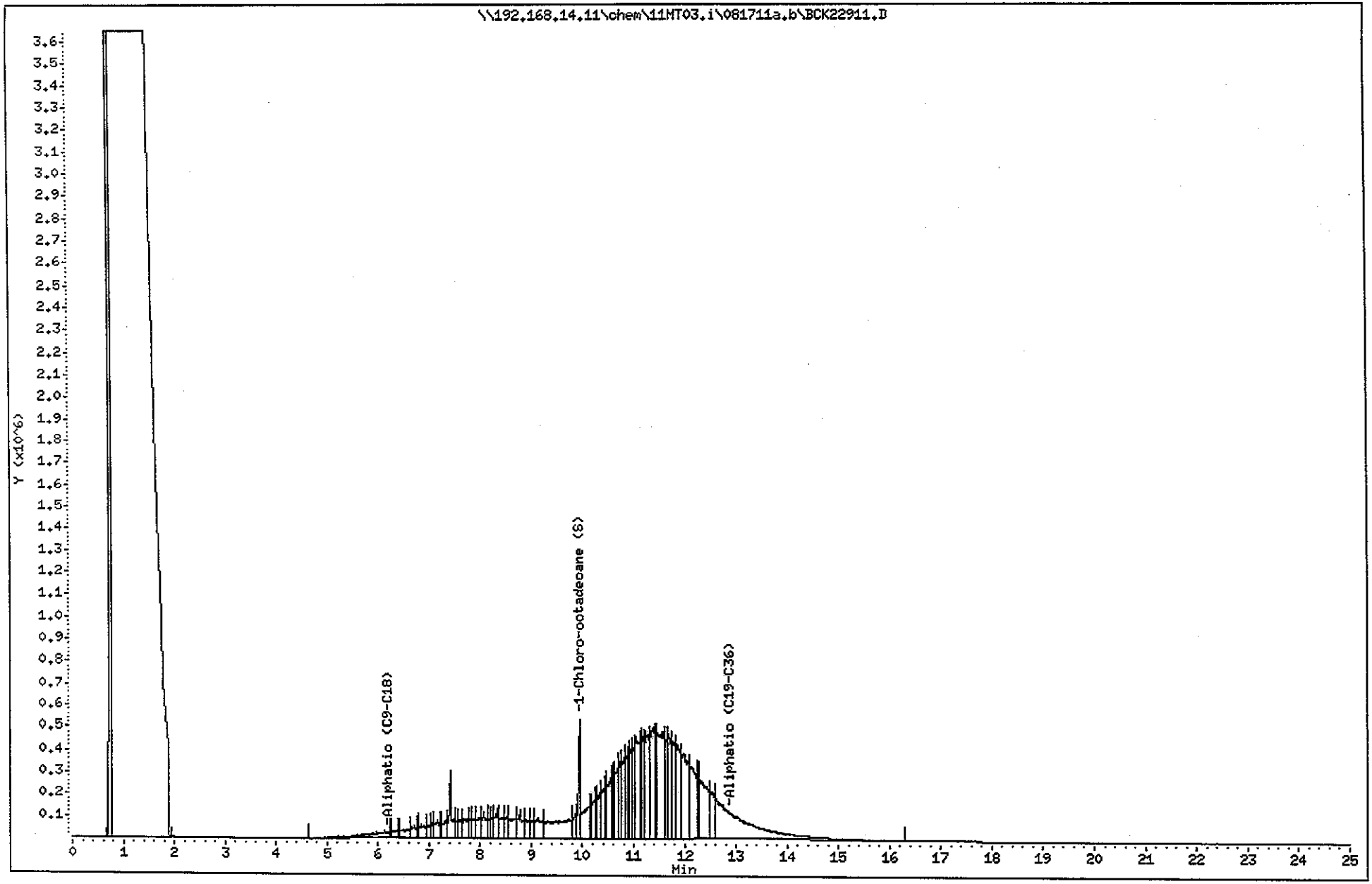
Data File: \\192.168.14.11\chem\11MT03.i\081711a.b\BCK22910.D
Date : 17-AUG-2011 19:49
Client ID:
Sample Info: 10165707002
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081711a.b\BCK22911.D
Date : 17-AUG-2011 20:21
Client ID:
Sample Info: 10165707003
Volume Injected (uL): 1.0
Column phase: DB-5MS

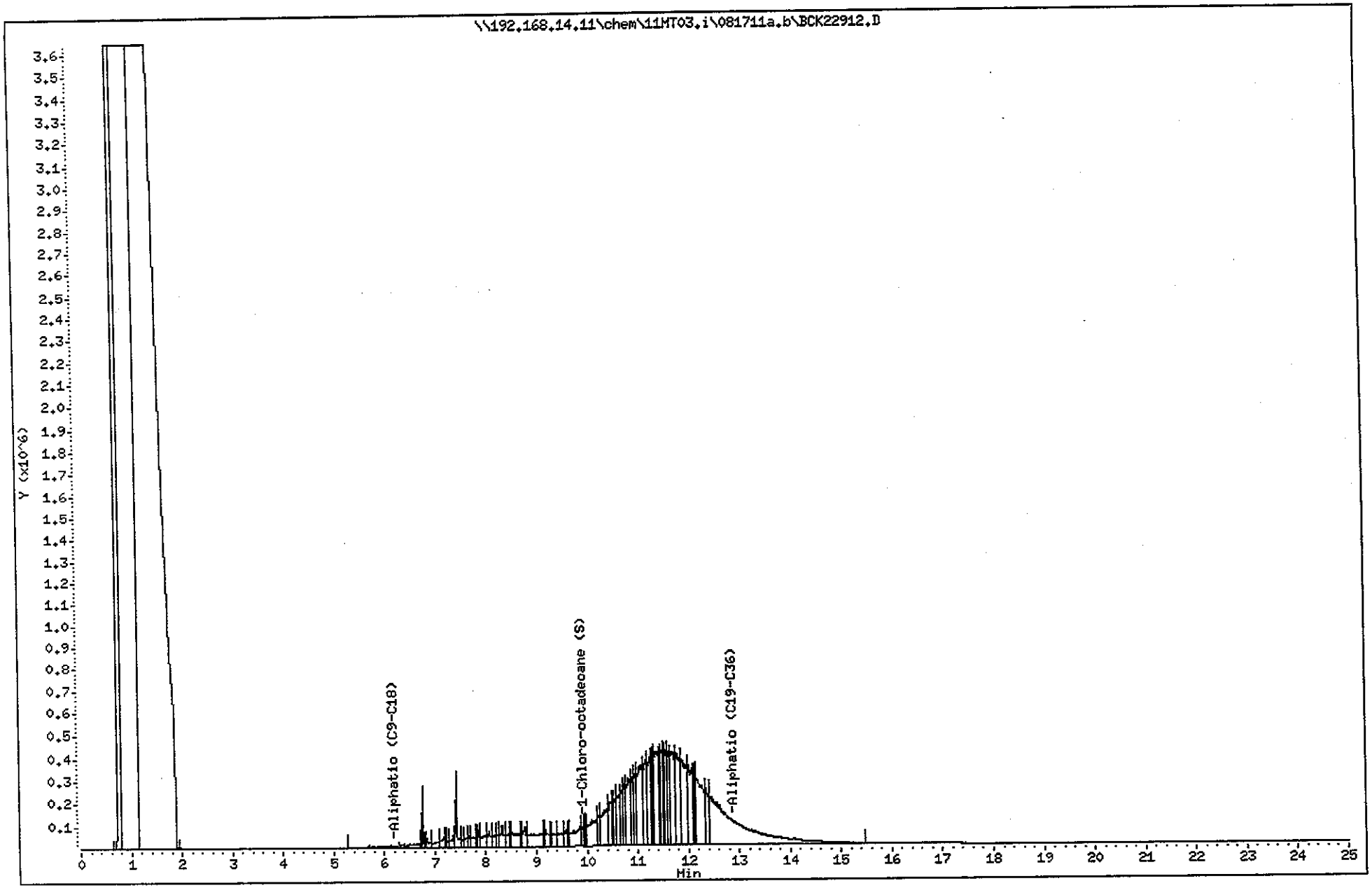
Instrument: 11MT03.i
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081711a.b\BCK22912.D
Date : 17-AUG-2011 20:53
Client ID:
Sample Info: 10165707004
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

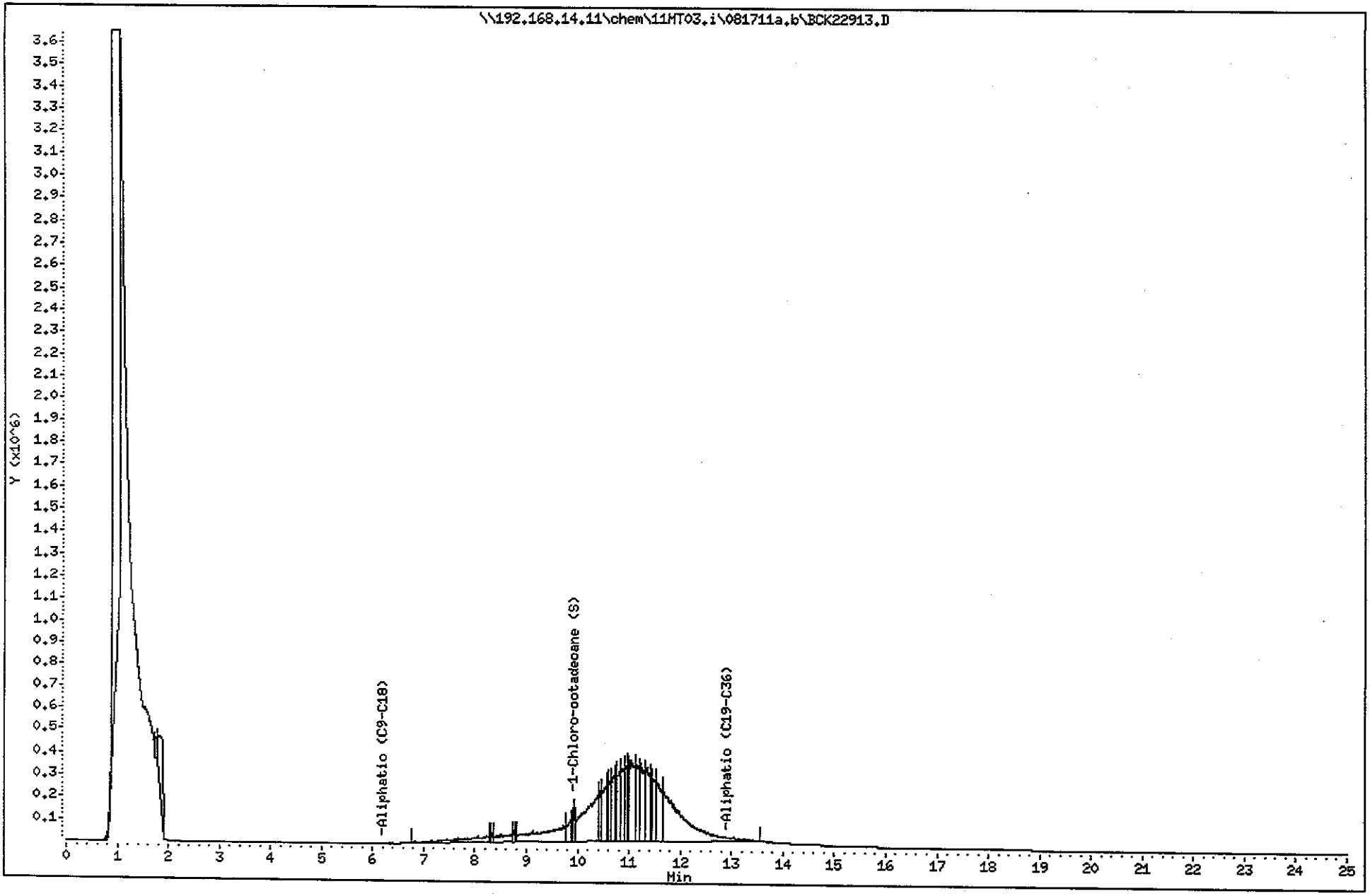
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081711a.b\BCK22913.D
Date : 17-AUG-2011 21:26
Client ID:
Sample Info: 10165707005
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 18-AUG-2011 00:07
Lab File ID: BCK22918.D Init. Cal. Date(s): 11-AUG-2011 11-AUG-2011
Analysis Type: WATER Init. Cal. Times: 15:00 17:42
Lab Sample ID: ali ccv 7658-128 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\081711a.b\3ALIB081111.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 57 Aliphatic (C9-C18)	4831	4941	0.010	2.26838	25.00000	Averaged
S 58 Aliphatic (C19-C36)	4470	5191	0.010	16.14028	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	4229	4232	0.010	0.06493	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 6.15787
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 18-AUG-2011 15:15
Lab File ID: BCK23001.D Init. Cal. Date(s): 12-AUG-2011 12-AUG-2011
Analysis Type: WATER Init. Cal. Times: 16:05 18:47
Lab Sample ID: ali ccv 7658-128 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\081811a.b\3EscB081211.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
S 4 Total Extractable Hydrocarb	4601	5049	0.010	9.72658	25.00000	Averaged	
S 57 Aliphatic (C9-C18)	5239	5803	0.010	10.76920	25.00000	Averaged	
S 58 Aliphatic (C19-C36)	4123	4483	0.010	8.73297	25.00000	Averaged	
$ 7 1-Chloro-octadecane (S)	4376	4245	0.010	-2.99915	25.00000	Averaged	
$ 54 o-Terphenyl (S)	5636	++++	0.010	++++	25.00000	Averaged	<-

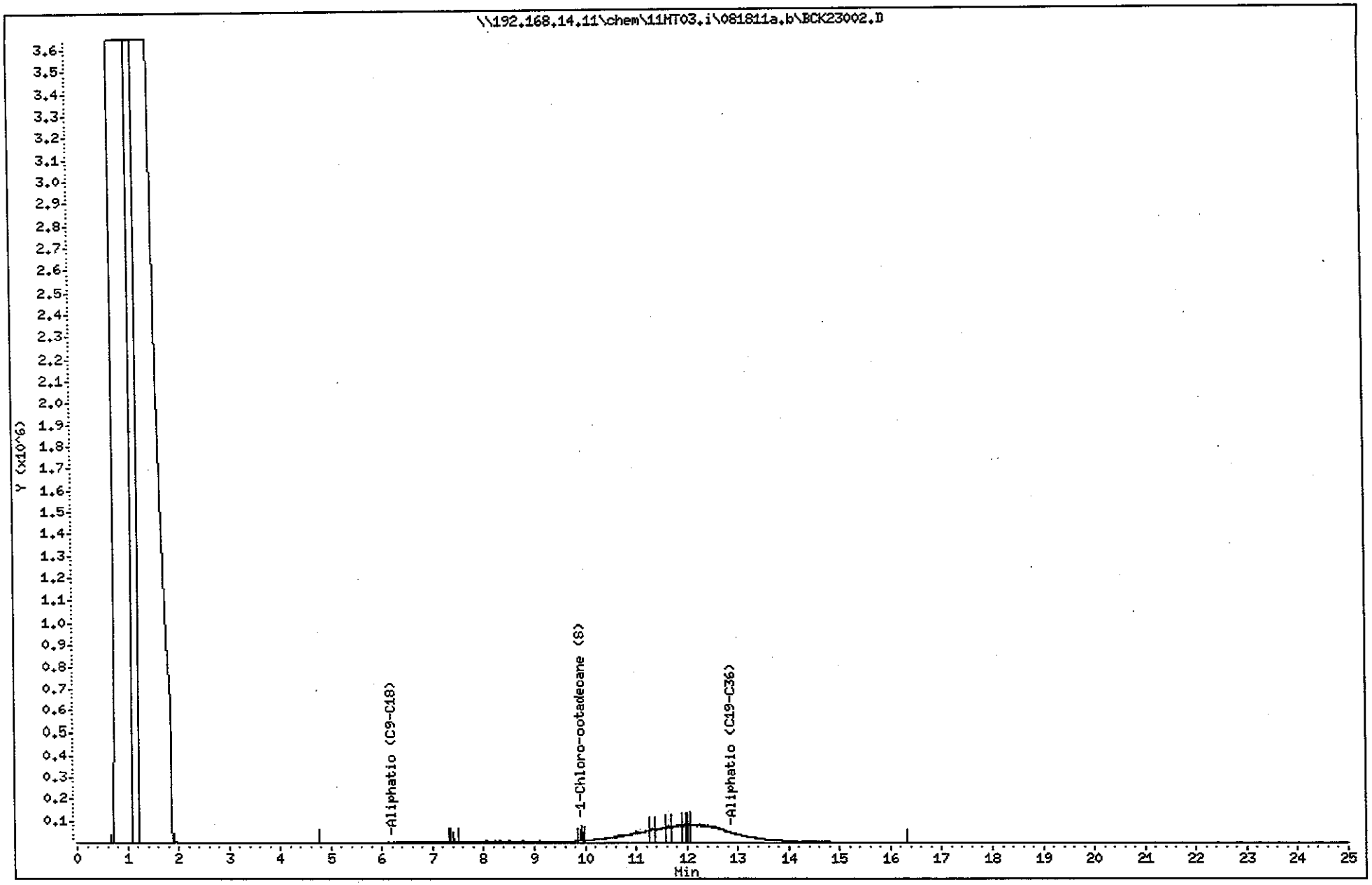
Average %D / Drift Results.

Calculated Average %D/Drift = 8.05698
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT03.i\081811a.b\BCK23002.D
Date : 18-AUG-2011 15:47
Client ID:
Sample Info: 10165707002,10
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

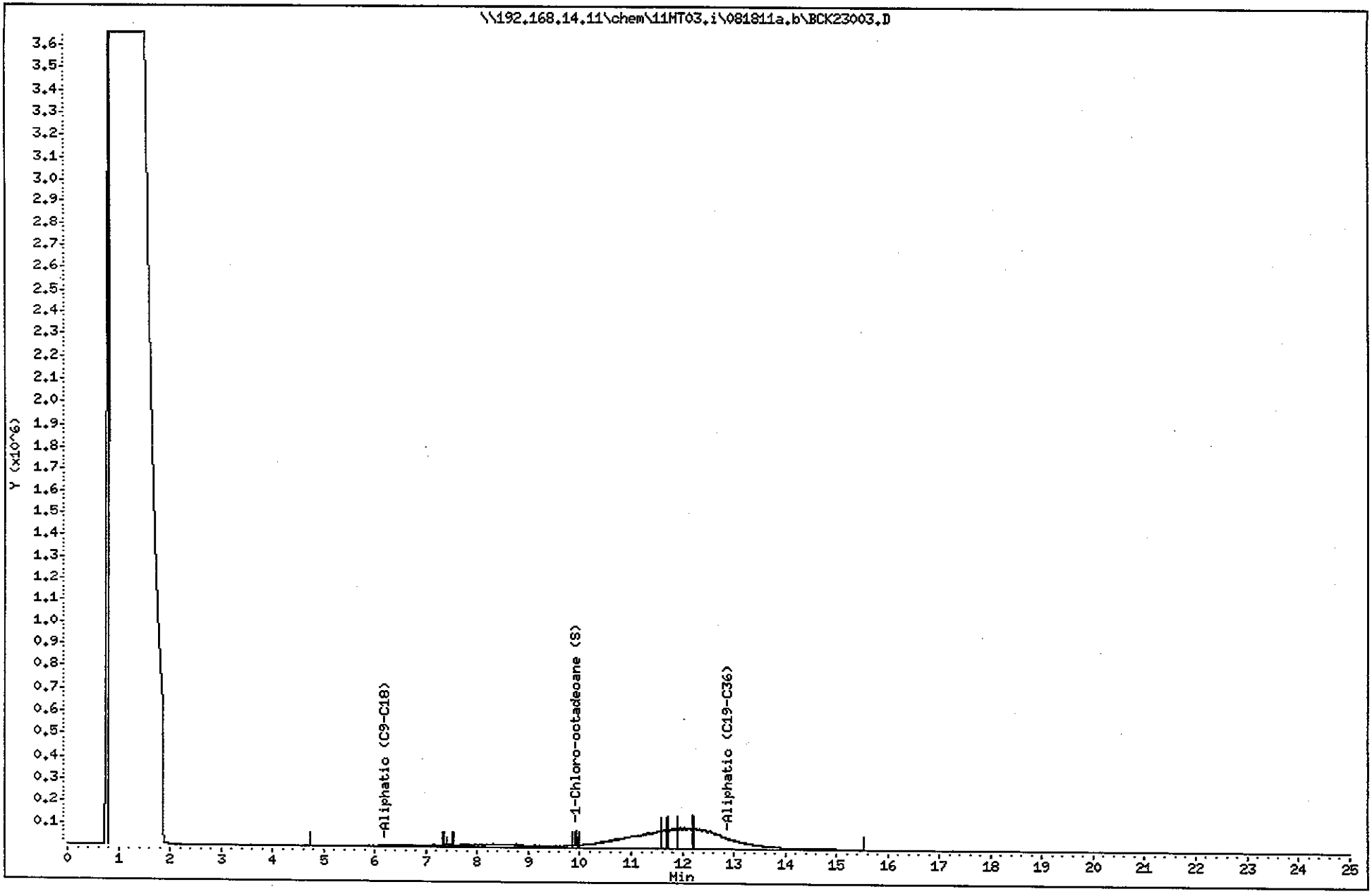
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081811a.b\BCK23003.D
Date : 18-AUG-2011 16:20
Client ID:
Sample Info: 10165707003,10
Volume Injected (uL): 1.0
Column phase: DB-5MS

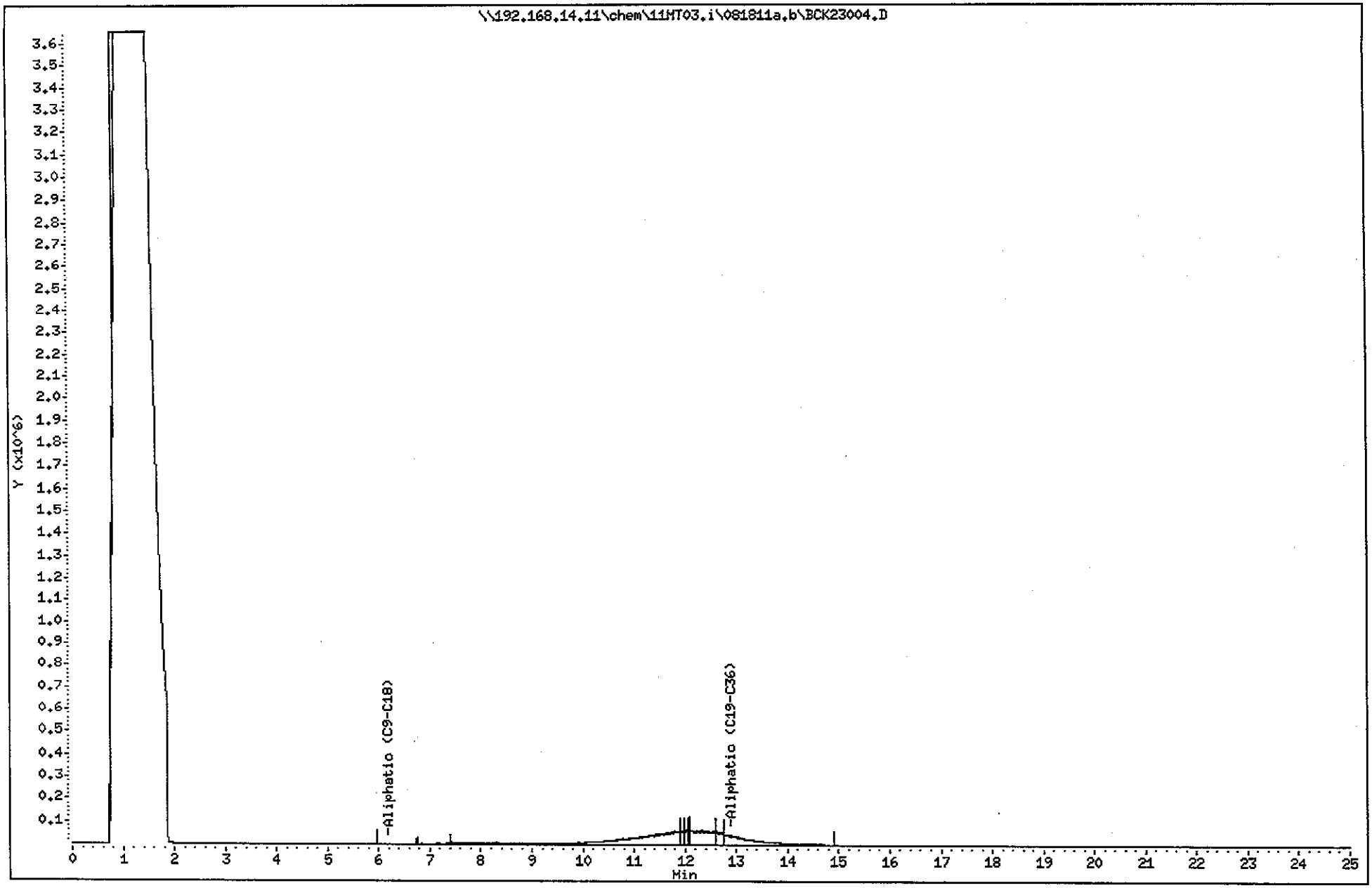
Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



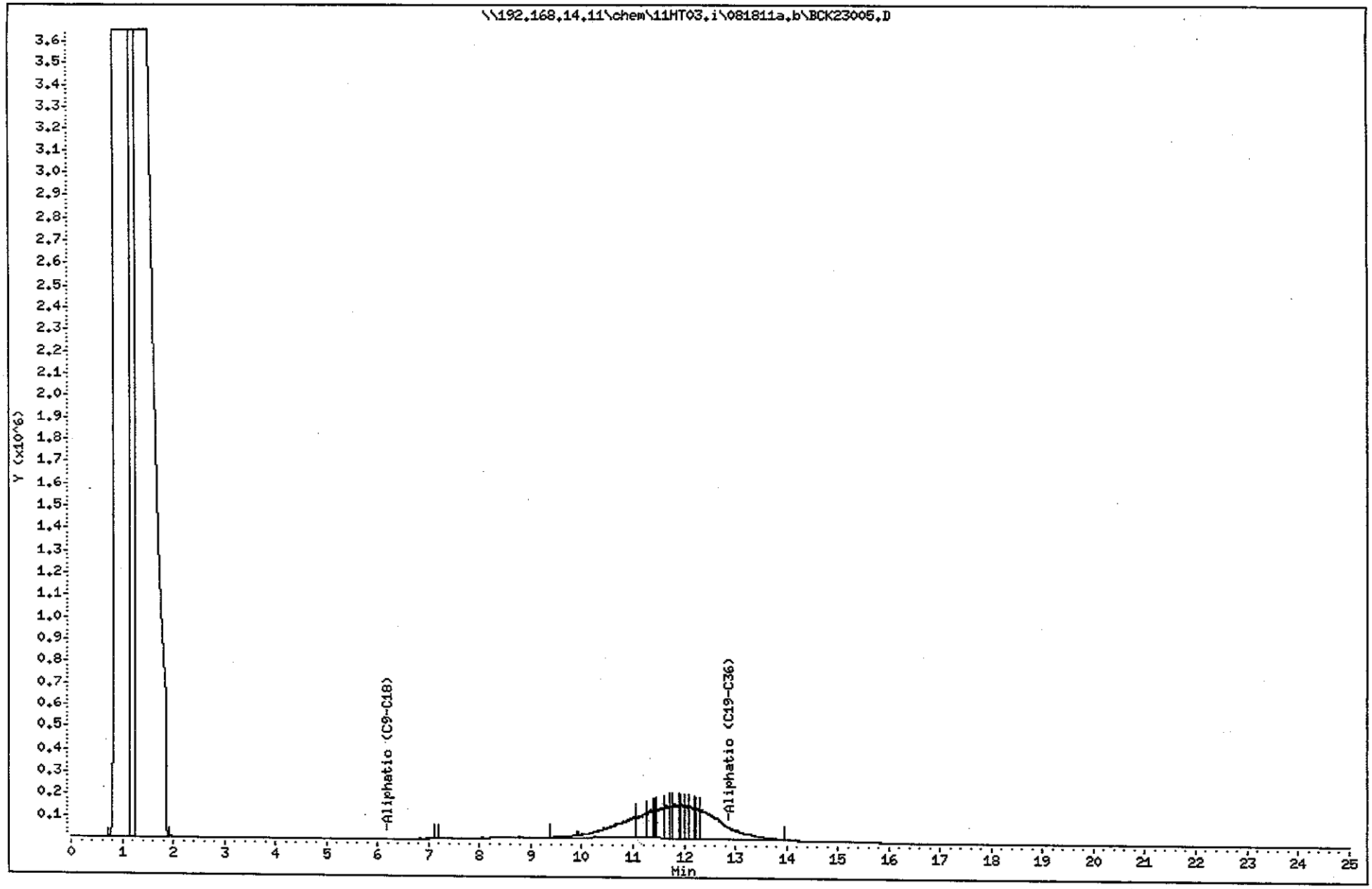
Data File: \\192.168.14.11\chem\11MT03.i\081811a.b\BCK23004.D
Date : 18-AUG-2011 16:52
Client ID:
Sample Info: 10165707004,10
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\081811a.b\BCK23005.D
Date : 18-AUG-2011 17:24
Client ID:
Sample Info: 10165707005,5
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i
Operator: EJS
Column diameter: 0.25



sample ID: 10165707001-008

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT33.i Injection Date: 10-AUG-2011 03:30
Lab File ID: FID22119.D Init. Cal. Date(s): 29-JUL-2011 29-JUL-2011
Analysis Type: WATER Init. Cal. Times: 18:01 23:12
Lab Sample ID: 8859-0156ccv Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT33.i\080911a.b\F33VPH072911.m

COMPOUND	RRF / AMOUNT	RF600	CCAL RRF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	1300	1433	706931	0.010	10.22159	25.00000	Linear
$ 9 a,a,a-Trifluorotoluene (S)	645803	648053	648053	0.010	0.34831	25.00000	Averaged
S 4 Aliphatic (C05-C08)	600	639	546578	0.010	6.52906	25.00000	Linear
S 5 Aliphatic (C09-C12)	600	666	942387	0.010	11.05497	25.00000	Linear

Average %D / Drift Results.

Calculated Average %D/Drift = 6.49613
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\PID22119.D
Report Date: 10-Aug-2011 10:46

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT33.i Injection Date: 10-AUG-2011 03:30
Lab File ID: PID22119.D Init. Cal. Date(s): 29-JUL-2011 29-JUL-2011
Analysis Type: WATER Init. Cal. Times: 18:01 23:12
Lab Sample ID: 8859-0156ccv Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT33.i\080911a.b\P33BTEX072911.m

COMPOUND	RRF / AMOUNT	RF100	CCAL RRF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
1 Methyl-t-butyl ether	6530	6637	6637	0.010	1.63401	25.00000	Averaged	
2 Benzene	180045	183987	183987	0.010	2.18980	25.00000	Averaged	
$ 3 a,a,a-Trifluorotoluene (S)	47780	49858	49858	0.010	4.35031	25.00000	Averaged	
4 Toluene	149273	157453	157453	0.010	5.48006	25.00000	Averaged	
5 Ethylbenzene	107842	112148	112148	0.010	3.99286	25.00000	Averaged	
6 m&p-Xylene	158955	163671	163671	0.010	2.96653	25.00000	Averaged	
7 o-Xylene	118285	132320	132320	0.010	11.86469	25.00000	Averaged	
T 8 Aromatic (C09-C10)	100	96.96441	126165	0.010	-3.03559	25.00000	Linear	
9 Naphthalene	100	136	42309	0.010	35.91676	25.00000	Linear	<-

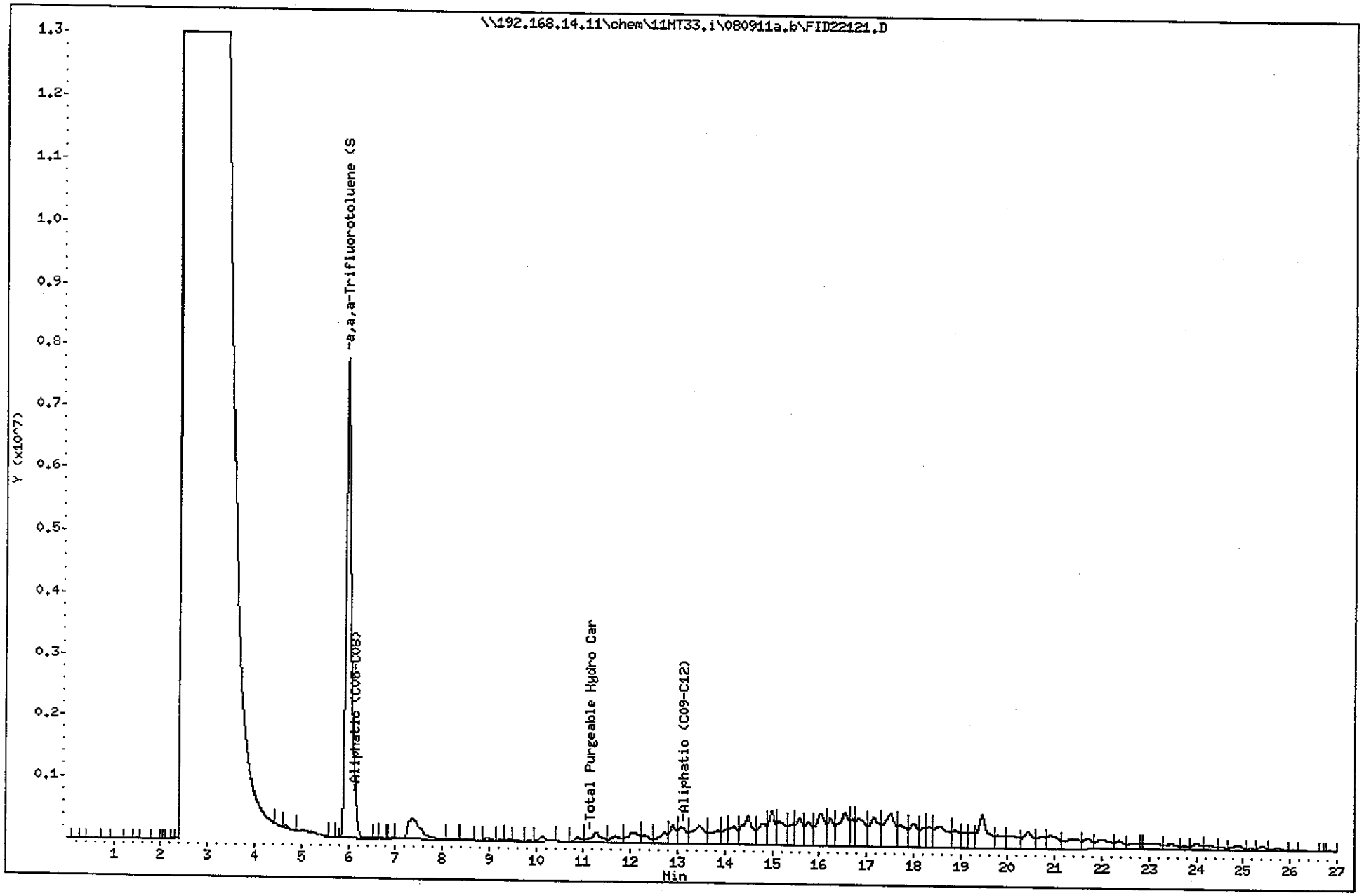
Average %D / Drift Results.

Calculated Average %D/Drift = 5.64965
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11HT33.i\080911a.b\FID22121.D
Date : 10-AUG-2011 04:58
Client ID:
Sample Info: 10165707002
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11HT33.i

Operator: AML
Column diameter: 0.53

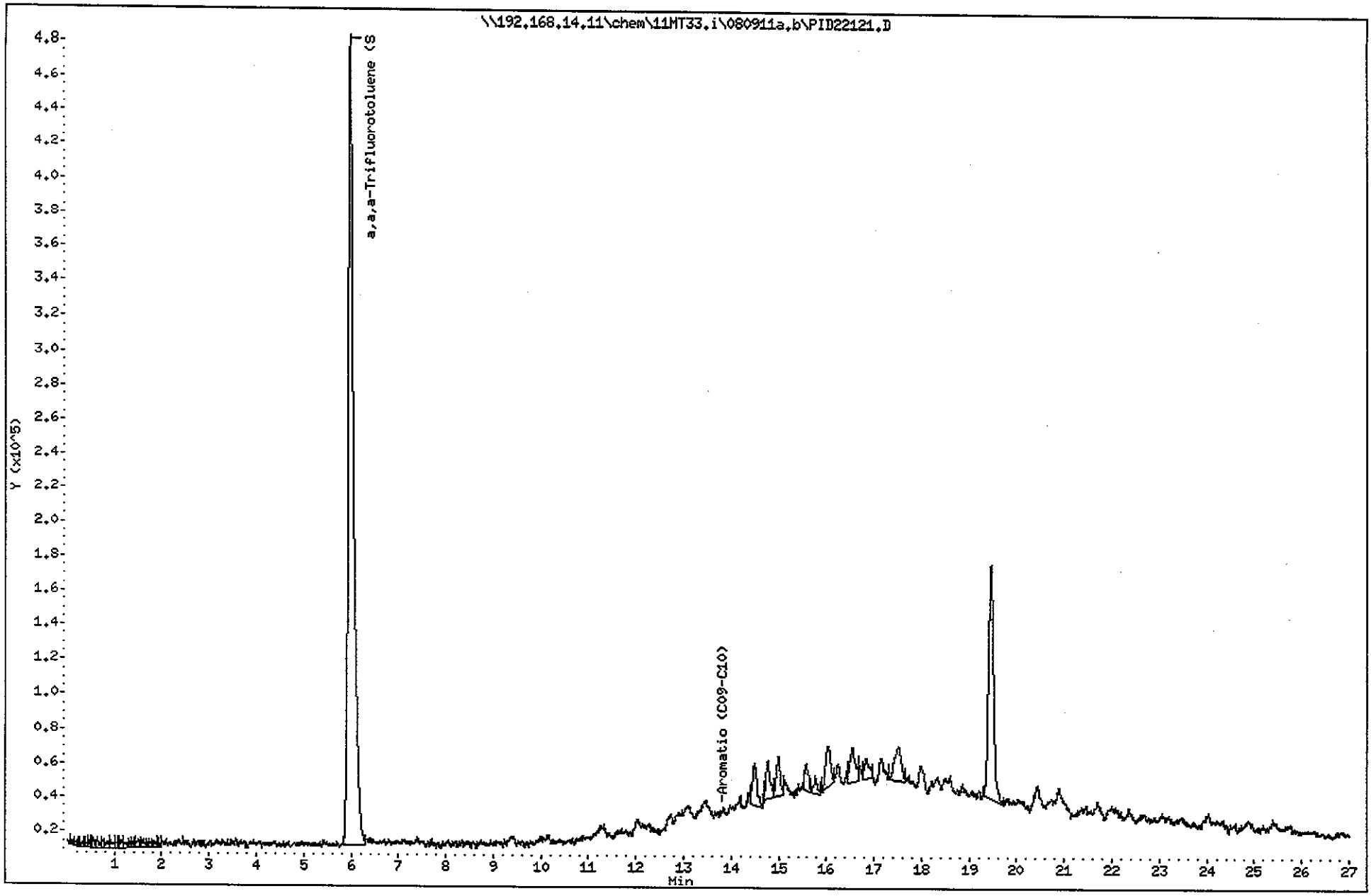


Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\PID22121.D
Date : 10-AUG-2011 04:58
Client ID:
Sample Info: 10165707002

Instrument: 11MT33.i

Operator: AML
Column diameter: 0.53

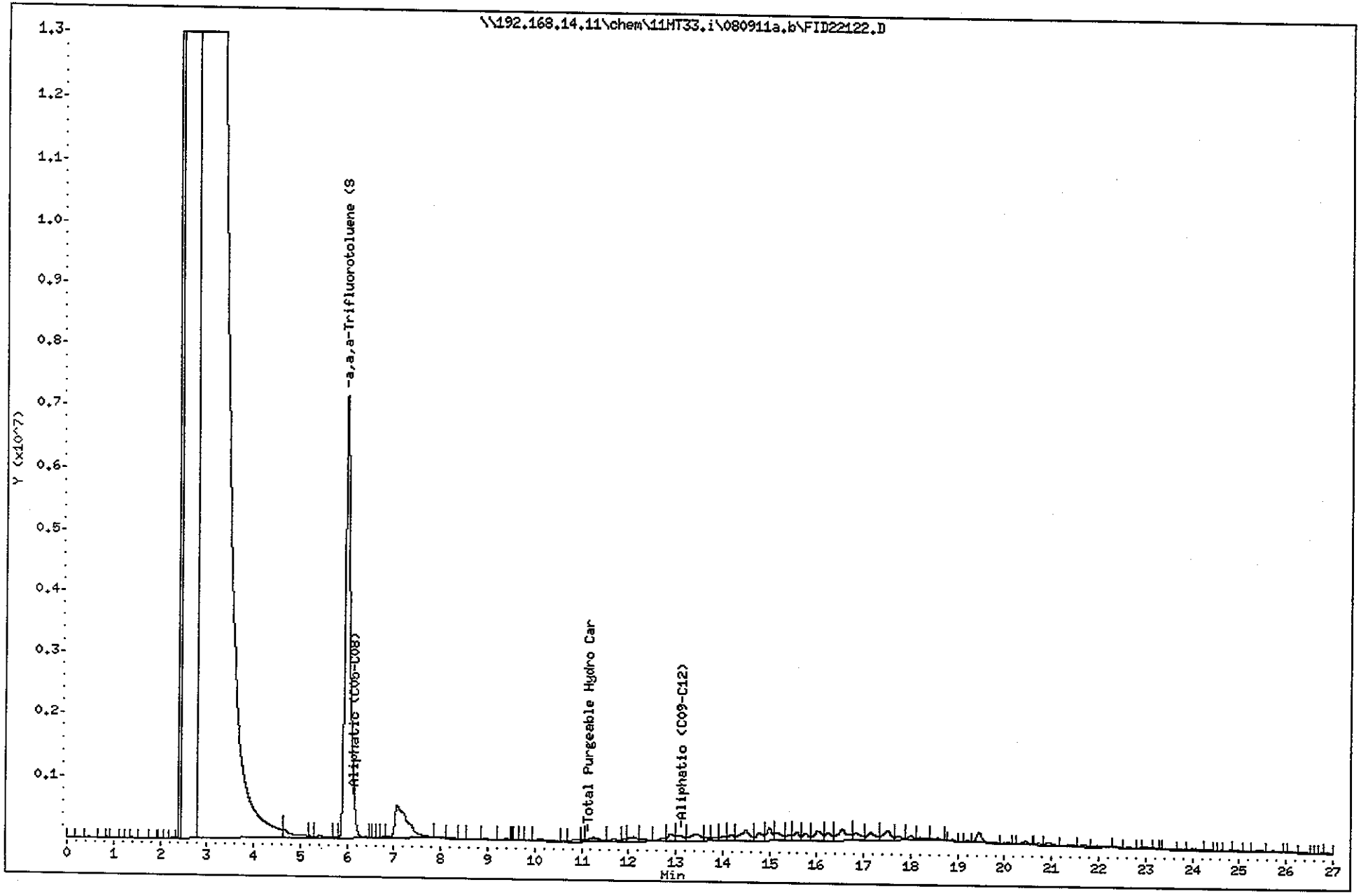
Column phase: DB-502 Film: 3.00nm



Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\FID22122.D
Date : 10-AUG-2011 05:41
Client ID:
Sample Info: 10165707003
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT33.i

Operator: AML
Column diameter: 0.53



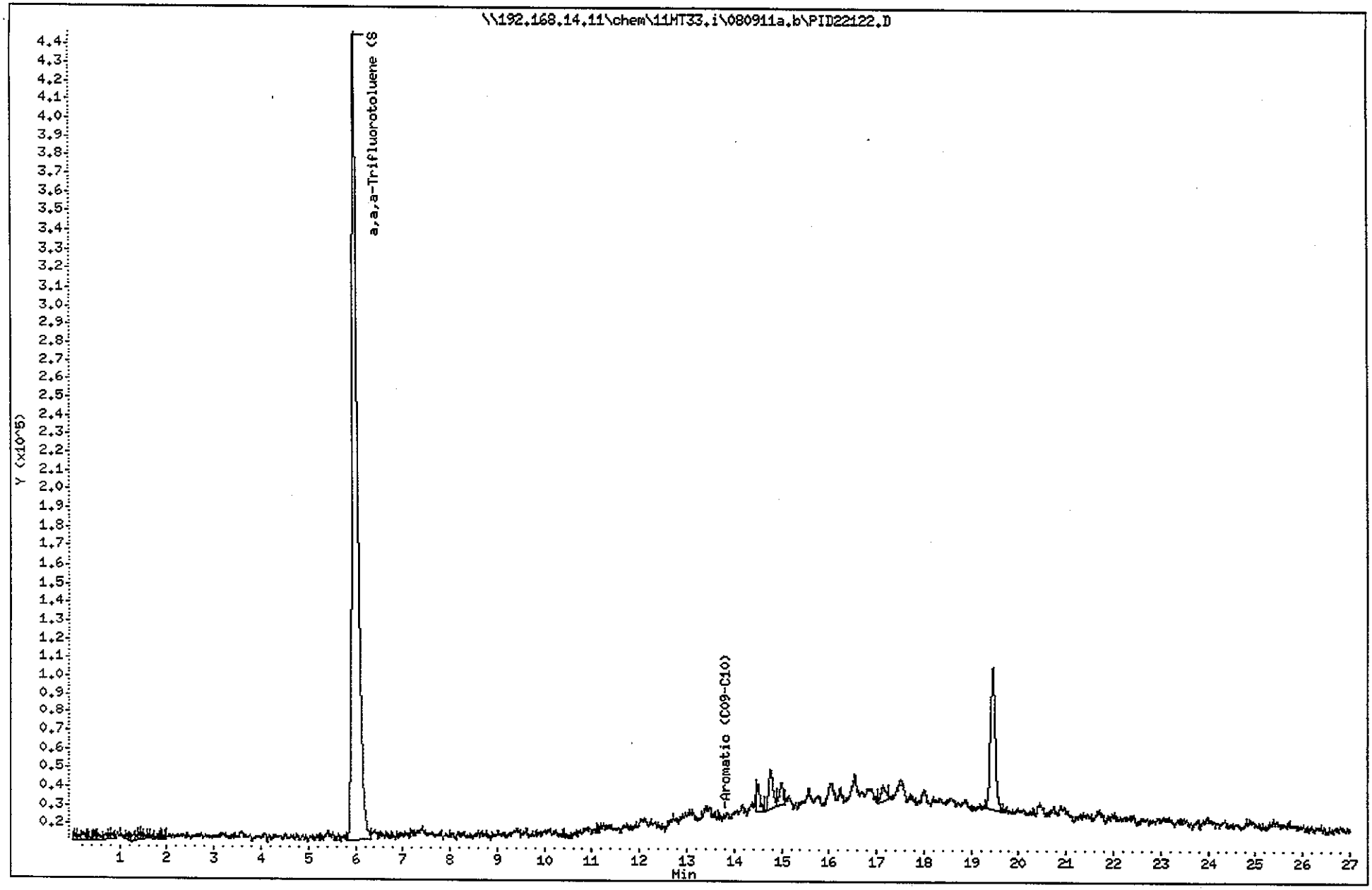
Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\PID22122.D
Date : 10-AUG-2011 05:41
Client ID:
Sample Info: 10165707003

Instrument: 11MT33.i

Operator: AML

Column phase: DB-502 Film: 3.00nm

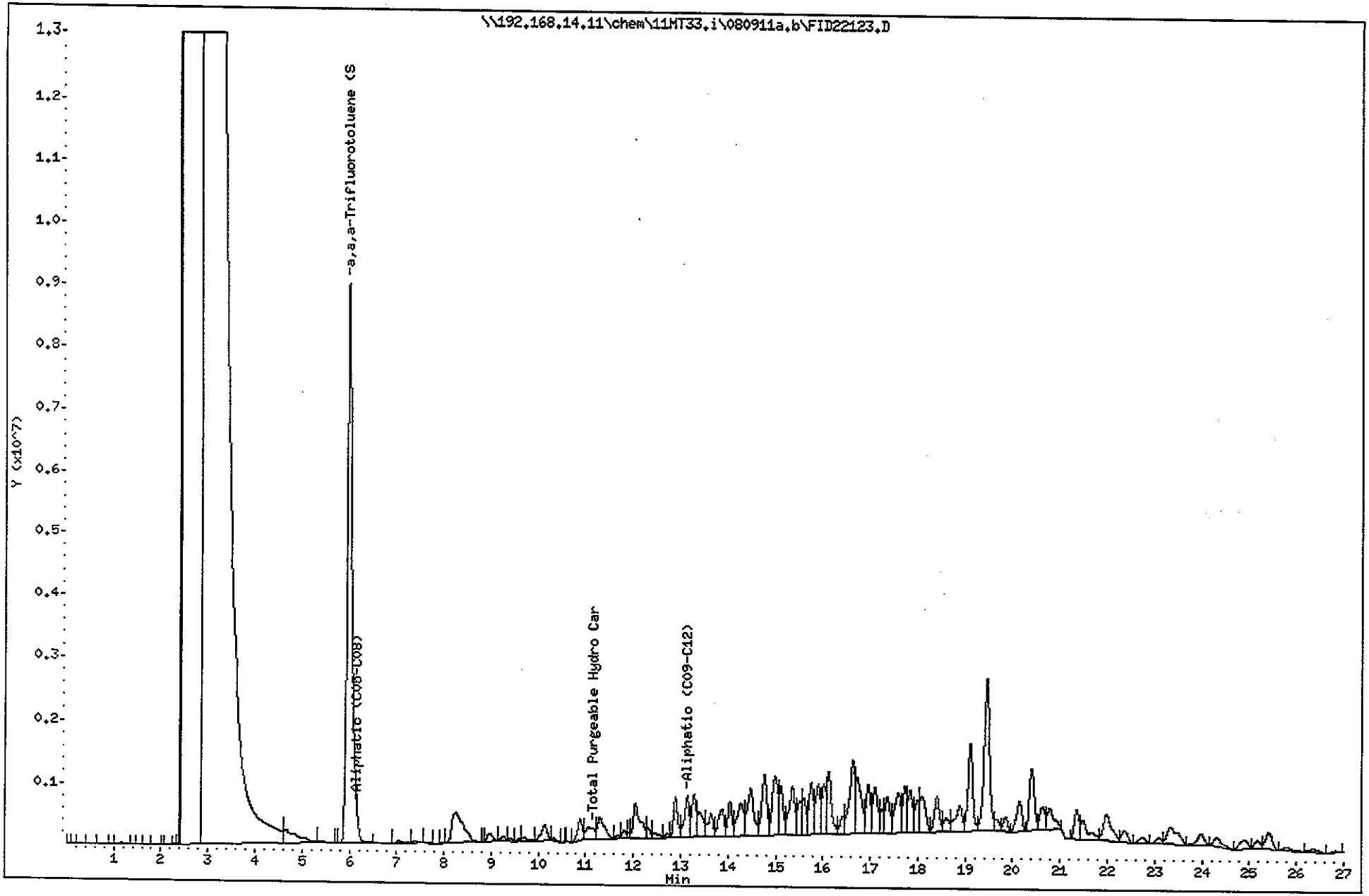
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\FID22123.D
Date : 10-AUG-2011 06:25
Client ID:
Sample Info: 10165707004
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT33.i

Operator: AML
Column diameter: 0.53

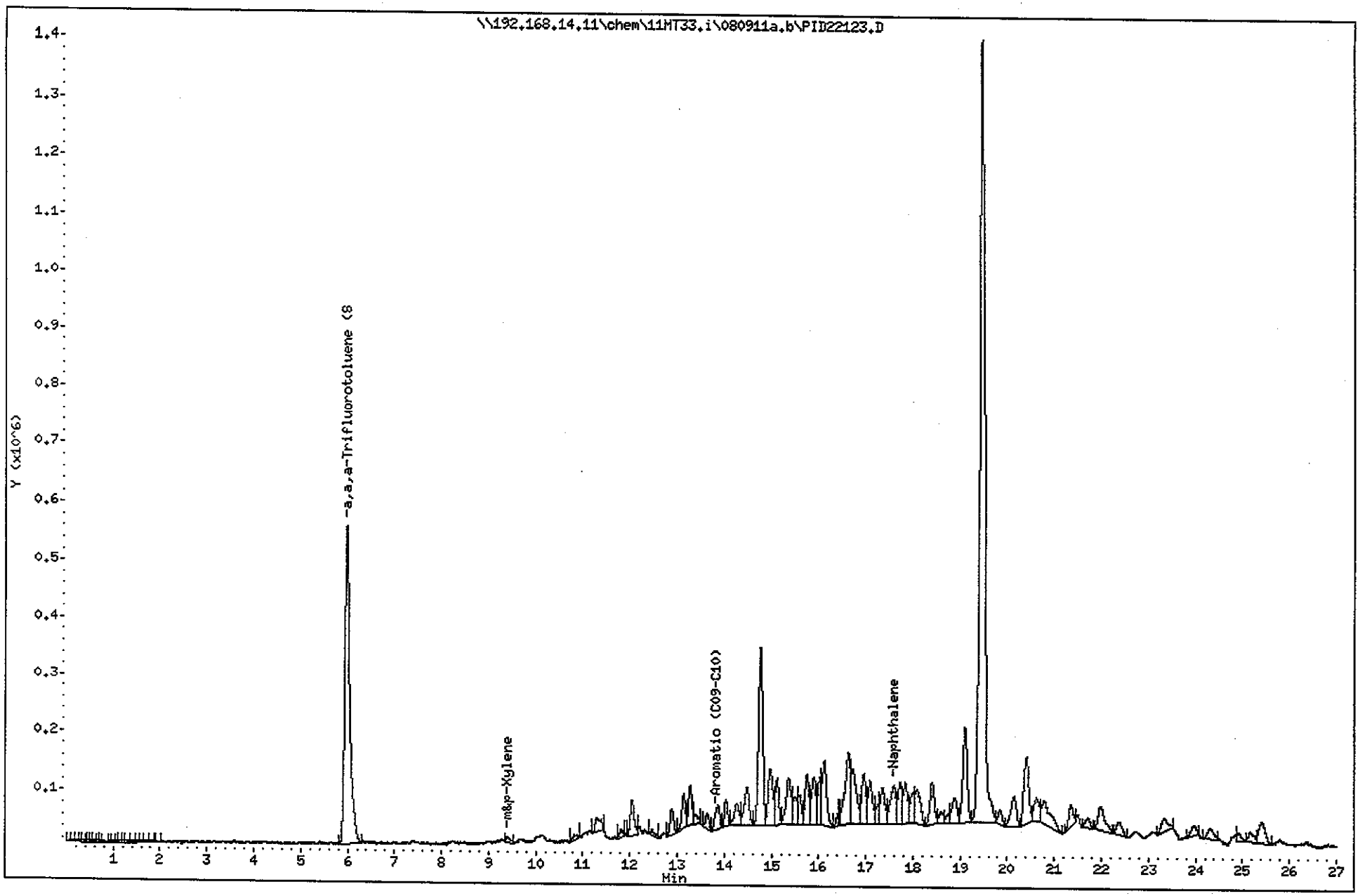


Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\PID22123.D
Date : 10-AUG-2011 06:25
Client ID:
Sample Info: 10165707004

Instrument: 11MT33.i

Operator: AML
Column diameter: 0.53

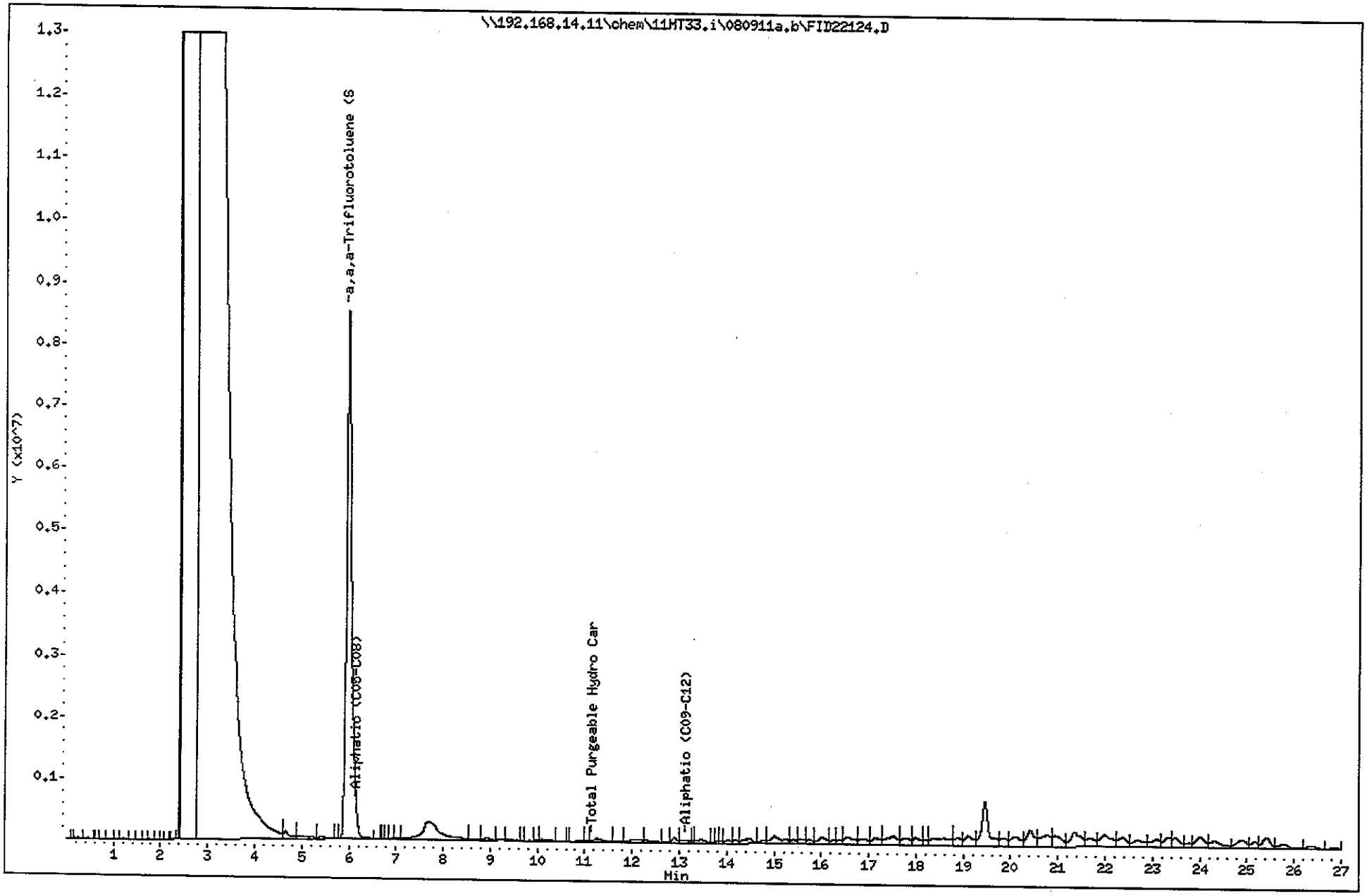
Column phase: DB-502 Film: 3.00nm



Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\FID22124.D
Date : 10-AUG-2011 07:08
Client ID:
Sample Info: 10165707005
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT33.i

Operator: AML
Column diameter: 0.53

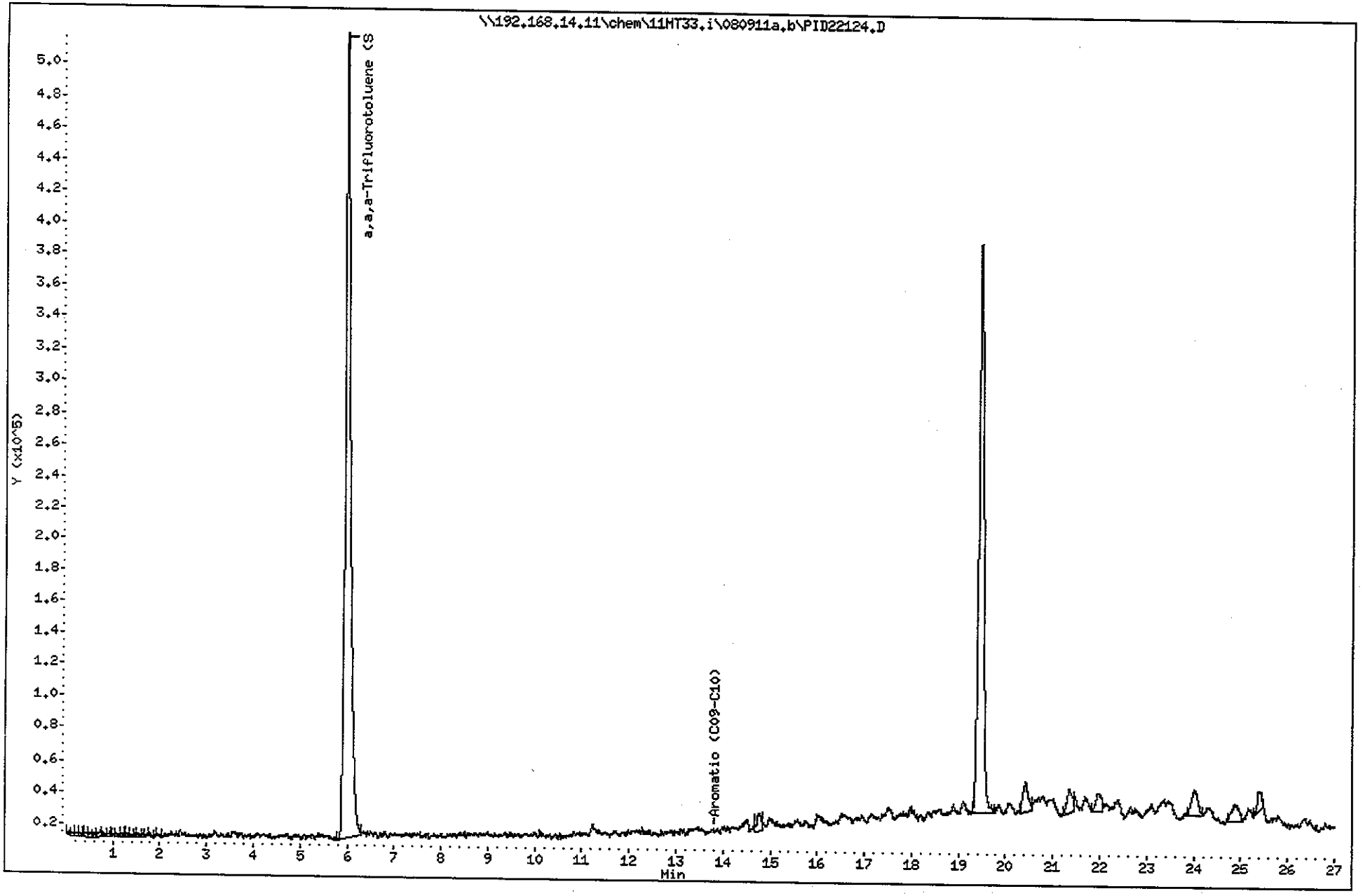


Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\PID22124.D
Date : 10-AUG-2011 07:08
Client ID:
Sample Info: 10165707005

Instrument: 11MT33.i

Operator: AML
Column diameter: 0.53

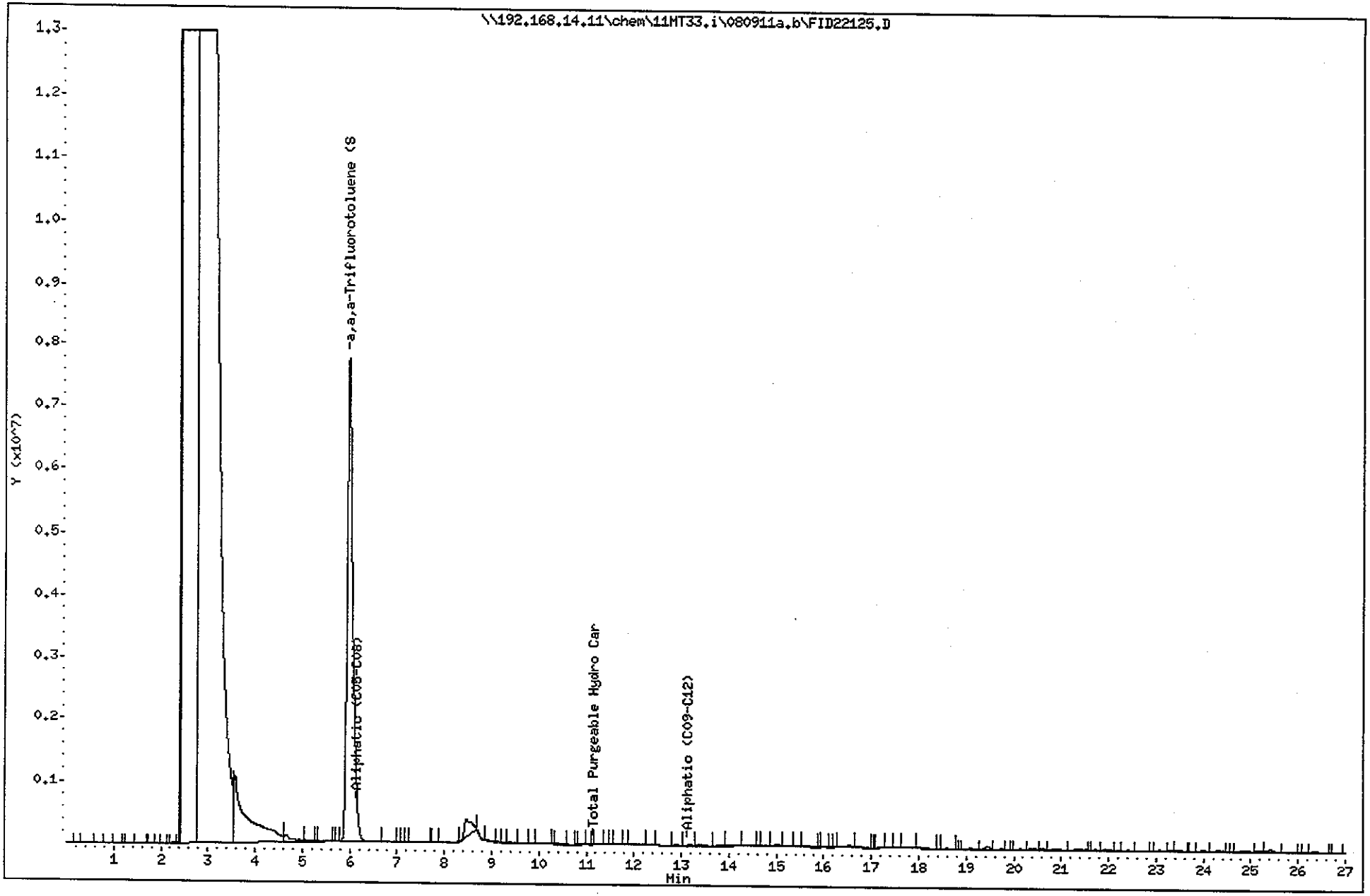
Column phase: DB-502 Film: 3.00nm



Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\FID22125.D
Date : 10-AUG-2011 07:52
Client ID:
Sample Info: 10165707006
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT33.i

Operator: AML
Column diameter: 0.53



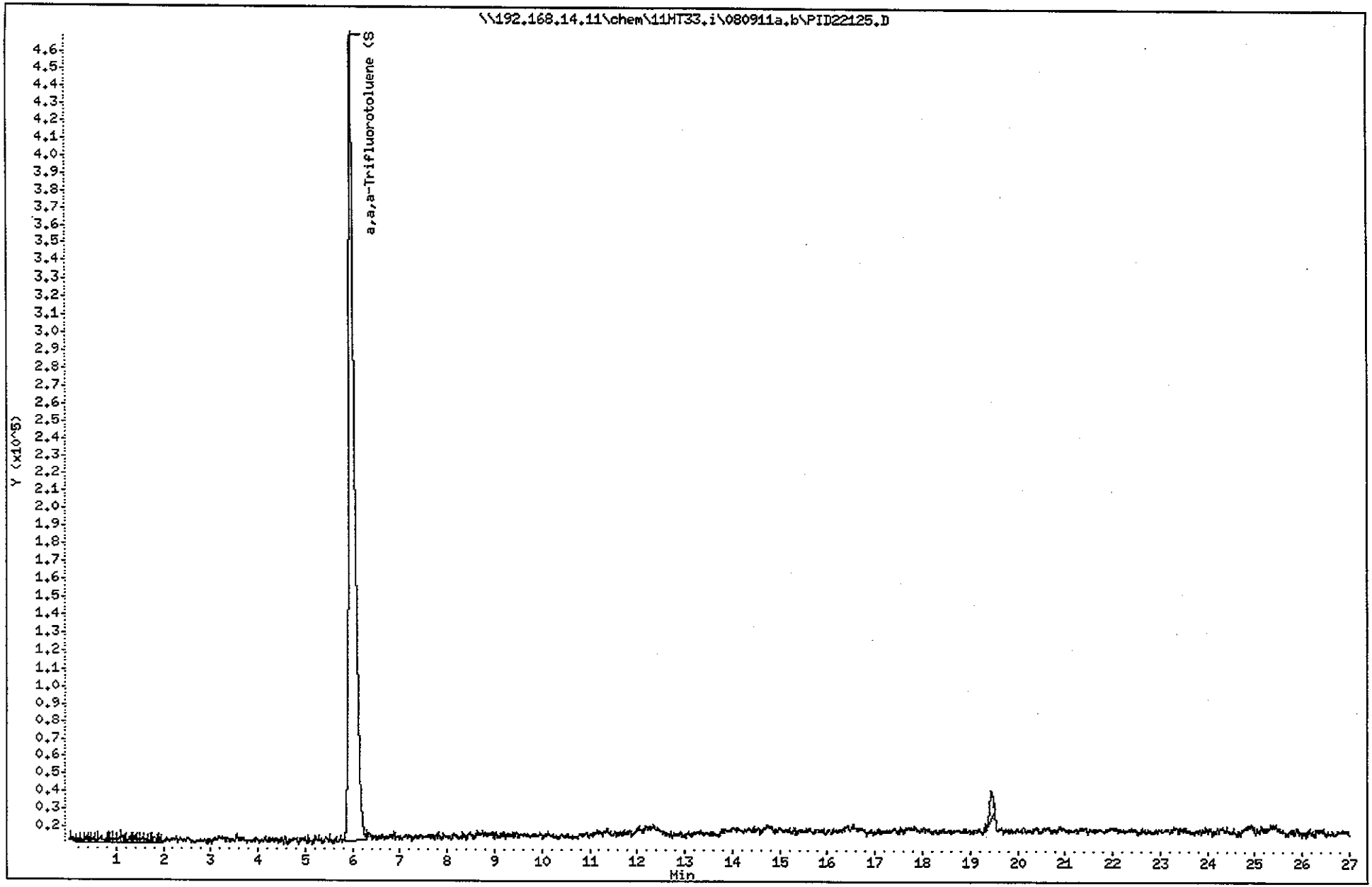
Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\PID22125.D
Date : 10-AUG-2011 07:52
Client ID:
Sample Info: 10165707006

Instrument: 11MT33.i

Operator: AML

Column phase: DB-502 Film: 3.00nm

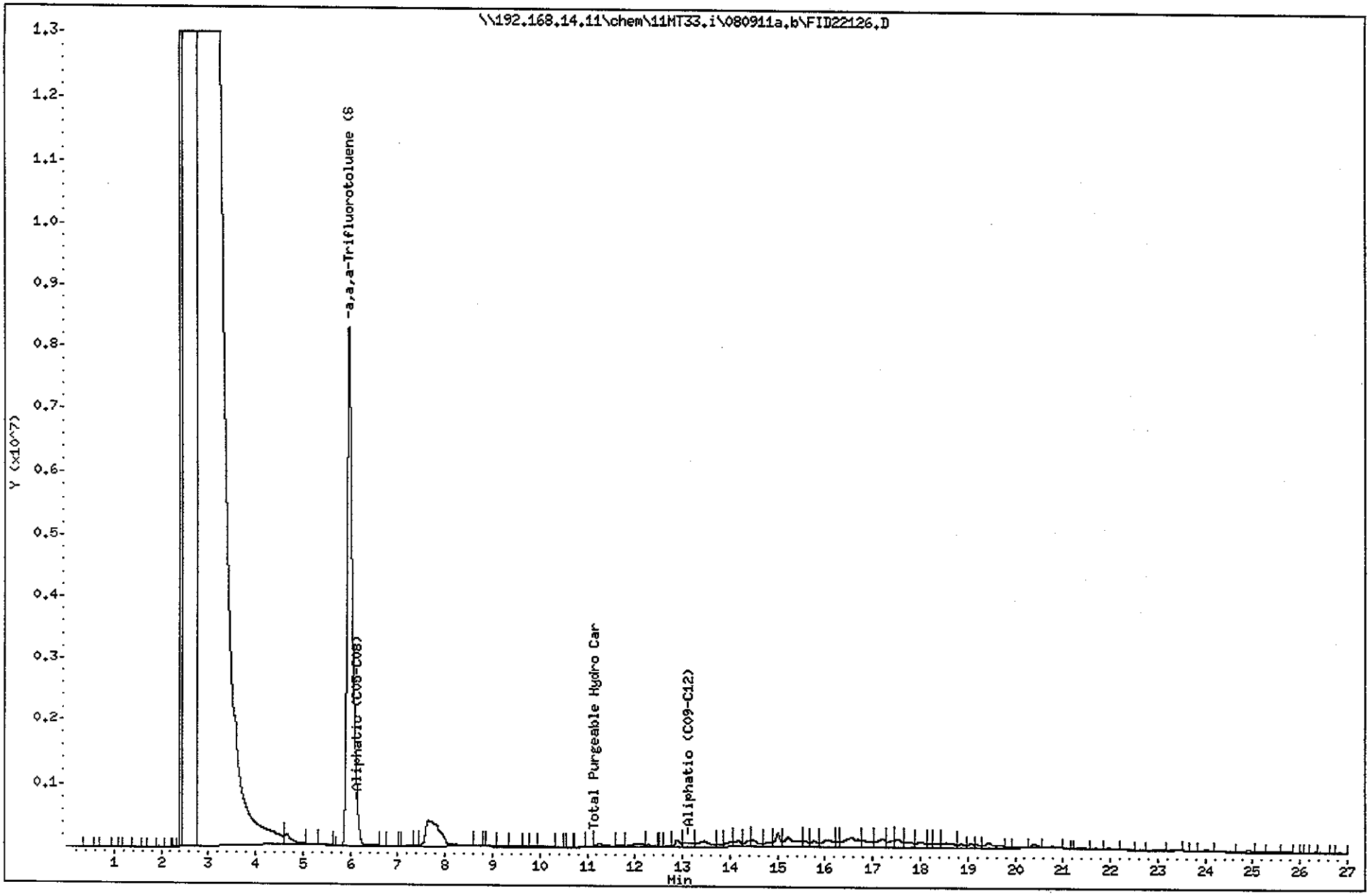
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\FID22126.D
Date : 10-AUG-2011 08:35
Client ID:
Sample Info: 10165707007
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT33.i

Operator: AML
Column diameter: 0.53

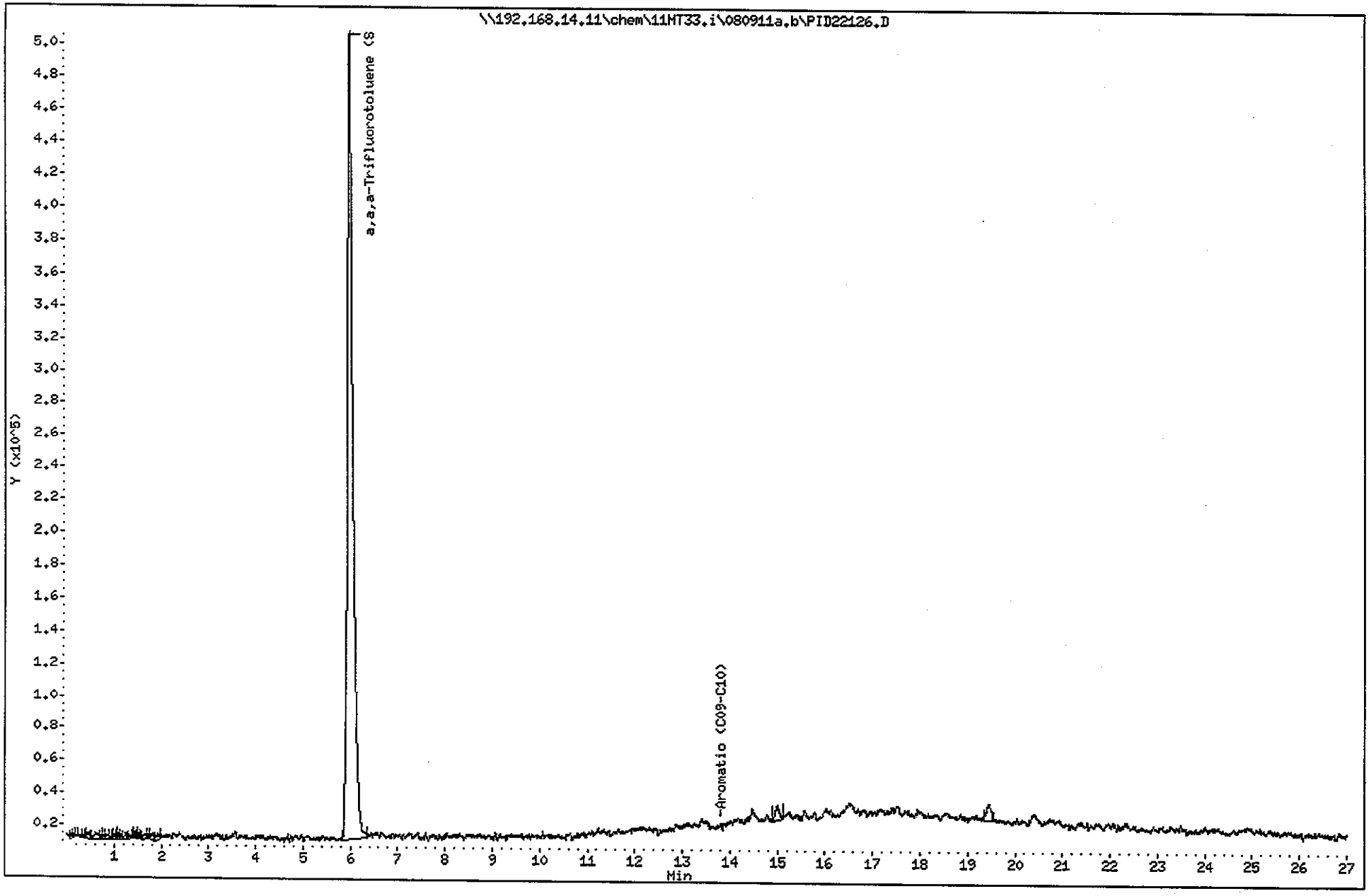


Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\PID22126.D
Date : 10-AUG-2011 08:35
Client ID:
Sample Info: 10165707007

Instrument: 11MT33.i

Operator: AHL
Column diameter: 0.53

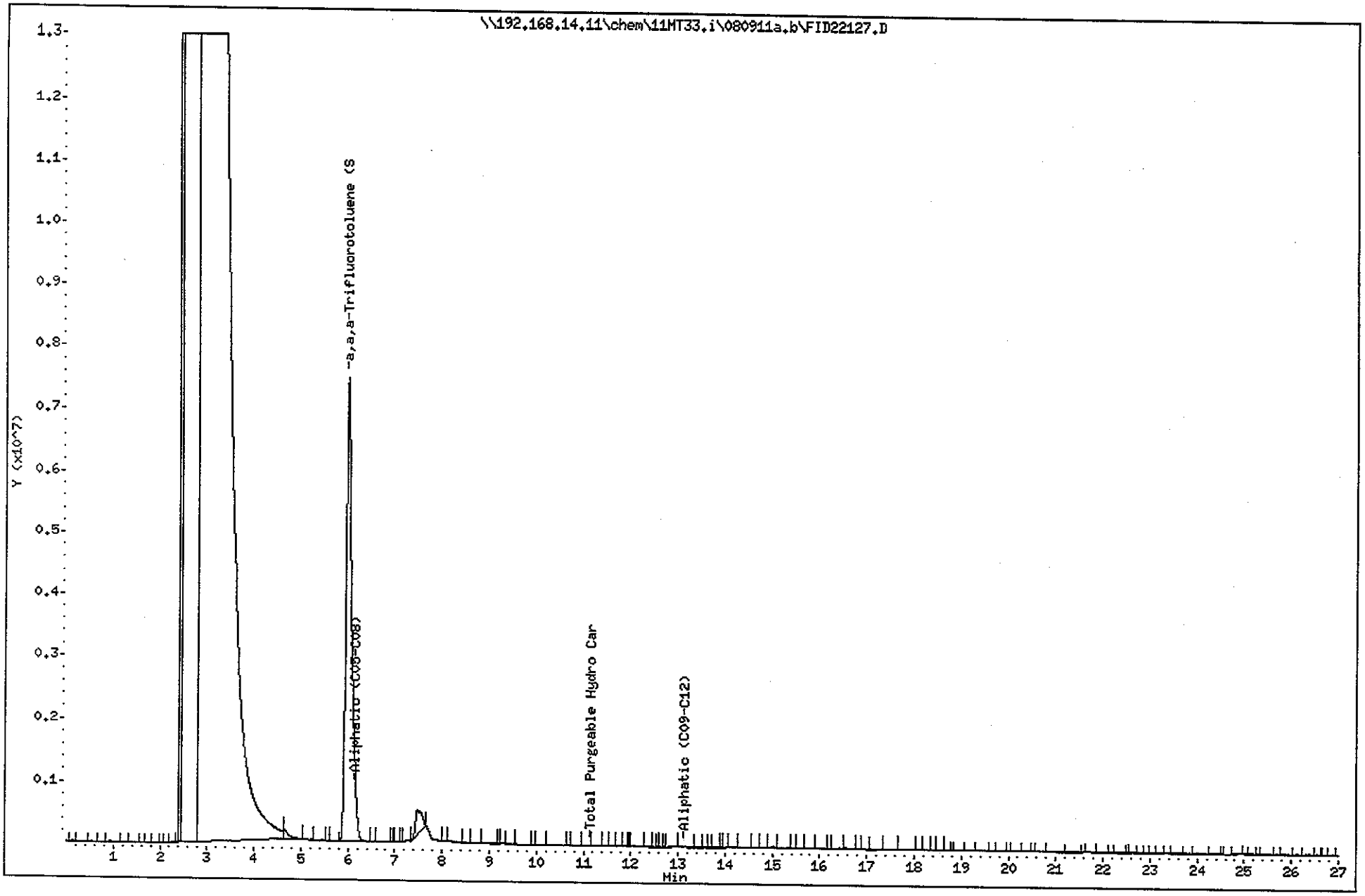
Column phase: DB-502 Film: 3.00nm



Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\FID22127.D
Date : 10-AUG-2011 09:19
Client ID:
Sample Info: 10165707008
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT33.i

Operator: AML
Column diameter: 0.53



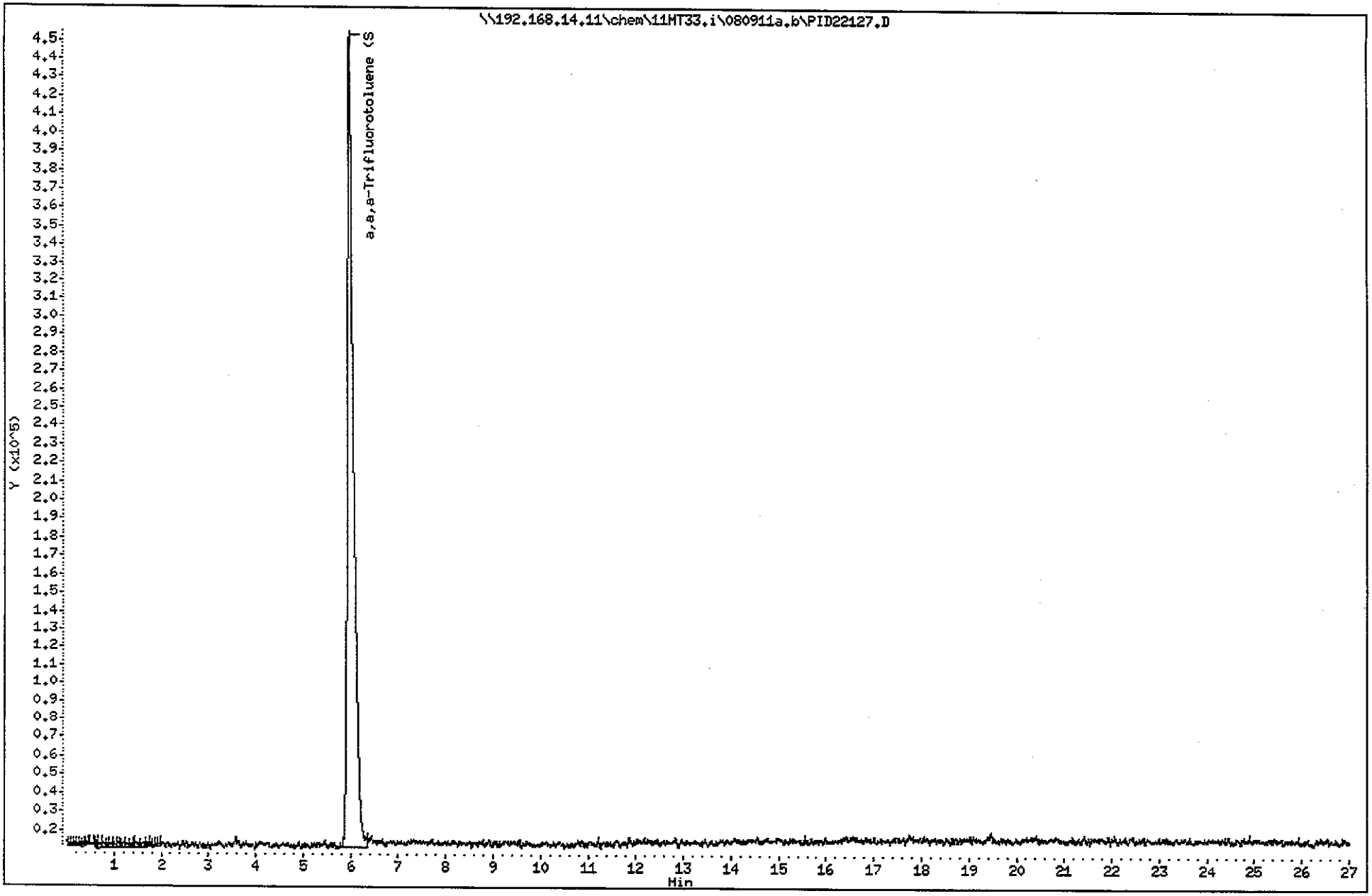
Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\PID22127.D
Date : 10-AUG-2011 09:19
Client ID:
Sample Info: 10165707008

Instrument: 11MT33.i

Operator: AML

Column phase: DB-502 Film: 3.00nm

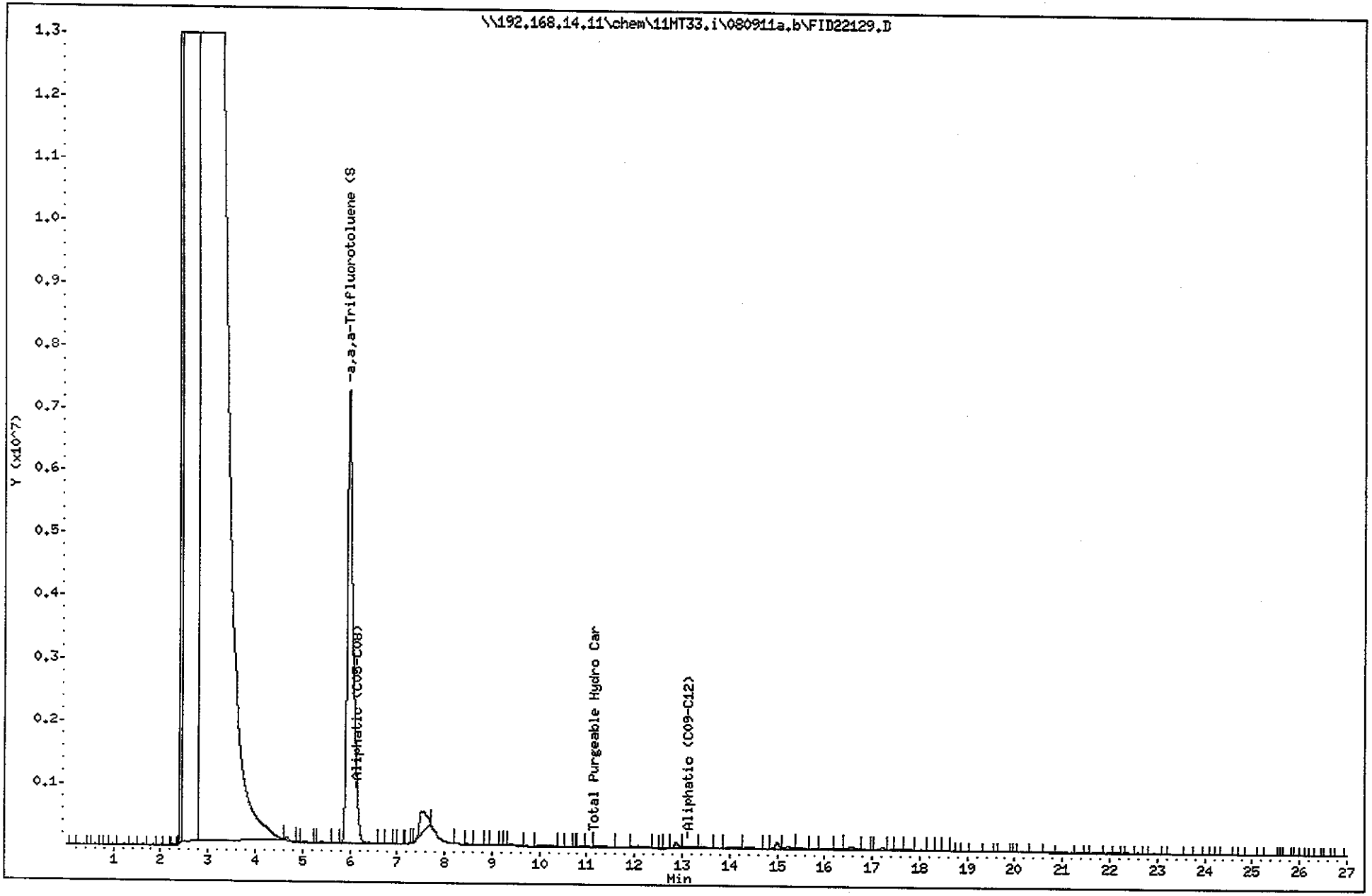
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\FID22129.D
Date : 10-AUG-2011 10:46
Client ID:
Sample Info: 10165707001
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT33.i

Operator: AML
Column diameter: 0.53



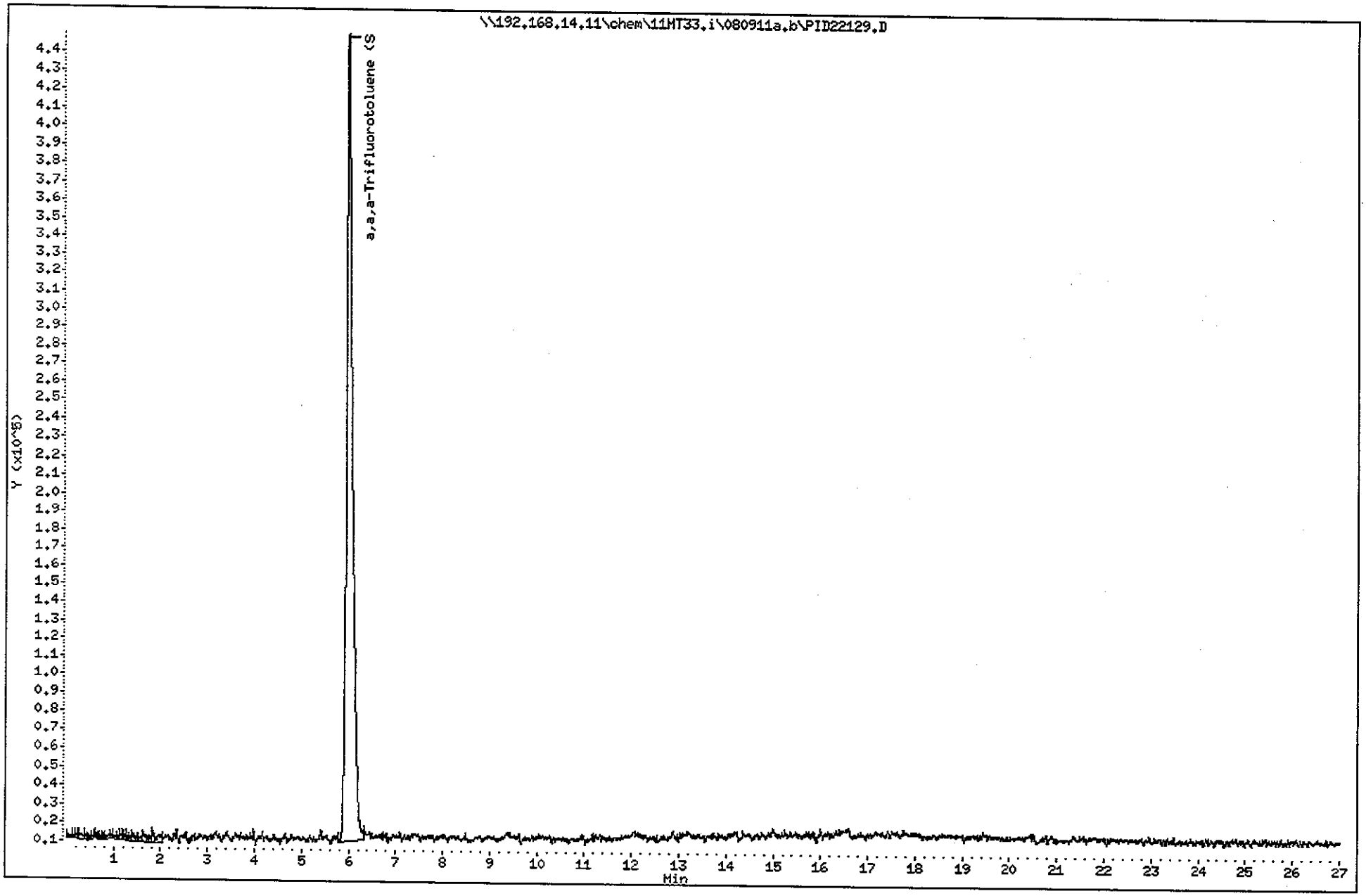
Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\PID22129.D
Date : 10-AUG-2011 10:46
Client ID:
Sample Info: 10165707001

Instrument: 11MT33.i

Operator: AHL

Column phase: DB-502 Film: 3.00nm

Column diameter: 0.53



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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT33.i
Lab File ID: FID22136.D
Analysis Type: WATER
Lab Sample ID: 8859-0157
Method: \\192.168.14.11\chem\11MT33.i\080911a.b\F33VPH072911.m

Injection Date: 10-AUG-2011 16:14
Init. Cal. Date(s): 29-JUL-2011 29-JUL-2011
Init. Cal. Times: 18:01 23:12
Quant Type: ESTD

COMPOUND	RRF / AMOUNT	RF600	CCAL RRF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	1300	1395	688520	0.010	7.32749	25.00000	Linear
$ 9 a,a,a-Trifluorotoluene (S)	645803	630190	630190	0.010	-2.41766	25.00000	Averaged
S 4 Aliphatic (C05-C08)	600	630	538450	0.010	4.91967	25.00000	Linear
S 5 Aliphatic (C09-C12)	600	650	918800	0.010	8.26399	25.00000	Linear

Average %D / Drift Results.

Calculated Average %D/Drift = 5.73220
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT33.i\080911a.b\PID22136.D
Report Date: 11-Aug-2011 11:17

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT33.i
Lab File ID: PID22136.D
Analysis Type: WATER
Lab Sample ID: 8859-0157
Method: \\192.168.14.11\chem\11MT33.i\080911a.b\P33BTEX072911.m

Injection Date: 10-AUG-2011 16:14
Init. Cal. Date(s): 29-JUL-2011 29-JUL-2011
Init. Cal. Times: 18:01 23:12
Quant Type: ESTD

COMPOUND	RRF / AMOUNT	RF100	CCAL RRF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	6530	5869	5869	0.010	-10.11937	25.00000	Averaged
2 Benzene	180045	175284	175284	0.010	-2.64397	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	47780	47993	47993	0.010	0.44700	25.00000	Averaged
4 Toluene	149273	150843	150843	0.010	1.05207	25.00000	Averaged
5 Ethylbenzene	107842	101814	101814	0.010	-5.58954	25.00000	Averaged
6 m&p-Xylene	158955	163817	163817	0.010	3.05837	25.00000	Averaged
7 o-Xylene	118285	128025	128025	0.010	8.23371	25.00000	Averaged
T 8 Aromatic (C09-C10)	100	93.83169	122286	0.010	-6.16831	25.00000	Linear
9 Naphthalene	100	121	37545	0.010	20.68986	25.00000	Linear

Average %D / Drift Results.

Calculated Average %D/Drift = 6.44469
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

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(406)254-7226

November 02, 2011

Chris Cerquone
AMEC Geomatrix, Inc.
1001 South Higgins
B-1
Missoula, MT 59801

RE: Project: Knife River Property Managment
Pace Project No.: 10169815

Dear Chris Cerquone:
Enclosed are the analytical results for sample(s) received by the laboratory on September 16, 2011. The results relate only to the samples included in this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kari Poehls

kari.poehls@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: Knife River Property Managment
Pace Project No.: 10169815

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

Montana Certification IDs

602 South 25th Street, Billings, MT 59101
EPA Region 8 Certification #: 8TMS-Q
Idaho Certification #: MT00012
Montana Certification #: MT CERT0040
NVLAP Certification #: 101292-0
Minnesota Dept of Health Certification #: 030-999-442

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH 0216
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: LA090012
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL1264
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Montana Certification #: Cert 0074
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-547
Puerto Rico Certification #: FL01264
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
Virginia Certification #: 00432
Wyoming Certification: FL NELAC Reciprocity

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SAMPLE SUMMARY

Project: Knife River Property Managment
Pace Project No.: 10169815

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10169815001	**KRY 102 A**	Water	09/15/11 14:15	09/16/11 11:15
10169815002	**KPT 16**	Water	09/15/11 16:45	09/16/11 11:15
10169815003	**DUP-1**	Water	09/15/11 00:00	09/16/11 11:15
10169815004	**KRY 104 A**	Water	09/15/11 11:35	09/16/11 11:15
10169815005	**KRY 107 A**	Water	09/14/11 13:10	09/16/11 11:15
10169815006	**ERB-1**	Water	09/14/11 19:25	09/16/11 11:15
10169815007	**LINER PIT -1-A,B,C,D,E (COMP)**	Solid	09/14/11 18:15	09/16/11 11:15
10169815008	**LINER PIT -1-COMP**	Solid	09/14/11 18:15	09/16/11 11:15
10169815009	**LINER PIT -2-A,B,C,D,E (COMP)**	Solid	09/14/11 18:35	09/16/11 11:15
10169815010	**LINER PIT -2-COMP**	Solid	09/14/11 18:35	09/16/11 11:15
10169815011	**LINER PIT -3-A,B,C,D,E (COMP)**	Solid	09/14/11 19:00	09/16/11 11:15
10169815012	**LINER PIT -3-COMP**	Solid	09/14/11 19:00	09/16/11 11:15
10169815013	**TRIP BLANK 1**	Water	09/16/11 00:00	09/16/11 11:15
10169815014	**TRIP BLANK 2**	Water	09/16/11 00:00	09/16/11 11:15
10169815015	**TRIP BLANK 3**	Water	09/16/11 00:00	09/16/11 11:15
10169815016	**TRIP BLANK 4**	Water	09/16/11 00:00	09/16/11 11:15
10169815017	**TRIP BLANK 5**	Water	09/16/11 00:00	09/16/11 11:15
10169815018	**TRIP BLANK 6**	Water	09/16/11 00:00	09/16/11 11:15

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SAMPLE ANALYTE COUNT

Project: Knife River Property Managment
Pace Project No.: 10169815

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10169815001	**KRY 102 A**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	9	PASI-M
		EPA 7470	TEM	1	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	MFP	15	PASI-MT
10169815002	**KPT 16**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	9	PASI-M
		EPA 7470	TEM	1	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	MFP	15	PASI-MT
10169815003	**DUP-1**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	9	PASI-M
		EPA 7470	TEM	1	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	MFP	15	PASI-MT
10169815004	**KRY 104 A**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	9	PASI-M
		EPA 7470	TEM	1	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	MFP	15	PASI-MT
10169815005	**KRY 107 A**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	9	PASI-M
		EPA 7470	TEM	1	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	MFP	15	PASI-MT
10169815006	**ERB-1**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	9	PASI-M
		EPA 7470	TEM	1	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	MFP	15	PASI-MT
10169815007	**LINER PIT -1-A,B,C,D,E (COMP)**	% Moisture	MFP	1	PASI-M
		EPA 8260	CNC	1	PASI-M
		MADEP VPH	AMH	15	PASI-MT
10169815008	**LINER PIT -1-COMP**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	JDL	1	PASI-M

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SAMPLE ANALYTE COUNT

Project: Knife River Property Managment
Pace Project No.: 10169815

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8270 EPH-PAH	DRE	16	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP EPH	EJS	8	PASI-MT
10169815009	**LINER PIT -2-A,B,C,D,E (COMP)**	% Moisture	MFP	1	PASI-M
		EPA 8260	MJH	1	PASI-M
		MADEP VPH	AMH	15	PASI-MT
10169815010	**LINER PIT -2-COMP**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	JDL	1	PASI-M
		EPA 8270 EPH-PAH	DRE	16	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP EPH	EJS	8	PASI-MT
10169815011	**LINER PIT -3-A,B,C,D,E (COMP)**	% Moisture	MFP	1	PASI-M
		EPA 8260	MJH	1	PASI-M
		MADEP VPH	AMH	15	PASI-MT
10169815012	**LINER PIT -3-COMP**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		% Moisture	JDL	1	PASI-M
		EPA 8270 EPH-PAH	DRE	16	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP EPH	EJS	8	PASI-MT
10169815016	**TRIP BLANK 4**	MADEP VPH	MFP	15	PASI-MT

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **EPA 8151**
Description: 8151 Chlorinated Herbicides
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
9 samples were analyzed for EPA 8151. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **EPA 6010**
Description: 6010 MET ICP
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
9 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.
The samples were prepared in accordance with EPA 3050 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MPRP/28578

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10169815008

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1059619)
  - Arsenic
  - Barium
  - Cadmium
  - Chromium
  - Lead
  - Selenium
  - Silver
- MSD (Lab ID: 1059620)
  - Selenium

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **EPA 7470**
Description: 7470 Mercury
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
6 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MERP/6014

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10169817001,10170015005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1059151)
  - Mercury
- MSD (Lab ID: 1059152)
  - Mercury

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **EPA 7471**
Description: 7471 Mercury
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
3 samples were analyzed for EPA 7471. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7471 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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(406)254-7226

PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **EPA 8270 EPH-PAH**
Description: 8270 MSSV
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
3 samples were analyzed for EPA 8270 EPH-PAH. All samples were received in acceptable condition with any exceptions noted below.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.
- LINER PIT -1-COMP (Lab ID: 10169815008)
- LINER PIT -2-COMP (Lab ID: 10169815010)
- LINER PIT -3-COMP (Lab ID: 10169815012)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3550 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: OEXT/17115

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
- LCS (Lab ID: 1090120)
  - Acenaphthene
  - Acenaphthylene
  - Fluorene
  - Naphthalene
- LCSD (Lab ID: 1090121)
  - Acenaphthene
  - Acenaphthylene
  - Fluorene
  - Naphthalene

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **EPA 8270 EPH-PAH**
Description: 8270 MSSV
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **EPA 8260**
Description: 8260B VPH Confirm
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
3 samples were analyzed for EPA 8260. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 5035/5030B with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP EPH**
Description: MADEP EPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
3 samples were analyzed for MADEP EPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with MADEP EPH with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: MTPR/1865

S4: Surrogate recovery not evaluated against control limits due to sample dilution.

- LINER PIT -2-COMP (Lab ID: 10169815010)
  - 1-Chloro-octadecane (S)
- LINER PIT -3-COMP (Lab ID: 10169815012)
  - 1-Chloro-octadecane (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP EPH**
Description: MADEP EPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Analyte Comments:

QC Batch: MTPR/1865

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1057740)
  - Total Extractable Hydrocarbons
- LCS (Lab ID: 1057741)
  - Total Extractable Hydrocarbons
- LCSD (Lab ID: 1057742)
  - Total Extractable Hydrocarbons
- LINER PIT -1-COMP (Lab ID: 10169815008)
  - Total Extractable Hydrocarbons
- LINER PIT -2-COMP (Lab ID: 10169815010)
  - Total Extractable Hydrocarbons
- LINER PIT -3-COMP (Lab ID: 10169815012)
  - Total Extractable Hydrocarbons
- MS (Lab ID: 1057743)
  - Total Extractable Hydrocarbons
- MSD (Lab ID: 1057744)
  - Total Extractable Hydrocarbons

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP EPH**
Description: MADEP EPH MA Water
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
6 samples were analyzed for MADEP EPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with MADEP EPH with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MTPR/1875

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1060836)
  - Total Extractable Hydrocarbons
- DUP-1 (Lab ID: 10169815003)
  - Total Extractable Hydrocarbons

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP EPH**
Description: MADEP EPH MA Water
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Analyte Comments:

QC Batch: MTPR/1875

N2: The lab does not hold TNI accreditation for this parameter.

- ERB-1 (Lab ID: 10169815006)
  - Total Extractable Hydrocarbons
- KPT 16 (Lab ID: 10169815002)
  - Total Extractable Hydrocarbons
- KRY 102 A (Lab ID: 10169815001)
  - Total Extractable Hydrocarbons
- KRY 104 A (Lab ID: 10169815004)
  - Total Extractable Hydrocarbons
- KRY 107 A (Lab ID: 10169815005)
  - Total Extractable Hydrocarbons
- LCS (Lab ID: 1060837)
  - Total Extractable Hydrocarbons
- LCSD (Lab ID: 1060838)
  - Total Extractable Hydrocarbons
- MS (Lab ID: 1060839)
  - Total Extractable Hydrocarbons
- MSD (Lab ID: 1060840)
  - Total Extractable Hydrocarbons

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP EPH**
Description: MADEP EPH MA Fractions Soil
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
3 samples were analyzed for MADEP EPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with MADEP EPH with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: MTPR/1924

S0: Surrogate recovery outside laboratory control limits.
- LINER PIT -3-COMP (Lab ID: 10169815012)
  - o-Terphenyl (S)

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).
- LINER PIT -2-COMP (Lab ID: 10169815010)
  - 1-Chloro-octadecane (S)
- LINER PIT -3-COMP (Lab ID: 10169815012)
  - 1-Chloro-octadecane (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP EPH**
Description: MADEP EPH MA Fractions Soil
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Additional Comments:

Analyte Comments:

QC Batch: MTPR/1924

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1078866)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-22)
- LCS (Lab ID: 1078867)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-22)
- LCSD (Lab ID: 1078868)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-22)
- LINER PIT -1-COMP (Lab ID: 10169815008)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-22)
  - Total Extractable Hydrocarbons
- LINER PIT -2-COMP (Lab ID: 10169815010)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-22)
  - Total Extractable Hydrocarbons
- LINER PIT -3-COMP (Lab ID: 10169815012)
  - Aliphatic (C09-C18)
  - Aliphatic (C19-C36)
  - Aromatic (C11-22)
  - Total Extractable Hydrocarbons

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP VPH**
Description: MADEP VPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
3 samples were analyzed for MADEP VPH. All samples were received in acceptable condition with any exceptions noted below.

L2: Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.
- LINER PIT -1-A,B,C,D,E (COMP) (Lab ID: 10169815007)
- LINER PIT -2-A,B,C,D,E (COMP) (Lab ID: 10169815009)
- LINER PIT -3-A,B,C,D,E (COMP) (Lab ID: 10169815011)

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with MADEP VPH with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

QC Batch: MT/7075

CH: The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
- LCS (Lab ID: 1057216)
  - Toluene
- LCSD (Lab ID: 1057217)
  - Toluene
- MS (Lab ID: 1057218)
  - Toluene
- MSD (Lab ID: 1057219)
  - Toluene

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP VPH**
Description: MADEP VPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

QC Batch: MT/7075

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

- LCS (Lab ID: 1057216)
  - Methyl-tert-butyl ether
- LCSD (Lab ID: 1057217)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Methyl-tert-butyl ether
  - Total Purgeable Hydro Carbons

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MT/7075

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10169772019

M0: Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

- MS (Lab ID: 1057218)
  - Methyl-tert-butyl ether
- MSD (Lab ID: 1057219)
  - Methyl-tert-butyl ether

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1057218)
  - Aliphatic (C05-C08).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
- MSD (Lab ID: 1057219)
  - Aliphatic (C05-C08).Unadjusted
  - Aromatic (C09-C10)
  - Naphthalene

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MT/7075

1M: Recoveries were confirmed by re-analysis. It appears that the septum to the extraction vial may have not sealed properly.

- LCSD (Lab ID: 1057217)
  - Aliphatic (C05-C08).Unadjusted

2M: Result was confirmed by 8260.

- LINER PIT -1-A,B,C,D,E (COMP) (Lab ID: 10169815007)
  - Methyl-tert-butyl ether

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP VPH**
Description: MADEP VPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Analyte Comments:

QC Batch: MT/7075

2M: Result was confirmed by 8260.

- LINER PIT -2-A,B,C,D,E (COMP) (Lab ID: 10169815009)
  - Methyl-tert-butyl ether
- LINER PIT -3-A,B,C,D,E (COMP) (Lab ID: 10169815011)
  - Methyl-tert-butyl ether

E: Analyte concentration exceeded the calibration range. The reported result is estimated.

- MS (Lab ID: 1057218)
  - Aliphatic (C09-C12).Unadjusted
  - Total Purgeable Hydro Carbons
- MSD (Lab ID: 1057219)
  - Aliphatic (C09-C12).Unadjusted
  - Total Purgeable Hydro Carbons

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1057215)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- LCS (Lab ID: 1057216)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- LCSD (Lab ID: 1057217)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP VPH**
Description: MADEP VPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Analyte Comments:

QC Batch: MT/7075

N2: The lab does not hold TNI accreditation for this parameter.

- LCSD (Lab ID: 1057217)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- LINER PIT -1-A,B,C,D,E (COMP) (Lab ID: 10169815007)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- LINER PIT -2-A,B,C,D,E (COMP) (Lab ID: 10169815009)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- LINER PIT -3-A,B,C,D,E (COMP) (Lab ID: 10169815011)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP VPH**
Description: MADEP VPH MA Soil
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Analyte Comments:

QC Batch: MT/7075

N2: The lab does not hold TNI accreditation for this parameter.

- LINER PIT -3-A,B,C,D,E (COMP) (Lab ID: 10169815011)
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- MS (Lab ID: 1057218)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- MSD (Lab ID: 1057219)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

General Information:
7 samples were analyzed for MADEP VPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MT/7124

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MT/7124

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1060858)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Analyte Comments:

QC Batch: MT/7124

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1060858)
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- DUP (Lab ID: 1060862)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- DUP-1 (Lab ID: 10169815003)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- ERB-1 (Lab ID: 10169815006)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Analyte Comments:

QC Batch: MT/7124

N2: The lab does not hold TNI accreditation for this parameter.

- ERB-1 (Lab ID: 10169815006)
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- KPT 16 (Lab ID: 10169815002)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- KRY 102 A (Lab ID: 10169815001)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- KRY 104 A (Lab ID: 10169815004)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Analyte Comments:

QC Batch: MT/7124

N2: The lab does not hold TNI accreditation for this parameter.

- KRY 104 A (Lab ID: 10169815004)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- KRY 107 A (Lab ID: 10169815005)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- LCS (Lab ID: 1060859)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- LCSD (Lab ID: 1060860)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted

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PROJECT NARRATIVE

Project: Knife River Property Managment
Pace Project No.: 10169815

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: November 02, 2011

Analyte Comments:

QC Batch: MT/7124

N2: The lab does not hold TNI accreditation for this parameter.

- LCSD (Lab ID: 1060860)
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- TRIP BLANK 4 (Lab ID: 10169815016)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: KRY 102 A **Lab ID: 10169815001** Collected: 09/15/11 14:15 Received: 09/16/11 11:15 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**<0.030**	ug/L	0.030		1	09/21/11 02:30	09/24/11 03:48	87-86-5	
2,4-DCPA (S)	122	%	65.5-125.7		1	09/21/11 02:30	09/24/11 03:48	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:25	7440-38-2	
Barium	**179**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:25	7440-39-3	
Cadmium	**<1.0**	ug/L	1.0		1	09/26/11 13:13	09/27/11 09:25	7440-43-9	
Chromium	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:25	7440-47-3	
Iron	**55.5**	ug/L	50.0		1	09/26/11 13:13	09/27/11 09:25	7439-89-6	
Lead	**<3.0**	ug/L	3.0		1	09/26/11 13:13	09/27/11 09:25	7439-92-1	
Manganese	**<5.0**	ug/L	5.0		1	09/26/11 13:13	09/27/11 09:25	7439-96-5	
Selenium	**<15.0**	ug/L	15.0		1	09/26/11 13:13	09/27/11 09:25	7782-49-2	
Silver	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:25	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.20**	ug/L	0.20		1	09/23/11 20:56	09/29/11 11:24	7439-97-6	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<211**	ug/L	211	1000	1	09/23/11 08:45	09/25/11 17:43		N2
1-Chloro-octadecane (S)	76	%	40-140		1	09/23/11 08:45	09/25/11 17:43	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/24/11 02:43	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/24/11 02:43	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/24/11 02:43	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/24/11 02:43	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/24/11 02:43	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/24/11 02:43	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/24/11 02:43	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/24/11 02:43	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/24/11 02:43		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/24/11 02:43		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/24/11 02:43		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/24/11 02:43		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 02:43		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 02:43		N2
a,a,a-Trifluorotoluene (S)	81	%	70-130		1		09/24/11 02:43	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: KPT 16 **Lab ID: 10169815002** Collected: 09/15/11 16:45 Received: 09/16/11 11:15 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**0.14**	ug/L	0.030		1	09/21/11 02:30	09/24/11 04:22	87-86-5	
2,4-DCPA (S)	106	%	65.5-125.7		1	09/21/11 02:30	09/24/11 04:22	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:37	7440-38-2	
Barium	**154**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:37	7440-39-3	
Cadmium	**<1.0**	ug/L	1.0		1	09/26/11 13:13	09/27/11 09:37	7440-43-9	
Chromium	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:37	7440-47-3	
Iron	**57.2**	ug/L	50.0		1	09/26/11 13:13	09/27/11 09:37	7439-89-6	
Lead	**<3.0**	ug/L	3.0		1	09/26/11 13:13	09/27/11 09:37	7439-92-1	
Manganese	**<5.0**	ug/L	5.0		1	09/26/11 13:13	09/27/11 09:37	7439-96-5	
Selenium	**<15.0**	ug/L	15.0		1	09/26/11 13:13	09/27/11 09:37	7782-49-2	
Silver	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:37	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.20**	ug/L	0.20		1	09/23/11 20:56	09/29/11 11:26	7439-97-6	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<215**	ug/L	215	1000	1	09/23/11 08:45	09/25/11 18:14		N2
1-Chloro-octadecane (S)	80	%	40-140		1	09/23/11 08:45	09/25/11 18:14	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/24/11 04:10	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/24/11 04:10	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/24/11 04:10	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/24/11 04:10	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/24/11 04:10	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/24/11 04:10	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/24/11 04:10	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/24/11 04:10	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/24/11 04:10		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/24/11 04:10		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/24/11 04:10		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/24/11 04:10		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 04:10		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 04:10		N2
a,a,a-Trifluorotoluene (S)	92	%	70-130		1		09/24/11 04:10	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: DUP-1 **Lab ID: 10169815003** Collected: 09/15/11 00:00 Received: 09/16/11 11:15 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**<0.030**	ug/L	0.030		1	09/21/11 02:30	09/24/11 04:56	87-86-5	
2,4-DCPA (S)	107	%	65.5-125.7		1	09/21/11 02:30	09/24/11 04:56	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:47	7440-38-2	
Barium	**101**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:47	7440-39-3	
Cadmium	**<1.0**	ug/L	1.0		1	09/26/11 13:13	09/27/11 09:47	7440-43-9	
Chromium	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:47	7440-47-3	
Iron	**<50.0**	ug/L	50.0		1	09/26/11 13:13	09/27/11 09:47	7439-89-6	
Lead	**<3.0**	ug/L	3.0		1	09/26/11 13:13	09/27/11 09:47	7439-92-1	
Manganese	**<5.0**	ug/L	5.0		1	09/26/11 13:13	09/27/11 09:47	7439-96-5	
Selenium	**<15.0**	ug/L	15.0		1	09/26/11 13:13	09/27/11 09:47	7782-49-2	
Silver	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:47	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.20**	ug/L	0.20		1	09/23/11 20:56	09/29/11 11:28	7439-97-6	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<208**	ug/L	208	1000	1	09/23/11 08:45	09/26/11 10:27		N2
1-Chloro-octadecane (S)	79	%	40-140		1	09/23/11 08:45	09/26/11 10:27	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/24/11 04:54	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/24/11 04:54	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/24/11 04:54	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/24/11 04:54	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/24/11 04:54	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/24/11 04:54	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/24/11 04:54	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/24/11 04:54	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/24/11 04:54		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/24/11 04:54		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/24/11 04:54		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/24/11 04:54		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 04:54		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 04:54		N2
a,a,a-Trifluorotoluene (S)	96	%	70-130		1		09/24/11 04:54	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: KRY 104 A **Lab ID: 10169815004** Collected: 09/15/11 11:35 Received: 09/16/11 11:15 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**<0.029**	ug/L	0.029		1	09/21/11 02:30	09/24/11 05:30	87-86-5	
2,4-DCPA (S)	104	%	65.5-125.7		1	09/21/11 02:30	09/24/11 05:30	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:51	7440-38-2	
Barium	**98.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:51	7440-39-3	
Cadmium	**<1.0**	ug/L	1.0		1	09/26/11 13:13	09/27/11 09:51	7440-43-9	
Chromium	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:51	7440-47-3	
Iron	**<50.0**	ug/L	50.0		1	09/26/11 13:13	09/27/11 09:51	7439-89-6	
Lead	**<3.0**	ug/L	3.0		1	09/26/11 13:13	09/27/11 09:51	7439-92-1	
Manganese	**<5.0**	ug/L	5.0		1	09/26/11 13:13	09/27/11 09:51	7439-96-5	
Selenium	**<15.0**	ug/L	15.0		1	09/26/11 13:13	09/27/11 09:51	7782-49-2	
Silver	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 09:51	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.20**	ug/L	0.20		1	09/23/11 20:56	09/29/11 11:30	7439-97-6	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<211**	ug/L	211	1000	1	09/23/11 08:45	09/26/11 10:59		N2
1-Chloro-octadecane (S)	77	%	40-140		1	09/23/11 08:45	09/26/11 10:59	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/24/11 05:38	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/24/11 05:38	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/24/11 05:38	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/24/11 05:38	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/24/11 05:38	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/24/11 05:38	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/24/11 05:38	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/24/11 05:38	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/24/11 05:38		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/24/11 05:38		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/24/11 05:38		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/24/11 05:38		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 05:38		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 05:38		N2
a,a,a-Trifluorotoluene (S)	97	%	70-130		1		09/24/11 05:38	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: KRY 107 A **Lab ID: 10169815005** Collected: 09/14/11 13:10 Received: 09/16/11 11:15 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**0.035**	ug/L	0.029		1	09/21/11 02:30	09/24/11 06:07	87-86-5	
2,4-DCPA (S)	98	%	65.5-125.7		1	09/21/11 02:30	09/24/11 06:07	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 10:04	7440-38-2	
Barium	**133**	ug/L	10.0		1	09/26/11 13:13	09/27/11 10:04	7440-39-3	
Cadmium	**<1.0**	ug/L	1.0		1	09/26/11 13:13	09/27/11 10:04	7440-43-9	
Chromium	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 10:04	7440-47-3	
Iron	**<50.0**	ug/L	50.0		1	09/26/11 13:13	09/27/11 10:04	7439-89-6	
Lead	**<3.0**	ug/L	3.0		1	09/26/11 13:13	09/27/11 10:04	7439-92-1	
Manganese	**<5.0**	ug/L	5.0		1	09/26/11 13:13	09/27/11 10:04	7439-96-5	
Selenium	**<15.0**	ug/L	15.0		1	09/26/11 13:13	09/27/11 10:04	7782-49-2	
Silver	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 10:04	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.20**	ug/L	0.20		1	09/23/11 20:56	09/29/11 11:32	7439-97-6	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<215**	ug/L	215	1000	1	09/23/11 08:45	09/26/11 11:30		N2
1-Chloro-octadecane (S)	75	%	40-140		1	09/23/11 08:45	09/26/11 11:30	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/24/11 06:21	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/24/11 06:21	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/24/11 06:21	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/24/11 06:21	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/24/11 06:21	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/24/11 06:21	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/24/11 06:21	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/24/11 06:21	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/24/11 06:21		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/24/11 06:21		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/24/11 06:21		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/24/11 06:21		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 06:21		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 06:21		N2
a,a,a-Trifluorotoluene (S)	98	%	70-130		1		09/24/11 06:21	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: ERB-1 **Lab ID: 10169815006** Collected: 09/14/11 19:25 Received: 09/16/11 11:15 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**<0.029**	ug/L	0.029		1	09/21/11 02:30	09/24/11 06:41	87-86-5	
2,4-DCPA (S)	99	%	65.5-125.7		1	09/21/11 02:30	09/24/11 06:41	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 10:08	7440-38-2	
Barium	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 10:08	7440-39-3	
Cadmium	**<1.0**	ug/L	1.0		1	09/26/11 13:13	09/27/11 10:08	7440-43-9	
Chromium	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 10:08	7440-47-3	
Iron	**<50.0**	ug/L	50.0		1	09/26/11 13:13	09/27/11 10:08	7439-89-6	
Lead	**<3.0**	ug/L	3.0		1	09/26/11 13:13	09/27/11 10:08	7439-92-1	
Manganese	**<5.0**	ug/L	5.0		1	09/26/11 13:13	09/27/11 10:08	7439-96-5	
Selenium	**<15.0**	ug/L	15.0		1	09/26/11 13:13	09/27/11 10:08	7782-49-2	
Silver	**<10.0**	ug/L	10.0		1	09/26/11 13:13	09/27/11 10:08	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.20**	ug/L	0.20		1	09/23/11 20:56	09/29/11 11:35	7439-97-6	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<208**	ug/L	208	1000	1	09/23/11 08:45	09/26/11 12:03		N2
1-Chloro-octadecane (S)	92	%	40-140		1	09/23/11 08:45	09/26/11 12:03	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/24/11 07:05	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/24/11 07:05	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/24/11 07:05	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/24/11 07:05	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/24/11 07:05	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/24/11 07:05	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/24/11 07:05	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/24/11 07:05	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/24/11 07:05		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/24/11 07:05		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/24/11 07:05		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/24/11 07:05		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 07:05		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 07:05		N2
a,a,a-Trifluorotoluene (S)	95	%	70-130		1		09/24/11 07:05	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: LINER PIT -1-A,B,C,D,E (COMP) **Lab ID: 10169815007** Collected: 09/14/11 18:15 Received: 09/16/11 11:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**2.0**	%	0.10		1		09/19/11 15:30		
8260B VPH Confirm	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Methyl-tert-butyl ether	**<0.10**	mg/kg	0.10		1	09/29/11 10:59	09/29/11 14:53	1634-04-4	
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.050**	mg/kg	0.050	.08	1	09/19/11 14:45	09/23/11 09:41	1634-04-4	2M,L2, N2
Benzene	**<0.025**	mg/kg	0.025	.04	1	09/19/11 14:45	09/23/11 09:41	71-43-2	N2
Toluene	**<0.050**	mg/kg	0.050	10	1	09/19/11 14:45	09/23/11 09:41	108-88-3	N2
Ethylbenzene	**<0.050**	mg/kg	0.050	10	1	09/19/11 14:45	09/23/11 09:41	100-41-4	N2
m&p-Xylene	**<0.10**	mg/kg	0.10	30	1	09/19/11 14:45	09/23/11 09:41	179601-23-1	N2
o-Xylene	**<0.050**	mg/kg	0.050	30	1	09/19/11 14:45	09/23/11 09:41	95-47-6	N2
Xylene (Total)	**<0.15**	mg/kg	0.15	30	1	09/19/11 14:45	09/23/11 09:41	1330-20-7	N2
Naphthalene	**<0.60**	mg/kg	0.60	9	1	09/19/11 14:45	09/23/11 09:41	91-20-3	N2
Aromatic (C09-C10)	**<1.0**	mg/kg	1.0	100	1	09/19/11 14:45	09/23/11 09:41		N2
Aliphatic (C05-C08).Unadjusted	**<5.0**	mg/kg	5.0		1	09/19/11 14:45	09/23/11 09:41		L2,N2
Aliphatic (C09-C12).Unadjusted	**<5.0**	mg/kg	5.0		1	09/19/11 14:45	09/23/11 09:41		L2,N2
Total Purgeable Hydro Carbons	**<10.0**	mg/kg	10.0	100	1	09/19/11 14:45	09/23/11 09:41		L2,N2
Aliphatic (C05-C08), Adjusted	**<5.0**	mg/kg	5.0	40	1	09/19/11 14:45	09/23/11 09:41		N2
Aliphatic (C09-C12), Adjusted	**<5.0**	mg/kg	5.0	90	1	09/19/11 14:45	09/23/11 09:41		N2
a,a,a-Trifluorotoluene (S)	121	%	70-130		1	09/19/11 14:45	09/23/11 09:41	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: LINER PIT -1-COMP **Lab ID: 10169815008** Collected: 09/14/11 18:15 Received: 09/16/11 11:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**2.1**	ug/kg	1.0		1	09/27/11 08:00	10/01/11 00:03	87-86-5	
2,4-DCPA (S)	66	%	48.8-138.2		1	09/27/11 08:00	10/01/11 00:03	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**7.5**	mg/kg	0.52		1	09/22/11 11:24	09/23/11 20:38	7440-38-2	M1
Barium	**93.0**	mg/kg	0.52		1	09/22/11 11:24	09/23/11 20:38	7440-39-3	M1
Cadmium	**1.4**	mg/kg	0.052		1	09/22/11 11:24	09/23/11 20:38	7440-43-9	M1
Chromium	**7.4**	mg/kg	0.52		1	09/22/11 11:24	09/23/11 20:38	7440-47-3	M1
Lead	**13.2**	mg/kg	0.31		1	09/22/11 11:24	09/23/11 20:38	7439-92-1	M1
Selenium	**<0.77**	mg/kg	0.77		1	09/22/11 11:24	09/23/11 20:38	7782-49-2	M1
Silver	**<0.52**	mg/kg	0.52		1	09/22/11 11:24	09/23/11 20:38	7440-22-4	M1
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.022**	mg/kg	0.021		1	09/27/11 13:57	09/28/11 12:01	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**4.0**	%	0.10		1		09/22/11 00:00		
8270 MSSV	Analytical Method: EPA 8270 EPH-PAH Preparation Method: EPA 3550								
Naphthalene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	91-20-3	L2
Acenaphthylene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	208-96-8	L2
Acenaphthene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	83-32-9	L2
Fluorene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	86-73-7	L2
Phenanthrene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	85-01-8	
Anthracene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	120-12-7	
Fluoranthene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	206-44-0	
Pyrene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	129-00-0	
Benzo(a)anthracene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	56-55-3	
Chrysene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	218-01-9	
Benzo(b)fluoranthene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	205-99-2	
Benzo(k)fluoranthene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	207-08-9	
Benzo(a)pyrene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	50-32-8	
Indeno(1,2,3-cd)pyrene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	193-39-5	
Dibenz(a,h)anthracene	**<0.015**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	53-70-3	
Benzo(g,h,i)perylene	**0.020**	mg/kg	0.015		1	09/20/11 09:05	10/25/11 16:52	191-24-2	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**260**	mg/kg	15.5	5000	1	09/20/11 09:00	09/21/11 08:25		N2
1-Chloro-octadecane (S)	86	%	40-140		1	09/20/11 09:00	09/21/11 08:25	3386-33-2	
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**692**	mg/kg	185	5000	4	10/18/11 10:00	10/21/11 13:42		N2
Aliphatic (C09-C18)	**<15.5**	mg/kg	15.5	200	1	10/18/11 10:00	10/20/11 20:04		N2

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: LINER PIT -1-COMP **Lab ID: 10169815008** Collected: 09/14/11 18:15 Received: 09/16/11 11:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C19-C36)	**607**	mg/kg	61.8	2500	4	10/18/11 10:00	10/21/11 13:42		N2
Aromatic (C11-22)	**85.8**	mg/kg	15.5	400	1	10/18/11 10:00	10/20/11 19:10		N2
1-Chloro-octadecane (S)	64	%	40-140		1	10/18/11 10:00	10/20/11 20:04	3386-33-2	
o-Terphenyl (S)	46	%	40-140		1	10/18/11 10:00	10/20/11 19:10	84-15-1	
2-Fluorobiphenyl (S)	108	%	40-140		1	10/18/11 10:00	10/20/11 19:10	321-60-8	
2-Bromonaphthalene (S)	118	%	40-140		1	10/18/11 10:00	10/20/11 19:10	580-13-2	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: LINER PIT -2-A,B,C,D,E (COMP) **Lab ID: 10169815009** Collected: 09/14/11 18:35 Received: 09/16/11 11:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**1.8**	%	0.10		1		09/19/11 15:30		
8260B VPH Confirm	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Methyl-tert-butyl ether	**<0.097**	mg/kg	0.097		1	09/29/11 10:59	09/29/11 15:13	1634-04-4	
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.048**	mg/kg	0.048	.08	1	09/19/11 14:45	09/23/11 10:25	1634-04-4	2M,L2, N2
Benzene	**<0.024**	mg/kg	0.024	.04	1	09/19/11 14:45	09/23/11 10:25	71-43-2	N2
Toluene	**<0.048**	mg/kg	0.048	10	1	09/19/11 14:45	09/23/11 10:25	108-88-3	N2
Ethylbenzene	**<0.048**	mg/kg	0.048	10	1	09/19/11 14:45	09/23/11 10:25	100-41-4	N2
m&p-Xylene	**<0.097**	mg/kg	0.097	30	1	09/19/11 14:45	09/23/11 10:25	179601-23-1	N2
o-Xylene	**<0.048**	mg/kg	0.048	30	1	09/19/11 14:45	09/23/11 10:25	95-47-6	N2
Xylene (Total)	**<0.15**	mg/kg	0.15	30	1	09/19/11 14:45	09/23/11 10:25	1330-20-7	N2
Naphthalene	**<0.58**	mg/kg	0.58	9	1	09/19/11 14:45	09/23/11 10:25	91-20-3	N2
Aromatic (C09-C10)	**<0.97**	mg/kg	0.97	100	1	09/19/11 14:45	09/23/11 10:25		N2
Aliphatic (C05-C08).Unadjusted	**<4.8**	mg/kg	4.8		1	09/19/11 14:45	09/23/11 10:25		L2,N2
Aliphatic (C09-C12).Unadjusted	**<4.8**	mg/kg	4.8		1	09/19/11 14:45	09/23/11 10:25		L2,N2
Total Purgeable Hydro Carbons	**<9.7**	mg/kg	9.7	100	1	09/19/11 14:45	09/23/11 10:25		L2,N2
Aliphatic (C05-C08), Adjusted	**<4.8**	mg/kg	4.8	40	1	09/19/11 14:45	09/23/11 10:25		N2
Aliphatic (C09-C12), Adjusted	**<4.8**	mg/kg	4.8	90	1	09/19/11 14:45	09/23/11 10:25		N2
a,a,a-Trifluorotoluene (S)	88	%	70-130		1	09/19/11 14:45	09/23/11 10:25	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: LINER PIT -2-COMP **Lab ID: 10169815010** Collected: 09/14/11 18:35 Received: 09/16/11 11:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**2.5**	ug/kg	0.97		1	09/27/11 08:00	10/01/11 00:37	87-86-5	
2,4-DCPA (S)	72	%	48.8-138.2		1	09/27/11 08:00	10/01/11 00:37	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**8.8**	mg/kg	0.49		1	09/22/11 11:24	09/23/11 20:58	7440-38-2	
Barium	**131**	mg/kg	0.49		1	09/22/11 11:24	09/23/11 20:58	7440-39-3	
Cadmium	**1.1**	mg/kg	0.049		1	09/22/11 11:24	09/23/11 20:58	7440-43-9	
Chromium	**9.1**	mg/kg	0.49		1	09/22/11 11:24	09/23/11 20:58	7440-47-3	
Lead	**13.7**	mg/kg	0.30		1	09/22/11 11:24	09/23/11 20:58	7439-92-1	
Selenium	**<0.74**	mg/kg	0.74		1	09/22/11 11:24	09/23/11 20:58	7782-49-2	
Silver	**<0.49**	mg/kg	0.49		1	09/22/11 11:24	09/23/11 20:58	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**0.034**	mg/kg	0.020		1	09/27/11 13:57	09/28/11 12:03	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**2.4**	%	0.10		1		09/22/11 00:00		
8270 MSSV	Analytical Method: EPA 8270 EPH-PAH Preparation Method: EPA 3550								
Naphthalene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	91-20-3	L2
Acenaphthylene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	208-96-8	L2
Acenaphthene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	83-32-9	L2
Fluorene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	86-73-7	L2
Phenanthrene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	85-01-8	
Anthracene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	120-12-7	
Fluoranthene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	206-44-0	
Pyrene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	129-00-0	
Benzo(a)anthracene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	56-55-3	
Chrysene	**0.013**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	218-01-9	
Benzo(b)fluoranthene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	205-99-2	
Benzo(k)fluoranthene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	207-08-9	
Benzo(a)pyrene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	50-32-8	
Indeno(1,2,3-cd)pyrene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	193-39-5	
Dibenz(a,h)anthracene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	53-70-3	
Benzo(g,h,i)perylene	**0.028**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:10	191-24-2	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**862**	mg/kg	50.3	5000	5	09/20/11 09:00	09/22/11 08:48		N2
1-Chloro-octadecane (S)	0	%	40-140		5	09/20/11 09:00	09/22/11 08:48	3386-33-2	S4
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**1410**	mg/kg	301	5000	10	10/18/11 10:00	10/21/11 14:36		N2
Aliphatic (C09-C18)	**<10.0**	mg/kg	10.0	200	1	10/18/11 10:00	10/20/11 20:58		N2

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: LINER PIT -2-COMP **Lab ID: 10169815010** Collected: 09/14/11 18:35 Received: 09/16/11 11:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C19-C36)	**1330**	mg/kg	100	2500	10	10/18/11 10:00	10/21/11 14:36		N2
Aromatic (C11-22)	**81.9**	mg/kg	20.1	400	2	10/18/11 10:00	10/21/11 13:42		N2
1-Chloro-octadecane (S)	181	%	40-140		1	10/18/11 10:00	10/20/11 20:58	3386-33-2	S5
o-Terphenyl (S)	43	%	40-140		2	10/18/11 10:00	10/21/11 13:42	84-15-1	
2-Fluorobiphenyl (S)	65	%	40-140		2	10/18/11 10:00	10/21/11 13:42	321-60-8	
2-Bromonaphthalene (S)	76	%	40-140		2	10/18/11 10:00	10/21/11 13:42	580-13-2	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: LINER PIT -3-A,B,C,D,E (COMP) **Lab ID: 10169815011** Collected: 09/14/11 19:00 Received: 09/16/11 11:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**1.3**	%	0.10		1		09/19/11 15:30		
8260B VPH Confirm	Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B								
Methyl-tert-butyl ether	**<0.096**	mg/kg	0.096		1	09/29/11 10:59	09/29/11 15:33	1634-04-4	
MADEP VPH MA Soil	Analytical Method: MADEP VPH Preparation Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.048**	mg/kg	0.048	.08	1	09/19/11 14:45	09/23/11 11:10	1634-04-4	2M,L2, N2
Benzene	**<0.024**	mg/kg	0.024	.04	1	09/19/11 14:45	09/23/11 11:10	71-43-2	N2
Toluene	**<0.048**	mg/kg	0.048	10	1	09/19/11 14:45	09/23/11 11:10	108-88-3	N2
Ethylbenzene	**<0.048**	mg/kg	0.048	10	1	09/19/11 14:45	09/23/11 11:10	100-41-4	N2
m&p-Xylene	**<0.096**	mg/kg	0.096	30	1	09/19/11 14:45	09/23/11 11:10	179601-23-1	N2
o-Xylene	**<0.048**	mg/kg	0.048	30	1	09/19/11 14:45	09/23/11 11:10	95-47-6	N2
Xylene (Total)	**<0.14**	mg/kg	0.14	30	1	09/19/11 14:45	09/23/11 11:10	1330-20-7	N2
Naphthalene	**<0.58**	mg/kg	0.58	9	1	09/19/11 14:45	09/23/11 11:10	91-20-3	N2
Aromatic (C09-C10)	**<0.96**	mg/kg	0.96	100	1	09/19/11 14:45	09/23/11 11:10		N2
Aliphatic (C05-C08).Unadjusted	**<4.8**	mg/kg	4.8		1	09/19/11 14:45	09/23/11 11:10		L2,N2
Aliphatic (C09-C12).Unadjusted	**<4.8**	mg/kg	4.8		1	09/19/11 14:45	09/23/11 11:10		L2,N2
Total Purgeable Hydro Carbons	**<9.6**	mg/kg	9.6	100	1	09/19/11 14:45	09/23/11 11:10		L2,N2
Aliphatic (C05-C08), Adjusted	**<4.8**	mg/kg	4.8	40	1	09/19/11 14:45	09/23/11 11:10		N2
Aliphatic (C09-C12), Adjusted	**<4.8**	mg/kg	4.8	90	1	09/19/11 14:45	09/23/11 11:10		N2
a,a,a-Trifluorotoluene (S)	96	%	70-130		1	09/19/11 14:45	09/23/11 11:10	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: LINER PIT -3-COMP **Lab ID: 10169815012** Collected: 09/14/11 19:00 Received: 09/16/11 11:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**<0.97**	ug/kg	0.97		1	09/27/11 08:00	10/01/11 01:11	87-86-5	
2,4-DCPA (S)	77	%	48.8-138.2		1	09/27/11 08:00	10/01/11 01:11	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	**10.2**	mg/kg	0.49		1	09/22/11 11:24	09/23/11 21:04	7440-38-2	
Barium	**66.9**	mg/kg	0.49		1	09/22/11 11:24	09/23/11 21:04	7440-39-3	
Cadmium	**0.80**	mg/kg	0.049		1	09/22/11 11:24	09/23/11 21:04	7440-43-9	
Chromium	**7.6**	mg/kg	0.49		1	09/22/11 11:24	09/23/11 21:04	7440-47-3	
Lead	**11.5**	mg/kg	0.30		1	09/22/11 11:24	09/23/11 21:04	7439-92-1	
Selenium	**<0.74**	mg/kg	0.74		1	09/22/11 11:24	09/23/11 21:04	7782-49-2	
Silver	**<0.49**	mg/kg	0.49		1	09/22/11 11:24	09/23/11 21:04	7440-22-4	
7471 Mercury	Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	**<0.018**	mg/kg	0.018		1	09/27/11 13:57	09/28/11 12:05	7439-97-6	
Dry Weight	Analytical Method: % Moisture								
Percent Moisture	**0.95**	%	0.10		1		09/22/11 00:00		
8270 MSSV	Analytical Method: EPA 8270 EPH-PAH Preparation Method: EPA 3550								
Naphthalene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	91-20-3	L2
Acenaphthylene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	208-96-8	L2
Acenaphthene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	83-32-9	L2
Fluorene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	86-73-7	L2
Phenanthrene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	85-01-8	
Anthracene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	120-12-7	
Fluoranthene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	206-44-0	
Pyrene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	129-00-0	
Benzo(a)anthracene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	56-55-3	
Chrysene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	218-01-9	
Benzo(b)fluoranthene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	205-99-2	
Benzo(k)fluoranthene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	207-08-9	
Benzo(a)pyrene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	50-32-8	
Indeno(1,2,3-cd)pyrene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	193-39-5	
Dibenz(a,h)anthracene	**<0.010**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	53-70-3	
Benzo(g,h,i)perylene	**0.023**	mg/kg	0.010		1	09/20/11 09:05	10/25/11 17:28	191-24-2	
MADEP EPH MA Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**574**	mg/kg	40.1	5000	4	09/20/11 09:00	09/22/11 09:19		N2
1-Chloro-octadecane (S)	0	%	40-140		4	09/20/11 09:00	09/22/11 09:19	3386-33-2	S4
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**1110**	mg/kg	301	5000	10	10/18/11 10:00	10/21/11 15:31		N2
Aliphatic (C09-C18)	**<10.0**	mg/kg	10.0	200	1	10/18/11 10:00	10/20/11 21:51		N2

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: LINER PIT -3-COMP **Lab ID: 10169815012** Collected: 09/14/11 19:00 Received: 09/16/11 11:15 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
MADEP EPH MA Fractions Soil	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Aliphatic (C19-C36)	**1060**	mg/kg	100	2500	10	10/18/11 10:00	10/21/11 15:31		N2
Aromatic (C11-22)	**49.4**	mg/kg	20.1	400	2	10/18/11 10:00	10/21/11 14:36		N2
1-Chloro-octadecane (S)	169	%	40-140		1	10/18/11 10:00	10/20/11 21:51	3386-33-2	S5
o-Terphenyl (S)	32	%	40-140		2	10/18/11 10:00	10/21/11 14:36	84-15-1	S0
2-Fluorobiphenyl (S)	61	%	40-140		2	10/18/11 10:00	10/21/11 14:36	321-60-8	
2-Bromonaphthalene (S)	78	%	40-140		2	10/18/11 10:00	10/21/11 14:36	580-13-2	

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ANALYTICAL RESULTS

Project: Knife River Property Managment
Pace Project No.: 10169815

Sample: TRIP BLANK 4 **Lab ID: 10169815016** Collected: 09/16/11 00:00 Received: 09/16/11 11:15 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/23/11 23:48	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/23/11 23:48	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/23/11 23:48	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/23/11 23:48	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/23/11 23:48	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/23/11 23:48	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/23/11 23:48	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/23/11 23:48	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/23/11 23:48		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/23/11 23:48		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/23/11 23:48		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/23/11 23:48		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/23/11 23:48		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/23/11 23:48		N2
a,a,a-Trifluorotoluene (S)	108	%	70-130		1		09/23/11 23:48	98-08-8	

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: GCSV/5805 Analysis Method: EPA 8151
QC Batch Method: EPA 8151 Analysis Description: 8151 GCS Herbicides
Associated Lab Samples: 10169815008, 10169815010, 10169815012

METHOD BLANK: 261092 Matrix: Solid
Associated Lab Samples: 10169815008, 10169815010, 10169815012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/kg	<0.95	0.95	09/30/11 21:12	
2,4-DCPA (S)	%	82	48.8-138.2	09/30/11 21:12	

LABORATORY CONTROL SAMPLE: 261093

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Pentachlorophenol	ug/kg	6	3.8	63	32.6-114.6	
2,4-DCPA (S)	%			63	48.8-138.2	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 261351 261352

Parameter	Units	3539117002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Pentachlorophenol	ug/kg	0.92U	6.85	6.74	5.1	5.2	75	76	32.6-114	1	40	
2,4-DCPA (S)	%						65	78	48.8-138			

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: GCSV/5759 Analysis Method: EPA 8151
QC Batch Method: EPA 8151 Analysis Description: 8151A GCS Herbicides
Associated Lab Samples: 10169815001, 10169815002, 10169815003, 10169815004, 10169815005, 10169815006

METHOD BLANK: 257802 Matrix: Water
Associated Lab Samples: 10169815001, 10169815002, 10169815003, 10169815004, 10169815005, 10169815006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	<0.028	0.028	09/24/11 02:06	
2,4-DCPA (S)	%	96	65.5-125.7	09/24/11 02:06	

LABORATORY CONTROL SAMPLE & LCSD: 257803 257804

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	.18	0.18	0.19	100	104	55.5-114	5	40	
2,4-DCPA (S)	%				107	113	65.5-125.			

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MPRP/28578 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 10169815008, 10169815010, 10169815012

METHOD BLANK: 1059617 Matrix: Solid
Associated Lab Samples: 10169815008, 10169815010, 10169815012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	<0.50	0.50	09/23/11 20:29	
Barium	mg/kg	<0.50	0.50	09/23/11 20:29	
Cadmium	mg/kg	<0.050	0.050	09/23/11 20:29	
Chromium	mg/kg	<0.50	0.50	09/23/11 20:29	
Lead	mg/kg	<0.30	0.30	09/23/11 20:29	
Selenium	mg/kg	<0.74	0.74	09/23/11 20:29	
Silver	mg/kg	<0.50	0.50	09/23/11 20:29	

LABORATORY CONTROL SAMPLE: 1059618

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	49.5	43.8	88	80-120	
Barium	mg/kg	49.5	44.4	90	80-120	
Cadmium	mg/kg	49.5	44.9	91	80-120	
Chromium	mg/kg	49.5	43.9	89	80-120	
Lead	mg/kg	49.5	45.9	93	80-120	
Selenium	mg/kg	49.5	44.2	89	80-120	
Silver	mg/kg	24.8	24.9	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1059619 1059620

Parameter	Units	10169815008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	7.5	50.1	51	41.8	54.8	69	93	75-125	27	30	M1
Barium	mg/kg	93.0	50.1	51	117	148	47	108	75-125	24	30	M1
Cadmium	mg/kg	1.4	50.1	51	33.9	42.2	65	80	75-125	22	30	M1
Chromium	mg/kg	7.4	50.1	51	39.7	48.4	65	80	75-125	20	30	M1
Lead	mg/kg	13.2	50.1	51	45.3	53.7	64	79	75-125	17	30	M1
Selenium	mg/kg	<0.77	50.1	51	29.9	37.7	59	73	75-125	23	30	M1
Silver	mg/kg	<0.52	25	25.5	17.6	21.2	70	83	75-125	19	30	M1

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MPRP/28544 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 10169815001, 10169815002, 10169815003, 10169815004, 10169815005, 10169815006

METHOD BLANK: 1058607 Matrix: Water
Associated Lab Samples: 10169815001, 10169815002, 10169815003, 10169815004, 10169815005, 10169815006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<10.0	10.0	09/27/11 09:17	
Barium	ug/L	<10.0	10.0	09/27/11 09:17	
Cadmium	ug/L	<1.0	1.0	09/27/11 09:17	
Chromium	ug/L	<10.0	10.0	09/27/11 09:17	
Iron	ug/L	<50.0	50.0	09/27/11 09:17	
Lead	ug/L	<3.0	3.0	09/27/11 09:17	
Manganese	ug/L	<5.0	5.0	09/27/11 09:17	
Selenium	ug/L	<15.0	15.0	09/27/11 09:17	
Silver	ug/L	<10.0	10.0	09/27/11 09:17	

LABORATORY CONTROL SAMPLE: 1058608

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	873	87	80-120	
Barium	ug/L	1000	888	89	80-120	
Cadmium	ug/L	1000	918	92	80-120	
Chromium	ug/L	1000	887	89	80-120	
Iron	ug/L	10000	8870	89	80-120	
Lead	ug/L	1000	900	90	80-120	
Manganese	ug/L	1000	909	91	80-120	
Selenium	ug/L	1000	900	90	80-120	
Silver	ug/L	500	441	88	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1058609 1058610

Parameter	Units	10169815001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	<10.0	1000	1000	909	911	91	91	80-120	.2	30	
Barium	ug/L	179	1000	1000	1080	1070	90	89	80-120	.5	30	
Cadmium	ug/L	<1.0	1000	1000	948	940	95	94	80-120	.8	30	
Chromium	ug/L	<10.0	1000	1000	904	901	90	90	80-120	.4	30	
Iron	ug/L	55.5	10000	10000	9080	9420	90	94	80-120	4	30	
Lead	ug/L	<3.0	1000	1000	902	905	90	90	80-120	.4	30	
Manganese	ug/L	<5.0	1000	1000	927	918	93	92	80-120	.9	30	
Selenium	ug/L	<15.0	1000	1000	931	936	92	92	80-120	.5	30	
Silver	ug/L	<10.0	500	500	456	451	91	90	80-120	1	30	

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

MATRIX SPIKE SAMPLE: 1058611

Parameter	Units	10169987002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	10.5	1000	887	88	80-120	
Barium	ug/L	509	1000	1330	82	80-120	
Cadmium	ug/L	ND	1000	904	90	80-120	
Chromium	ug/L	ND	1000	859	86	80-120	
Iron	ug/L	ND	10000	9040	90	80-120	
Lead	ug/L	ND	1000	841	84	80-120	
Manganese	ug/L	617	1000	1450	84	80-120	
Selenium	ug/L	ND	1000	893	88	80-120	
Silver	ug/L	ND	500	453	91	80-120	

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MERP/6014 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 10169815001, 10169815002, 10169815003, 10169815004, 10169815005, 10169815006

METHOD BLANK: 1059149 Matrix: Water
Associated Lab Samples: 10169815001, 10169815002, 10169815003, 10169815004, 10169815005, 10169815006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.20	0.20	09/29/11 11:06	

LABORATORY CONTROL SAMPLE: 1059150

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.6	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1059151 1059152

Parameter	Units	10169817001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	6.5	6.3	130	126	80-120	3	20	M1

MATRIX SPIKE SAMPLE: 1059153

Parameter	Units	10170015005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.20	5	4.6	92	80-120	

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MERP/6016 Analysis Method: EPA 7471
QC Batch Method: EPA 7471 Analysis Description: 7471 Mercury
Associated Lab Samples: 10169815008, 10169815010, 10169815012

METHOD BLANK: 1059171 Matrix: Solid
Associated Lab Samples: 10169815008, 10169815010, 10169815012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	<0.019	0.019	09/28/11 10:43	

LABORATORY CONTROL SAMPLE: 1059172

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	.48	0.46	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1059173 1059174

Parameter	Units	10169429002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.022	.5	.57	0.49	0.64	92	108	80-120	28	20	D6

MATRIX SPIKE SAMPLE: 1059175

Parameter	Units	10169815012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	<0.018	.45	0.47	99	80-120	

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MPRP/28532 Analysis Method: % Moisture
QC Batch Method: % Moisture Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10169815007, 10169815009, 10169815011

SAMPLE DUPLICATE: 1057947

Parameter	Units	10169773002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	2.5	2.8	11	30	

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MPRP/28587 Analysis Method: % Moisture
QC Batch Method: % Moisture Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10169815008, 10169815010, 10169815012

SAMPLE DUPLICATE: 1059984

Parameter	Units	10169766001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	18.2	17.8	3	30	

SAMPLE DUPLICATE: 1059985

Parameter	Units	10169815012 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	0.95	0.90	6	30	

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: OEXT/17115 Analysis Method: EPA 8270 EPH-PAH
QC Batch Method: EPA 3550 Analysis Description: EPH-PAH MSSV
Associated Lab Samples: 10169815008, 10169815010, 10169815012

METHOD BLANK: 1088929 Matrix: Solid
Associated Lab Samples: 10169815008, 10169815010, 10169815012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Acenaphthylene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Anthracene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Benzo(a)anthracene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Benzo(a)pyrene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Benzo(b)fluoranthene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Benzo(g,h,i)perylene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Benzo(k)fluoranthene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Chrysene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Dibenz(a,h)anthracene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Fluoranthene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Fluorene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Indeno(1,2,3-cd)pyrene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Naphthalene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Phenanthrene	mg/kg	<0.0099	0.0099	10/25/11 12:02	
Pyrene	mg/kg	<0.0099	0.0099	10/25/11 12:02	

LABORATORY CONTROL SAMPLE & LCSD: 1090120 1090121

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	mg/kg	3.3	1.4	1.3	41	39	56-125	5	20	L0
Acenaphthylene	mg/kg	3.3	1.4	1.2	41	38	49-125	8	20	L0
Anthracene	mg/kg	3.3	2.4	2.2	72	66	49-125	8	20	
Benzo(a)anthracene	mg/kg	3.3	3.2	2.9	96	89	60-125	7	20	
Benzo(a)pyrene	mg/kg	3.3	3.3	3.1	101	94	58-125	7	20	
Benzo(b)fluoranthene	mg/kg	3.3	3.4	2.9	102	88	63-125	16	20	
Benzo(g,h,i)perylene	mg/kg	3.3	3.4	3.2	102	98	56-125	4	20	
Benzo(k)fluoranthene	mg/kg	3.3	3.2	3.1	97	95	56-127	3	20	
Chrysene	mg/kg	3.3	3.1	2.9	95	88	60-125	7	20	
Dibenz(a,h)anthracene	mg/kg	3.3	3.2	3.1	98	95	57-125	3	20	
Fluoranthene	mg/kg	3.3	2.9	2.6	89	80	58-125	10	20	
Fluorene	mg/kg	3.3	1.6	1.5	49	45	53-125	8	20	L0
Indeno(1,2,3-cd)pyrene	mg/kg	3.3	3.5	3.3	105	102	56-125	3	20	
Naphthalene	mg/kg	3.3	0.67	0.63	21	19	56-125	7	20	L0
Phenanthrene	mg/kg	3.3	2.2	2.0	67	62	53-125	8	20	
Pyrene	mg/kg	3.3	2.9	2.8	88	84	60-125	5	20	

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MTPR/1865 Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH Analysis Description: MADEP EPH MA Soil
Associated Lab Samples: 10169815008, 10169815010, 10169815012

METHOD BLANK: 1057740 Matrix: Solid
Associated Lab Samples: 10169815008, 10169815010, 10169815012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Extractable Hydrocarbons	mg/kg	<9.9	9.9	09/21/11 01:33	N2
1-Chloro-octadecane (S)	%	94	40-140	09/21/11 01:33	

LABORATORY CONTROL SAMPLE & LCSD: 1057741 1057742

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Extractable Hydrocarbons	mg/kg	102	65.8	54.8	65	54	40-140	18	50	N2
1-Chloro-octadecane (S)	%				98	82	40-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1057743 1057744

Parameter	Units	10169777004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Extractable Hydrocarbons	mg/kg	18.0	115	115	83.4	83.8	57	57	40-140	.5	50	N2
1-Chloro-octadecane (S)	%						99	92	40-140			

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MTPR/1875 Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH Analysis Description: MADEP EPH MA Water
Associated Lab Samples: 10169815001, 10169815002, 10169815003, 10169815004, 10169815005, 10169815006

METHOD BLANK: 1060836 Matrix: Water
Associated Lab Samples: 10169815001, 10169815002, 10169815003, 10169815004, 10169815005, 10169815006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Extractable Hydrocarbons	ug/L	<200	200	09/25/11 12:57	N2
1-Chloro-octadecane (S)	%	74	40-140	09/25/11 12:57	

LABORATORY CONTROL SAMPLE & LCSD: 1060837 1060838

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Extractable Hydrocarbons	ug/L	3100	1820	2070	59	67	40-140	13	50	N2
1-Chloro-octadecane (S)	%				83	92	40-140			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1060839 1060840

Parameter	Units	10169849001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Extractable Hydrocarbons	ug/L	ND	3270	3200	2050	2290	63	72	40-140	11	50	N2
1-Chloro-octadecane (S)	%						90	101	40-140			

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MTPR/1924 Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH Analysis Description: MADEP EPH MA Fractions Soil
Associated Lab Samples: 10169815008, 10169815010, 10169815012

METHOD BLANK: 1078866 Matrix: Solid
Associated Lab Samples: 10169815008, 10169815010, 10169815012

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C09-C18)	mg/kg	<9.9	9.9	10/20/11 15:31	N2
Aliphatic (C19-C36)	mg/kg	<9.9	9.9	10/20/11 15:31	N2
Aromatic (C11-22)	mg/kg	<9.9	9.9	10/20/11 14:36	N2
1-Chloro-octadecane (S)	%	91	40-140	10/20/11 15:31	
2-Bromonaphthalene (S)	%	53	40-140	10/20/11 14:36	
2-Fluorobiphenyl (S)	%	118	40-140	10/20/11 14:36	
o-Terphenyl (S)	%	62	40-140	10/20/11 14:36	

LABORATORY CONTROL SAMPLE & LCSD: 1078867 1078868

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C09-C18)	mg/kg	19.7	<9.8	<9.8	46	43	40-140		50	N2
Aliphatic (C19-C36)	mg/kg	26.2	30.1	28.1	115	107	40-140	7	50	N2
Aromatic (C11-22)	mg/kg	55.7	49.9	48.7	90	87	40-140	3	50	N2
1-Chloro-octadecane (S)	%				105	97	40-140			
2-Bromonaphthalene (S)	%				100	96	40-140			
2-Fluorobiphenyl (S)	%				77	74	40-140			
o-Terphenyl (S)	%				95	93	40-140			

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MT/7075 Analysis Method: MADEP VPH
QC Batch Method: MADEP VPH Analysis Description: MADEP VPH MA Soil
Associated Lab Samples: 10169815007, 10169815009, 10169815011

METHOD BLANK: 1057215 Matrix: Solid
Associated Lab Samples: 10169815007, 10169815009, 10169815011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C05-C08).Unadjusted	mg/kg	<4.9	4.9	09/22/11 16:03	N2
Aliphatic (C09-C12).Unadjusted	mg/kg	<4.9	4.9	09/22/11 16:03	N2
Aromatic (C09-C10)	mg/kg	<0.98	0.98	09/22/11 16:03	N2
Benzene	mg/kg	<0.024	0.024	09/22/11 16:03	N2
Ethylbenzene	mg/kg	<0.049	0.049	09/22/11 16:03	N2
m&p-Xylene	mg/kg	<0.098	0.098	09/22/11 16:03	N2
Methyl-tert-butyl ether	mg/kg	<0.049	0.049	09/22/11 16:03	N2
Naphthalene	mg/kg	<0.59	0.59	09/22/11 16:03	N2
o-Xylene	mg/kg	<0.049	0.049	09/22/11 16:03	N2
Toluene	mg/kg	<0.049	0.049	09/22/11 16:03	N2
Total Purgeable Hydro Carbons	mg/kg	<9.8	9.8	09/22/11 16:03	N2
Xylene (Total)	mg/kg	<0.15	0.15	09/22/11 16:03	N2
a,a,a-Trifluorotoluene (S)	%	122	70-130	09/22/11 16:03	

LABORATORY CONTROL SAMPLE & LCSD: 1057216 1057217

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08).Unadjusted	mg/kg	29.4	24.9	<4.6	85	11	70-130		25	1M,L0,N2
Aliphatic (C09-C12).Unadjusted	mg/kg	29.4	27.5	<4.6	93	10	70-130		25	L0,N2
Aromatic (C09-C10)	mg/kg	4.9	4.6	4.4	94	96	70-130	5	25	N2
Benzene	mg/kg	4.9	4.1	3.8	84	83	70-130	8	25	N2
Ethylbenzene	mg/kg	4.9	5.0	4.5	102	99	70-130	10	25	N2
m&p-Xylene	mg/kg	9.8	10.1	9.7	103	105	70-130	5	25	N2
Methyl-tert-butyl ether	mg/kg	4.9	3.2	3.0	66	66	70-130	6	25	L0,N2
Naphthalene	mg/kg	4.9	4.7	4.7	97	102	70-130	2	25	N2
o-Xylene	mg/kg	4.9	4.8	4.5	97	98	70-130	6	25	N2
Toluene	mg/kg	4.9	5.5	5.7	113	124	70-130	2	25	CH,N2
Total Purgeable Hydro Carbons	mg/kg	63.8	60.0	<9.2	94	9	70-130		25	L0,N2
Xylene (Total)	mg/kg	14.7	14.9	14.1	101	103	70-130	5	25	N2
a,a,a-Trifluorotoluene (S)	%				117	109	70-130			

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1057218 1057219

Parameter	Units	10169772019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aliphatic (C05-C08).Unadjusted	mg/kg	7.6	35	33.6	21.2	19.9	39	36	70-130	6	30	M1,N2
Aliphatic (C09-C12).Unadjusted	mg/kg	73.6	35	33.6	125	109	146	104	70-130	14	30	E,N2
Aromatic (C09-C10)	mg/kg	57.6	5.8	5.6	69.6	81.4	205	425	70-130	16	30	M1,N2

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(406)254-7226

QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1057218 1057219

Parameter	Units	10169772019 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Benzene	mg/kg	<0.029	5.8	5.6	3.1	4.1	54	73	70-130	27	30	M1,N2
Ethylbenzene	mg/kg	0.40	5.8	5.6	5.7	5.9	91	99	70-130	4	30	N2
m&p-Xylene	mg/kg	0.48	11.7	11.2	10.6	11.9	86	102	70-130	12	30	N2
Methyl-tert-butyl ether	mg/kg	<0.058	5.8	5.6	2.7	3.7	47	66	70-130	30	30	M0,N2
Naphthalene	mg/kg	3.6	5.8	5.6	9.9	11.0	108	133	70-130	10	30	M1,N2
o-Xylene	mg/kg	0.33	5.8	5.6	6.0	6.9	97	117	70-130	14	30	N2
Toluene	mg/kg	<0.058	5.8	5.6	5.3	5.7	90	101	70-130	7	30	CH,N2
Total Purgeable Hydro Carbons	mg/kg	106	75.9	72.8	192	167	114	84	70-130	14	30	E,N2
Xylene (Total)	mg/kg	0.81	17.5	16.8	16.6	18.8	90	107	70-130	13	30	N2
a,a,a-Trifluorotoluene (S)	%						86	110	70-130			

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QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

QC Batch: MT/7124 Analysis Method: MADEP VPH
QC Batch Method: MADEP VPH Analysis Description: MADEP VPH MA Water
Associated Lab Samples: 10169815001, 10169815002, 10169815003, 10169815004, 10169815005, 10169815006, 10169815016

METHOD BLANK: 1060858 Matrix: Water
Associated Lab Samples: 10169815001, 10169815002, 10169815003, 10169815004, 10169815005, 10169815006, 10169815016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C05-C08).Unadjusted	ug/L	<20.0	20.0	09/23/11 23:03	N2
Aliphatic (C09-C12).Unadjusted	ug/L	<20.0	20.0	09/23/11 23:03	N2
Aromatic (C09-C10)	ug/L	<20.0	20.0	09/23/11 23:03	N2
Benzene	ug/L	<0.50	0.50	09/23/11 23:03	N2
Ethylbenzene	ug/L	<0.50	0.50	09/23/11 23:03	N2
m&p-Xylene	ug/L	<1.0	1.0	09/23/11 23:03	N2
Methyl-tert-butyl ether	ug/L	<0.50	0.50	09/23/11 23:03	N2
Naphthalene	ug/L	<5.0	5.0	09/23/11 23:03	N2
o-Xylene	ug/L	<0.50	0.50	09/23/11 23:03	N2
Toluene	ug/L	<0.50	0.50	09/23/11 23:03	N2
Total Purgeable Hydro Carbons	ug/L	<20.0	20.0	09/23/11 23:03	N2
Xylene (Total)	ug/L	<1.5	1.5	09/23/11 23:03	N2
a,a,a-Trifluorotoluene (S)	%	105	70-130	09/23/11 23:03	

LABORATORY CONTROL SAMPLE & LCSD: 1060859 1060860

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08).Unadjusted	ug/L	600	606	462	101	77	70-130	27	25	D6,N2
Aliphatic (C09-C12).Unadjusted	ug/L	600	615	538	102	90	70-130	13	25	N2
Aromatic (C09-C10)	ug/L	100	103	91.5	103	91	70-130	12	25	N2
Benzene	ug/L	100	104	89.6	104	90	70-130	15	25	N2
Ethylbenzene	ug/L	100	100	89.1	100	89	70-130	12	25	N2
m&p-Xylene	ug/L	200	203	177	102	88	70-130	14	25	N2
Methyl-tert-butyl ether	ug/L	100	119	94.8	119	95	70-130	23	25	N2
Naphthalene	ug/L	100	95.9	92.0	96	92	70-130	4	25	N2
o-Xylene	ug/L	100	100	91.3	100	91	70-130	10	25	N2
Toluene	ug/L	100	99.6	88.8	100	89	70-130	11	25	N2
Total Purgeable Hydro Carbons	ug/L	1300	1220	1010	94	78	70-130	19	25	N2
Xylene (Total)	ug/L	300	304	268	101	89	70-130	13	25	N2
a,a,a-Trifluorotoluene (S)	%				97	102	70-130			

SAMPLE DUPLICATE: 1060862

Parameter	Units	10169815001 Result	Dup Result	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08).Unadjusted	ug/L	<20.0	<20.0		50	N2
Aliphatic (C09-C12).Unadjusted	ug/L	<20.0	<20.0		50	N2
Aromatic (C09-C10)	ug/L	<20.0	<20.0		50	N2
Benzene	ug/L	<0.50	<0.50		50	N2
Ethylbenzene	ug/L	<0.50	<0.50		50	N2
m&p-Xylene	ug/L	<1.0	<1.0		50	N2

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(406)254-7226

QUALITY CONTROL DATA

Project: Knife River Property Managment
Pace Project No.: 10169815

SAMPLE DUPLICATE: 1060862

Parameter	Units	10169815001 Result	Dup Result	RPD	Max RPD	Qualifiers
Methyl-tert-butyl ether	ug/L	<0.50	<0.50		50	N2
Naphthalene	ug/L	<5.0	<5.0		50	N2
o-Xylene	ug/L	<0.50	<0.50		50	N2
Toluene	ug/L	<0.50	<0.50		50	N2
Total Purgeable Hydro Carbons	ug/L	<20.0	<20.0		50	N2
Xylene (Total)	ug/L	<1.5	<1.5		50	N2
a,a,a-Trifluorotoluene (S)	%	81	103	24		

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QUALIFIERS

Project: Knife River Property Managment
Pace Project No.: 10169815

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana
PASI-O	Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: MT/7124

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1M	Recoveries were confirmed by re-analysis. It appears that the septum to the extraction vial may have not sealed properly.
2M	Result was confirmed by 8260.
CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
E	Analyte concentration exceeded the calibration range. The reported result is estimated.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold TNI accreditation for this parameter.
S0	Surrogate recovery outside laboratory control limits.
S4	Surrogate recovery not evaluated against control limits due to sample dilution.
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Knife River Property Managment
Pace Project No.: 10169815

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10169815008	**LINER PIT -1-COMP**	EPA 8151	GCSV/5805	EPA 8151	GCSV/4345
10169815010	**LINER PIT -2-COMP**	EPA 8151	GCSV/5805	EPA 8151	GCSV/4345
10169815012	**LINER PIT -3-COMP**	EPA 8151	GCSV/5805	EPA 8151	GCSV/4345
10169815001	**KRY 102 A**	EPA 8151	GCSV/5759	EPA 8151	GCSV/4300
10169815002	**KPT 16**	EPA 8151	GCSV/5759	EPA 8151	GCSV/4300
10169815003	**DUP-1**	EPA 8151	GCSV/5759	EPA 8151	GCSV/4300
10169815004	**KRY 104 A**	EPA 8151	GCSV/5759	EPA 8151	GCSV/4300
10169815005	**KRY 107 A**	EPA 8151	GCSV/5759	EPA 8151	GCSV/4300
10169815006	**ERB-1**	EPA 8151	GCSV/5759	EPA 8151	GCSV/4300
10169815008	**LINER PIT -1-COMP**	EPA 3050	MPRP/28578	EPA 6010	ICP/12060
10169815010	**LINER PIT -2-COMP**	EPA 3050	MPRP/28578	EPA 6010	ICP/12060
10169815012	**LINER PIT -3-COMP**	EPA 3050	MPRP/28578	EPA 6010	ICP/12060
10169815001	**KRY 102 A**	EPA 3010	MPRP/28544	EPA 6010	ICP/12076
10169815002	**KPT 16**	EPA 3010	MPRP/28544	EPA 6010	ICP/12076
10169815003	**DUP-1**	EPA 3010	MPRP/28544	EPA 6010	ICP/12076
10169815004	**KRY 104 A**	EPA 3010	MPRP/28544	EPA 6010	ICP/12076
10169815005	**KRY 107 A**	EPA 3010	MPRP/28544	EPA 6010	ICP/12076
10169815006	**ERB-1**	EPA 3010	MPRP/28544	EPA 6010	ICP/12076
10169815001	**KRY 102 A**	EPA 7470	MERP/6014	EPA 7470	MERC/6828
10169815002	**KPT 16**	EPA 7470	MERP/6014	EPA 7470	MERC/6828
10169815003	**DUP-1**	EPA 7470	MERP/6014	EPA 7470	MERC/6828
10169815004	**KRY 104 A**	EPA 7470	MERP/6014	EPA 7470	MERC/6828
10169815005	**KRY 107 A**	EPA 7470	MERP/6014	EPA 7470	MERC/6828
10169815006	**ERB-1**	EPA 7470	MERP/6014	EPA 7470	MERC/6828
10169815008	**LINER PIT -1-COMP**	EPA 7471	MERP/6016	EPA 7471	MERC/6831
10169815010	**LINER PIT -2-COMP**	EPA 7471	MERP/6016	EPA 7471	MERC/6831
10169815012	**LINER PIT -3-COMP**	EPA 7471	MERP/6016	EPA 7471	MERC/6831
10169815007	**LINER PIT -1-A,B,C,D,E (COMP)**	% Moisture	MPRP/28532		
10169815008	**LINER PIT -1-COMP**	% Moisture	MPRP/28587		
10169815009	**LINER PIT -2-A,B,C,D,E (COMP)**	% Moisture	MPRP/28532		
10169815010	**LINER PIT -2-COMP**	% Moisture	MPRP/28587		
10169815011	**LINER PIT -3-A,B,C,D,E (COMP)**	% Moisture	MPRP/28532		
10169815012	**LINER PIT -3-COMP**	% Moisture	MPRP/28587		
10169815008	**LINER PIT -1-COMP**	EPA 3550	OEXT/17115	EPA 8270 EPH-PAH	MSSV/7389
10169815010	**LINER PIT -2-COMP**	EPA 3550	OEXT/17115	EPA 8270 EPH-PAH	MSSV/7389
10169815012	**LINER PIT -3-COMP**	EPA 3550	OEXT/17115	EPA 8270 EPH-PAH	MSSV/7389
10169815007	**LINER PIT -1-A,B,C,D,E (COMP)**	EPA 5035/5030B	MSV/18115	EPA 8260	MSV/18116
10169815009	**LINER PIT -2-A,B,C,D,E (COMP)**	EPA 5035/5030B	MSV/18115	EPA 8260	MSV/18116
10169815011	**LINER PIT -3-A,B,C,D,E (COMP)**	EPA 5035/5030B	MSV/18115	EPA 8260	MSV/18116
10169815008	**LINER PIT -1-COMP**	MADEP EPH	MTPR/1865	MADEP EPH	MT/7105
10169815010	**LINER PIT -2-COMP**	MADEP EPH	MTPR/1865	MADEP EPH	MT/7105
10169815012	**LINER PIT -3-COMP**	MADEP EPH	MTPR/1865	MADEP EPH	MT/7105

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Knife River Property Managment
Pace Project No.: 10169815

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10169815001	**KRY 102 A**	MADEP EPH	MTPR/1875	MADEP EPH	MT/7136
10169815002	**KPT 16**	MADEP EPH	MTPR/1875	MADEP EPH	MT/7136
10169815003	**DUP-1**	MADEP EPH	MTPR/1875	MADEP EPH	MT/7136
10169815004	**KRY 104 A**	MADEP EPH	MTPR/1875	MADEP EPH	MT/7136
10169815005	**KRY 107 A**	MADEP EPH	MTPR/1875	MADEP EPH	MT/7136
10169815006	**ERB-1**	MADEP EPH	MTPR/1875	MADEP EPH	MT/7136
10169815008	**LINER PIT -1-COMP**	MADEP EPH	MTPR/1924	MADEP EPH	MT/7413
10169815010	**LINER PIT -2-COMP**	MADEP EPH	MTPR/1924	MADEP EPH	MT/7413
10169815012	**LINER PIT -3-COMP**	MADEP EPH	MTPR/1924	MADEP EPH	MT/7413
10169815007	**LINER PIT -1-A,B,C,D,E (COMP)**	MADEP VPH	MT/7075	MADEP VPH	MT/7098
10169815009	**LINER PIT -2-A,B,C,D,E (COMP)**	MADEP VPH	MT/7075	MADEP VPH	MT/7098
10169815011	**LINER PIT -3-A,B,C,D,E (COMP)**	MADEP VPH	MT/7075	MADEP VPH	MT/7098
10169815001	**KRY 102 A**	MADEP VPH	MT/7124		
10169815002	**KPT 16**	MADEP VPH	MT/7124		
10169815003	**DUP-1**	MADEP VPH	MT/7124		
10169815004	**KRY 104 A**	MADEP VPH	MT/7124		
10169815005	**KRY 107 A**	MADEP VPH	MT/7124		
10169815006	**ERB-1**	MADEP VPH	MT/7124		
10169815016	**TRIP BLANK 4**	MADEP VPH	MT/7124		

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 1 of 2

1321730

Section A Required Client Information:

Company: Amec
Address: 1001 S. Higgins ave. Building B-1 Missoula, MT 59801
Email To: adam.n.johnson@amec.com
Phone: (406) 542-0129 Fax:
Requested Due Date/TAT: NORMAL

Section B Required Project Information:

Report To: adam.n.johnson@amec.com
Copy To: Chris Cerquone@amec.com
Purchase Order No.:
Project Name: Knife River Property Project
Project Number: MT 10160050

Section C Invoice Information:

Attention: Donna McCammon
Company Name: Amec
Address: 1001 S. Higgins Ave Missoula MT
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: MT

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Pentachlorophenol EPA 8151 (N)	EPH by MA DEP EPH (N)	VPH by MA DEP VPH (N)	RCRA metals Fe, Mn (N)	Dioxins (N)	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 10169815
1	KRY 102 A	WT	G			9/15/11	1415		10	3		1	6						X	X	X	X	X		001
2	KPT 116	WT	G			9/15/11	1645		11	4		1	6												002
3	DUP-1	WT	G			9/15/11	—		11	4		1	6												003
4	KRY 104 A	WT	G			9/15/11	1135		11	4		1	6												004
5	KRY 107 A	WT	G			9/14/11	1310		11	4		1	6												005
6	ERB-1	WT	G			9/14/11	1925		9	2		1	6												006
7	Liner Pit -1-a,b,c,d,e	SL	C			9/14/11	1815		5	5									X	X	X	X			007
8	Liner Pit 1 -comp	SL	C			9/14/11	1815		1	1									X	X	X	X			008
9	Liner Pit-2-a,b,c,d,e	SL	C			9/14/11	1835		5	5									X	X	X	X			009
10	Liner Pit-2-comp	SL	C			9/14/11	1835		1	1									X	X	X	X			010
11	Liner Pit-3-a,b,c,d,e	SL	C			9/14/11	1900		5	5									X	X	X	X			011
12	Liner Pit-3-comp	SL	C			9/14/11	1900		1	1									X	X	X	X			012

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
***Please lab composite item #'s 7,9,11 *** item #'s 8,10,12 are field composited ***	Heather Grotbo / Amec	9/16/11	9:00	Pace Courier	9/16/11	900
				[illegible]	9/16/11	1115
***10 coders total ***						

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	5.2	Y	Y	Y
	5.6	Y	Y	Y
	2.8	Y	Y	Y
	5.2	Y	Y	Y
	5.8	Y	Y	Y
	5.6	Y	Y	Y

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Heather Grotbo
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 9/16/2011

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 2 of 2

1321731

Section A Required Client Information:

Company: Amec
Address: 1001 S. Higgins Ave building B-1 Missoula MT 59801
Email To: adam.n.johnson@amec.com
Phone: (406)542-0129 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: adam.n.johnson@amec.com
Copy To: chris.cerquone@amec.com
Purchase Order No.:
Project Name: Knife River Property Project
Project Number: MT10160050

Section C Invoice Information:

Attention: Donna McCammon
Company Name: 1001 S. Higgins ave (Amec)
Address: Missoula MT 59801
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: MT

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	VPH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TRIP BLANK 1,2,3,4,5,6	WT	G			9/16/11	—		6				X						X		10169815 013,014,015,016, 017,018
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Heather Grotbo / Amec	9/16/11	900	Pace Courier	9/16/11	900	5.2	Y	Y	Y
				Blake Nor	9/16/11	11:15	5.6	Y	Y	Y
							2.8	Y	Y	Y
							5.2	Y	Y	Y
							5.8	Y	Y	Y
							5.6			
							Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Heather Grotbo

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 9/16/11

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Table 7. Reporting Limits Compared to Groundwater Standards
Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit µg/L	Screening Level* µg/L	Is the reporting limit less or equal to the screening level?
Pesticides				
Pentachlorophenol	EPA 8151	0.0284	1	yes
Metals				
Arsenic	EPA 6010b	10	10	yes
Barium	EPA 6010b	10	1,000	yes
Cadmium	EPA 6010b	1	5	yes
Chromium	EPA 6010b	10	na	yes
Lead	EPA 6010b	3	15	yes
Mercury	EPA 7471	0.2	2	yes
Selenium	EPA 6010b	15	50	yes
Silver	EPA 6010b	10	100	yes

Notes:

** = Screening Levels are Montana Numeric Water Quality Standards (Circular DEQ-7, August 2010). The screening levels for petroleum constituents are Montana Department of Environmental Quality Risk-Based Screening Levels (RBSLs; September 2009).*

*** = Acenapthene screening level was used for acenapthylene because a DEQ-7 number is not a available and they have similar toxicity.*

na = not available or not applicable because no DEQ-7 standard exists for this analyte

MDL = method detection limit

MDEP = Massachusetts Department of Environmental Protection

Table 6a. Metals and VOC Reporting Limits Compared to Soil Screening Levels						
Knife River Property, Kalispell, Montana						
Analyte	Analytical Method	Reporting Limit mg/kg	Residential Direct contact SSL mg/kg	Industrial Direct contact SSL mg/kg	Leaching SSL mg/kg	Is the reporting limit less than or equal to the screening level?
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	EPA 8260LL	0.004	1.9	9.3	0.002	no, will request MDL of 0.001
1,1,1-Trichloroethane	EPA 8260LL	0.004	870	3800	0.7	yes
1,1,2,2-Tetrachloroethane	EPA 8260LL	0.004	0.56	2.8	0.0078	yes
1,1,2-Trichloroethane	EPA 8260LL	0.004	1.1	5.3	0.0098	yes
1,1,2-Trichlorotrifluoroethane	EPA 8260LL	0.004	na	na	na	na
1,1-Dichloroethane	EPA 8260LL	0.004	3.3	17	0.0069	yes
1,1-Dichloroethene	EPA 8260LL	0.004	240	1100	0.0021	no, will request MDL of 0.0008
1,1-Dichloropropene	EPA 8260LL	0.004	na	na	na	na
1,2,3-Trichlorobenzene	EPA 8260LL	0.004	4.9	49	0.87	yes
1,2,3-Trichloropropane	EPA 8260LL	0.004	0.005	0.095	0.0027	no, will request MDL of 0.00081
1,2,4-Trichlorobenzene	EPA 8260LL	0.004	22	99	2	yes
1,2,4-Trimethylbenzene	EPA 8260LL	0.004	6.2	26	0.21	yes
1,2-Dibromo-3-chloropropane	EPA 8260LL	0.01	0.0054	0.069	0.00086	no, will request MDL of 0.00195
1,2-Dibromoethane (EDB)	EPA 8260LL	0.004	0.034	0.17	0.000011	no will request MDL of 0.00131
1,2-Dichlorobenzene	EPA 8260LL	0.004	190	980	5.8	yes
1,2-Dichloroethane	EPA 8260LL	0.004	0.43	2.2	0.0112	yes
1,2-Dichloropropane	EPA 8260LL	0.004	0.94	4.7	0.017	yes
1,3,5-Trimethylbenzene	EPA 8260LL	0.004	78	1000	5.2	yes
1,3-Dichlorobenzene	EPA 8260LL	0.004	na	na	na	na
1,3-Dichloropropane	EPA 8260LL	0.004	160	2000	2.5	yes
1,4-Dichlorobenzene	EPA 8260LL	0.004	2.4	12	0.72	yes
2,2-Dichloropropane	EPA 8260LL	0.01	na	na	na	na
2-Butanone (MEK)	EPA 8260LL	0.02	na	na	na	na
2-Chlorotoluene	EPA 8260LL	0.004	160	2000	7.1	yes
4-Chlorotoluene	EPA 8260LL	0.004	160	2000	7.1	yes
4-Methyl-2-pentanone (MIBK)	EPA 8260LL	0.02	na	na	na	na
Acetone	EPA 8260LL	0.025	6100	63000	45	yes
Allyl chloride	EPA 8260LL	0.004	0.68	3.4	0.0021	no, will request MDL of 0.00082
Benzene	EPA 8260LL	0.0047	a	a	a	yes
Bromobenzene	EPA 8260LL	0.004	30	180	0.59	yes
Bromochloromethane	EPA 8260LL	0.004	16	68	0.21	yes
Bromodichloromethane	EPA 8260LL	0.004	0.27	1.4	0.0267	yes
Bromoform	EPA 8260LL	0.02	62	220	0.21	yes
Bromomethane	EPA 8260LL	0.02	7.3	32	0.0025	no, will request MDL of 0.00214
Carbon tetrachloride	EPA 8260LL	0.004	0.61	3	0.0116	yes
Chlorobenzene	EPA 8260LL	0.004	29	140	0.68	yes
Chloroethane	EPA 8260LL	0.01	na	na	na	na
Chloroform	EPA 8260LL	0.004	0.29	1.5	0.195	yes
Chloromethane	EPA 8260LL	0.01	12	50	0.077	yes
cis-1,3-Dichloropropene	EPA 8260LL	0.004	1.7	8.3	0.014	yes
Dibromochloromethane	EPA 8260LL	0.004	0.68	3.3	0.01	yes

Table 6a. Metals and VOC Reporting Limits Compared to Soil Screening Levels

Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limits mg/kg	Residential Direct Contact SSL mg/kg	Industrial Direct Contact SSL mg/kg	Leaching SSL mg/kg	Is the reporting limit less than or equal to the screening level?
Dibromomethane	EPA 8260LL	0.004	2.5	11	0.02	yes
Dichlorodifluoromethane	EPA 8260LL	0.004	9.4	40	15.5	yes
Dichlorofluoromethane	EPA 8260LL	0.004	na	na	na	na
Diethyl ether (Ethyl ether)	EPA 8260LL	0.004	1600	20000	16	yes
Ethylbenzene	EPA 8260LL	0.004	a	a	a	yes
Hexachloro-1,3-butadiene	EPA 8260LL	0.01	0.054	0.26	0.07	yes
Isopropylbenzene (Cumene)	EPA 8260LL	0.004	210	1100	11	yes
Methyl-tert-butyl ether	EPA 8260LL	0.004	a	a	a	yes
Methylene Chloride	EPA 8260LL	0.02	11	53	0.013	no, will request MDL of 0.00213
Naphthalene	EPA 8260LL	0.01	a	a	a	yes
Styrene	EPA 8260LL	0.004	630	3600	1.1	yes
Tetrachloroethene	EPA 8260LL	0.004	0.55	2.6	0.023	yes
Tetrahydrofuran	EPA 8260LL	0.04	na	na	na	na
Toluene	EPA 8260LL	0.004	a	a	a	yes
Trichloroethene	EPA 8260LL	0.004	2.8	14	0.018	yes
Trichlorofluoromethane	EPA 8260LL	0.004	79	340	63.85	yes
Vinyl chloride	EPA 8260LL	0.004	0.06	1.7	0.0007	no, will request MDL of 0.00126
Xylene (Total)	EPA 8260LL	0.012	a	a	a	yes
cis-1,2-Dichloroethene	EPA 8260LL	0.004	16	200	0.21	yes
m- + p- Xylene[b]	EPA 8260LL	0.008	59	250	100	yes
n-Butylbenzene	EPA 8260LL	0.00095	na	na	na	na
n-Propylbenzene	EPA 8260LL	0.00082	340	2100	25	yes
o-Xylene	EPA 8260LL	0.00095	69	300	100	yes
p-Isopropyltoluene	EPA 8260LL	0.00091	na	na	na	na
sec-Butylbenzene	EPA 8260LL	0.00069	390	5100	59	yes
tert-Butylbenzene	EPA 8260LL	0.00096	na	na	na	na
trans-1,2-Dichloroethene	EPA 8260LL	0.00117	15	69	0.29	yes
trans-1,3-Dichloropropene	EPA 8260LL	0.00053	1.7	8.3	0.007	yes
Pesticides						
Pentachlorophenol	EPA 8151	0.00095	0.89	2.7	0.1	yes
Metals						
Arsenic*	EPA 6010b	0.5	40	40	40	yes
Barium	EPA 6010b	0.5	1,500	19,000	411	yes
Cadmium	EPA 6010b	0.02	70	800	3.8	yes
Chromium**	EPA 6010b	0.5	0.29	5.6	1.80E+06	no, will request MDL of 0.07 mg/kg
Lead	EPA 6010b	0.3	400	800	140	yes
Mercury	EPA 7471	0.02	1.0	4.3	2.60	yes
Selenium	EPA 6010b	0.75	39	510	8.90	yes
Silver	EPA 6010b	0.5	39	510	1.0	yes

Notes:

Screening levels for VOCs and metals are based on EPA RSLs and adjusted according to DEQ's April 2011 soil screening flow charts.

RSL = EPA Regional Screening Level (May 2011)

SSL = Soil Screening Level

na = not available. No EPA Regional Screening Levels exist for this compound

a = DEQ RBSLs apply. See Table 6b for screening levels

b = the more conservative SSL bewteen p-xylene and m-xylene was used

** = DEQ action level for arsenic (April 2005)*

*** = Direct Contact RSL is for Chromium VI species*

Table 6b. Petroleum Hydrocarbon and PAH Reporting Limits Compared to Soil Screening Levels							
Knife River Property, Kalispell, Montana							
Analyte	Analytical Method	Reporting Limit	Surface Soil SSL (0-20 ft to groundwater)		Subsurface Soil SSL		Is the reporting limit less than the screening level?
			Residential	Industrial	<10 ft to groundwater	10-20 feet to groundwater	
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Petroleum Hydrocarbons							
C5-C8 Aliphatics	MDEP VPH	10	60	300	200	500	yes
C9-C12 Aliphatics	MDEP VPH	10	100	700	1000	1000	yes
C9-C10 Aromatics	MDEP VPH	10	100	500	100	500	yes
MTBE	MDEP VPH	0.06	0.2	0.2	0.08	0.2	yes
Benzene	MDEP VPH	0.025	0.1	0.1	0.04	0.1	yes
Toluene	MDEP VPH	0.1	40	40	10	40	yes
Ethylbenzene	MDEP VPH	0.1	6	30	10	40	yes
Xylenes	MDEP VPH	0.3	70	300	200	600	yes
Naphthalene	MDEP VPH	0.5	4	20	9	30	yes
EPH Screen	MDEP EPH	10	200	200	200	200	yes
C9-C18 Aliphatics	MDEP EPH	10	200	1000	2000	2000	yes
C19-C36 Aliphatics	MDEP EPH	10	20,000	100,000	100,000	100,000	yes
C11-C22 Aromatics	MDEP EPH	10	500	1000	400	1000	yes
Polynuclear Aromatic Hydrocarbons							
Acenapthene	8270c SIM	0.01	400	800	200	800	yes
Acenapthylene[a]	8270c SIM	0.01	400	800	200	800	yes
Anthracene	8270c SIM	0.01	2,000	10,000	4,000	10,000	yes
Benz(a)anthracene	8270c SIM	0.01	0.20	2	10	50	yes
Benzo(a)pyrene	8270c SIM	0.01	0.02	0.2	4.0	5.0	yes
Benzo(b)fluoranthene	8270c SIM	0.01	0.20	2	50	50	yes
Benzo(k)fluoranthene	8270c SIM	0.01	2	20	500	500	yes
Benzo(g,h,i)perylene[a]	8270c SIM	0.01	400	800	200	800	yes
Chrysene	8270c SIM	0.01	20	200	2000	5,000	yes
Dibenzo(a,h)anthracene	8270c SIM	0.01	0.02	0.20	5	5	yes
Fluoranthene	8270c SIM	0.01	300	2,000	500	2,000	yes
Fluorene	8270c SIM	0.01	300	2,000	600	2,000	yes

Table 6b. Petroleum Hydrocarbon and PAH Reporting Limits Compared to Soil Screening Levels							
Knife River Property, Kalispell, Montana							
Analyte	Analytical Method	Reporting Limit	Surface Soil SSL (10-20 ft to groundwater)		Subsurface Soil SSL		Is the reporting limit less than the screening level?
			Residential	Industrial	<10 ft to groundwater	10-20 feet to groundwater	
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Indeno(1,2,3-cd)pyrene	8270c SIM	0.01	0.20	2	50	50	yes
Naphthalene	8270c SIM	0.01	4	20	9	30	yes
Phenanthrene[a]	8270c SIM	0.01	300	2,000	500	2,000	yes
Pyrene	8270c SIM	0.01	200	2,000	2,000	2,000	yes

SSL = Soil Screening Level

MDEP = Massachusetts Department of Environmental Protection

The screening levels are Montana Department of Environmental Quality Risk-Based Screening Levels (RBSLs; September 2009). The RBSLs listed are the most conservative for the direct contact and leaching scenarios. DEQ does not distinguish between direct contact and leaching screening levels. The RBSLs listed are based on depths to water in local monitoring wells of approximately 20 feet below ground surface.

a = Surrogate PAH screening levels were used based on similar structure. Acenaphthene screening levels for benzo(g,h,i)perylene and acenaphthylene. Fluoranthene screening levels for phenanthrene.

Table 7. Reporting Limits Compared to Groundwater Standards
Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit µg/L	Screening Level* µg/L	Is the reporting limit less or equal to the screening level
Polynuclear Aromatic Hydrocarbons				
Acenaphthene	8270c SIM	0.04	670	yes
Acenaphthylene	8270c SIM	0.04	670**	yes
Anthracene	8270c SIM	0.04	2,100	yes
Benz(a)anthracene	8270c SIM	0.04	0.50	yes
Benzo(a)pyrene	8270c SIM	0.04	0.05	yes
Benzo(b)fluoranthene	8270c SIM	0.08	0.5	yes
Benzo(k)fluoranthene	8270c SIM	0.04	5	yes
Benzo(g,h,i)perylene	8270c SIM	0.04	na	na
Chrysene	8270c SIM	0.04	50	yes
Dibenzo(a,h)anthracene	8270c SIM	0.04	0.05	yes
Fluoranthene	8270c SIM	0.04	130	yes
Fluorene	8270c SIM	0.04	1100	yes
Indeno(1,2,3-cd)pyrene	8270c SIM	0.04	0.5	yes
Naphthalene	8270c SIM	0.04	100	yes
Phenanthrene	8270c SIM	0.04	na	na
Pyrene	8270c SIM	0.04	830	yes
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	EPA 8260	1.0	na	na
1,1,1-Trichloroethane	EPA 8260	1.0	200	yes
1,1,2,2-Tetrachloroethane	EPA 8260	1.0	2	yes
1,1,2-Trichloroethane	EPA 8260	1.0	3	yes
1,1,2-Trichlorotrifluoroethane	EPA 8260	1.0	na	na
1,1-Dichloroethane	EPA 8260	1.0	na	na
1,1-Dichloroethene	EPA 8260	1.0	0.6	no, will request MDL of 0.47
1,1-Dichloropropene	EPA 8260	1.0	na	na
1,2,3-Trichlorobenzene	EPA 8260	1.0	na	na
1,2,3-Trichloropropane	EPA 8260	4.0	na	na
1,2,4-Trichlorobenzene	EPA 8260	1.0	70	yes
1,2,4-Trimethylbenzene	EPA 8260	1	na	na
1,2-Dibromo-3-chloropropane	EPA 8260	4	0.2	no, will request MDL of 1.23
1,2-Dibromoethane (EDB)	EPA 8260 or 8011	1	0.004	no, will request MDL of 0.26
1,2-Dichlorobenzene	EPA 8260	1	600	yes
1,2-Dichloroethane	EPA 8260	1	4	yes

Table 7. Reporting Limits Compared to Groundwater Standards
Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit[a] µg/L	Screening Level[b] µg/L	Is the reporting limit less or equal to the screening level?
1,2-Dichloropropane	EPA 8260	4	5	yes
1,3,5-Trimethylbenzene	EPA 8260	1	na	na
1,3-Dichlorobenzene	EPA 8260	1	600	yes
1,3-Dichloropropane	EPA 8260	1	na	na
1,4-Dichlorobenzene	EPA 8260	1	75	yes
2,2-Dichloropropane	EPA 8260	4	na	na
2-Butanone (MEK)	EPA 8260	4	na	na
2-Chlorotoluene	EPA 8260	1	na	na
4-Chlorotoluene	EPA 8260	1	na	na
4-Methyl-2-pentanone (MIBK)	EPA 8260	4	na	na
Acetone	EPA 8260	25	na	na
Allyl chloride	EPA 8260	4	na	na
Benzene	EPA 8260	1	5	yes
Bromobenzene	EPA 8260	1	na	na
Bromochloromethane	EPA 8260	1	na	na
Bromodichloromethane	EPA 8260	1	10	yes
Bromoform	EPA 8260	4	80	yes
Bromomethane	EPA 8260	4	10	yes
Carbon tetrachloride	EPA 8260	1	3	yes
Chlorobenzene	EPA 8260	1	100	yes
Chloroethane	EPA 8260	1	na	na
Chloroform	EPA 8260	1	70	yes
Chloromethane	EPA 8260	4	30	yes
cis-1,3-Dichloropropene	EPA 8260	4	4	yes
Dibromochloromethane	EPA 8260	1	4	yes
Dibromomethane	EPA 8260	4	na	na
Dichlorodifluoromethane	EPA 8260	1	1000	yes
Dichlorofluoromethane	EPA 8260	1	na	na
Diethyl ether (Ethyl ether)	EPA 8260	4	na	na
Ethylbenzene	EPA 8260	1	700	yes
Hexachloro-1,3-butadiene	EPA 8260	5	5	yes
Isopropylbenzene (Cumene)	EPA 8260	1	na	na
Methyl-tert-butyl ether	EPA 8260	1	30	yes
Methylene Chloride	EPA 8260	4	5	yes
Naphthalene	EPA 8260	4	100	yes
Styrene	EPA 8260	1	100	yes

Table 7. Reporting Limits Compared to Groundwater Standards

Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit µg/L	Screening Level[1] µg/L	Is the reporting limit less or equal to the screening level?
Tetrachloroethene	EPA 8260	1	5	yes
Tetrahydrofuran	EPA 8260	10	na	na
Toluene	EPA 8260	1	1,000	yes
Trichloroethene	EPA 8260	1	5	yes
Trichlorofluoromethane	EPA 8260	1	10,000	yes
Vinyl chloride	EPA 8260	0.4	0.2	no, will request MDL of 0.17
Xylene (Total)	EPA 8260	3	10,000	yes
cis-1,2-Dichloroethene	EPA 8260	1	70	yes
m- + p- Xylene	EPA 8260	2	10,000	yes
n-Butylbenzene	EPA 8260	1	na	na
n-Propylbenzene	EPA 8260	1	na	na
o-Xylene	EPA 8260	1	10,000	yes
p-Isopropyltoluene	EPA 8260	1	na	na
sec-Butylbenzene	EPA 8260	1	na	na
tert-Butylbenzene	EPA 8260	1	na	na
trans-1,2-Dichloroethene	EPA 8260	4	100	yes
trans-1,3-Dichloropropene	EPA 8260	4	2	no, will request MDL of 0.18
Petroleum Hydrocarbons				
Total Purgeable Hydrocarbons	MDEP VPH	20	1000	yes
C5-C8 Aliphatics	MDEP VPH	20	700	yes
C9-C12 Aliphatics	MDEP VPH	20	1,000	yes
C9-C10 Aromatics	MDEP VPH	20	1,000	yes
MTBE	MDEP VPH	0.5	30	yes
Benzene	MDEP VPH	0.5	5	yes
Toluene	MDEP VPH	0.5	1,000	yes
Ethylbenzene	MDEP VPH	0.5	700	yes
Xylenes	MDEP VPH	1.5	10,000	yes
Naphthalene	MDEP VPH	5	100	yes
EPH Screen	MDEP EPH	200	1,000	yes
C9-C18 Aliphatics	MDEP EPH	200	1,000	yes
C19-C36 Aliphatics	MDEP EPH	200	1,000	yes
C11-C22 Aromatics	MDEP EPH	200	1,000	yes

Kari Poehls - Knife River trip blank samples

From: "Mckay, Levi" <levi.mckay@amec.com>
To: "kari.poehls@pacelabs.com" <kari.poehls@pacelabs.com>
Date: 9/20/2011 11:25 AM
Subject: Knife River trip blank samples
CC: "Johnson, Adam N (Missoula)" <adam.n.johnson@amec.com>

Hi Kari,

Just want to clarify our analyte request for the Knife River samples. **We only need to analyze Trip Blank 4 for VPH**, as it was shipped with both soil and groundwater samples. The remaining Trip Blanks that were submitted do not need to be analyzed.

Thanks,
Levi

Levi McKay
Staff Geologist
AMEC
1001B South Higgins Ave.
Missoula, Montana 59801 USA
Tel 406.542.0129 x 21
levi.mckay@amec.com

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Sample Condition Upon Receipt

Pace Analytical

Client Name: Amoc Project # 10169815

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: Blake

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____ Temp Blank: Yes X No _____

Thermometer Used 1383045 or 135 Type of Ice: Wet Blue None ☒ Samples on ice, cooling process has begun

Cooler Temperature 5.2/5.6/2.8/5.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C 5.8/5.6

Date and Initials of person examining contents: RW 9/18/11

		Comments:
Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT/SL		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☒Yes ☐No ☐N/A	13. ☒ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	Samp # 001-006 (1/1)
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☒Yes ☐No	Initial when completed RW Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☒No ☐N/A	15.
Trip Blank Present:	☒Yes ☐No ☐N/A	16.
Trip Blank Custody Seals Present	☒Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased): No label	RW 9/18/11	

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/Resolution:

~~Adam~~ Was contacted by Adam & he explained that samples 007, 009, & 011 ~~only~~ should only be analyzed for VPH. Samples 008, 010 & 012 should not be analyzed for VPH.

Project Manager Review: Kim Parks **Date:** 9-19-11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i
Lab File ID: BCK26326.D
Analysis Type: SOIL
Lab Sample ID: ccv 7658-141
Method: \\192.168.14.11\chem\11MT03.i\092011a.b\3EscB083011.m

Injection Date: 21-SEP-2011 01:01
Init. Cal. Date(s): 30-AUG-2011 30-AUG-2011
Init. Cal. Times: 18:43 21:25
Quant Type: ESTD

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3687	3786	0.010	2.69005	25.00000	Averaged
S 57 Aliphatic (C9-C18)	3762	4255	0.010	13.09074	25.00000	Averaged
S 58 Aliphatic (C19-C36)	3630	3434	0.010	-5.39446	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3794	3811	0.010	0.44635	25.00000	Averaged
$ 54 o-Terphenyl (S)	4637	4878	0.010	5.19103	25.00000	Averaged

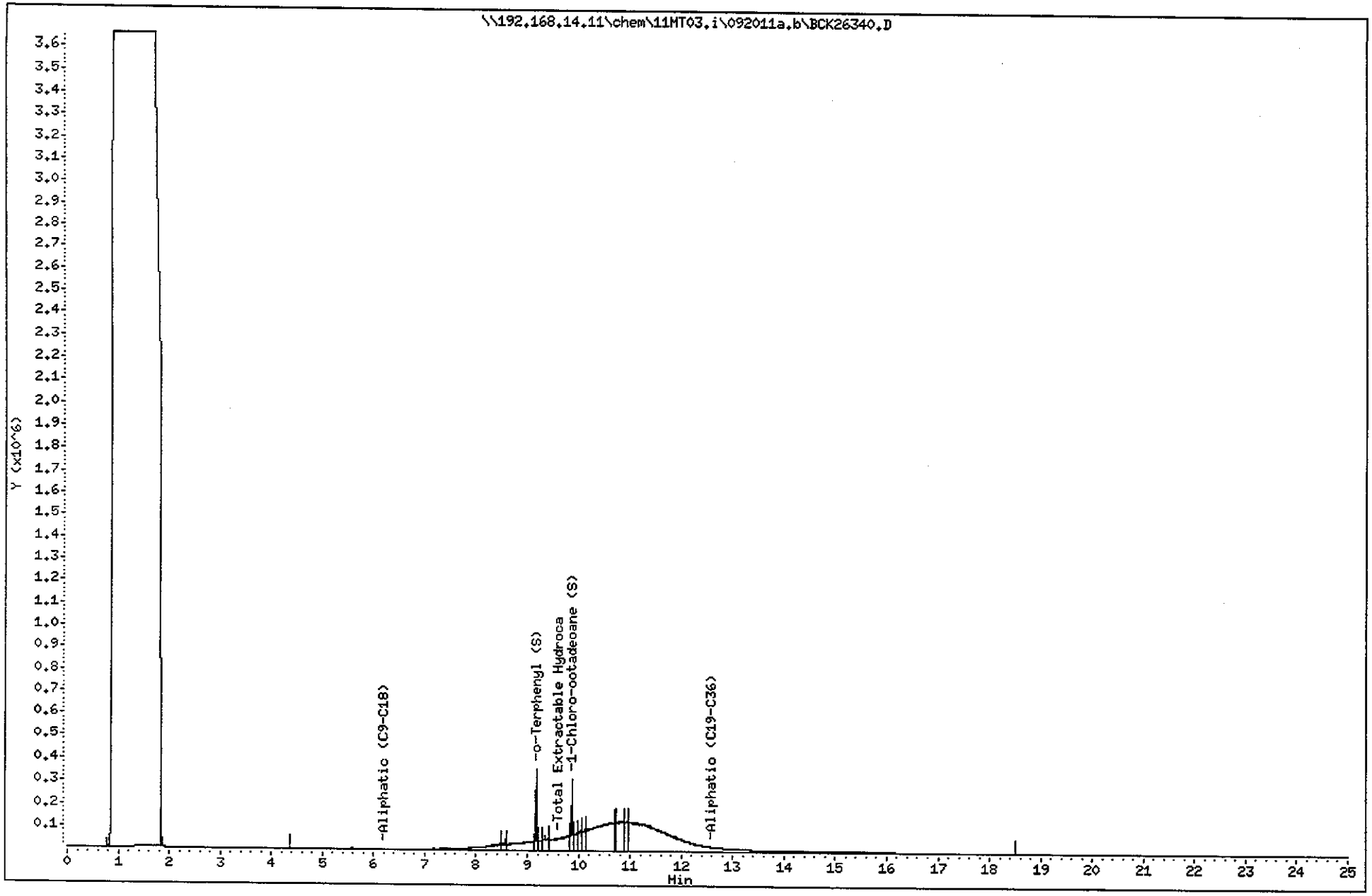
Average %D / Drift Results.

Calculated Average %D/Drift = 11.33892
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT03.i\092011a.b\BCK26340.D
Date : 21-SEP-2011 08:25
Client ID:
Sample Info: 10169815008
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

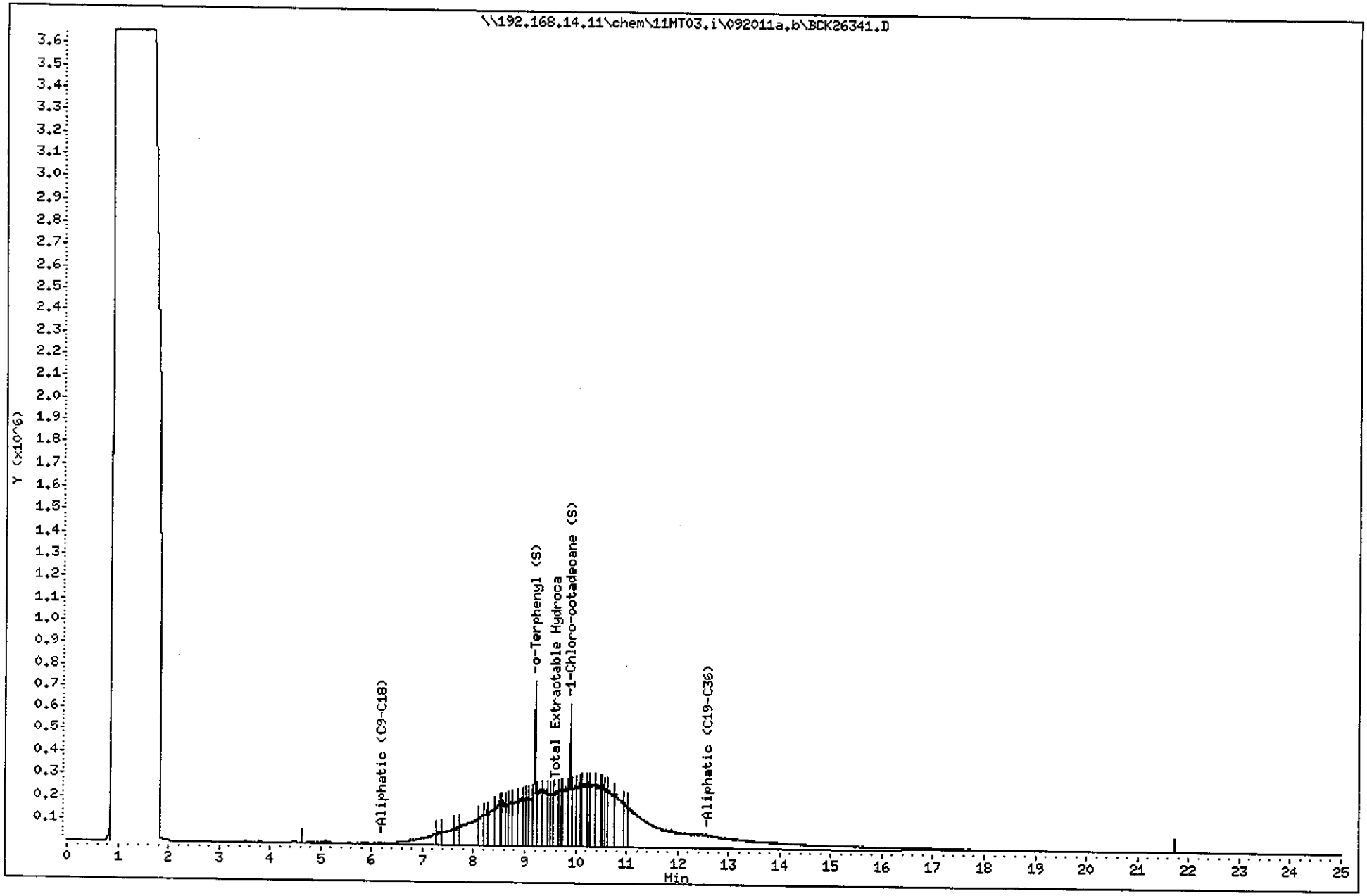
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\092011a.b\BCK26341.D
Date : 21-SEP-2011 08:57
Client ID:
Sample Info: 10169815010
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

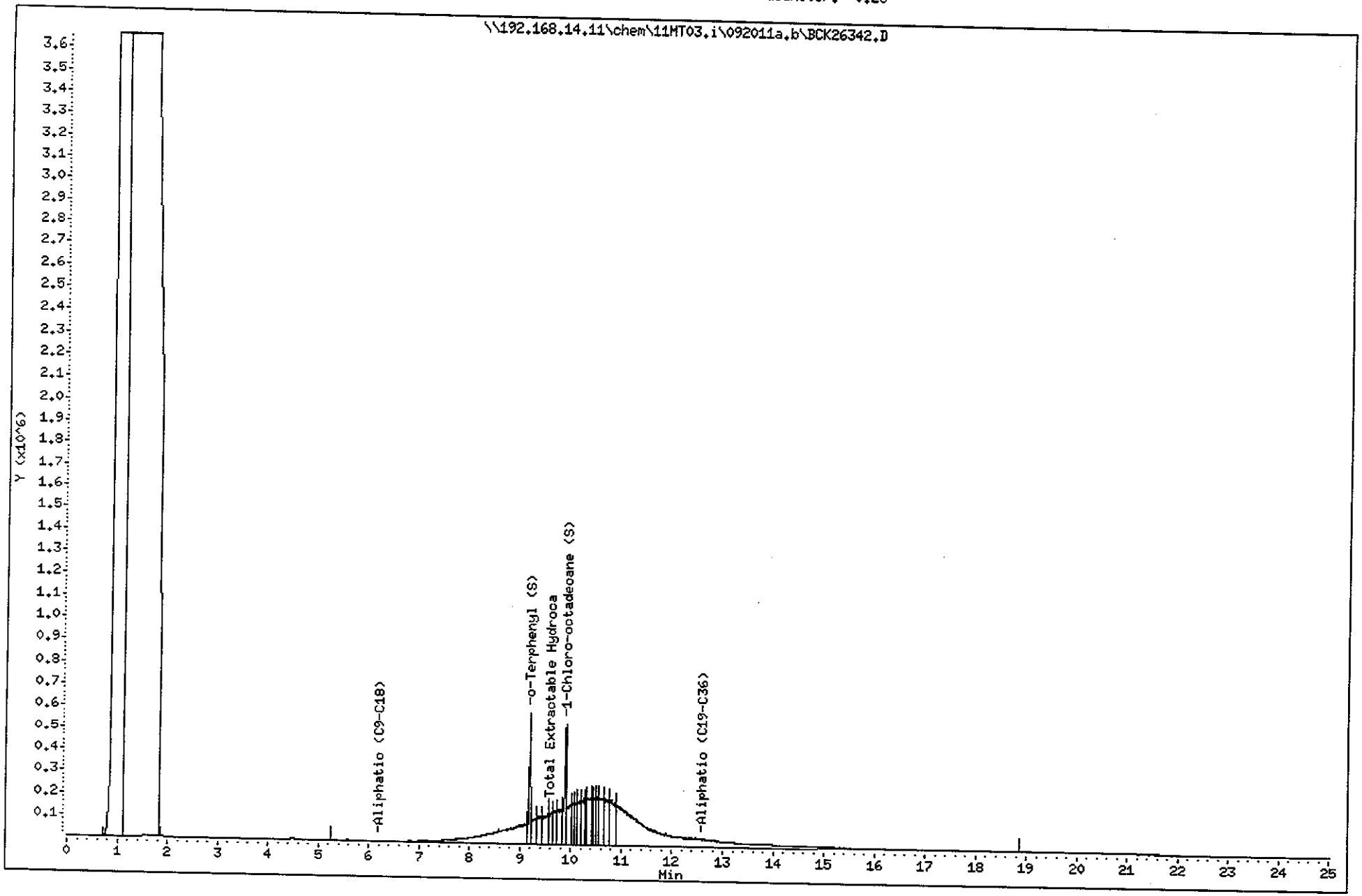
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\092011a.b\BCK26342.D
Date : 21-SEP-2011 09:28
Client ID:
Sample Info: 10169815012
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 21-SEP-2011 13:12
Lab File ID: BCK26349.D Init. Cal. Date(s): 30-AUG-2011 30-AUG-2011
Analysis Type: SOIL Init. Cal. Times: 18:43 21:25
Lab Sample ID: ccv 7658-141 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\092011a.b\3EscB083011.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3687	3696	0.010	0.25392	25.00000	Averaged
S 57 Aliphatic (C9-C18)	3762	4446	0.010	18.17317	25.00000	Averaged
S 58 Aliphatic (C19-C36)	3630	3134	0.010	-13.67484	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3794	3857	0.010	1.64582	25.00000	Averaged
$ 54 o-Terphenyl (S)	4637	4949	0.010	6.73457	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 11.33892
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 22-SEP-2011 08:16
Lab File ID: BCK26501.D Init. Cal. Date(s): 30-AUG-2011 30-AUG-2011
Analysis Type: WATER Init. Cal. Times: 18:43 21:25
Lab Sample ID: eph ccv 7658-141 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\092211a.b\3EscB083011.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
S 4 Total Extractable Hydrocarb	3687	3513	0.010	-4.70413	25.00000	Averaged	
S 57 Aliphatic (C9-C18)	3762	4651	0.010	23.63925	25.00000	Averaged	
S 58 Aliphatic (C19-C36)	3630	2659	0.010	-26.73568	25.00000	Averaged	<-
$ 7 1-Chloro-octadecane (S)	3794	4008	0.010	5.63404	25.00000	Averaged	
$ 54 o-Terphenyl (S)	4637	5267	0.010	13.57553	25.00000	Averaged	

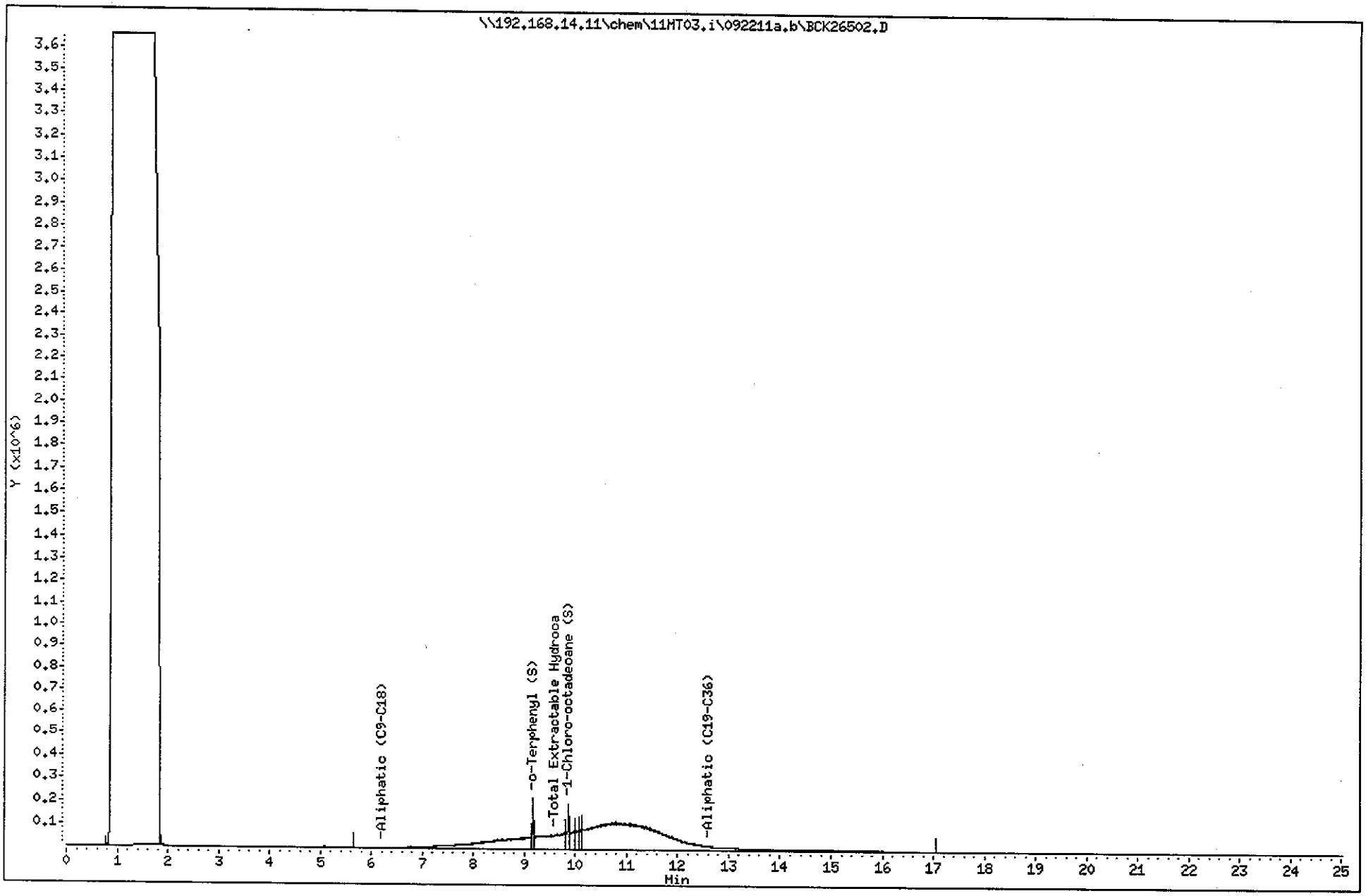
Average %D / Drift Results.

Calculated Average %D/Drift = 7.75302
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT03.i\092211a.b\BCK26502.D
Date : 22-SEP-2011 08:48
Client ID:
Sample Info: 10169815010,5
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

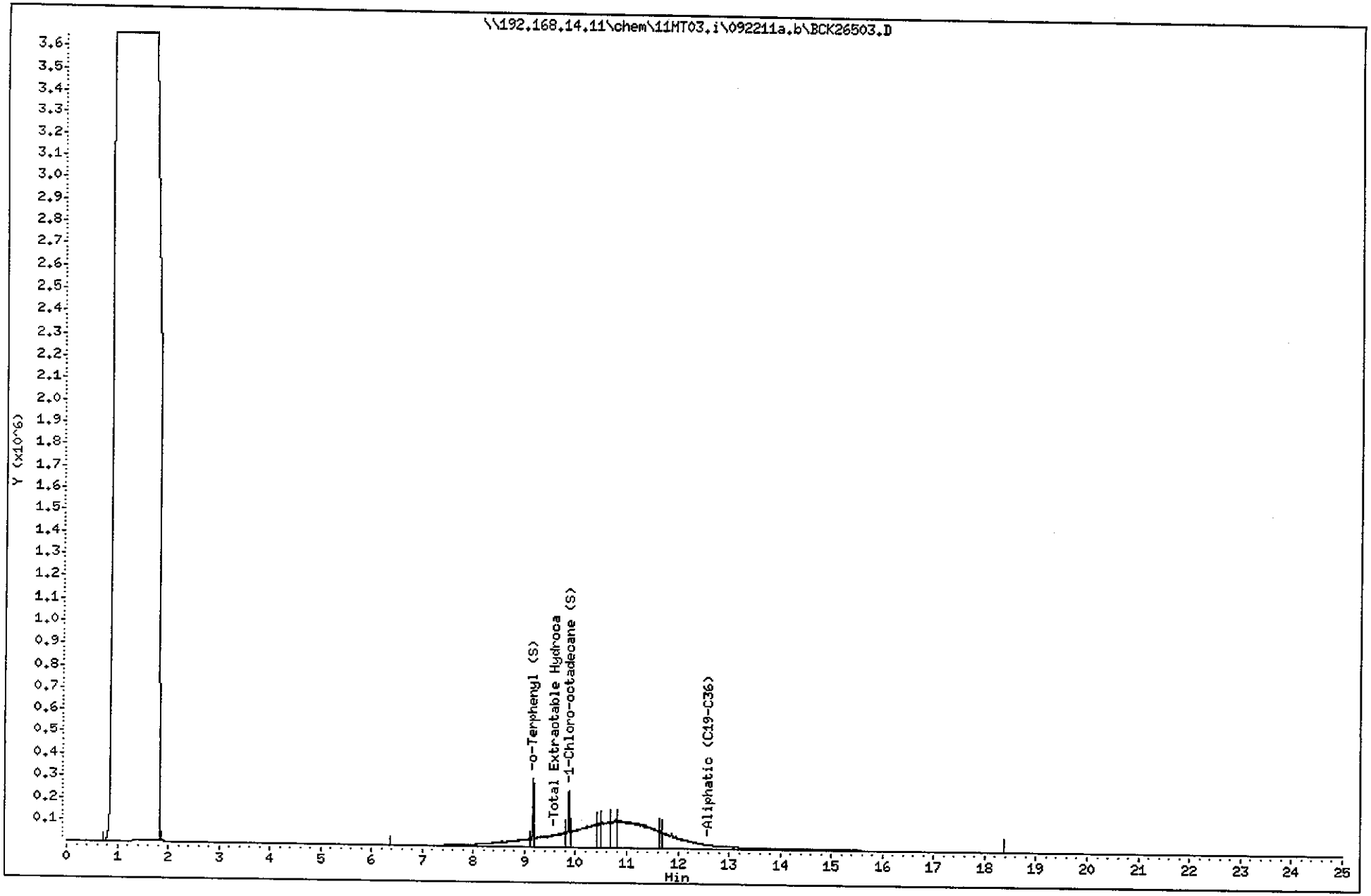
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\092211a.b\BCK26503.D
Date : 22-SEP-2011 09:19
Client ID:
Sample Info: 10169815012,4
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 22-SEP-2011 11:27
Lab File ID: BCK26507.D Init. Cal. Date(s): 30-AUG-2011 30-AUG-2011
Analysis Type: WATER Init. Cal. Times: 18:43 21:25
Lab Sample ID: eph ccv 7658-141 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\092211a.b\3EscB083011.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3687	3811	0.010	3.36234	25.00000	Averaged
S 57 Aliphatic (C9-C18)	3762	4510	0.010	19.88778	25.00000	Averaged
S 58 Aliphatic (C19-C36)	3630	3286	0.010	-9.48299	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3794	3901	0.010	2.80286	25.00000	Averaged
$ 54 o-Terphenyl (S)	4637	5016	0.010	8.17503	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 7.75302
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 20-OCT-2011 14:36
Lab File ID: BCK29222.D Init. Cal. Date(s): 22-JUN-2011 22-JUN-2011
Analysis Type: SOIL Init. Cal. Times: 19:08 23:40
Lab Sample ID: ali ccv 7658-151 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\101911a.b\11mt04ALIB062211.m

COMPOUND	RRF / AMOUNT	RF800	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 57 Aliphatic (C9-C18)	9072	10703	0.010	17.97927	25.00000	Averaged
S 58 Aliphatic (C19-C36)	9650	10977	0.010	13.75195	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	8610	8886	0.010	3.20544	25.00000	Averaged

10169815
Frac

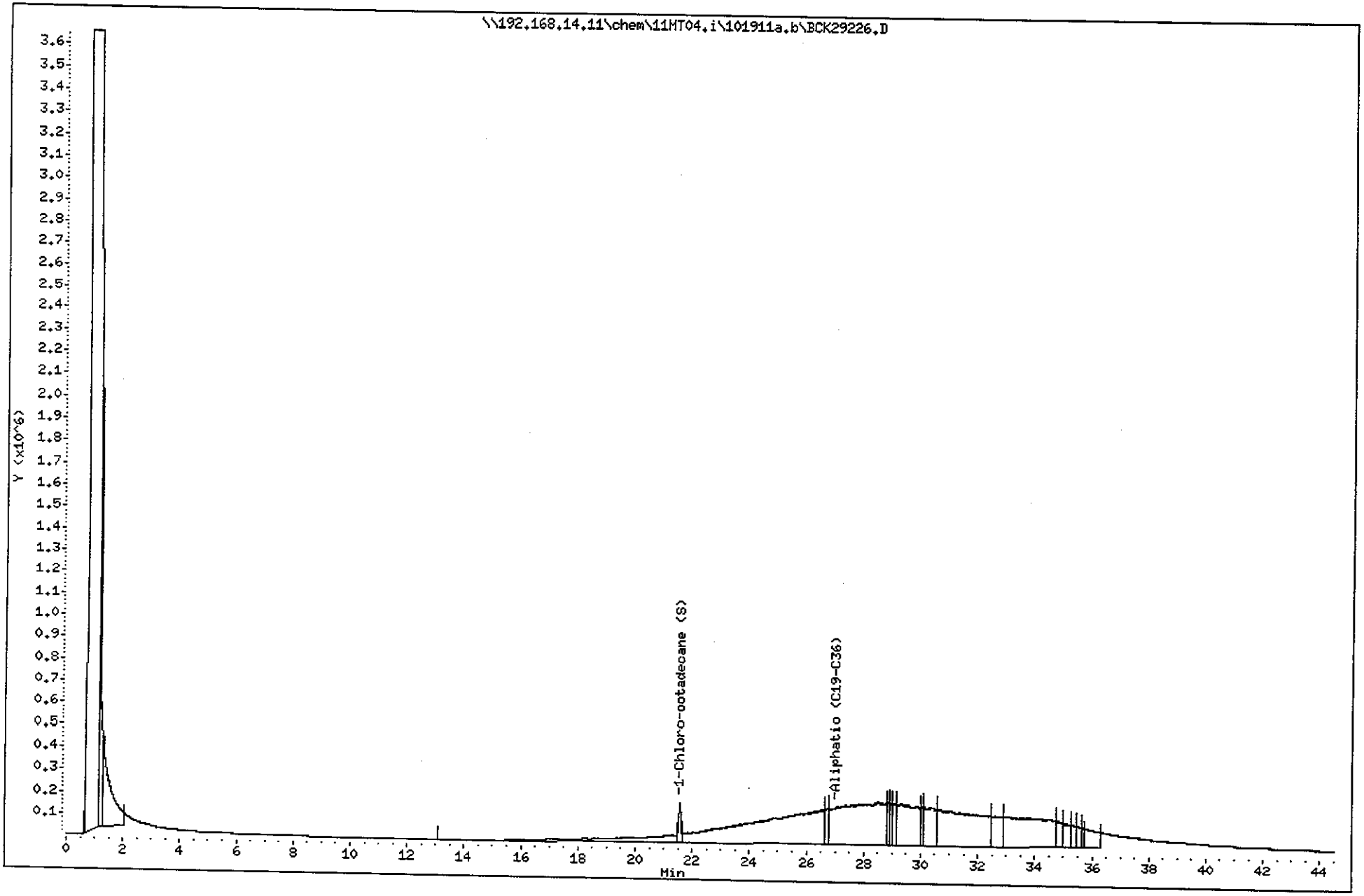
Average %D / Drift Results.

Calculated Average %D/Drift = 10.78099
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11HT04.i\101911a.b\BCK29226.D
Date : 20-OCT-2011 20:04
Client ID:
Sample Info: 10169815008
Volume Injected (uL): 1.0
Column phase: RTX-5 0.53mm

Instrument: 11HT04.i

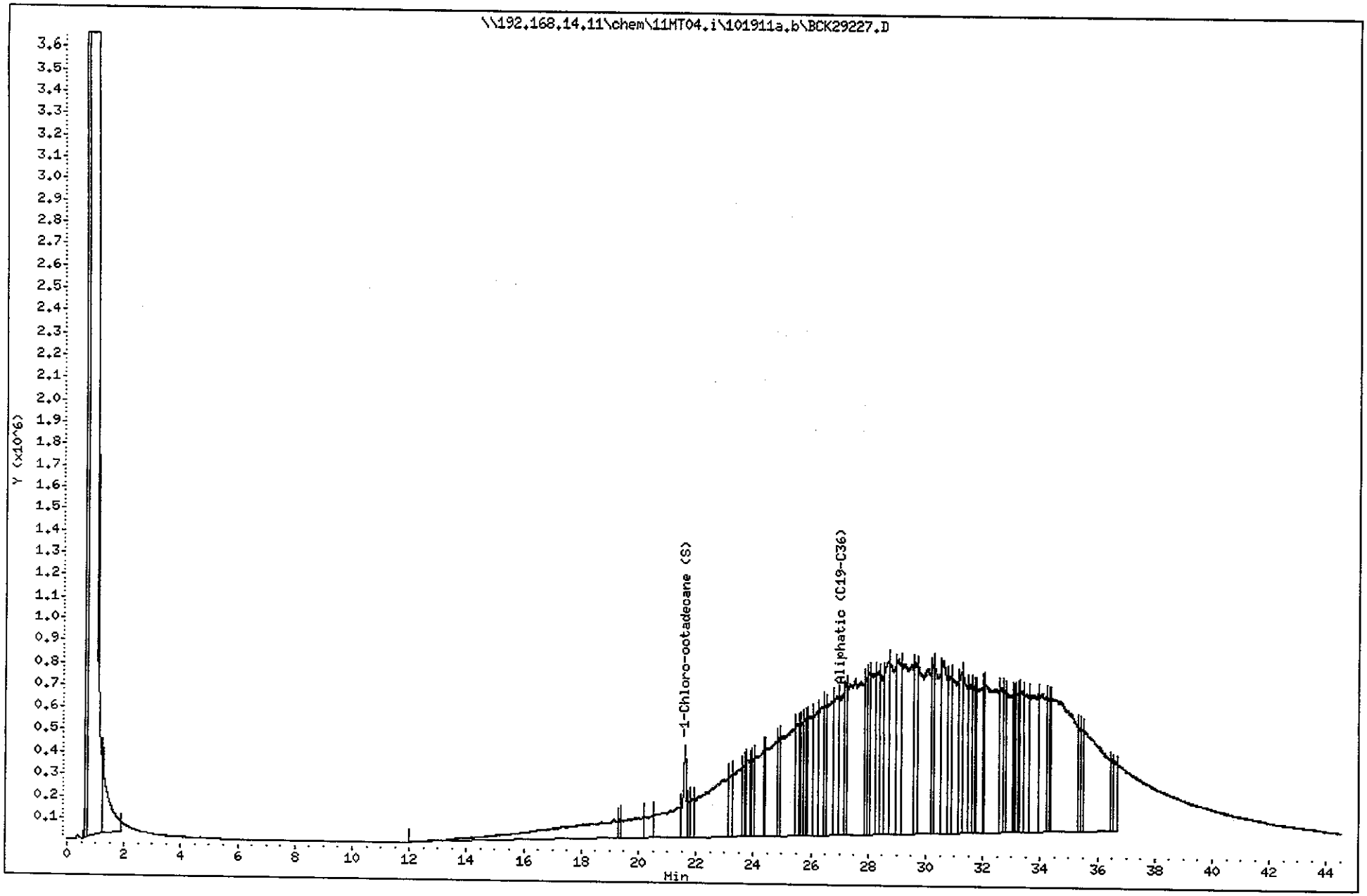
Operator: EJS
Column diameter: 0.50



Data File: \\192.168.14.11\chem\11MT04.i\101911a.b\BCK29227.D
Date : 20-OCT-2011 20:58
Client ID:
Sample Info: 10169815010
Volume Injected (uL): 1.0
Column phase: RTX-5 0.53mm

Instrument: 11MT04.i

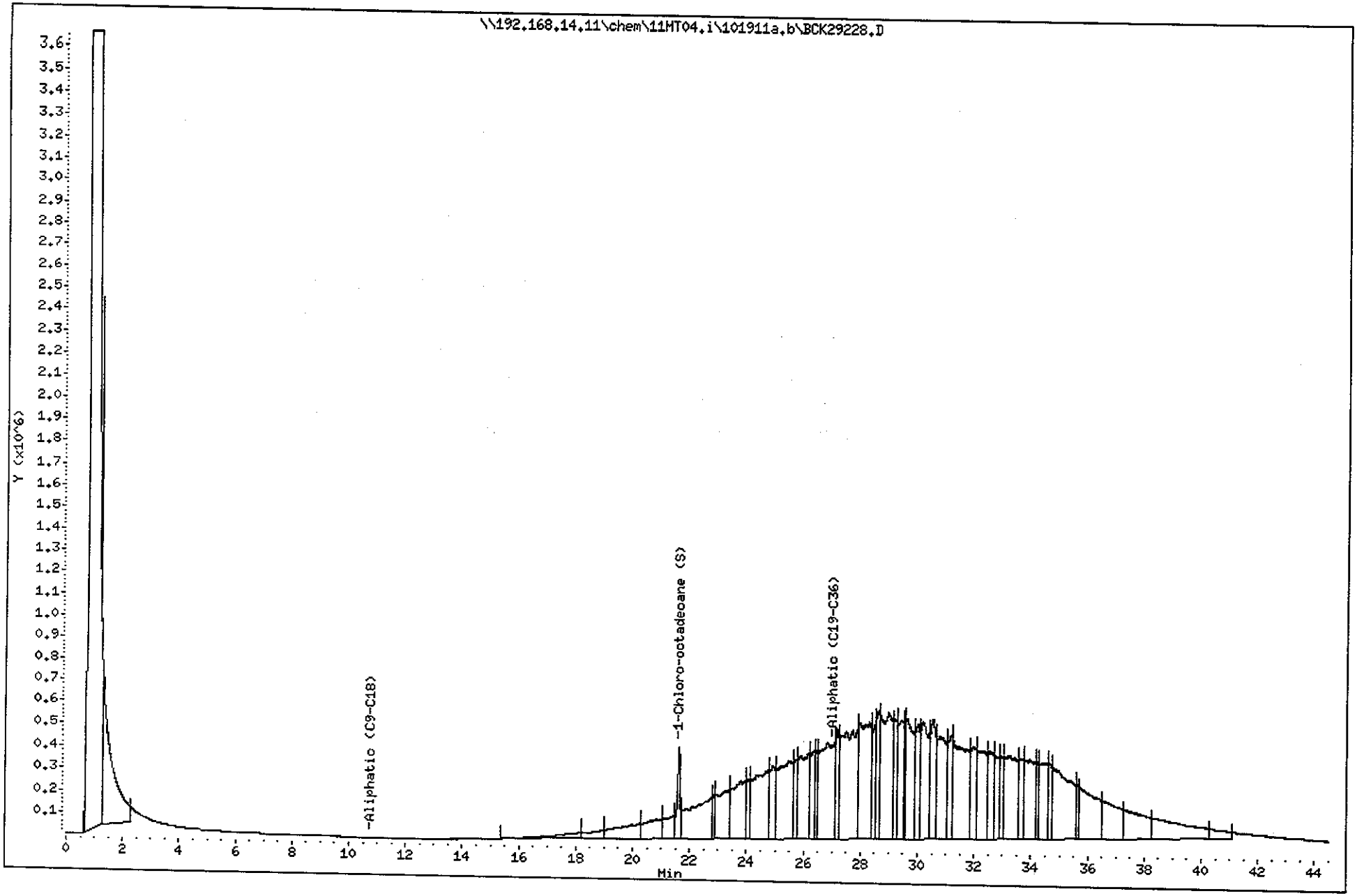
Operator: EJS
Column diameter: 0.50



Data File: \\192.168.14.11\chem\11MT04.i\101911a.b\BCK29228.D
Date : 20-OCT-2011 21:51
Client ID:
Sample Info: 10169815012
Volume Injected (uL): 1.0
Column phase: RTX-5 0.53mm

Instrument: 11MT04.i

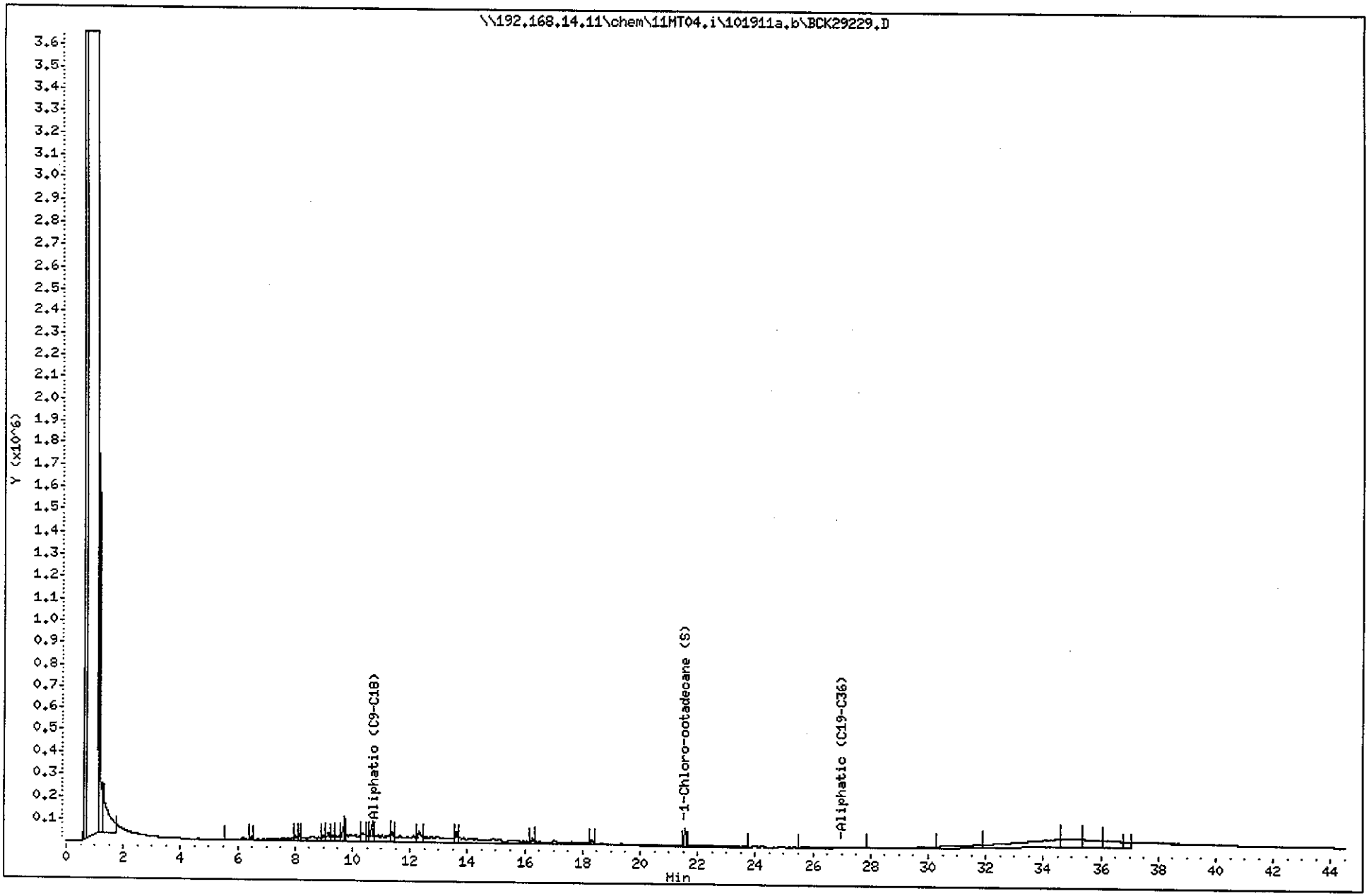
Operator: EJS
Column diameter: 0.50



Data File: \\192.168.14.11\chem\11MT04.i\101911a.b\BCK29229.D
Date : 20-OCT-2011 22:45
Client ID:
Sample Info: 10171864005,4
Volume Injected (uL): 1.0
Column phase: RTX-5 0.53mm

Instrument: 11MT04.i

Operator: EJS
Column diameter: 0.50



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 20-OCT-2011 23:39
Lab File ID: BCK29230.D Init. Cal. Date(s): 22-JUN-2011 22-JUN-2011
Analysis Type: SOIL Init. Cal. Times: 19:08 23:40
Lab Sample ID: ali ccv 7658-151 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\101911a.b\11mt04ALIB062211.m

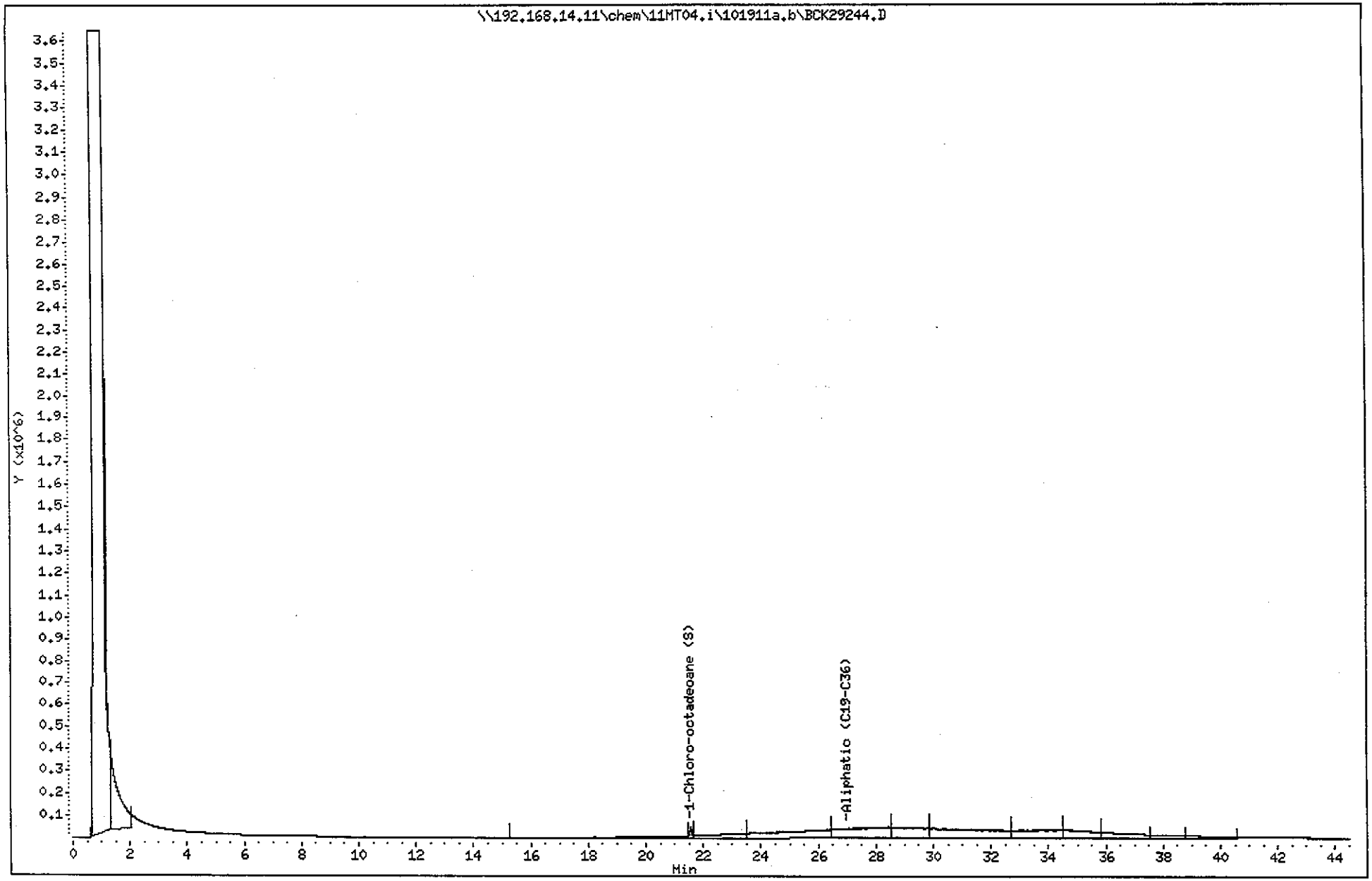
COMPOUND	RRF / AMOUNT	RF800	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 57 Aliphatic (C9-C18)	9072	10587	0.010	16.70608	25.00000	Averaged
S 58 Aliphatic (C19-C36)	9650	10860	0.010	12.53764	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	8610	8790	0.010	2.09008	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 10.78099
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT04.i\101911a.b\BCK29244.D
Date : 21-OCT-2011 13:42
Client ID:
Sample Info: 10169815008,4
Volume Injected (uL): 1.0
Column phase: RTX-5 0.53mm

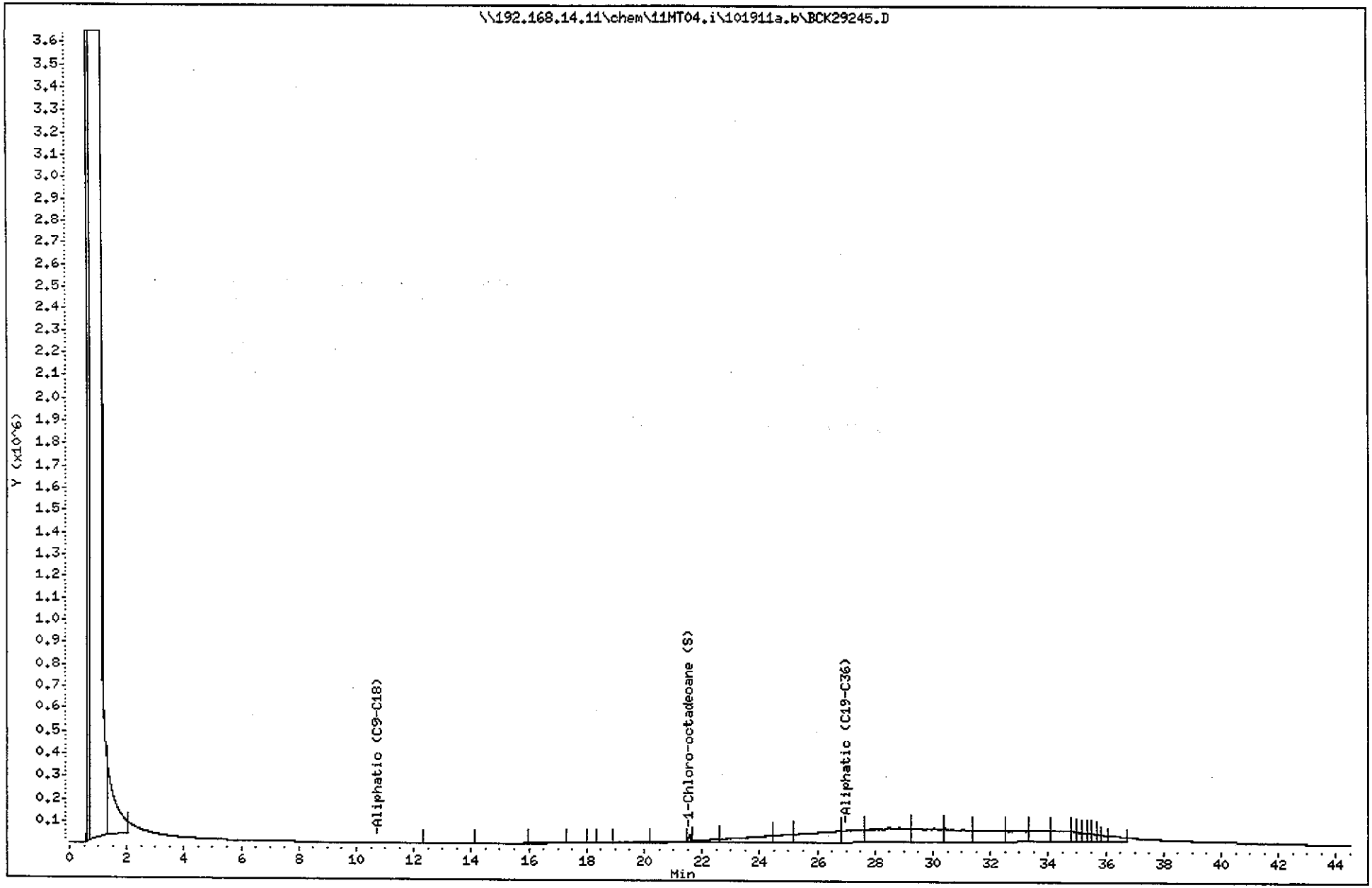
Instrument: 11MT04.i
Operator: EJS
Column diameter: 0.50



Data File: \\192.168.14.11\chem\11MT04.i\101911a.b\BCK29245.D
Date : 21-OCT-2011 14:36
Client ID:
Sample Info: 10169815010,10
Volume Injected (uL): 1.0
Column phase: RTX-5 0.53mm

Instrument: 11MT04.i

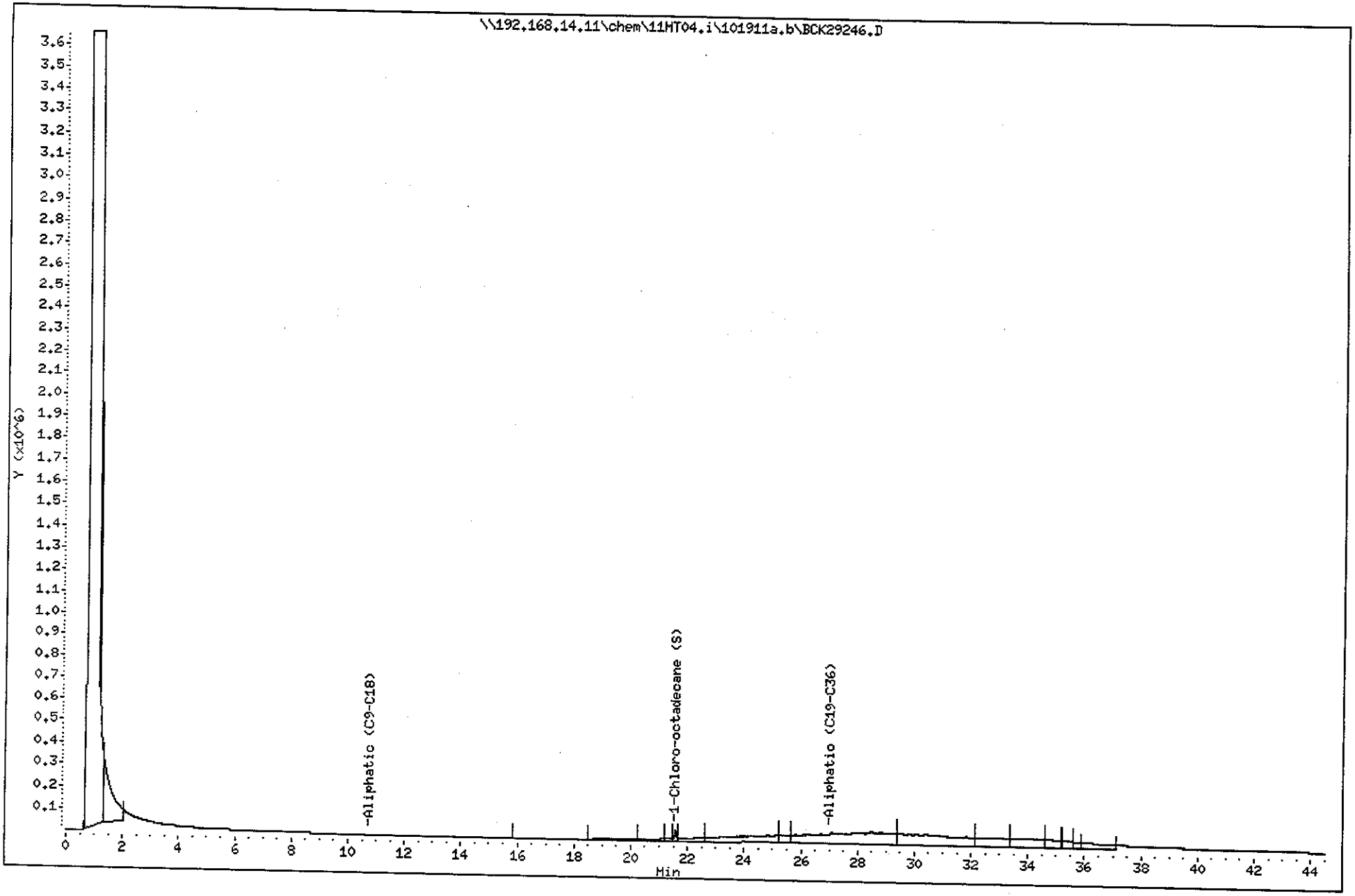
Operator: EJS
Column diameter: 0.50



Data File: \\192.168.14.11\chem\11MT04.i\101911a.b\BCK29246.D
Date : 21-OCT-2011 15:31
Client ID:
Sample Info: 10169815012,10
Volume Injected (uL): 1.0
Column phase: RTX-5 0.53mm

Instrument: 11MT04.i

Operator: EJS
Column diameter: 0.50



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 21-OCT-2011 18:09
Lab File ID: BCK29248.D Init. Cal. Date(s): 22-JUN-2011 22-JUN-2011
Analysis Type: SOIL Init. Cal. Times: 19:08 23:40
Lab Sample ID: ali ccv 7658-151 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\101911a.b\11mt04ALIB062211.m

COMPOUND	RRF / AMOUNT	RF800	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 57 Aliphatic (C9-C18)	9072	10646	0.010	17.34854	25.00000	Averaged
S 58 Aliphatic (C19-C36)	9650	10989	0.010	13.88004	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	8610	8877	0.010	3.09685	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 11.44181
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 20-OCT-2011 13:42
Lab File ID: FRT29221.D Init. Cal. Date(s): 03-AUG-2011 03-AUG-2011
Analysis Type: SOIL Init. Cal. Times: 09:26 13:59
Lab Sample ID: aro ccv 7658-152 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\101911a.b\4AROFr080311.m

COMPOUND	RRF / AMOUNT	RF1700	CCAL RRF1700	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Aromatic (C11-C22)	1700	1790	71689	0.010	5.29288	25.00000	Linear
S 6 Range #1	200	202	68064	0.010	1.12857	25.00000	Linear
S 7 Range #2	100	86.74424	66801	0.010	-13.25576	25.00000	Linear
S 8 Range #3	400	492	85860	0.010	23.06071	25.00000	Linear
S 9 Range #4	1000	987	67234	0.010	-1.34989	25.00000	Linear
$ 3 o-Terphenyl (S)	68489	67722	67722	0.010	-1.11920	25.00000	Averaged
$ 4 2-Fluorobiphenyl (S)	200	214	60502	0.010	7.07179	25.00000	Linear
$ 5 2-Bromonaphthalene (S)	200	210	39447	0.010	4.82309	25.00000	Linear

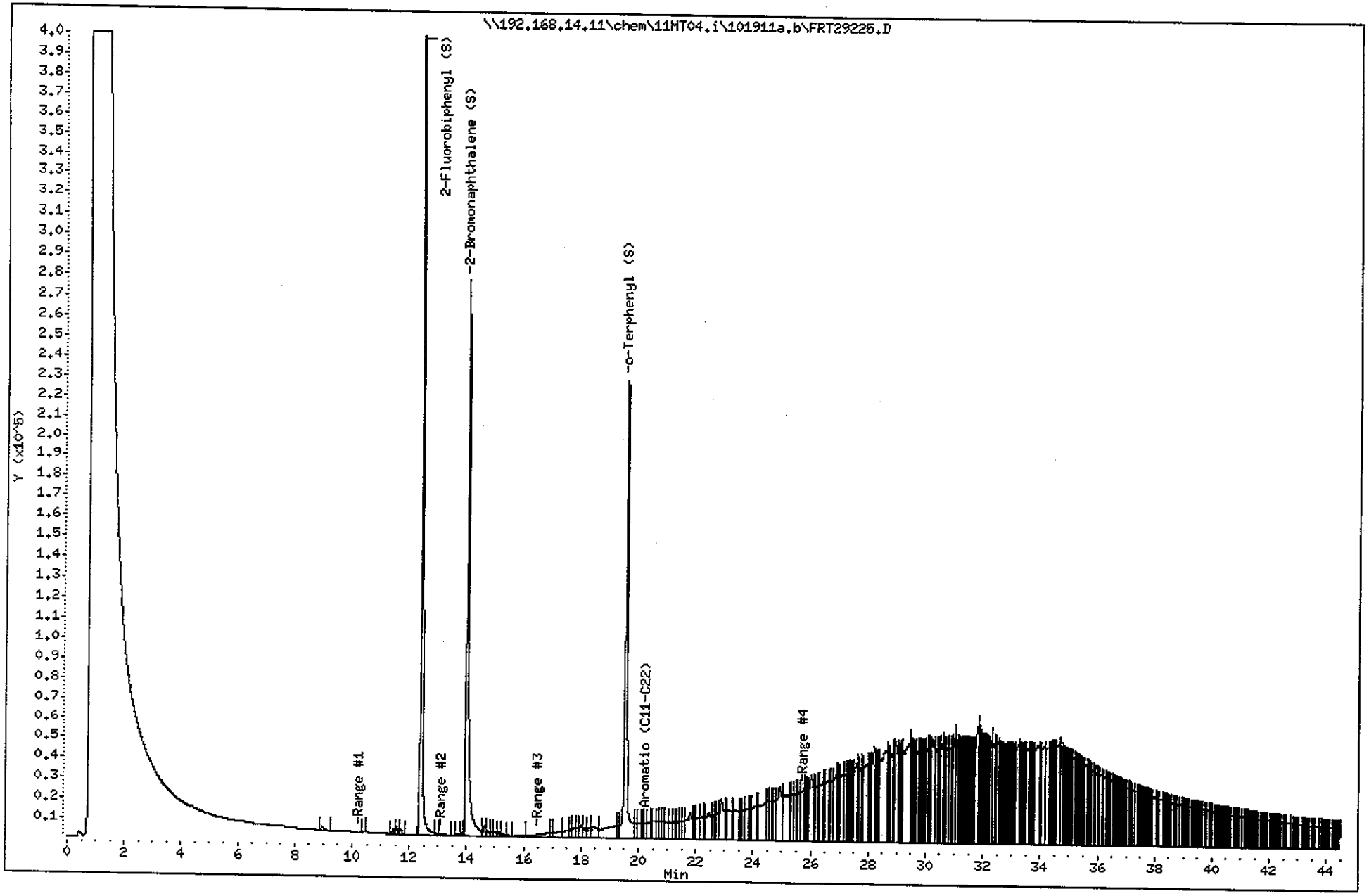
Average %D / Drift Results.

Calculated Average %D/Drift = 7.13774
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT04.i\101911a.b\FRT29225.D
Date : 20-OCT-2011 19:10
Client ID:
Sample Info: 10169815008
Volume Injected (uL): 1.0
Column phase: RTX-5 0.5

Instrument: 11MT04.i

Operator: EJS
Column diameter: 0.53



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 20-OCT-2011 21:51
Lab File ID: FRT29228.D Init. Cal. Date(s): 03-AUG-2011 03-AUG-2011
Analysis Type: WATER Init. Cal. Times: 09:26 13:59
Lab Sample ID: aro ccv 7658-152 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\101911a.b\4AROFr080311.m

COMPOUND	RRF / AMOUNT	RF1700	CCAL RRF1700	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Aromatic (C11-C22)	1700	2065	83347	0.010	21.49164	25.00000	Linear
S 6 Range #1	200	201	67639	0.010	0.53318	25.00000	Linear
S 7 Range #2	100	86.41796	66581	0.010	-13.58204	25.00000	Linear
S 8 Range #3	400	494	86111	0.010	23.41521	25.00000	Linear
S 9 Range #4	1000	1260	87060	0.010	26.02532	25.00000	Linear <-
$ 3 o-Terphenyl (S)	68489	67714	67714	0.010	-1.13126	25.00000	Averaged
$ 4 2-Fluorobiphenyl (S)	200	214	60361	0.010	6.85531	25.00000	Linear
$ 5 2-Bromonaphthalene (S)	200	213	40313	0.010	6.72589	25.00000	Linear

Average %D / Drift Results.

Calculated Average %D/Drift = 7.93953
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 21-OCT-2011 08:36
Lab File ID: FRT29240.D Init. Cal. Date(s): 03-AUG-2011 03-AUG-2011
Analysis Type: WATER Init. Cal. Times: 09:26 13:59
Lab Sample ID: aro ccv 7658-152 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\101911a.b\4AROFr080311.m

COMPOUND	RRF / AMOUNT	RF1700	CCAL RRF1700	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Aromatic (C11-C22)	1700	1837	73694	0.010	8.07829	25.00000	Linear
S 6 Range #1	200	203	68170	0.010	1.27738	25.00000	Linear
S 7 Range #2	100	87.35493	67212	0.010	-12.64507	25.00000	Linear
S 8 Range #3	400	495	86363	0.010	23.77145	25.00000	Linear
S 9 Range #4	1000	1030	70379	0.010	2.99200	25.00000	Linear
$ 3 o-Terphenyl (S)	68489	69031	69031	0.010	0.79149	25.00000	Averaged
$ 4 2-Fluorobiphenyl (S)	200	215	60870	0.010	7.63650	25.00000	Linear
$ 5 2-Bromonaphthalene (S)	200	213	40130	0.010	6.32403	25.00000	Linear

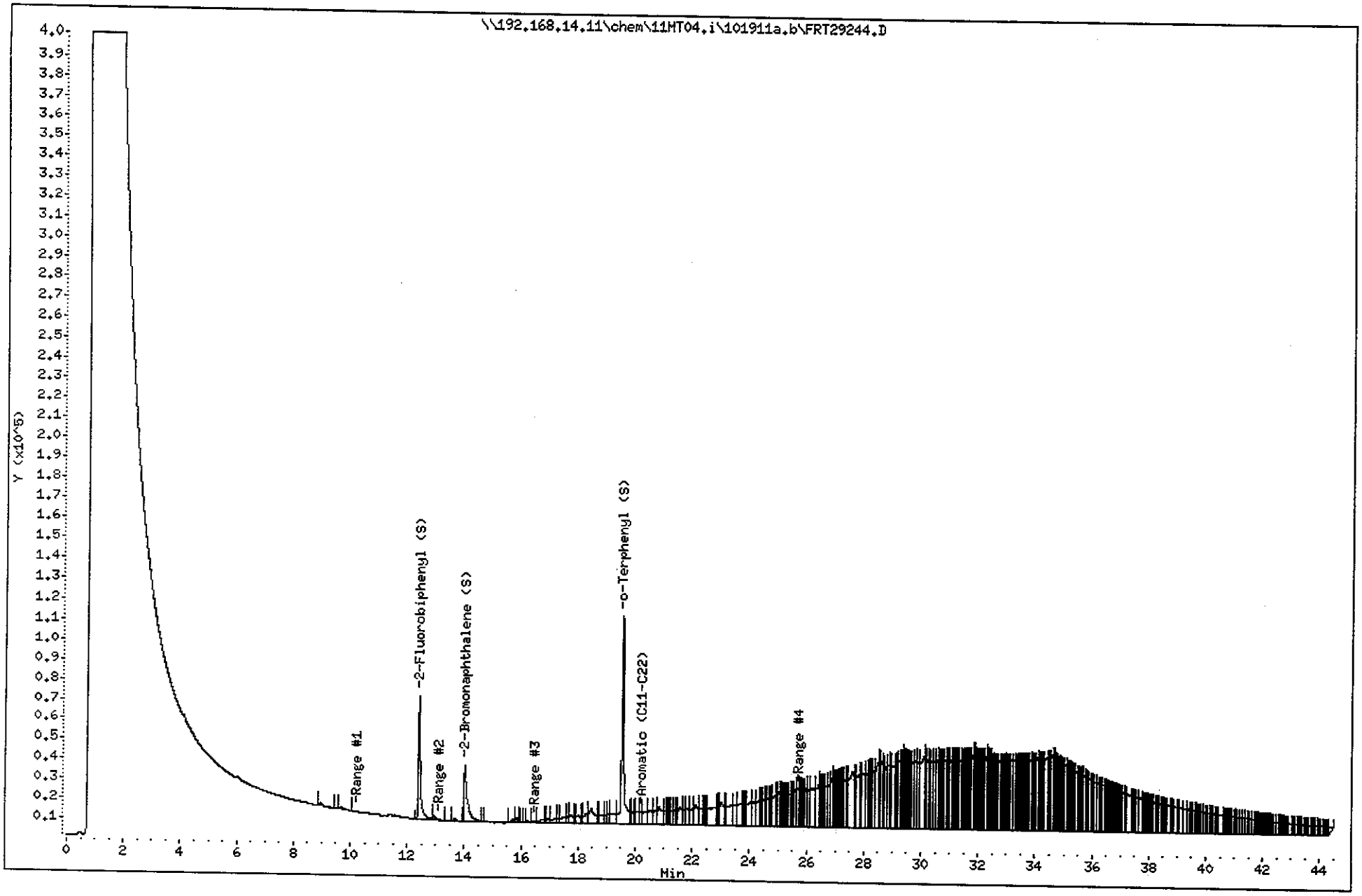
Average %D / Drift Results.

Calculated Average %D/Drift = 7.93953
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT04.i\101911a.b\FRT29244.D
Date : 21-OCT-2011 13:42
Client ID:
Sample Info: 10169815010,2
Volume Injected (uL): 1.0
Column phase: RTX-5 0.5

Instrument: 11MT04.i

Operator: EJS
Column diameter: 0.53



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT04.i Injection Date: 21-OCT-2011 15:31
Lab File ID: FRT29246.D Init. Cal. Date(s): 03-AUG-2011 03-AUG-2011
Analysis Type: WATER Init. Cal. Times: 09:26 13:59
Lab Sample ID: aro ccv 7658-152 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT04.i\101911a.b\4AROFr080311.m

COMPOUND	RRF / AMOUNT	RF1700	CCAL RRF1700	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Aromatic (C11-C22)	1700	1831	73422	0.010	7.70072	25.00000	Linear
S 6 Range #1	200	201	67529	0.010	0.37971	25.00000	Linear
S 7 Range #2	100	86.40057	66569	0.010	-13.59943	25.00000	Linear
S 8 Range #3	400	489	85312	0.010	22.28476	25.00000	Linear
S 9 Range #4	1000	1032	70530	0.010	3.20059	25.00000	Linear
$ 3 o-Terphenyl (S)	68489	68876	68876	0.010	0.56590	25.00000	Averaged
$ 4 2-Fluorobiphenyl (S)	200	213	60145	0.010	6.52383	25.00000	Linear
$ 5 2-Bromonaphthalene (S)	200	211	39869	0.010	5.75000	25.00000	Linear

Average %D / Drift Results.

Calculated Average %D/Drift = 7.50062
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

VPH 10169815

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 23-SEP-2011 22:16
Lab File ID: FID26615.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8543-071i icv Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\F27VPH092311.m

COMPOUND	RRF / AMOUNT	RF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	11581	10867	0.010	-6.16256	25.00000	Averaged
$ 9 a,a,a-Trifluorotoluene (S)	7452	7256	0.010	-2.62727	25.00000	Averaged
S 4 Aliphatic (C05-C08)	10282	10379	0.010	0.94644	25.00000	Averaged
S 5 Aliphatic (C09-C12)	12296	12593	0.010	2.42277	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 15.04144
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 23-SEP-2011 22:16
Lab File ID: PID26615.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8543-071i icv Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\P27BTEX092311.m

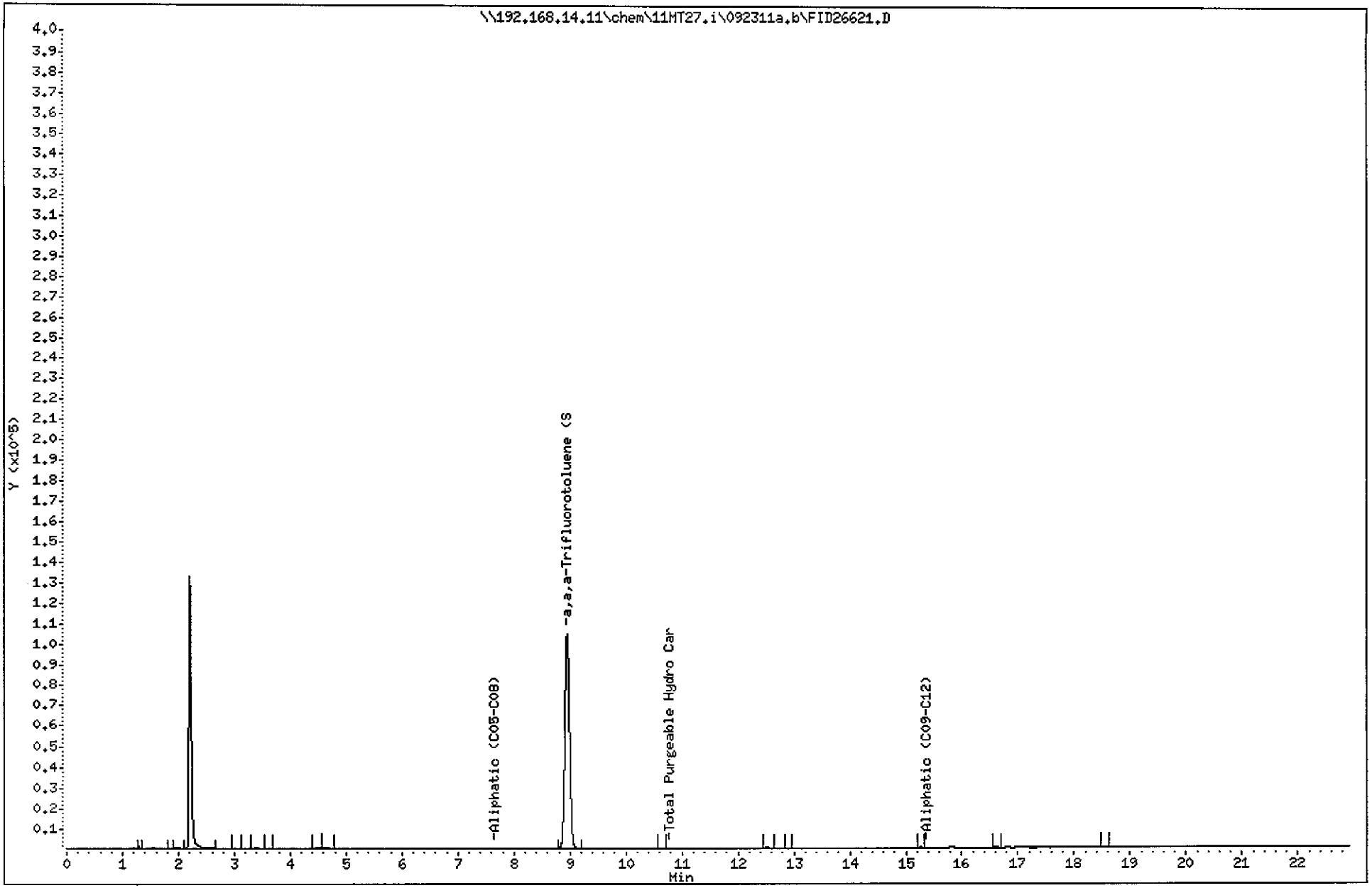
COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	325	387	0.010	19.24949	25.00000	Averaged
2 Benzene	13326	13862	0.010	4.01920	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	3624	3512	0.010	-3.08167	25.00000	Averaged
4 Toluene	13811	13761	0.010	-0.36033	25.00000	Averaged
5 Ethylbenzene	12861	12900	0.010	0.29925	25.00000	Averaged
6 m&p-Xylene	15001	15259	0.010	1.71766	25.00000	Averaged
7 o-Xylene	13075	13130	0.010	0.41791	25.00000	Averaged
T 8 Aromatic (C09-C10)	13994	14470	0.010	3.40168	25.00000	Averaged
9 Naphthalene	6591	6318	0.010	-4.13895	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 4.07624
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26621.D
Date : 24-SEP-2011 02:43
Client ID:
Sample Info: 10169815001
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

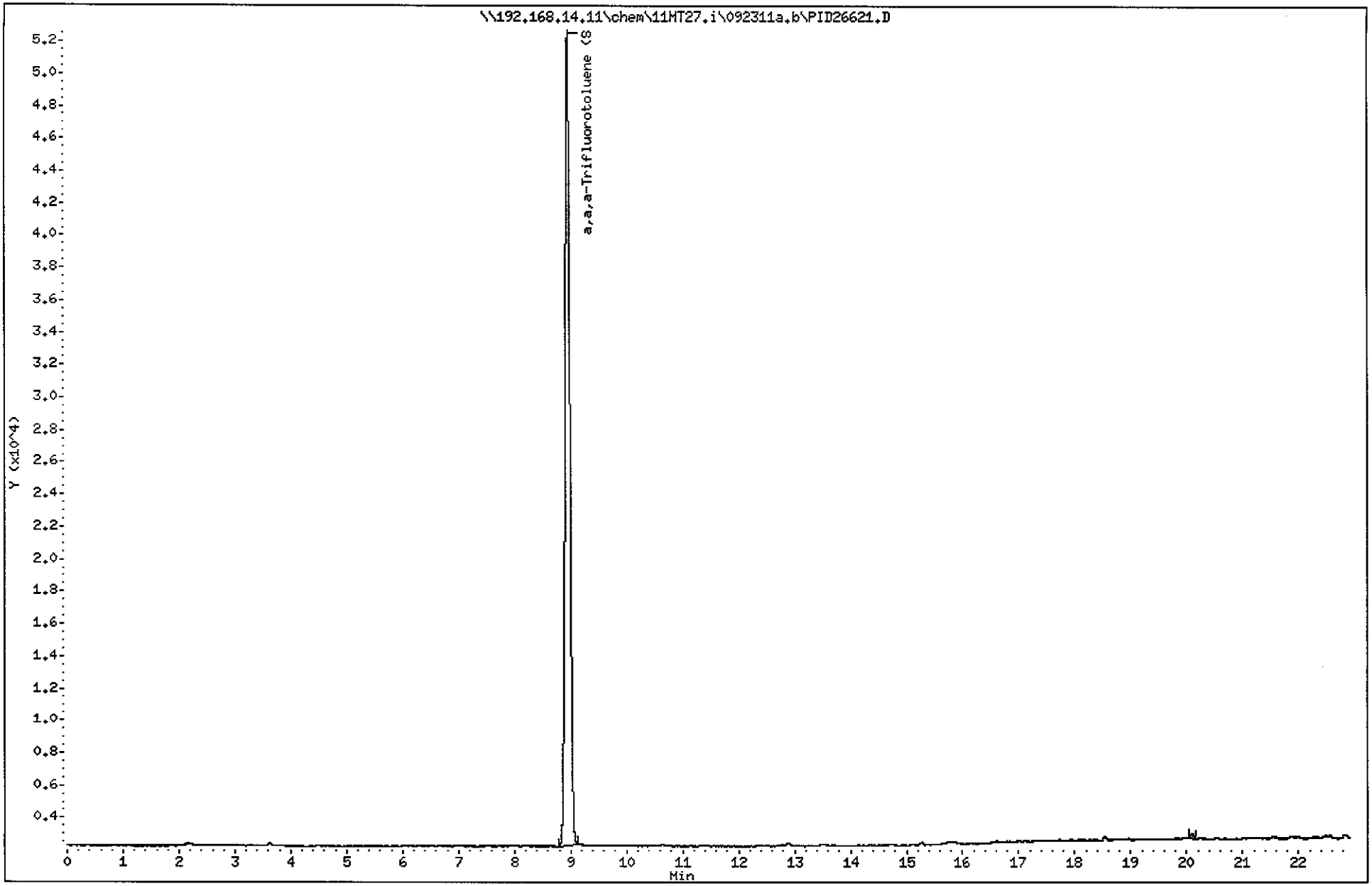
Instrument: 11MT27.i
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26621.D
Date : 24-SEP-2011 02:43
Client ID:
Sample Info: 10169815001
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

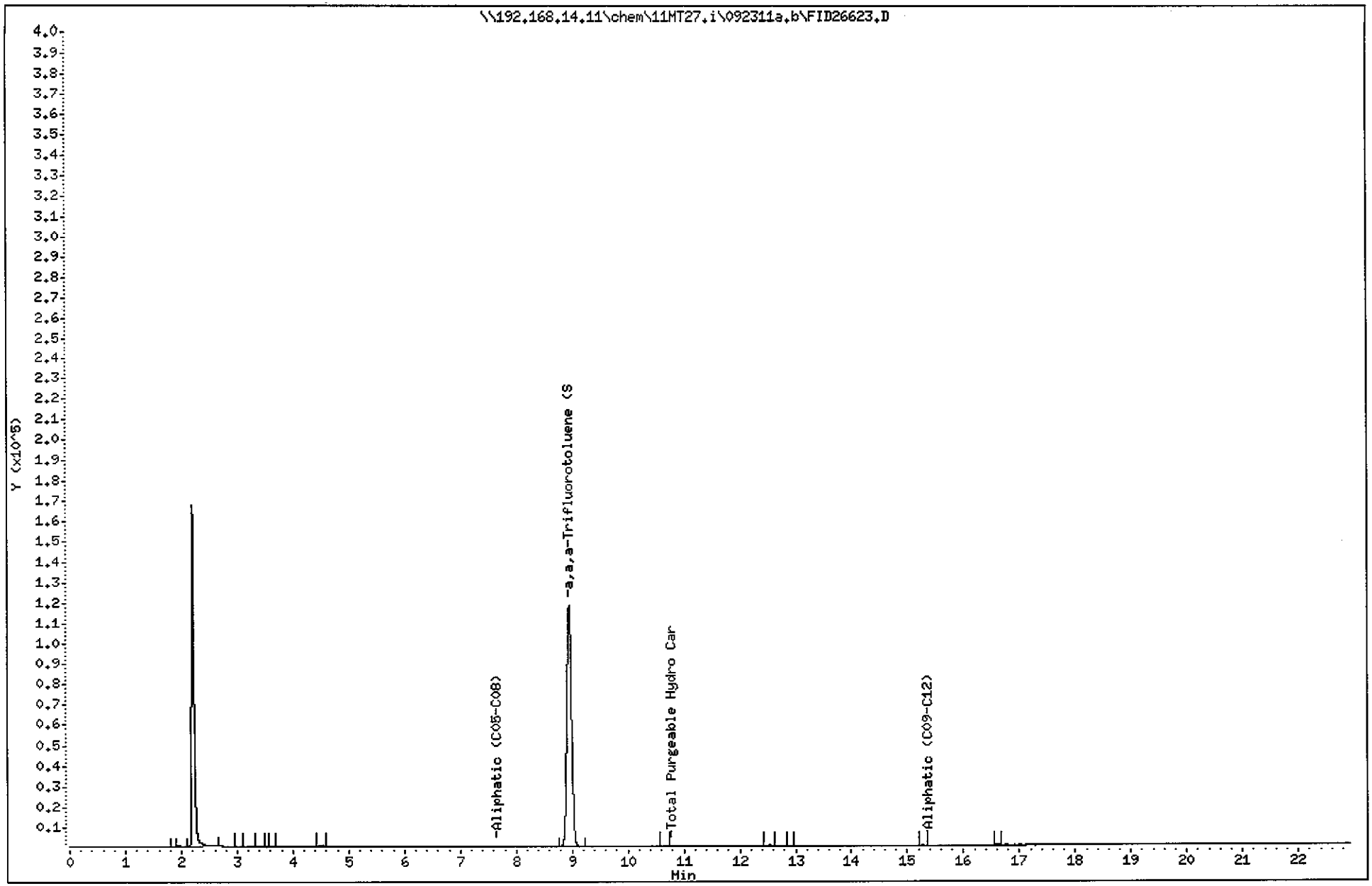
Instrument: 11MT27.i

Operator: HFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26623.D
Date : 24-SEP-2011 04:10
Client ID:
Sample Info: 10169815002
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

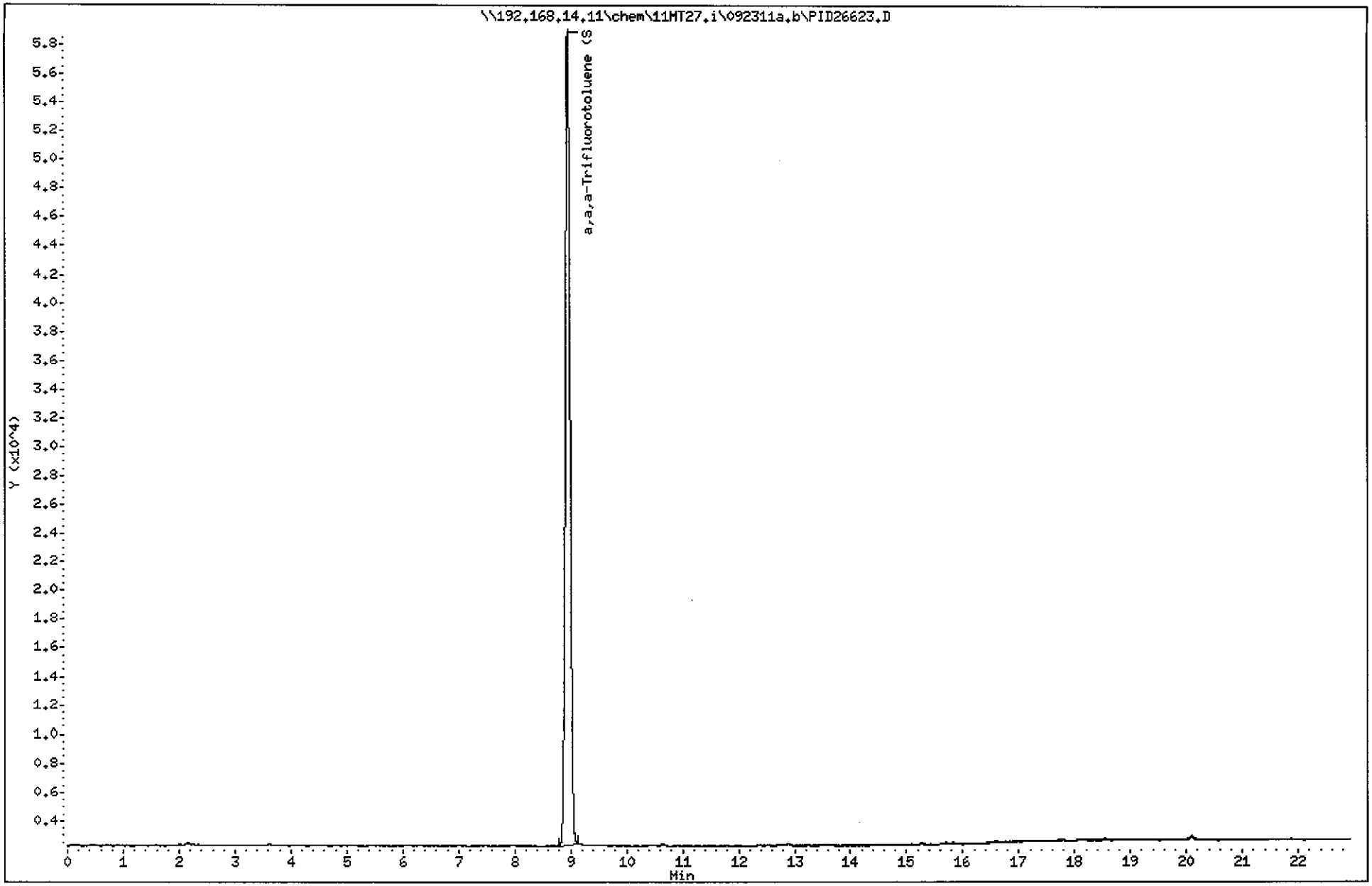
Instrument: 11MT27.i
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26623.D
Date : 24-SEP-2011 04:10
Client ID:
Sample Info: 10169815002
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

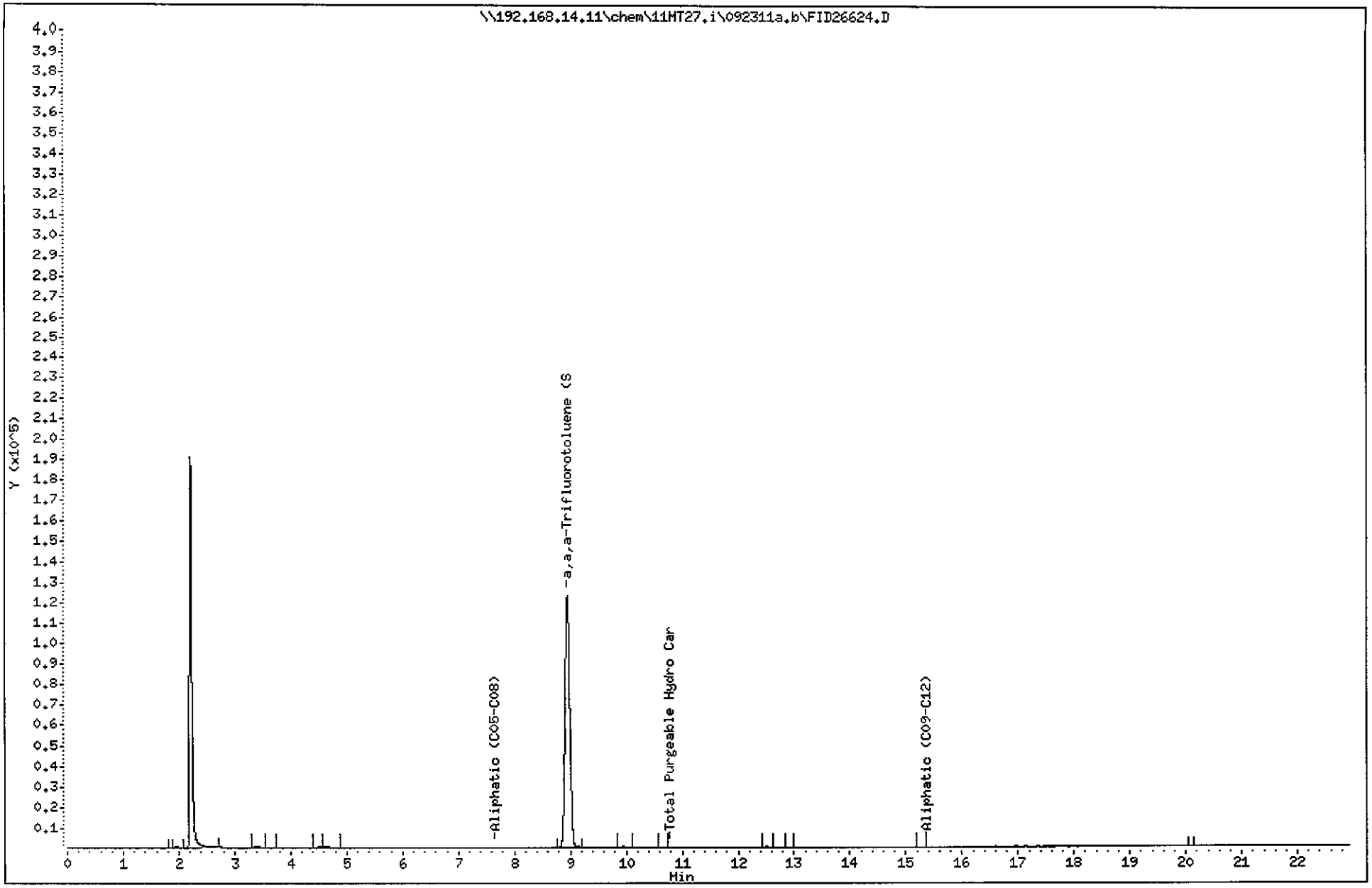
Instrument: 11MT27.i

Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26624.D
Date : 24-SEP-2011 04:54
Client ID:
Sample Info: 10169815003
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

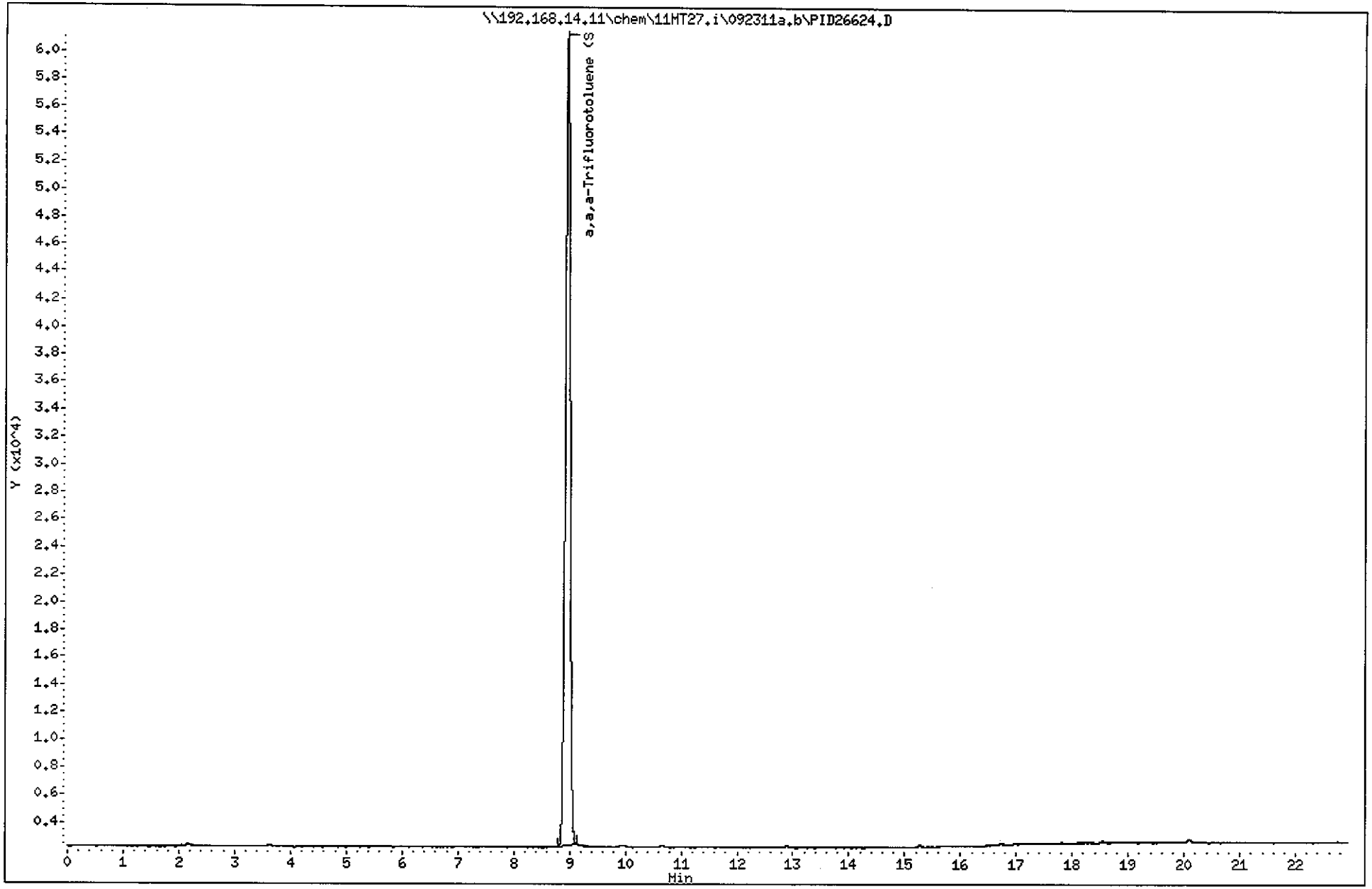
Instrument: 11MT27.i
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26624.D
Date : 24-SEP-2011 04:54
Client ID:
Sample Info: 10169815003
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

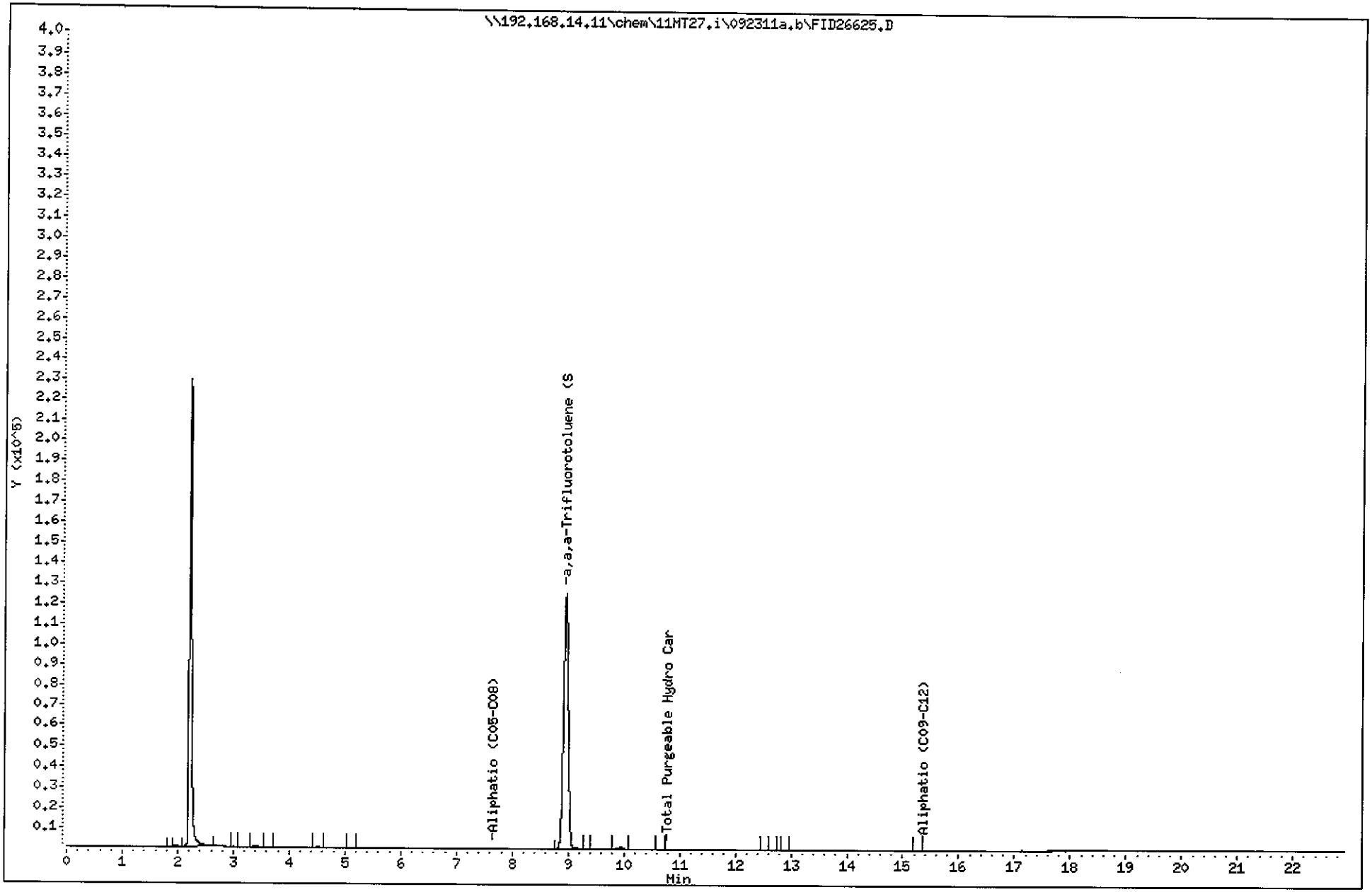
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26625.D
Date : 24-SEP-2011 05:38
Client ID:
Sample Info: 10169815004
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

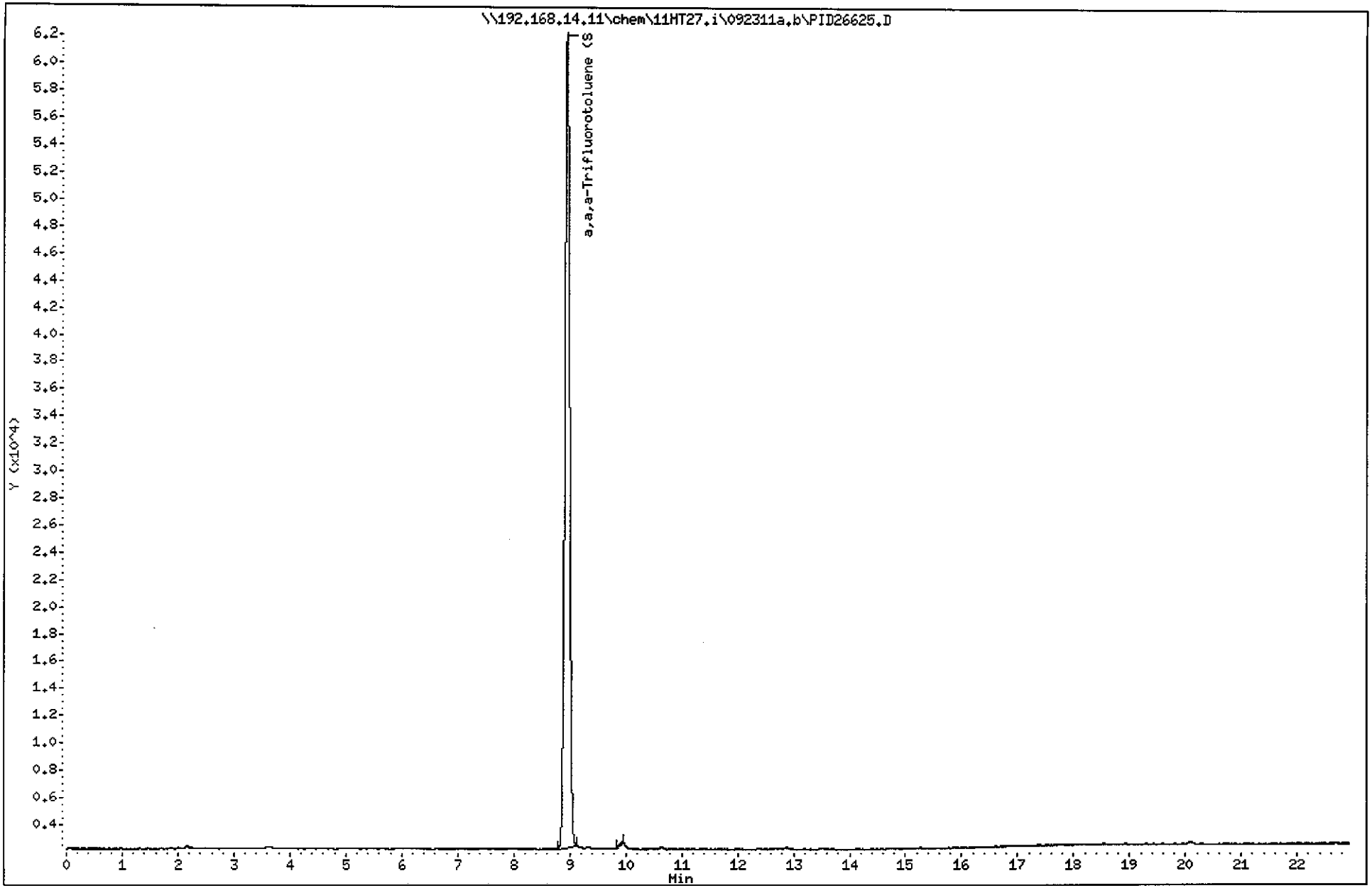
Instrument: 11MT27.i

Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26625.D
Date : 24-SEP-2011 05:38
Client ID:
Sample Info: 10169815004
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

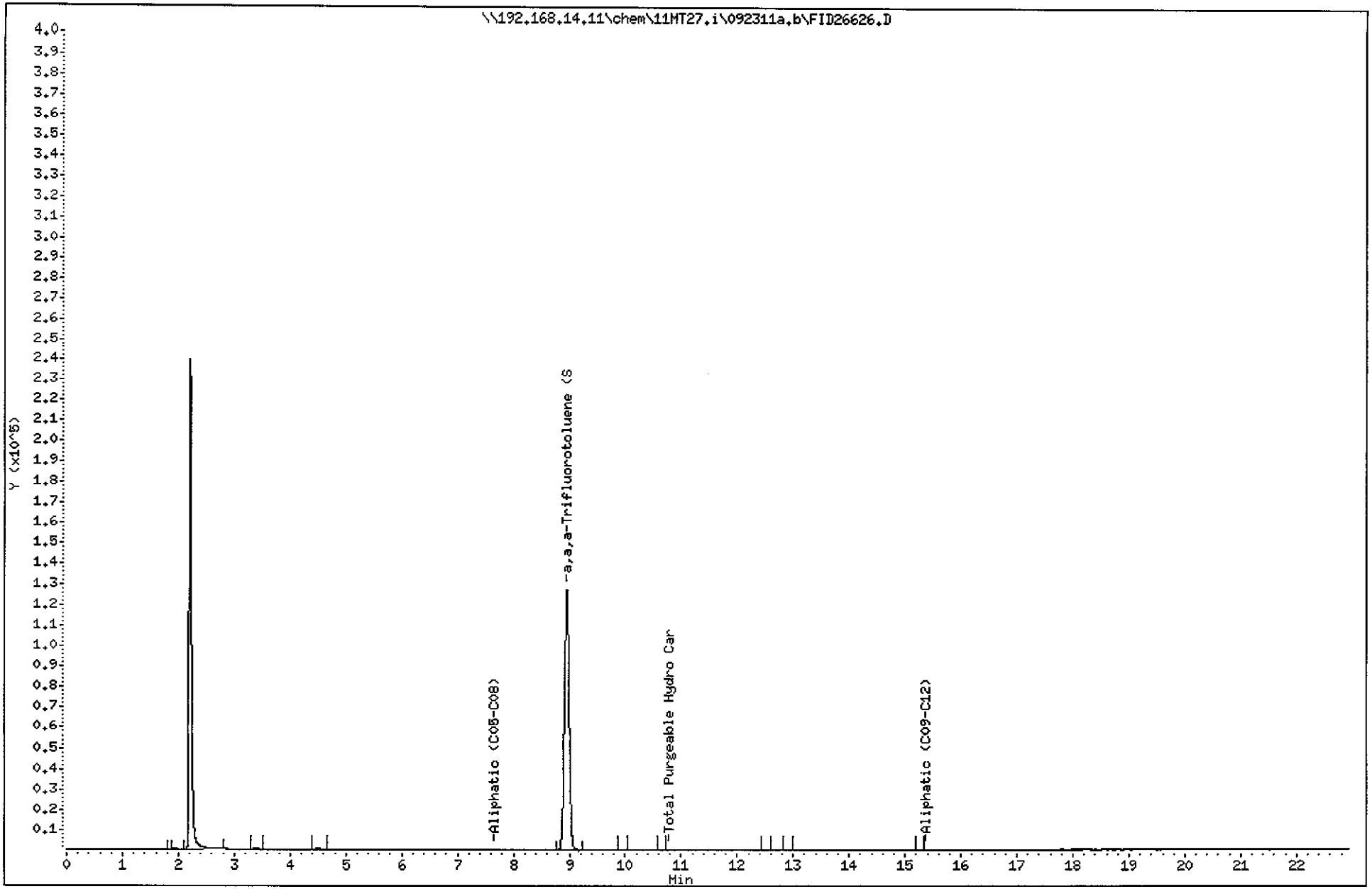
Instrument: 11MT27.i
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26626.D
Date : 24-SEP-2011 06:21
Client ID:
Sample Info: 10169815005
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

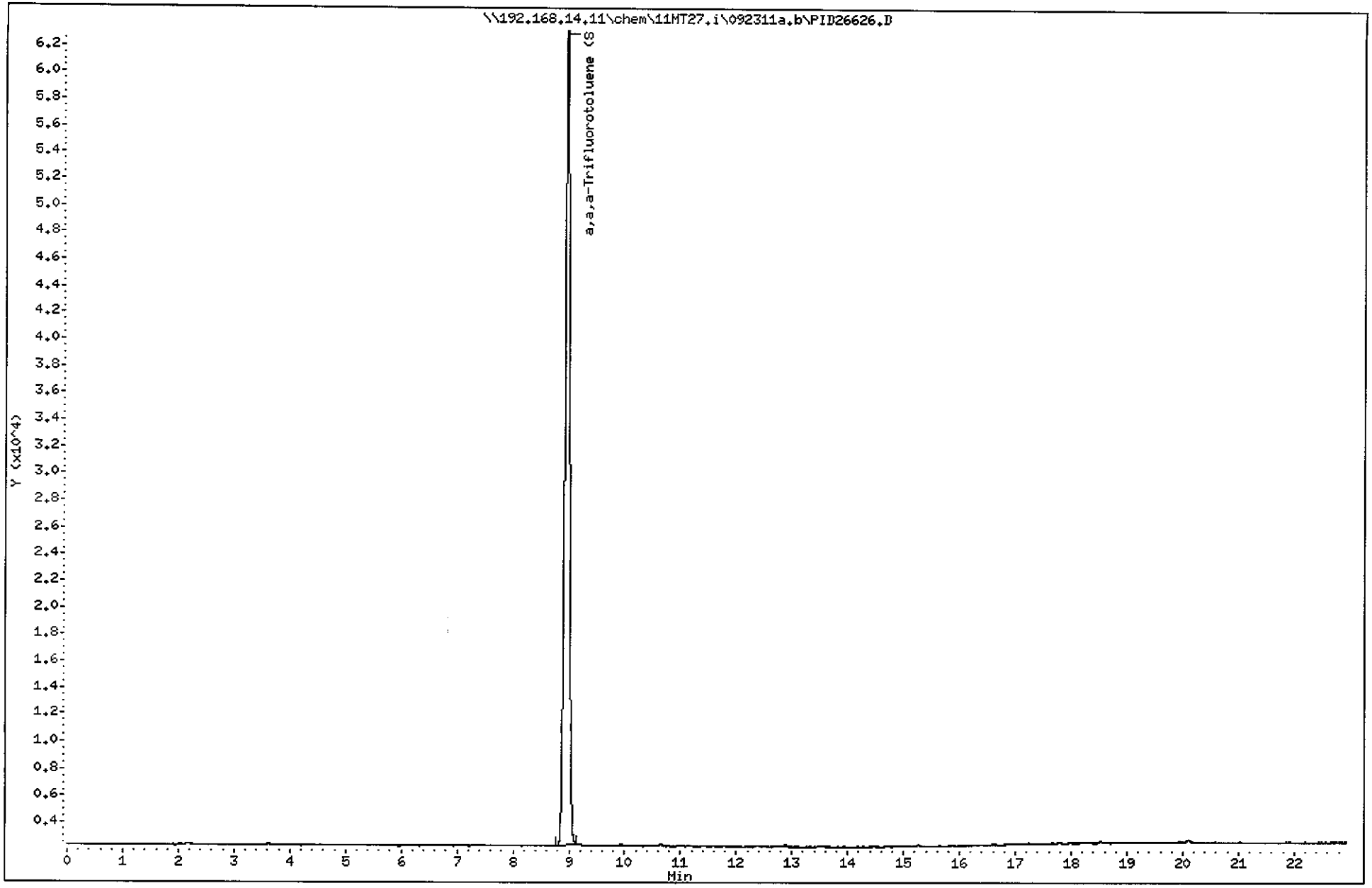
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26626.D
Date : 24-SEP-2011 06:21
Client ID:
Sample Info: 10169815005
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

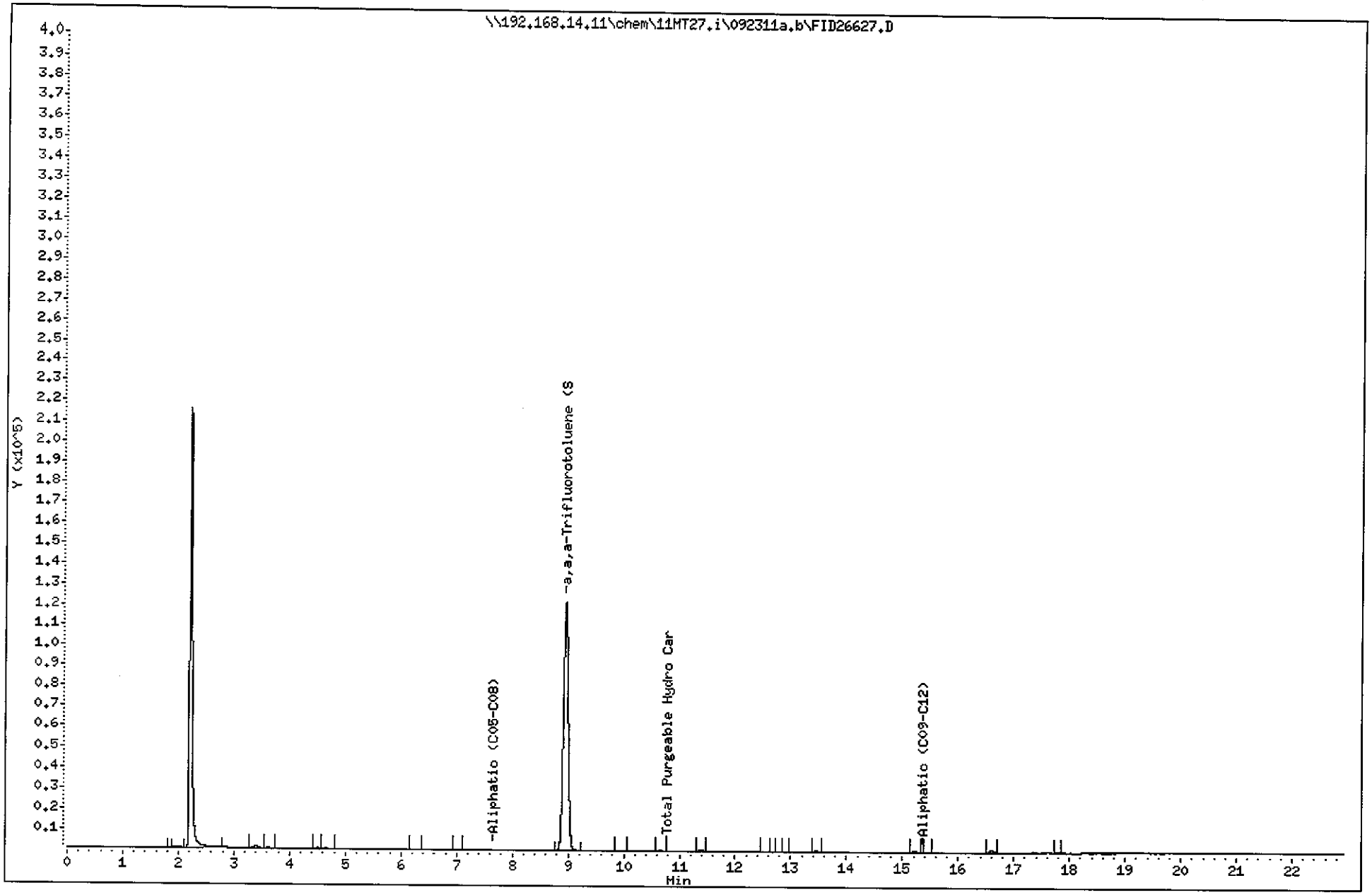
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26627.D
Date : 24-SEP-2011 07:05
Client ID:
Sample Info: 10169815006
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

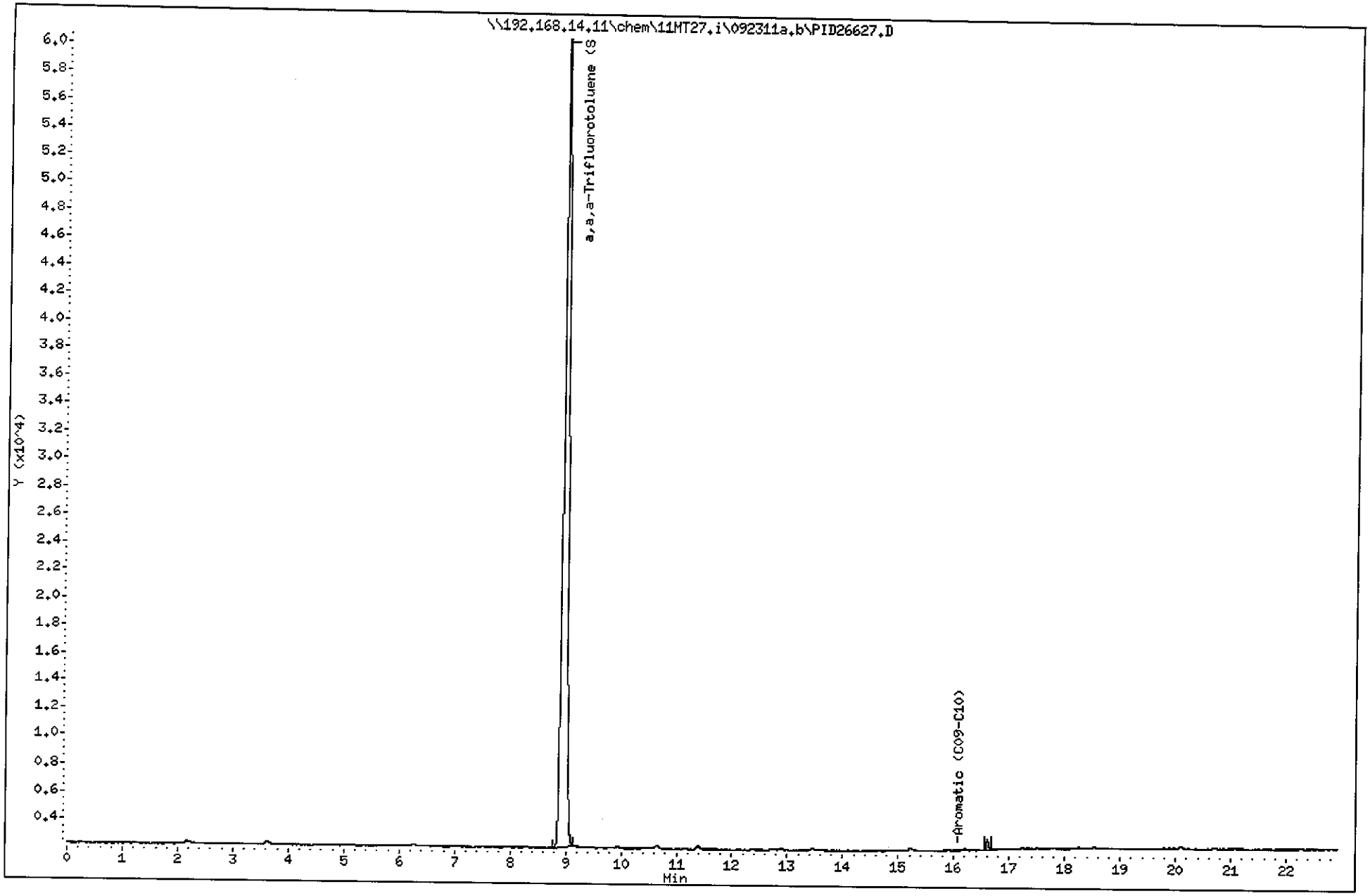
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26627.D
Date : 24-SEP-2011 07:05
Client ID:
Sample Info: 10169815006
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

Operator: MFP
Column diameter: 0.53



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 24-SEP-2011 11:27
Lab File ID: FID26633.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8859-0229 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\F27VPH092311.m

COMPOUND	RRF / AMOUNT	RF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	11581	8998	0.010	-22.30020	25.00000	Averaged
$ 9 a,a,a-Trifluorotoluene (S)	7452	7785	0.010	4.46615	25.00000	Averaged
S 4 Aliphatic (C05-C08)	10282	7916	0.010	-23.00999	25.00000	Averaged
S 5 Aliphatic (C09-C12)	12296	11018	0.010	-10.38943	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 15.04144
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 24-SEP-2011 11:27
Lab File ID: PID26633.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8859-0229 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\P27BTEX092311.m

COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	325	308	0.010	-5.22544	25.00000	Averaged
2 Benzene	13326	11936	0.010	-10.43507	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	3624	3707	0.010	2.30582	25.00000	Averaged
4 Toluene	13811	12268	0.010	-11.16740	25.00000	Averaged
5 Ethylbenzene	12861	11461	0.010	-10.88685	25.00000	Averaged
6 m&p-Xylene	15001	13254	0.010	-11.64605	25.00000	Averaged
7 o-Xylene	13075	11935	0.010	-8.71808	25.00000	Averaged
T 8 Aromatic (C09-C10)	13994	12799	0.010	-8.54461	25.00000	Averaged
9 Naphthalene	6591	6064	0.010	-7.98707	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 8.54627
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

VPH 10169815

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 23-SEP-2011 22:16
Lab File ID: FID26615.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8543-071i icv Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\F27VPH092311.m

COMPOUND	RRF / AMOUNT	RF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	11581	10867	0.010	-6.16256	25.00000	Averaged
$ 9 a,a,a-Trifluorotoluene (S)	7452	7256	0.010	-2.62727	25.00000	Averaged
S 4 Aliphatic (C05-C08)	10282	10379	0.010	0.94644	25.00000	Averaged
S 5 Aliphatic (C09-C12)	12296	12593	0.010	2.42277	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 15.04144
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 23-SEP-2011 22:16
Lab File ID: PID26615.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8543-071i icv Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\P27BTEX092311.m

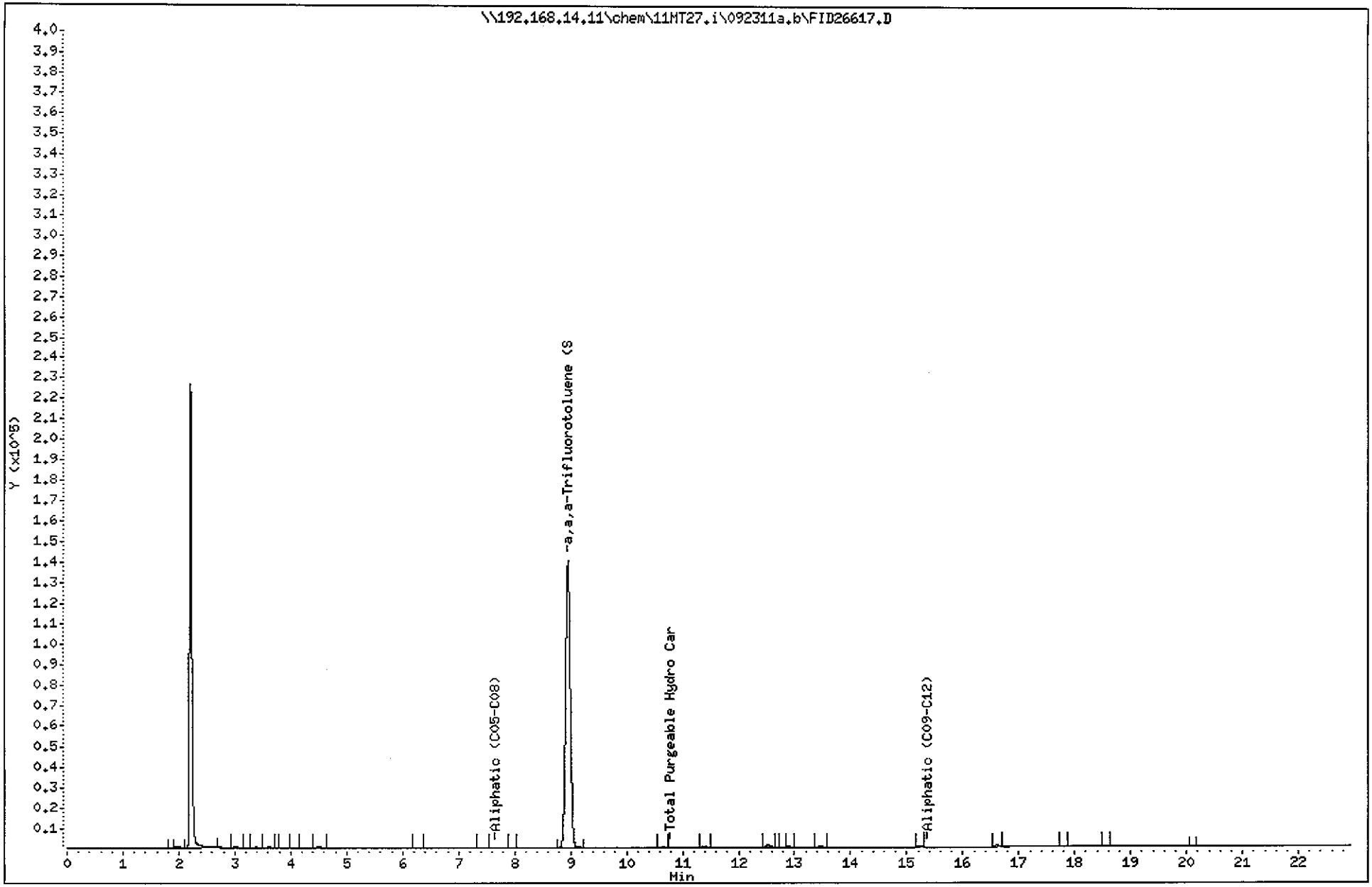
COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	325	387	0.010	19.24949	25.00000	Averaged
2 Benzene	13326	13862	0.010	4.01920	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	3624	3512	0.010	-3.08167	25.00000	Averaged
4 Toluene	13811	13761	0.010	-0.36033	25.00000	Averaged
5 Ethylbenzene	12861	12900	0.010	0.29925	25.00000	Averaged
6 m&p-Xylene	15001	15259	0.010	1.71766	25.00000	Averaged
7 o-Xylene	13075	13130	0.010	0.41791	25.00000	Averaged
T 8 Aromatic (C09-C10)	13994	14470	0.010	3.40168	25.00000	Averaged
9 Naphthalene	6591	6318	0.010	-4.13895	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 4.07624
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26617.D
Date : 23-SEP-2011 23:48
Client ID:
Sample Info: 10169815016
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

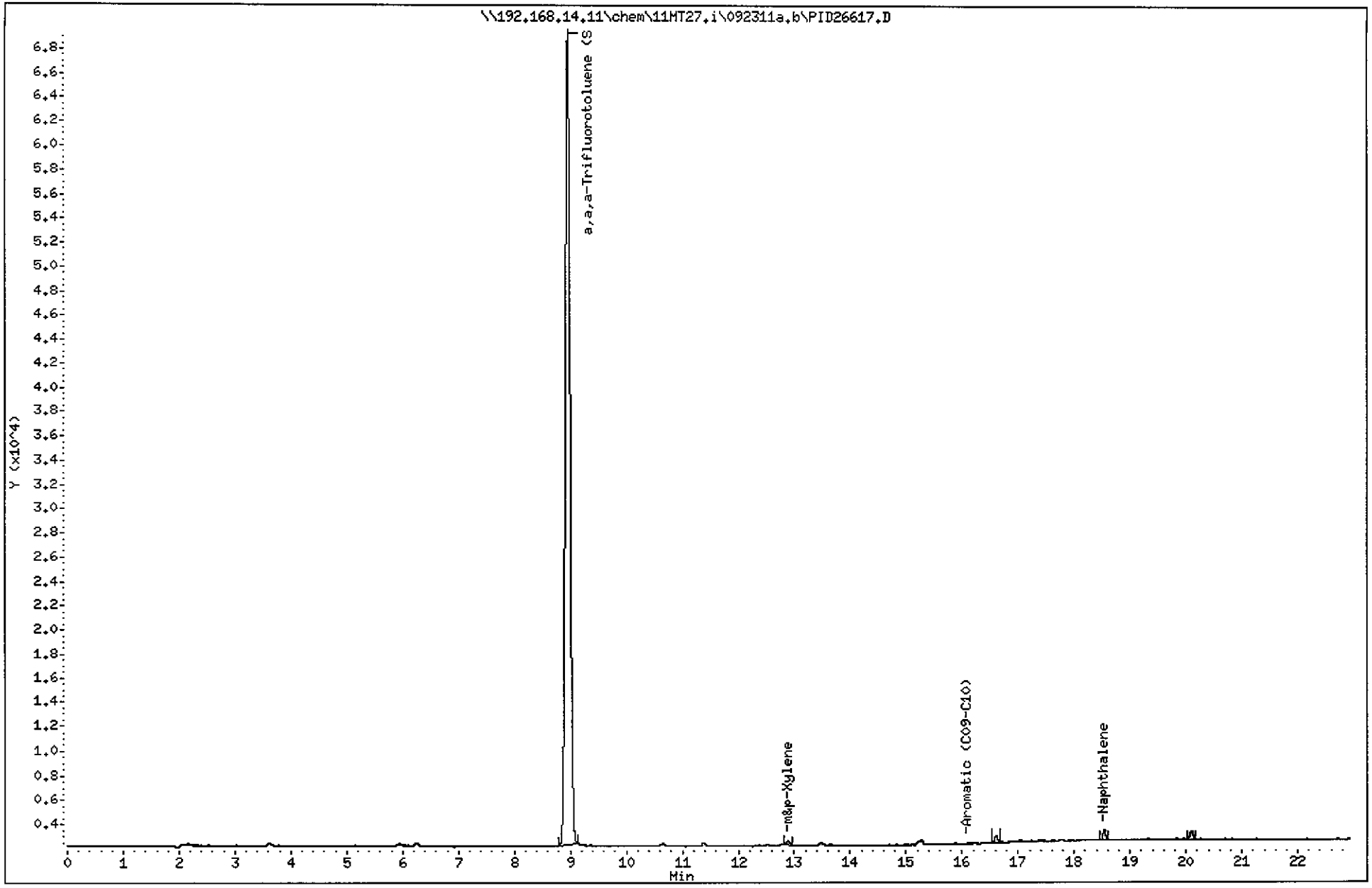
Instrument: 11MT27.i
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26617.D
Date : 23-SEP-2011 23:48
Client ID:
Sample Info: 10169815016
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

Operator: MFP
Column diameter: 0.53



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i
Lab File ID: FID26633.D
Analysis Type: WATER
Lab Sample ID: 8859-0229
Injection Date: 24-SEP-2011 11:27
Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Init. Cal. Times: 13:07 20:40
Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\F27VPH092311.m

COMPOUND	RRF / AMOUNT	RF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	11581	8998	0.010	-22.30020	25.00000	Averaged
$ 9 a,a,a-Trifluorotoluene (S)	7452	7785	0.010	4.46615	25.00000	Averaged
S 4 Aliphatic (C05-C08)	10282	7916	0.010	-23.00999	25.00000	Averaged
S 5 Aliphatic (C09-C12)	12296	11018	0.010	-10.38943	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 15.04144
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 24-SEP-2011 11:27
Lab File ID: PID26633.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8859-0229 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\P27BTEX092311.m

COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	325	308	0.010	-5.22544	25.00000	Averaged
2 Benzene	13326	11936	0.010	-10.43507	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	3624	3707	0.010	2.30582	25.00000	Averaged
4 Toluene	13811	12268	0.010	-11.16740	25.00000	Averaged
5 Ethylbenzene	12861	11461	0.010	-10.88685	25.00000	Averaged
6 m&p-Xylene	15001	13254	0.010	-11.64605	25.00000	Averaged
7 o-Xylene	13075	11935	0.010	-8.71808	25.00000	Averaged
T 8 Aromatic (C09-C10)	13994	12799	0.010	-8.54461	25.00000	Averaged
9 Naphthalene	6591	6064	0.010	-7.98707	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 8.54627
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

VPH 10169815

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT33.i Injection Date: 22-SEP-2011 23:19
Lab File ID: FID26515.D Init. Cal. Date(s): 13-SEP-2011 13-SEP-2011
Analysis Type: SOIL Init. Cal. Times: 15:39 20:45
Lab Sample ID: ccv 8859-0227 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT33.i\092211a.b\F33VPH091311.m

COMPOUND	RRF / AMOUNT	RF600	CCAL RRF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	1300	1223	722127	0.010	-5.88918	25.00000	Linear
$ 9 a,a,a-Trifluorotoluene (S)	631914	570029	570029	0.010	-9.79325	25.00000	Averaged
S 4 Aliphatic (C05-C08)	721681	668354	668354	0.010	-7.38933	25.00000	Averaged
S 5 Aliphatic (C09-C12)	966289	851551	851551	0.010	-11.87413	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 7.40107
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT33.i\092211a.b\PID26515.D
Report Date: 26-Sep-2011 13:44

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT33.i Injection Date: 22-SEP-2011 23:19
Lab File ID: PID26515.D Init. Cal. Date(s): 13-SEP-2011 13-SEP-2011
Analysis Type: SOIL Init. Cal. Times: 15:39 20:45
Lab Sample ID: ccv 8859-0227 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT33.i\092211a.b\P33BTEX091311.m

COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE	
1 Methyl-t-butyl ether	26932	30176	0.010	12.04632	25.00000	Averaged	
2 Benzene	456501	521998	0.010	14.34778	25.00000	Averaged	
$ 3 a,a,a-Trifluorotoluene (S)	112026	126227	0.010	12.67639	25.00000	Averaged	
4 Toluene	390519	573261	0.010	46.79460	25.00000	Averaged	<-
5 Ethylbenzene	356786	418399	0.010	17.26898	25.00000	Averaged	
6 m&p-Xylene	465533	577559	0.010	24.06406	25.00000	Averaged	
7 o-Xylene	408336	478318	0.010	17.13829	25.00000	Averaged	
T 8 Aromatic (C09-C10)	381190	424776	0.010	11.43410	25.00000	Averaged	
9 Naphthalene	169670	189606	0.010	11.74991	25.00000	Averaged	

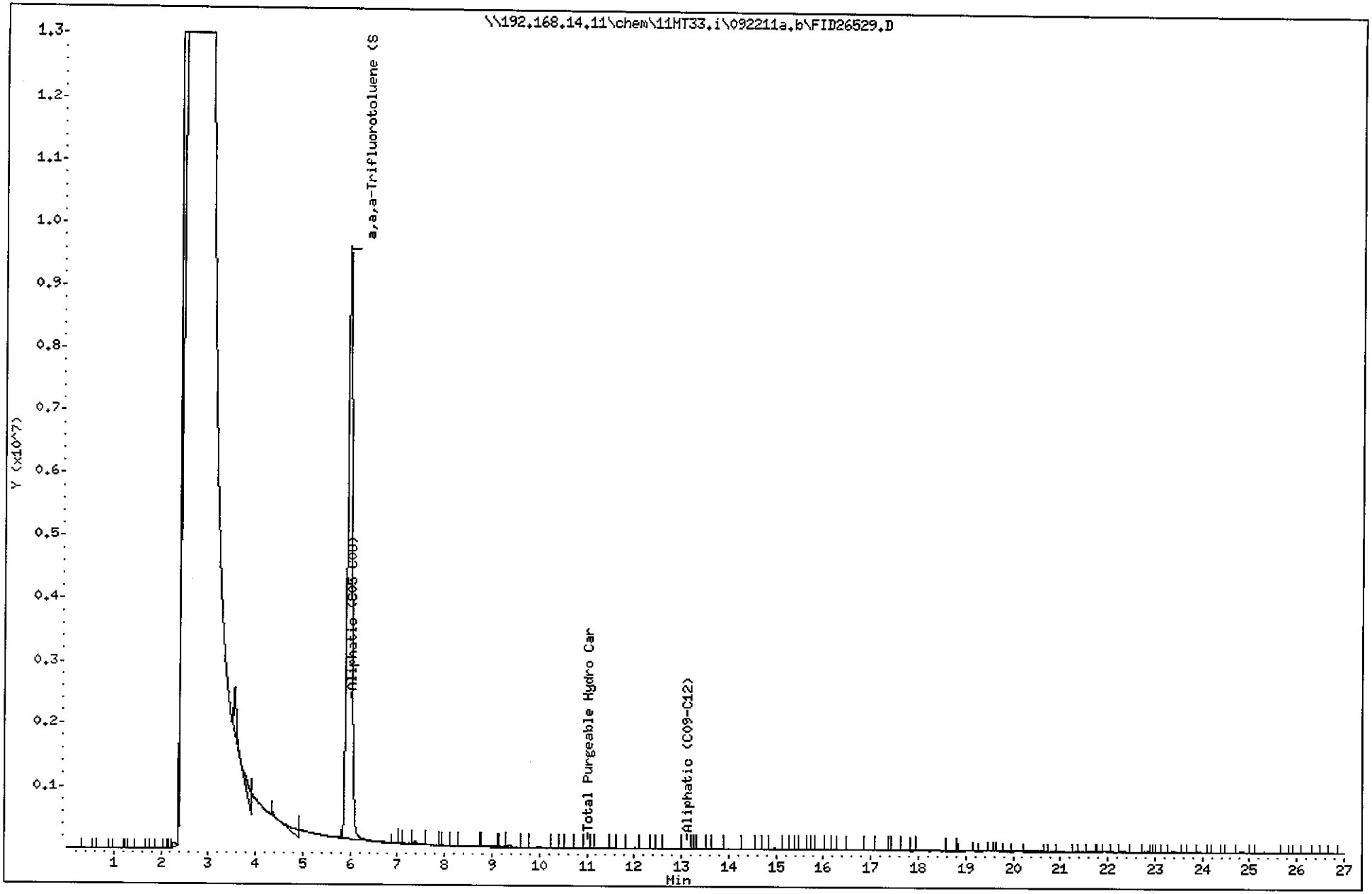
Average %D / Drift Results.

Calculated Average %D/Drift = 4.68433
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT33.i\092211a.b\FID26529.D
Date : 23-SEP-2011 09:41
Client ID:
Sample Info: 10169815007
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT33.i

Operator: AMH
Column diameter: 0.53



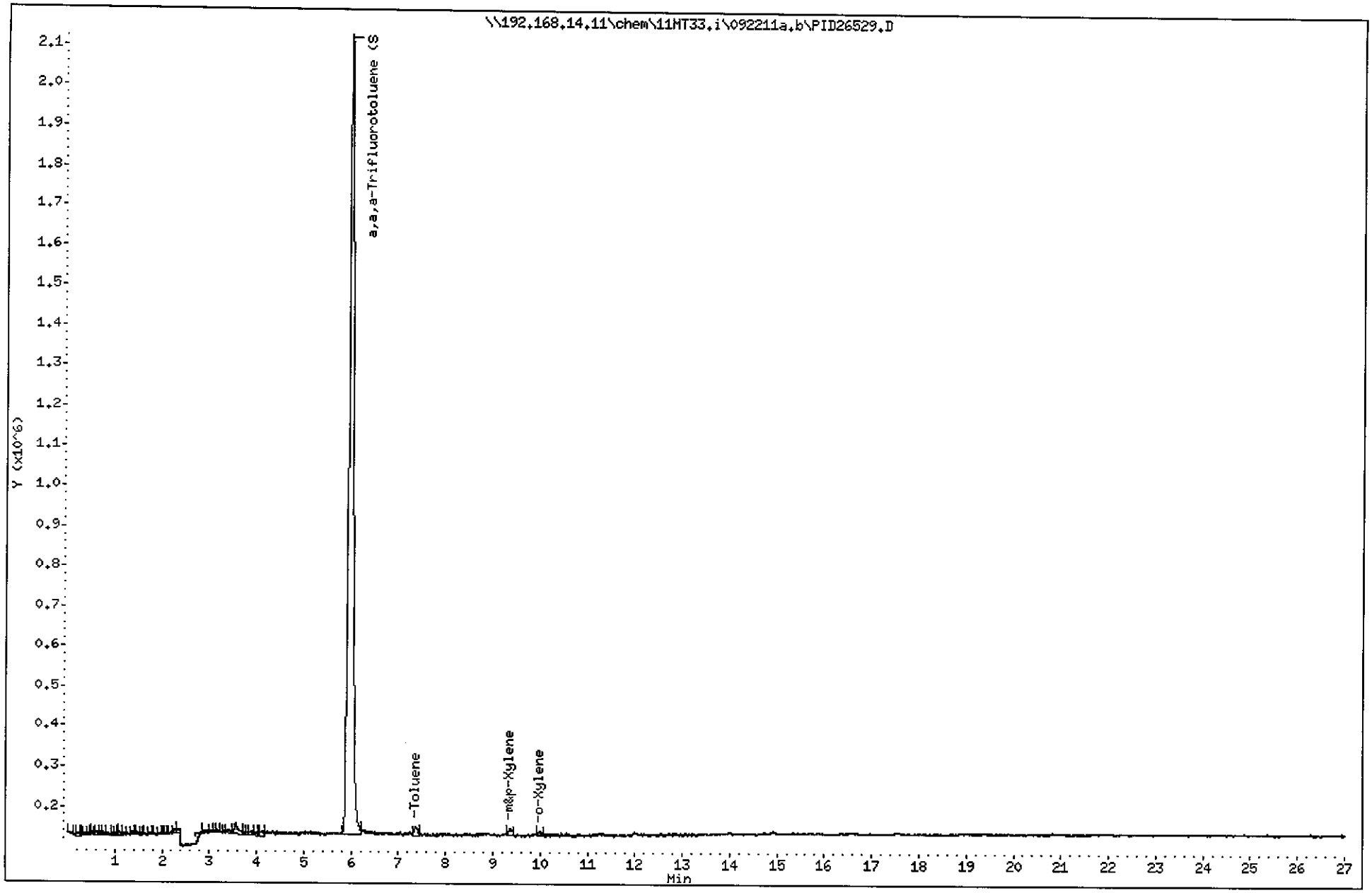
Data File: \\192.168.14.11\chem\11MT33.i\092211a.b\PID26529.D
Date : 23-SEP-2011 09:41
Client ID:
Sample Info: 10169815007

Instrument: 11MT33.i

Operator: AMH

Column phase: DB-502 Film: 3.00nm

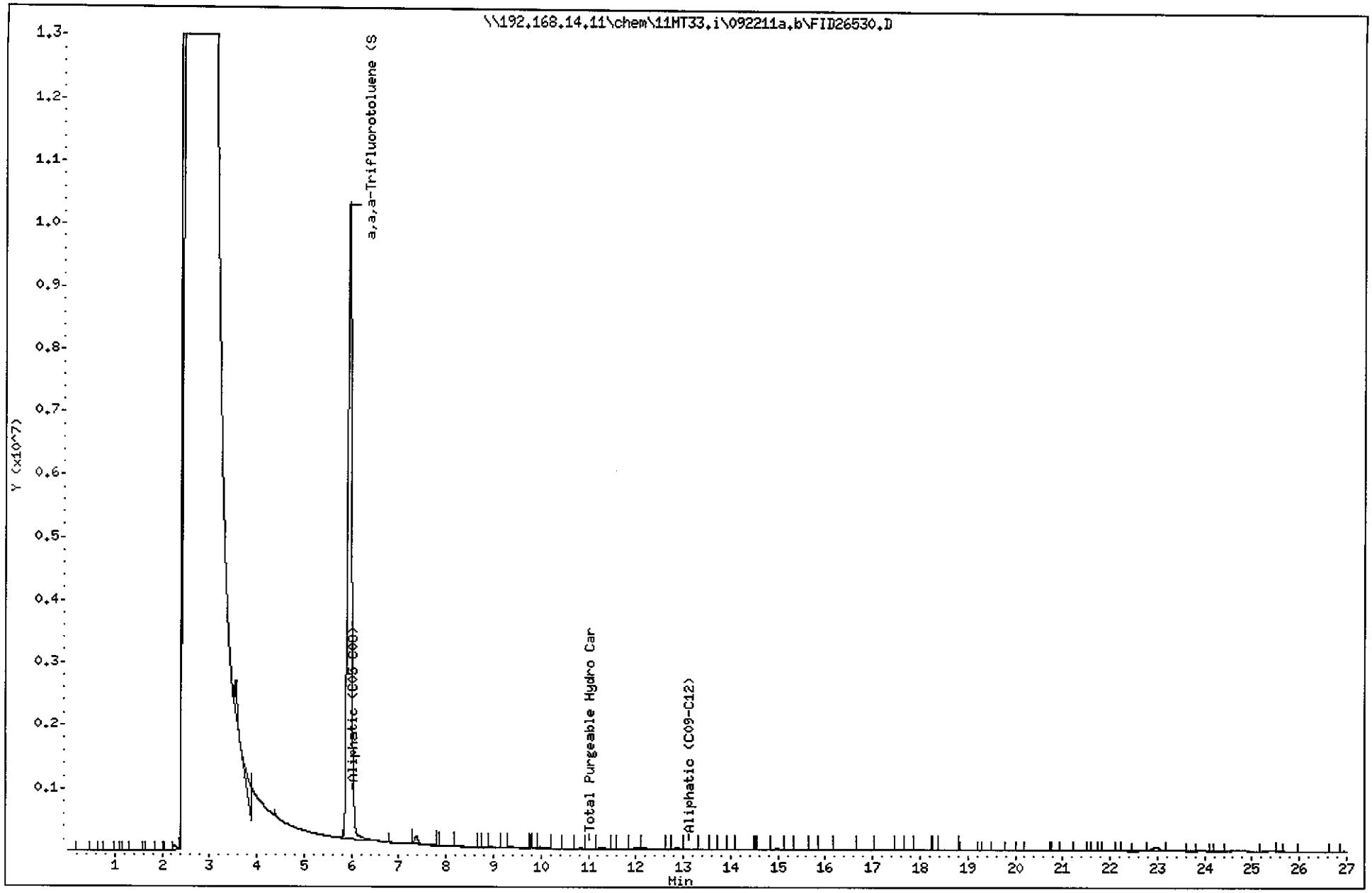
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT33.i\092211a.b\FID26530.D
Date : 23-SEP-2011 10:25
Client ID:
Sample Info: 10169815009
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT33.i

Operator: AMH
Column diameter: 0.53



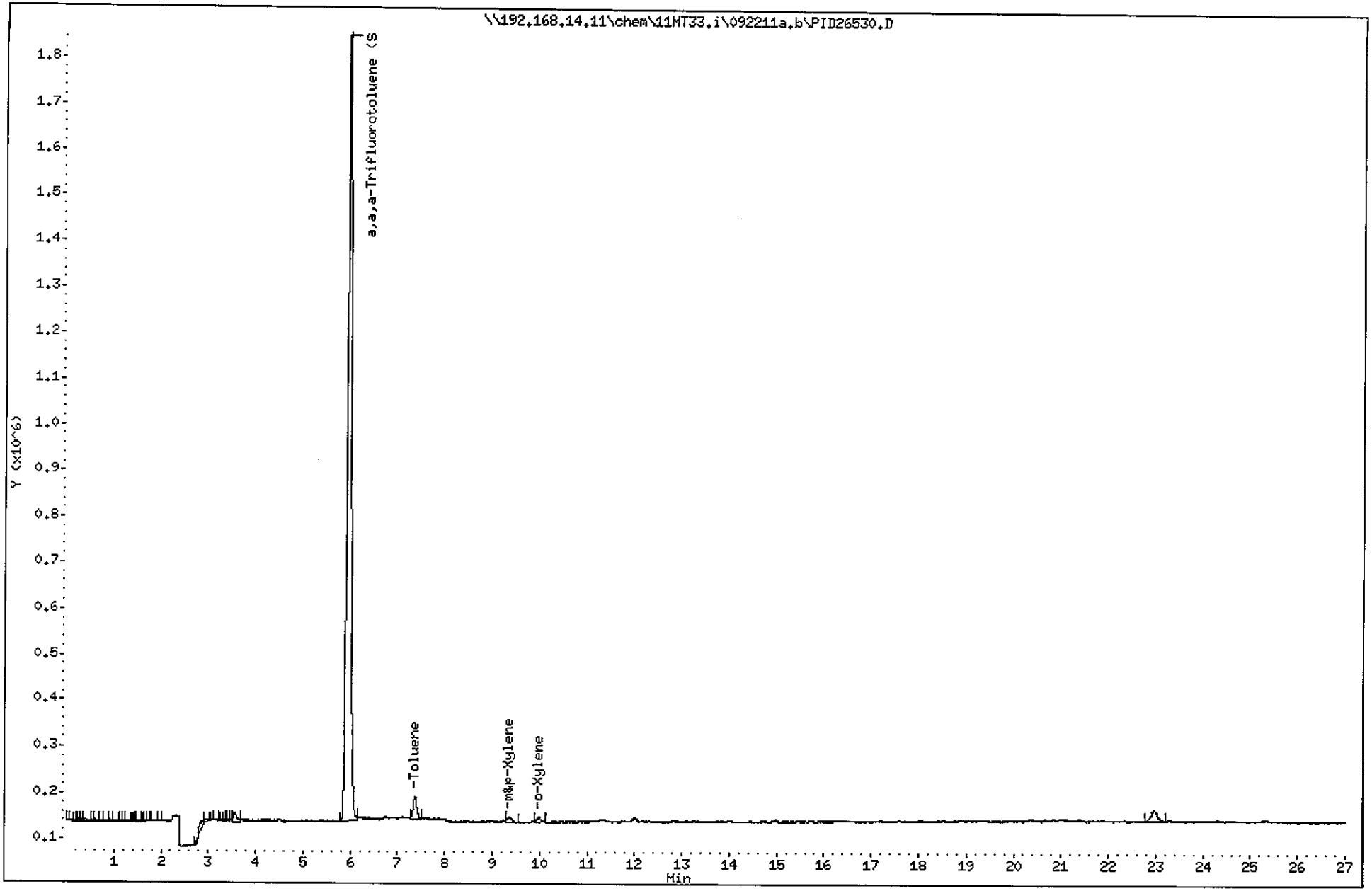
Data File: \\192.168.14.11\chem\11MT33.i\092211a.b\PID26530.D
Date : 23-SEP-2011 10:25
Client ID:
Sample Info: 10169815009

Instrument: 11MT33.i

Operator: AMH

Column phase: DB-502 Film: 3.00nm

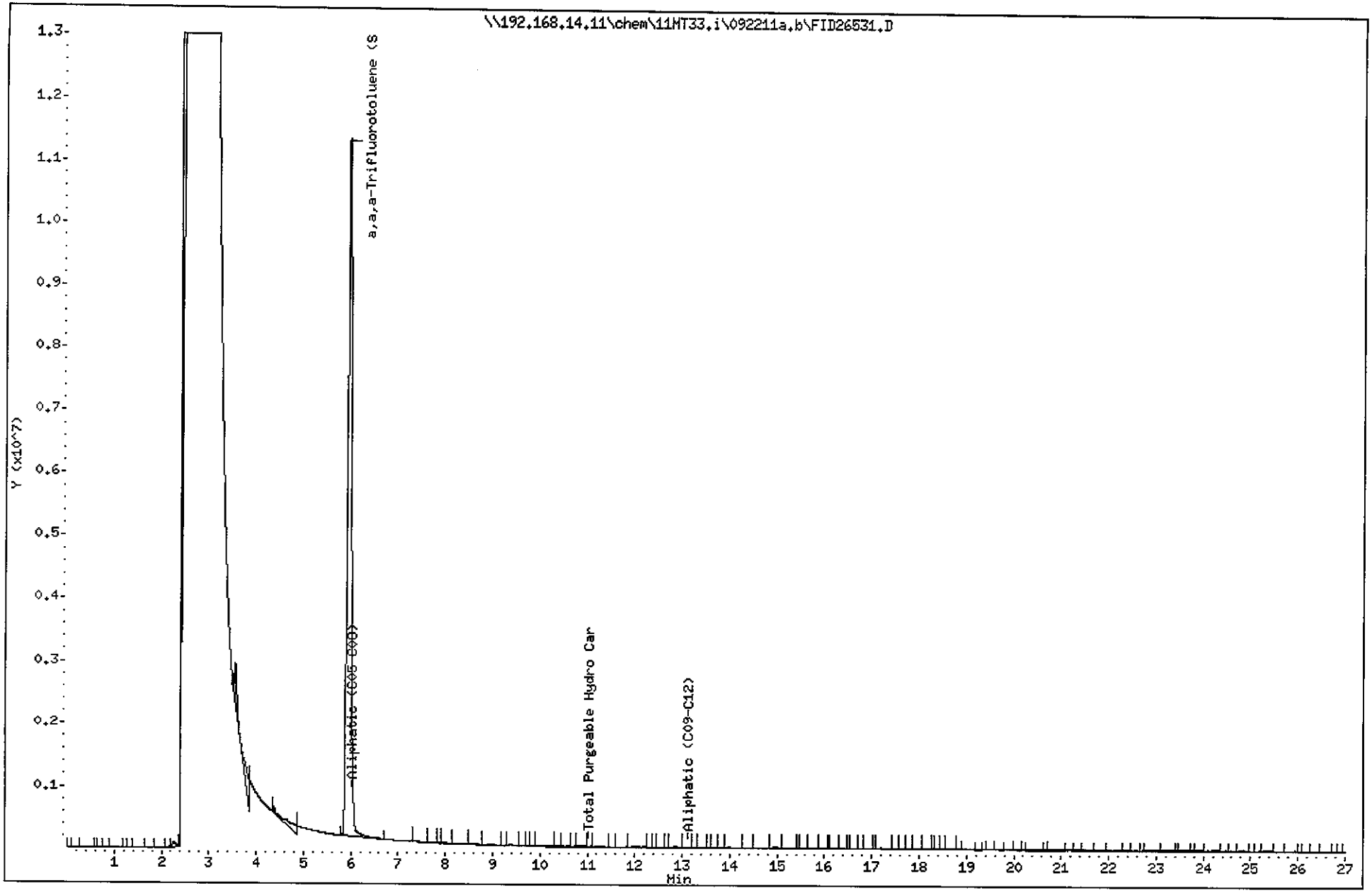
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT33.i\092211a.b\FID26531.D
Date : 23-SEP-2011 11:10
Client ID:
Sample Info: 10169815011
Volume Injected (uL): 100.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT33.i

Operator: AMH
Column diameter: 0.53



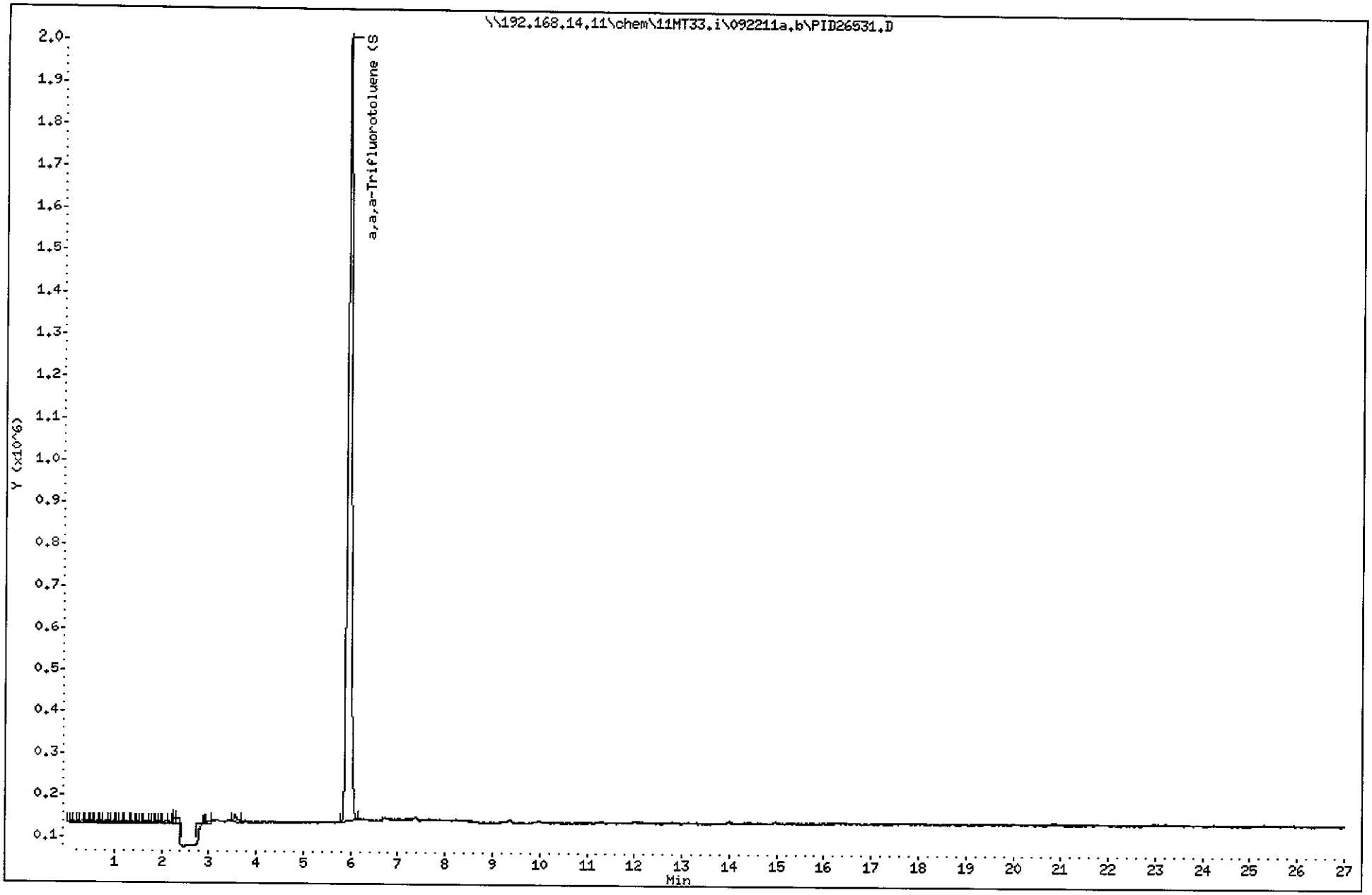
Data File: \\192.168.14.11\chem\11MT33.i\092211a.b\PID26531.D
Date : 23-SEP-2011 11:10
Client ID:
Sample Info: 10169815011

Instrument: 11MT33.i

Operator: AHH

Column phase: DB-502 Film: 3.00nm

Column diameter: 0.53



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CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT33.i
Lab File ID: FID26535.D
Analysis Type: SOIL
Lab Sample ID: ccv 8859-0229
Method: \\192.168.14.11\chem\11MT33.i\092211a.b\F33VPH091311.m

Injection Date: 23-SEP-2011 14:06
Init. Cal. Date(s): 13-SEP-2011 13-SEP-2011
Init. Cal. Times: 15:39 20:45
Quant Type: ESTD

COMPOUND	RRF / AMOUNT	RF600	CCAL RRF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	1300	1265	746364	0.010	-2.68590	25.00000	Linear
$ 9 a,a,a-Trifluorotoluene (S)	631914	638467	638467	0.010	1.03707	25.00000	Averaged
S 4 Aliphatic (C05-C08)	721681	683263	683263	0.010	-5.32338	25.00000	Averaged
S 5 Aliphatic (C09-C12)	966289	873413	873413	0.010	-9.61164	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 7.40107
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT33.i\092211a.b\PID26535.D
Report Date: 26-Sep-2011 13:44

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT33.i Injection Date: 23-SEP-2011 14:06
Lab File ID: PID26535.D Init. Cal. Date(s): 13-SEP-2011 13-SEP-2011
Analysis Type: SOIL Init. Cal. Times: 15:39 20:45
Lab Sample ID: ccv 8859-0229 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT33.i\092211a.b\P33BTEX091311.m

COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	26932	27371	0.010	1.63168	25.00000	Averaged
2 Benzene	456501	399310	0.010	-12.52797	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	112026	106531	0.010	-4.90473	25.00000	Averaged
4 Toluene	390519	454876	0.010	16.47991	25.00000	Averaged
5 Ethylbenzene	356786	379633	0.010	6.40370	25.00000	Averaged
6 m&p-Xylene	465533	455800	0.010	-2.09073	25.00000	Averaged
7 o-Xylene	408336	386637	0.010	-5.31399	25.00000	Averaged
T 8 Aromatic (C09-C10)	381190	338153	0.010	-11.29036	25.00000	Averaged
9 Naphthalene	169670	201377	0.010	18.68789	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 4.68433
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.
602 S 25th Street
Billings, MT 591014549
(406)254-7226

October 26, 2011

Chris Cerquone
AMEC Geomatrix, Inc.
1001 South Higgins
B-1
Missoula, MT 59801

RE: Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Dear Chris Cerquone:
Enclosed are the analytical results for sample(s) received by the laboratory on September 20, 2011. The results relate only to the samples included in this report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kari Poehls

kari.poehls@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Idaho Certification #: MN00064
Illinois Certification #: 200011
Iowa Certification #: 368
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New Mexico Certification #: Pace
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: D9921
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Washington Certification #: C754
Wisconsin Certification #: 999407970

Montana Certification IDs

602 South 25th Street, Billings, MT 59101
EPA Region 8 Certification #: 8TMS-Q
Idaho Certification #: MT00012
Montana Certification #: MT CERT0040
NVLAP Certification #: 101292-0
Minnesota Dept of Health Certification #: 030-999-442

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH 0216
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: LA090012
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL1264
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Montana Certification #: Cert 0074
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-547
Puerto Rico Certification #: FL01264
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
Virginia Certification #: 00432
Wyoming Certification: FL NELAC Reciprocity

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SAMPLE SUMMARY

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10170015001	**ERB-2**	Water	09/16/11 15:00	09/20/11 09:55
10170015002	**PURGE WATER**	Water	09/16/11 17:15	09/20/11 09:55
10170015003	**KRY 111B**	Water	09/16/11 16:00	09/20/11 09:55
10170015004	**KRY 102B**	Water	09/16/11 10:20	09/20/11 09:55
10170015005	**KRY 107B**	Water	09/16/11 12:26	09/20/11 09:55
10170015006	**TRIP BLANK**	Water		09/20/11 09:55
10170015007	**TRIP BLANK-2**	Water		09/20/11 09:55
10170015008	**TRIP BLANK-3**	Water		09/20/11 09:55
10170015009	**TRIP BLANK-4**	Water		09/20/11 09:55

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SAMPLE ANALYTE COUNT

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10170015001	**ERB-2**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	9	PASI-M
		EPA 7470	TEM	1	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	MFP	15	PASI-MT
10170015002	**PURGE WATER**	EPA 8151	LJM	2	PASI-O
10170015003	**KRY 111B**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	9	PASI-M
		EPA 7470	TEM	1	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	MFP	15	PASI-MT
10170015004	**KRY 102B**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	9	PASI-M
		EPA 7470	TEM	1	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	MFP	15	PASI-MT
10170015005	**KRY 107B**	EPA 8151	LJM	2	PASI-O
		EPA 6010	IP	9	PASI-M
		EPA 7470	TEM	1	PASI-M
		MADEP EPH	EJS	2	PASI-MT
		MADEP VPH	MFP	15	PASI-MT

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PROJECT NARRATIVE

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Method: **EPA 8151**
Description: 8151 Chlorinated Herbicides
Client: AMEC Geomatrix, Inc.
Date: October 26, 2011

General Information:
5 samples were analyzed for EPA 8151. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

H2: Extraction or preparation conducted outside EPA method holding time.
- ERB-2 (Lab ID: 10170015001)
- KRY 102B (Lab ID: 10170015004)
- KRY 107B (Lab ID: 10170015005)
- KRY 111B (Lab ID: 10170015003)
- PURGE WATER (Lab ID: 10170015002)

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

QC Batch: GCSV/5788

S5: Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).
- PURGE WATER (Lab ID: 10170015002)
  - 2,4-DCPA (S)

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

QC Batch: GCSV/5788

L0: Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
- LCSD (Lab ID: 260356)
  - Pentachlorophenol

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Method: **EPA 6010**
Description: 6010 MET ICP
Client: AMEC Geomatrix, Inc.
Date: October 26, 2011

General Information:
4 samples were analyzed for EPA 6010. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 3010 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Method: **EPA 7470**
Description: 7470 Mercury
Client: AMEC Geomatrix, Inc.
Date: October 26, 2011

General Information:
4 samples were analyzed for EPA 7470. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with EPA 7470 with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MERP/6014

A matrix spike and matrix spike duplicate (MS/MSD) were performed on the following sample(s): 10169817001,10170015005

M1: Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

- MS (Lab ID: 1059151)
  - Mercury
- MSD (Lab ID: 1059152)
  - Mercury

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Method: **MADEP EPH**
Description: MADEP EPH MA Water
Client: AMEC Geomatrix, Inc.
Date: October 26, 2011

General Information:
4 samples were analyzed for MADEP EPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Sample Preparation:
The samples were prepared in accordance with MADEP EPH with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MTPR/1874

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1059725)
  - Total Extractable Hydrocarbons
- DUP (Lab ID: 1059729)
  - Total Extractable Hydrocarbons

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PROJECT NARRATIVE

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Method: **MADEP EPH**
Description: MADEP EPH MA Water
Client: AMEC Geomatrix, Inc.
Date: October 26, 2011

Analyte Comments:

QC Batch: MTPR/1874

N2: The lab does not hold TNI accreditation for this parameter.

- ERB-2 (Lab ID: 10170015001)
  - Total Extractable Hydrocarbons
- KRY 102B (Lab ID: 10170015004)
  - Total Extractable Hydrocarbons
- KRY 107B (Lab ID: 10170015005)
  - Total Extractable Hydrocarbons
- KRY 111B (Lab ID: 10170015003)
  - Total Extractable Hydrocarbons
- LCS (Lab ID: 1059726)
  - Total Extractable Hydrocarbons
- LCSD (Lab ID: 1059727)
  - Total Extractable Hydrocarbons
- MS (Lab ID: 1059728)
  - Total Extractable Hydrocarbons

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PROJECT NARRATIVE

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: October 26, 2011

General Information:
4 samples were analyzed for MADEP VPH. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):
All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:
All criteria were within method requirements with any exceptions noted below.

Internal Standards:
All internal standards were within QC limits with any exceptions noted below.

Surrogates:
All surrogates were within QC limits with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

QC Batch: MT/7124

A matrix spike/matrix spike duplicate was not performed due to insufficient sample volume.

Duplicate Sample:
All duplicate sample results were within method acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: MT/7124

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1060858)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene

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(406)254-7226

PROJECT NARRATIVE

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: October 26, 2011

Analyte Comments:

QC Batch: MT/7124

N2: The lab does not hold TNI accreditation for this parameter.

- BLANK (Lab ID: 1060858)
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- DUP (Lab ID: 1060862)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- ERB-2 (Lab ID: 10170015001)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- KRY 102B (Lab ID: 10170015004)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether

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PROJECT NARRATIVE

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: October 26, 2011

Analyte Comments:

QC Batch: MT/7124

N2: The lab does not hold TNI accreditation for this parameter.

- KRY 102B (Lab ID: 10170015004)
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
  - Toluene
- KRY 107B (Lab ID: 10170015005)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- KRY 111B (Lab ID: 10170015003)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Aliphatic (C05-C08), Adjusted
  - Aliphatic (C09-C12), Adjusted
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- LCS (Lab ID: 1060859)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)

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PROJECT NARRATIVE

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Method: **MADEP VPH**
Description: MADEP VPH MA Water
Client: AMEC Geomatrix, Inc.
Date: October 26, 2011

Analyte Comments:

QC Batch: MT/7124

N2: The lab does not hold TNI accreditation for this parameter.

- LCS (Lab ID: 1060859)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)
- LCSD (Lab ID: 1060860)
  - Aliphatic (C05-C08).Unadjusted
  - Aliphatic (C09-C12).Unadjusted
  - Aromatic (C09-C10)
  - Benzene
  - Ethylbenzene
  - Methyl-tert-butyl ether
  - m&p-Xylene
  - Naphthalene
  - o-Xylene
  - Toluene
  - Total Purgeable Hydro Carbons
  - Xylene (Total)

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Sample: ERB-2 **Lab ID: 10170015001** Collected: 09/16/11 15:00 Received: 09/20/11 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**<0.019**	ug/L	0.032		1	09/24/11 17:15	09/29/11 15:52	87-86-5	H2,L3
2,4-DCPA (S)	104	%	65.5-125.7		1	09/24/11 17:15	09/29/11 15:52	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:04	7440-38-2	
Barium	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:04	7440-39-3	
Cadmium	**<1.0**	ug/L	1.0		1	09/27/11 13:23	09/27/11 15:04	7440-43-9	
Chromium	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:04	7440-47-3	
Iron	**<50.0**	ug/L	50.0		1	09/27/11 13:23	09/27/11 15:04	7439-89-6	
Lead	**<3.0**	ug/L	3.0		1	09/27/11 13:23	09/27/11 15:04	7439-92-1	
Manganese	**<5.0**	ug/L	5.0		1	09/27/11 13:23	09/27/11 15:04	7439-96-5	
Selenium	**<15.0**	ug/L	15.0		1	09/27/11 13:23	09/27/11 15:04	7782-49-2	
Silver	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:04	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.20**	ug/L	0.20		1	09/23/11 20:56	09/29/11 11:43	7439-97-6	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<218**	ug/L	218	1000	1	09/22/11 14:15	09/24/11 23:22		N2
1-Chloro-octadecane (S)	80	%	40-140		1	09/22/11 14:15	09/24/11 23:22	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/24/11 07:49	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/24/11 07:49	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/24/11 07:49	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/24/11 07:49	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/24/11 07:49	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/24/11 07:49	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/24/11 07:49	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/24/11 07:49	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/24/11 07:49		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/24/11 07:49		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/24/11 07:49		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/24/11 07:49		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 07:49		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 07:49		N2
a,a,a-Trifluorotoluene (S)	109	%	70-130		1		09/24/11 07:49	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Sample: PURGE WATER **Lab ID: 10170015002** Collected: 09/16/11 17:15 Received: 09/20/11 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**0.19**	ug/L	0.030		1	09/24/11 17:15	09/29/11 16:29	87-86-5	H2,L1
2,4-DCPA (S)	.9	%	65.5-125.7		1	09/24/11 17:15	09/29/11 16:29	19719-28-9	S5

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ANALYTICAL RESULTS

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Sample: KRY 111B **Lab ID: 10170015003** Collected: 09/16/11 16:00 Received: 09/20/11 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**0.021J**	ug/L	0.031		1	09/24/11 17:15	09/29/11 17:08	87-86-5	H2,L1
2,4-DCPA (S)	105	%	65.5-125.7		1	09/24/11 17:15	09/29/11 17:08	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:09	7440-38-2	
Barium	**112**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:09	7440-39-3	
Cadmium	**<1.0**	ug/L	1.0		1	09/27/11 13:23	09/27/11 15:09	7440-43-9	
Chromium	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:09	7440-47-3	
Iron	**<50.0**	ug/L	50.0		1	09/27/11 13:23	09/27/11 15:09	7439-89-6	
Lead	**<3.0**	ug/L	3.0		1	09/27/11 13:23	09/27/11 15:09	7439-92-1	
Manganese	**<5.0**	ug/L	5.0		1	09/27/11 13:23	09/27/11 15:09	7439-96-5	
Selenium	**<15.0**	ug/L	15.0		1	09/27/11 13:23	09/27/11 15:09	7782-49-2	
Silver	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:09	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.20**	ug/L	0.20		1	09/23/11 20:56	09/29/11 11:45	7439-97-6	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<211**	ug/L	211	1000	1	09/22/11 14:15	09/24/11 23:54		N2
1-Chloro-octadecane (S)	82	%	40-140		1	09/22/11 14:15	09/24/11 23:54	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/24/11 08:32	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/24/11 08:32	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/24/11 08:32	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/24/11 08:32	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/24/11 08:32	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/24/11 08:32	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/24/11 08:32	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/24/11 08:32	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/24/11 08:32		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/24/11 08:32		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/24/11 08:32		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/24/11 08:32		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 08:32		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 08:32		N2
a,a,a-Trifluorotoluene (S)	119	%	70-130		1		09/24/11 08:32	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Sample: KRY 102B **Lab ID: 10170015004** Collected: 09/16/11 10:20 Received: 09/20/11 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**<0.019**	ug/L	0.032		1	09/24/11 17:15	09/29/11 17:50	87-86-5	H2,L3
2,4-DCPA (S)	109	%	65.5-125.7		1	09/24/11 17:15	09/29/11 17:50	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:13	7440-38-2	
Barium	**114**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:13	7440-39-3	
Cadmium	**<1.0**	ug/L	1.0		1	09/27/11 13:23	09/27/11 15:13	7440-43-9	
Chromium	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:13	7440-47-3	
Iron	**<50.0**	ug/L	50.0		1	09/27/11 13:23	09/27/11 15:13	7439-89-6	
Lead	**<3.0**	ug/L	3.0		1	09/27/11 13:23	09/27/11 15:13	7439-92-1	
Manganese	**<5.0**	ug/L	5.0		1	09/27/11 13:23	09/27/11 15:13	7439-96-5	
Selenium	**<15.0**	ug/L	15.0		1	09/27/11 13:23	09/27/11 15:13	7782-49-2	
Silver	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:13	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.20**	ug/L	0.20		1	09/23/11 20:56	09/29/11 11:47	7439-97-6	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<218**	ug/L	218	1000	1	09/22/11 14:15	09/25/11 00:26		N2
1-Chloro-octadecane (S)	74	%	40-140		1	09/22/11 14:15	09/25/11 00:26	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/24/11 09:16	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/24/11 09:16	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/24/11 09:16	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/24/11 09:16	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/24/11 09:16	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/24/11 09:16	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/24/11 09:16	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/24/11 09:16	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/24/11 09:16		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/24/11 09:16		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/24/11 09:16		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/24/11 09:16		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 09:16		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 09:16		N2
a,a,a-Trifluorotoluene (S)	100	%	70-130		1		09/24/11 09:16	98-08-8	

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ANALYTICAL RESULTS

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Sample: KRY 107B **Lab ID: 10170015005** Collected: 09/16/11 12:26 Received: 09/20/11 09:55 Matrix: Water

Parameters	Results	Units	Report Limit	Reg. Limit	DF	Prepared	Analyzed	CAS No.	Qual
8151 Chlorinated Herbicides	Analytical Method: EPA 8151								
Pentachlorophenol	**0.024J**	ug/L	0.034		1	09/24/11 17:15	09/29/11 18:36	87-86-5	H2,L1
2,4-DCPA (S)	120	%	65.5-125.7		1	09/24/11 17:15	09/29/11 18:36	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010								
Arsenic	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:18	7440-38-2	
Barium	**102**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:18	7440-39-3	
Cadmium	**<1.0**	ug/L	1.0		1	09/27/11 13:23	09/27/11 15:18	7440-43-9	
Chromium	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:18	7440-47-3	
Iron	**239**	ug/L	50.0		1	09/27/11 13:23	09/27/11 15:18	7439-89-6	
Lead	**<3.0**	ug/L	3.0		1	09/27/11 13:23	09/27/11 15:18	7439-92-1	
Manganese	**7.9**	ug/L	5.0		1	09/27/11 13:23	09/27/11 15:18	7439-96-5	
Selenium	**<15.0**	ug/L	15.0		1	09/27/11 13:23	09/27/11 15:18	7782-49-2	
Silver	**<10.0**	ug/L	10.0		1	09/27/11 13:23	09/27/11 15:18	7440-22-4	
7470 Mercury	Analytical Method: EPA 7470 Preparation Method: EPA 7470								
Mercury	**<0.20**	ug/L	0.20		1	09/23/11 20:56	09/29/11 11:49	7439-97-6	
MADEP EPH MA Water	Analytical Method: MADEP EPH Preparation Method: MADEP EPH								
Total Extractable Hydrocarbons	**<213**	ug/L	213	1000	1	09/22/11 14:15	09/25/11 00:57		N2
1-Chloro-octadecane (S)	72	%	40-140		1	09/22/11 14:15	09/25/11 00:57	3386-33-2	
MADEP VPH MA Water	Analytical Method: MADEP VPH								
Methyl-tert-butyl ether	**<0.50**	ug/L	0.50	30	1		09/24/11 10:00	1634-04-4	N2
Benzene	**<0.50**	ug/L	0.50	5	1		09/24/11 10:00	71-43-2	N2
Toluene	**<0.50**	ug/L	0.50	1000	1		09/24/11 10:00	108-88-3	N2
Ethylbenzene	**<0.50**	ug/L	0.50	700	1		09/24/11 10:00	100-41-4	N2
m&p-Xylene	**<1.0**	ug/L	1.0	10000	1		09/24/11 10:00	179601-23-1	N2
o-Xylene	**<0.50**	ug/L	0.50	10000	1		09/24/11 10:00	95-47-6	N2
Xylene (Total)	**<1.5**	ug/L	1.5	10000	1		09/24/11 10:00	1330-20-7	N2
Naphthalene	**<5.0**	ug/L	5.0	100	1		09/24/11 10:00	91-20-3	N2
Aliphatic (C05-C08), Adjusted	**<20.0**	ug/L	20.0	700	1		09/24/11 10:00		N2
Aliphatic (C09-C12), Adjusted	**<20.0**	ug/L	20.0	1000	1		09/24/11 10:00		N2
Aromatic (C09-C10)	**<20.0**	ug/L	20.0	1000	1		09/24/11 10:00		N2
Total Purgeable Hydro Carbons	**<20.0**	ug/L	20.0	1000	1		09/24/11 10:00		N2
Aliphatic (C09-C12).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 10:00		N2
Aliphatic (C05-C08).Unadjusted	**<20.0**	ug/L	20.0		1		09/24/11 10:00		N2
a,a,a-Trifluorotoluene (S)	94	%	70-130		1		09/24/11 10:00	98-08-8	

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QUALITY CONTROL DATA

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

QC Batch: GCSV/5788 Analysis Method: EPA 8151
QC Batch Method: EPA 8151 Analysis Description: 8151A GCS Herbicides
Associated Lab Samples: 10170015001, 10170015002, 10170015003, 10170015004, 10170015005

METHOD BLANK: 260352 Matrix: Water
Associated Lab Samples: 10170015001, 10170015002, 10170015003, 10170015004, 10170015005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	0.023J	0.028	09/29/11 05:57	
2,4-DCPA (S)	%	109	65.5-125.7	09/29/11 05:57	

LABORATORY CONTROL SAMPLE & LCSD: 260353 260356

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	.18	0.19	0.21	107	115	55.5-114	7	40	L0
2,4-DCPA (S)	%				105	109	65.5-125.			

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QUALITY CONTROL DATA

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

QC Batch: MPRP/28647 Analysis Method: EPA 6010
QC Batch Method: EPA 3010 Analysis Description: 6010 MET
Associated Lab Samples: 10170015001, 10170015003, 10170015004, 10170015005

METHOD BLANK: 1062478 Matrix: Water
Associated Lab Samples: 10170015001, 10170015003, 10170015004, 10170015005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	<10.0	10.0	09/27/11 14:10	
Barium	ug/L	<10.0	10.0	09/27/11 14:10	
Cadmium	ug/L	<1.0	1.0	09/27/11 14:10	
Chromium	ug/L	<10.0	10.0	09/27/11 14:10	
Iron	ug/L	<50.0	50.0	09/27/11 14:10	
Lead	ug/L	<3.0	3.0	09/27/11 14:10	
Manganese	ug/L	<5.0	5.0	09/27/11 14:10	
Selenium	ug/L	<15.0	15.0	09/27/11 14:10	
Silver	ug/L	<10.0	10.0	09/27/11 14:10	

LABORATORY CONTROL SAMPLE: 1062479

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	894	89	80-120	
Barium	ug/L	1000	871	87	80-120	
Cadmium	ug/L	1000	857	86	80-120	
Chromium	ug/L	1000	871	87	80-120	
Iron	ug/L	10000	8650	87	80-120	
Lead	ug/L	1000	861	86	80-120	
Manganese	ug/L	1000	888	89	80-120	
Selenium	ug/L	1000	902	90	80-120	
Silver	ug/L	500	442	88	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1062480 1062481

Parameter	Units	10169766017 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	ug/L	ND	1000	1000	887	888	89	89	80-120	.06	30	
Barium	ug/L	119	1000	1000	979	962	86	84	80-120	2	30	
Cadmium	ug/L	ND	1000	1000	862	840	86	84	80-120	3	30	
Chromium	ug/L	ND	1000	1000	874	852	87	85	80-120	3	30	
Iron	ug/L	ND	10000	10000	8580	8520	86	85	80-120	.7	30	
Lead	ug/L	ND	1000	1000	837	827	84	83	80-120	1	30	
Manganese	ug/L	ND	1000	1000	885	863	88	86	80-120	3	30	
Selenium	ug/L	ND	1000	1000	886	887	89	89	80-120	.09	30	
Silver	ug/L	ND	500	500	454	441	91	88	80-120	3	30	

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QUALITY CONTROL DATA

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

QC Batch: MERP/6014 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: 7470 Mercury
Associated Lab Samples: 10170015001, 10170015003, 10170015004, 10170015005

METHOD BLANK: 1059149 Matrix: Water
Associated Lab Samples: 10170015001, 10170015003, 10170015004, 10170015005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	<0.20	0.20	09/29/11 11:06	

LABORATORY CONTROL SAMPLE: 1059150

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	4.6	93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1059151 1059152

Parameter	Units	10169817001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	5	5	6.5	6.3	130	126	80-120	3	20	M1

MATRIX SPIKE SAMPLE: 1059153

Parameter	Units	10170015005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	<0.20	5	4.6	92	80-120	

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QUALITY CONTROL DATA

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

QC Batch: MTPR/1874 Analysis Method: MADEP EPH
QC Batch Method: MADEP EPH Analysis Description: MADEP EPH MA Water
Associated Lab Samples: 10170015001, 10170015003, 10170015004, 10170015005

METHOD BLANK: 1059725 Matrix: Water
Associated Lab Samples: 10170015001, 10170015003, 10170015004, 10170015005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Extractable Hydrocarbons	ug/L	<200	200	09/24/11 18:38	N2
1-Chloro-octadecane (S)	%	78	40-140	09/24/11 18:38	

LABORATORY CONTROL SAMPLE & LCSD: 1059726 1059727

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Total Extractable Hydrocarbons	ug/L	3100	1940	2190	63	71	40-140	12	50	N2
1-Chloro-octadecane (S)	%				92	96	40-140			

MATRIX SPIKE SAMPLE: 1059728

Parameter	Units	10170122001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Total Extractable Hydrocarbons	ug/L	1160	3800	4000	75	40-140	N2
1-Chloro-octadecane (S)	%				83	40-140	

SAMPLE DUPLICATE: 1059729

Parameter	Units	10170122001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Extractable Hydrocarbons	ug/L	1160	<232		50	N2
1-Chloro-octadecane (S)	%	88	83	4		

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QUALITY CONTROL DATA

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

QC Batch: MT/7124 Analysis Method: MADEP VPH
QC Batch Method: MADEP VPH Analysis Description: MADEP VPH MA Water
Associated Lab Samples: 10170015001, 10170015003, 10170015004, 10170015005

METHOD BLANK: 1060858 Matrix: Water
Associated Lab Samples: 10170015001, 10170015003, 10170015004, 10170015005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aliphatic (C05-C08).Unadjusted	ug/L	<20.0	20.0	09/23/11 23:03	N2
Aliphatic (C09-C12).Unadjusted	ug/L	<20.0	20.0	09/23/11 23:03	N2
Aromatic (C09-C10)	ug/L	<20.0	20.0	09/23/11 23:03	N2
Benzene	ug/L	<0.50	0.50	09/23/11 23:03	N2
Ethylbenzene	ug/L	<0.50	0.50	09/23/11 23:03	N2
m&p-Xylene	ug/L	<1.0	1.0	09/23/11 23:03	N2
Methyl-tert-butyl ether	ug/L	<0.50	0.50	09/23/11 23:03	N2
Naphthalene	ug/L	<5.0	5.0	09/23/11 23:03	N2
o-Xylene	ug/L	<0.50	0.50	09/23/11 23:03	N2
Toluene	ug/L	<0.50	0.50	09/23/11 23:03	N2
Total Purgeable Hydro Carbons	ug/L	<20.0	20.0	09/23/11 23:03	N2
Xylene (Total)	ug/L	<1.5	1.5	09/23/11 23:03	N2
a,a,a-Trifluorotoluene (S)	%	105	70-130	09/23/11 23:03	

LABORATORY CONTROL SAMPLE & LCSD: 1060859 1060860

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08).Unadjusted	ug/L	600	606	462	101	77	70-130	27	25	D6,N2
Aliphatic (C09-C12).Unadjusted	ug/L	600	615	538	102	90	70-130	13	25	N2
Aromatic (C09-C10)	ug/L	100	103	91.5	103	91	70-130	12	25	N2
Benzene	ug/L	100	104	89.6	104	90	70-130	15	25	N2
Ethylbenzene	ug/L	100	100	89.1	100	89	70-130	12	25	N2
m&p-Xylene	ug/L	200	203	177	102	88	70-130	14	25	N2
Methyl-tert-butyl ether	ug/L	100	119	94.8	119	95	70-130	23	25	N2
Naphthalene	ug/L	100	95.9	92.0	96	92	70-130	4	25	N2
o-Xylene	ug/L	100	100	91.3	100	91	70-130	10	25	N2
Toluene	ug/L	100	99.6	88.8	100	89	70-130	11	25	N2
Total Purgeable Hydro Carbons	ug/L	1300	1220	1010	94	78	70-130	19	25	N2
Xylene (Total)	ug/L	300	304	268	101	89	70-130	13	25	N2
a,a,a-Trifluorotoluene (S)	%				97	102	70-130			

SAMPLE DUPLICATE: 1060862

Parameter	Units	10169815001 Result	Dup Result	RPD	Max RPD	Qualifiers
Aliphatic (C05-C08).Unadjusted	ug/L	<20.0	<20.0		50	N2
Aliphatic (C09-C12).Unadjusted	ug/L	<20.0	<20.0		50	N2
Aromatic (C09-C10)	ug/L	<20.0	<20.0		50	N2
Benzene	ug/L	<0.50	<0.50		50	N2
Ethylbenzene	ug/L	<0.50	<0.50		50	N2
m&p-Xylene	ug/L	<1.0	<1.0		50	N2

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QUALITY CONTROL DATA

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

SAMPLE DUPLICATE: 1060862

Parameter	Units	10169815001 Result	Dup Result	RPD	Max RPD	Qualifiers
Methyl-tert-butyl ether	ug/L	<0.50	<0.50		50	N2
Naphthalene	ug/L	<5.0	<5.0		50	N2
o-Xylene	ug/L	<0.50	<0.50		50	N2
Toluene	ug/L	<0.50	<0.50		50	N2
Total Purgeable Hydro Carbons	ug/L	<20.0	<20.0		50	N2
Xylene (Total)	ug/L	<1.5	<1.5		50	N2
a,a,a-Trifluorotoluene (S)	%	81	103	24		

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QUALIFIERS

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

LABORATORIES

PASI-M	Pace Analytical Services - Minneapolis
PASI-MT	Pace Analytical Services - Montana
PASI-O	Pace Analytical Services - Ormond Beach

BATCH QUALIFIERS

Batch: MT/7124

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
H2	Extraction or preparation conducted outside EPA method holding time.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L1	Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results for this analyte in associated samples may be biased high.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
N2	The lab does not hold TNI accreditation for this parameter.
S5	Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Knife River Project (mt1016005
Pace Project No.: 10170015

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10170015001	**ERB-2**	EPA 8151	GCSV/5788	EPA 8151	GCSV/4310
10170015002	**PURGE WATER**	EPA 8151	GCSV/5788	EPA 8151	GCSV/4310
10170015003	**KRY 111B**	EPA 8151	GCSV/5788	EPA 8151	GCSV/4310
10170015004	**KRY 102B**	EPA 8151	GCSV/5788	EPA 8151	GCSV/4310
10170015005	**KRY 107B**	EPA 8151	GCSV/5788	EPA 8151	GCSV/4310
10170015001	**ERB-2**	EPA 3010	MPRP/28647	EPA 6010	ICP/12079
10170015003	**KRY 111B**	EPA 3010	MPRP/28647	EPA 6010	ICP/12079
10170015004	**KRY 102B**	EPA 3010	MPRP/28647	EPA 6010	ICP/12079
10170015005	**KRY 107B**	EPA 3010	MPRP/28647	EPA 6010	ICP/12079
10170015001	**ERB-2**	EPA 7470	MERP/6014	EPA 7470	MERC/6828
10170015003	**KRY 111B**	EPA 7470	MERP/6014	EPA 7470	MERC/6828
10170015004	**KRY 102B**	EPA 7470	MERP/6014	EPA 7470	MERC/6828
10170015005	**KRY 107B**	EPA 7470	MERP/6014	EPA 7470	MERC/6828
10170015001	**ERB-2**	MADEP EPH	MTPR/1874	MADEP EPH	MT/7144
10170015003	**KRY 111B**	MADEP EPH	MTPR/1874	MADEP EPH	MT/7144
10170015004	**KRY 102B**	MADEP EPH	MTPR/1874	MADEP EPH	MT/7144
10170015005	**KRY 107B**	MADEP EPH	MTPR/1874	MADEP EPH	MT/7144
10170015001	**ERB-2**	MADEP VPH	MT/7124		
10170015003	**KRY 111B**	MADEP VPH	MT/7124		
10170015004	**KRY 102B**	MADEP VPH	MT/7124		
10170015005	**KRY 107B**	MADEP VPH	MT/7124		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1321724

Section A Required Client Information:

Company: AMEC
Address: 1001 S. Higgins Ave, Building B-1, Missoula MT 59801
Email To: adam.n.johnson@amec.com
Phone: (406) 542-0129 Fax:
Requested Due Date/TAT: Normal

Section B Required Project Information:

Report To: adam.n.johnson@amec.com
Copy To: chris.ferguson@amec.com
Purchase Order No.:
Project Name: Knife River Project
Project Number: MT10160050

Section C Invoice Information:

Attention: Donna McCammon
Company Name: AMEC
Address: 1001 S. Higgins Ave, Missoula MT 59801
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: MT

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): Pentachlorophenol EPA 8151	EPH by MA DEP EPH	VPH by MA DEP VPH	RCRA METALS Fe, Mn	Dioxins	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. (10170015)
1	ERB-2	WT	G			9/16/11	1500		11	4		1	6					X	X	X	X	X		001
2	Purge Water	WT	G			9/16/11	1715		2	2								X						002
3	KRY 111B	WT	G			9/16/11	1600		8	2		1	5					X	X	X	X	X		003
4	KRY 102B	WT	G			9/16/11	1020		11	4		1	6					X	X	X	X	X		004
5	KRY 107B	WT	G			9/16/11	1226		11	4		1	6					X	X	X	X	X		005
6	Trip blank																							006, 007, 008, 009
7																								
8																								
9																								
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp In °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
See attached tables for analytical methods*	Heather Grotbo / Amec	9/19/11	1150	FedEx	9/19/11	1150	5.5	Y	Y	Y
	FedEx (E)	9/20/11	0955	Ray Valey PACE	9/20/11	955	1.1	Y	Y	Y
							4.3	Y	Y	Y
							5.2	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: HEATHER GROTBO
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 09/19/2011

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical

Client Name: Ames

Project # 10170015

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7952 0172 0150

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____ Temp Blank: Yes ☒ No _____

Thermometer Used 1383045 or 135 Type of Ice: Wet Blue None ☒ Samples on ice, cooling process has begun

Cooler Temperature 5.5 / 1.1 / 4.3 / 5.2 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: RW 9/20/14

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☒Yes ☐No ☐N/A	13. ☒ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	Samp # 001, 003, 004, 005 (1/1)
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☒Yes ☐No	Initial when completed RW Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☒No ☐N/A	15.
Trip Blank Present:	☒Yes ☐No ☐N/A	16.
Trip Blank Custody Seals Present	☒Yes ☒No ☐N/A	
Pace Trip Blank Lot # (if purchased): Appear to be VOAs, RW 9/20/14 that the client filled with H_2O		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Kari Pachl **Date:** 9-21-11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Table 7. Reporting Limits Compared to Groundwater Standards

Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit µg/L	Screening Level * µg/L	Is the reporting limit less or equal to the screening level?
Pesticides				
Pentachlorophenol	EPA 8151	0.0284	1	yes
Metals				
Arsenic	EPA 6010b	10	10	yes
Barium	EPA 6010b	10	1,000	yes
Cadmium	EPA 6010b	1	5	yes
Chromium	EPA 6010b	10	na	yes
Lead	EPA 6010b	3	15	yes
Mercury	EPA 7471	0.2	2	yes
Selenium	EPA 6010b	15	50	yes
Silver	EPA 6010b	10	100	yes

Notes:

** = Screening Levels are Montana Numeric Water Quality Standards (Circular DEQ-7, August 2010). The screening levels for petroleum constituents are Montana Department of Environmental Quality Risk-Based Screening Levels (RBSLs; September 2009).*

*** = Acenapthene screening level was used for acenapthylene because a DEQ-7 number is not a available and they have similar toxicity.*

na = not available or not applicable because no DEQ-7 standard exists for this analyte

MDL = method detection limit

MDEP = Massachusetts Department of Environmental Protection

Table 6a. Metals and VOC Reporting Limits Compared to Soil Screening Levels						
Knife River Property, Kalispell, Montana						
Analyte	Analytical Method	Reporting Limit	Residential Direct Contact SSL	Industrial Direct Contact SSL	Leaching SSL	Is the reporting limit less than or equal to the screening levels?
		mg/kg	mg/kg	mg/kg	mg/kg	
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	EPA 8260LL	0.004	1.9	9.3	0.002	no, will request MDL of 0.001
1,1,1-Trichloroethane	EPA 8260LL	0.004	870	3800	0.7	yes
1,1,2,2-Tetrachloroethane	EPA 8260LL	0.004	0.56	2.8	0.0078	yes
1,1,2-Trichloroethane	EPA 8260LL	0.004	1.1	5.3	0.0098	yes
1,1,2-Trichlorotrifluoroethane	EPA 8260LL	0.004	na	na	na	na
1,1-Dichloroethane	EPA 8260LL	0.004	3.3	17	0.0069	yes
1,1-Dichloroethene	EPA 8260LL	0.004	240	1100	0.0021	no, will request MDL of 0.0008
1,1-Dichloropropene	EPA 8260LL	0.004	na	na	na	na
1,2,3-Trichlorobenzene	EPA 8260LL	0.004	4.9	49	0.87	yes
1,2,3-Trichloropropane	EPA 8260LL	0.004	0.005	0.095	0.0027	no, will request MDL of 0.00081
1,2,4-Trichlorobenzene	EPA 8260LL	0.004	22	99	2	yes
1,2,4-Trimethylbenzene	EPA 8260LL	0.004	6.2	26	0.21	yes
1,2-Dibromo-3-chloropropane	EPA 8260LL	0.01	0.0054	0.069	0.00086	no, will request MDL of 0.00195
1,2-Dibromoethane (EDB)	EPA 8260LL	0.004	0.034	0.17	0.000011	no will request MDL of 0.00131
1,2-Dichlorobenzene	EPA 8260LL	0.004	190	980	5.8	yes
1,2-Dichloroethane	EPA 8260LL	0.004	0.43	2.2	0.0112	yes
1,2-Dichloropropane	EPA 8260LL	0.004	0.94	4.7	0.017	yes
1,3,5-Trimethylbenzene	EPA 8260LL	0.004	78	1000	5.2	yes
1,3-Dichlorobenzene	EPA 8260LL	0.004	na	na	na	na
1,3-Dichloropropane	EPA 8260LL	0.004	160	2000	2.5	yes
1,4-Dichlorobenzene	EPA 8260LL	0.004	2.4	12	0.72	yes
2,2-Dichloropropane	EPA 8260LL	0.01	na	na	na	na
2-Butanone (MEK)	EPA 8260LL	0.02	na	na	na	na
2-Chlorotoluene	EPA 8260LL	0.004	160	2000	7.1	yes
4-Chlorotoluene	EPA 8260LL	0.004	160	2000	7.1	yes
4-Methyl-2-pentanone (MIBK)	EPA 8260LL	0.02	na	na	na	na
Acetone	EPA 8260LL	0.025	6100	63000	45	yes
Allyl chloride	EPA 8260LL	0.004	0.68	3.4	0.0021	no, will request MDL of 0.00082
Benzene	EPA 8260LL	0.0047	a	a	a	yes
Bromobenzene	EPA 8260LL	0.004	30	180	0.59	yes
Bromochloromethane	EPA 8260LL	0.004	16	68	0.21	yes
Bromodichloromethane	EPA 8260LL	0.004	0.27	1.4	0.0267	yes
Bromoform	EPA 8260LL	0.02	62	220	0.21	yes
Bromomethane	EPA 8260LL	0.02	7.3	32	0.0025	no, will request MDL of 0.00214
Carbon tetrachloride	EPA 8260LL	0.004	0.61	3	0.0116	yes
Chlorobenzene	EPA 8260LL	0.004	29	140	0.68	yes
Chloroethane	EPA 8260LL	0.01	na	na	na	na
Chloroform	EPA 8260LL	0.004	0.29	1.5	0.195	yes
Chloromethane	EPA 8260LL	0.01	12	50	0.077	yes
cis-1,3-Dichloropropene	EPA 8260LL	0.004	1.7	8.3	0.014	yes
Dibromochloromethane	EPA 8260LL	0.004	0.68	3.3	0.01	yes

Table 6a. Metals and VOC Reporting Limits Compared to Soil Screening Levels Knife River Property, Kalispell, Montana						
Analyte	Analytical Method	Reporting Limit	Residential Direct Contact SSL	Industrial Direct Contact SSL	Leaching SSL	Is the reporting limit less than or equal to the screening levels?
		mg/kg	mg/kg	mg/kg	mg/kg	
Dibromomethane	EPA 8260LL	0.004	2.5	11	0.02	yes
Dichlorodifluoromethane	EPA 8260LL	0.004	9.4	40	15.5	yes
Dichlorofluoromethane	EPA 8260LL	0.004	na	na	na	na
Diethyl ether (Ethyl ether)	EPA 8260LL	0.004	1600	20000	16	yes
Ethylbenzene	EPA 8260LL	0.004	a	a	a	yes
Hexachloro-1,3-butadiene	EPA 8260LL	0.01	0.054	0.26	0.07	yes
Isopropylbenzene (Cumene)	EPA 8260LL	0.004	210	1100	11	yes
Methyl-tert-butyl ether	EPA 8260LL	0.004	a	a	a	yes
Methylene Chloride	EPA 8260LL	0.02	11	53	0.013	no, will request MDL of 0.00213
Naphthalene	EPA 8260LL	0.01	a	a	a	yes
Styrene	EPA 8260LL	0.004	630	3600	1.1	yes
Tetrachloroethene	EPA 8260LL	0.004	0.55	2.6	0.023	yes
Tetrahydrofuran	EPA 8260LL	0.04	na	na	na	na
Toluene	EPA 8260LL	0.004	a	a	a	yes
Trichloroethene	EPA 8260LL	0.004	2.8	14	0.018	yes
Trichlorofluoromethane	EPA 8260LL	0.004	79	340	63.85	yes
Vinyl chloride	EPA 8260LL	0.004	0.06	1.7	0.0007	no, will request MDL of 0.00126
Xylene (Total)	EPA 8260LL	0.012	a	a	a	yes
cis-1,2-Dichloroethene	EPA 8260LL	0.004	16	200	0.21	yes
m- + p- Xylene[b]	EPA 8260LL	0.008	59	250	100	yes
n-Butylbenzene	EPA 8260LL	0.00095	na	na	na	na
n-Propylbenzene	EPA 8260LL	0.00082	340	2100	25	yes
o-Xylene	EPA 8260LL	0.00095	69	300	100	yes
p-Isopropyltoluene	EPA 8260LL	0.00091	na	na	na	na
sec-Butylbenzene	EPA 8260LL	0.00069	390	5100	59	yes
tert-Butylbenzene	EPA 8260LL	0.00096	na	na	na	na
trans-1,2-Dichloroethene	EPA 8260LL	0.00117	15	69	0.29	yes
trans-1,3-Dichloropropene	EPA 8260LL	0.00053	1.7	8.3	0.007	yes
Pesticides						
Pentachlorophenol	EPA 8151	0.00095	0.89	2.7	0.1	yes
Metals						
Arsenic*	EPA 6010b	0.5	40	40	40	yes
Barium	EPA 6010b	0.5	1,500	19,000	411	yes
Cadmium	EPA 6010b	0.02	70	800	3.8	yes
Chromium**	EPA 6010b	0.5	0.29	5.6	1.80E+06	no, will request MDL of 0.07 mg/kg
Lead	EPA 6010b	0.3	400	800	140	yes
Mercury	EPA 7471	0.02	1.0	4.3	2.60	yes
Selenium	EPA 6010b	0.75	39	510	8.90	yes
Silver	EPA 6010b	0.5	39	510	1.0	yes

Notes:

Screening levels for VOCs and metals are based on EPA RSLs and adjusted according to DEQ's April 2011 soil screening flow charts.

RSL = EPA Regional Screening Level (May 2011)

SSL = Soil Screening Level

na = not available. No EPA Regional Screening Levels exist for this compound

a = DEQ RBSLs apply. See Table 6b for screening levels

b = the more conservative SSL bewteen p-xylene and m-xylene was used

** = DEQ action level for arsenic (April 2005)*

*** = Direct Contact RSL is for Chromium VI species*

Table 6b. Petroleum Hydrocarbon and PAH Reporting Limits Compared to Soil Screening Levels							
Knife River Property, Kalispell, Montana							
Analyte	Analytical Method	Reporting Limit	Surface Soil SSL (10-20 ft to groundwater)		Subsurface Soil SSL		Is the reporting limit less than the screening level?
			Residential	Industrial	<10 ft to groundwater	10-20 feet to groundwater	
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Petroleum Hydrocarbons							
C5-C8 Aliphatics	MDEP VPH	10	60	300	200	500	yes
C9-C12 Aliphatics	MDEP VPH	10	100	700	1000	1000	yes
C9-C10 Aromatics	MDEP VPH	10	100	500	100	500	yes
MTBE	MDEP VPH	0.06	0.2	0.2	0.08	0.2	yes
Benzene	MDEP VPH	0.025	0.1	0.1	0.04	0.1	yes
Toluene	MDEP VPH	0.1	40	40	10	40	yes
Ethylbenzene	MDEP VPH	0.1	6	30	10	40	yes
Xylenes	MDEP VPH	0.3	70	300	200	600	yes
Naphthalene	MDEP VPH	0.5	4	20	9	30	yes
EPH Screen	MDEP EPH	10	200	200	200	200	yes
C9-C18 Aliphatics	MDEP EPH	10	200	1000	2000	2000	yes
C19-C36 Aliphatics	MDEP EPH	10	20,000	100,000	100,000	100,000	yes
C11-C22 Aromatics	MDEP EPH	10	500	1000	400	1000	yes
Polynuclear Aromatic Hydrocarbons							
Acenapthene	8270c SIM	0.01	400	800	200	800	yes
Acenapthylene[a]	8270c SIM	0.01	400	800	200	800	yes
Anthracene	8270c SIM	0.01	2,000	10,000	4,000	10,000	yes
Benz(a)anthracene	8270c SIM	0.01	0.20	2	10	50	yes
Benzo(a)pyrene	8270c SIM	0.01	0.02	0.2	4.0	5.0	yes
Benzo(b)fluoranthene	8270c SIM	0.01	0.20	2	50	50	yes
Benzo(k)fluoranthene	8270c SIM	0.01	2	20	500	500	yes
Benzo(g,h,i)perylene[a]	8270c SIM	0.01	400	800	200	800	yes
Chrysene	8270c SIM	0.01	20	200	2000	5,000	yes
Dibenzo(a,h)anthracene	8270c SIM	0.01	0.02	0.20	5	5	yes
Fluoranthene	8270c SIM	0.01	300	2,000	500	2,000	yes
Fluorene	8270c SIM	0.01	300	2,000	600	2,000	yes

Table 6b. Petroleum Hydrocarbon and PAH Reporting Limits Compared to Soil Screening Levels							
Knife River Property, Kalispell, Montana							
Analyte	Analytical Method	Reporting Limit	Surface Soil SSL (10-20 ft to groundwater)		Subsurface Soil SSL		Is the reporting limit less than the screening level?
			Residential	Industrial	<10 ft to groundwater	10-20 feet to groundwater	
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Indeno(1,2,3-cd)pyrene	8270c SIM	0.01	0.20	2	50	50	yes
Naphthalene	8270c SIM	0.01	4	20	9	30	yes
Phenanthrene[a]	8270c SIM	0.01	300	2,000	500	2,000	yes
Pyrene	8270c SIM	0.01	200	2,000	2,000	2,000	yes

SSL = Soil Screening Level

MDEP = Massachusetts Department of Environmental Protection

The screening levels are Montana Department of Environmental Quality Risk-Based Screening Levels (RBSLs; September 2009). The RBSLs listed are the most conservative for the direct contact and leaching scenarios. DEQ does not distinguish between direct contact and leaching screening levels. The RBSLs listed are based on depths to water in local monitoring wells of approximately 20 feet below ground surface.

a = Surrogate PAH screening levels were used based on similar structure. Acenaphthene screening levels for benzo(g,h,i)perylene and acenaphthylene. Fluoranthene screening levels for

Table 7. Reporting Limits Compared to Groundwater Standards

Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit µg/L	Screening Level * µg/L	Is the reporting limit less or equal to the screening level?
Polynuclear Aromatic Hydrocarbons				
Acenaphthene	8270c SIM	0.04	670	yes
Acenaphthylene	8270c SIM	0.04	670**	yes
Anthracene	8270c SIM	0.04	2,100	yes
Benz(a)anthracene	8270c SIM	0.04	0.50	yes
Benzo(a)pyrene	8270c SIM	0.04	0.05	yes
Benzo(b)fluoranthene	8270c SIM	0.08	0.5	yes
Benzo(k)fluoranthene	8270c SIM	0.04	5	yes
Benzo(g,h,i)perylene	8270c SIM	0.04	na	na
Chrysene	8270c SIM	0.04	50	yes
Dibenzo(a,h)anthracene	8270c SIM	0.04	0.05	yes
Fluoranthene	8270c SIM	0.04	130	yes
Fluorene	8270c SIM	0.04	1100	yes
Indeno(1,2,3-cd)pyrene	8270c SIM	0.04	0.5	yes
Naphthalene	8270c SIM	0.04	100	yes
Phenanthrene	8270c SIM	0.04	na	na
Pyrene	8270c SIM	0.04	830	yes
Volatile Organic Compounds				
1,1,1,2-Tetrachloroethane	EPA 8260	1.0	na	na
1,1,1-Trichloroethane	EPA 8260	1.0	200	yes
1,1,2,2-Tetrachloroethane	EPA 8260	1.0	2	yes
1,1,2-Trichloroethane	EPA 8260	1.0	3	yes
1,1,2-Trichlorotrifluoroethane	EPA 8260	1.0	na	na
1,1-Dichloroethane	EPA 8260	1.0	na	na
1,1-Dichloroethene	EPA 8260	1.0	0.6	no, will request MDL of 0.47
1,1-Dichloropropene	EPA 8260	1.0	na	na
1,2,3-Trichlorobenzene	EPA 8260	1.0	na	na
1,2,3-Trichloropropane	EPA 8260	4.0	na	na
1,2,4-Trichlorobenzene	EPA 8260	1.0	70	yes
1,2,4-Trimethylbenzene	EPA 8260	1	na	na
1,2-Dibromo-3-chloropropane	EPA 8260	4	0.2	no, will request MDL of 1.23
1,2-Dibromoethane (EDB)	EPA 8260 or 8011	1	0.004	no, will request MDL of 0.26
1,2-Dichlorobenzene	EPA 8260	1	600	yes
1,2-Dichloroethane	EPA 8260	1	4	yes

Table 7. Reporting Limits Compared to Groundwater Standards

Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit µg/L	Screening Level * µg/L	Is the reporting limit less or equal to the screening level?
1,2-Dichloropropane	EPA 8260	4	5	yes
1,3,5-Trimethylbenzene	EPA 8260	1	na	na
1,3-Dichlorobenzene	EPA 8260	1	600	yes
1,3-Dichloropropane	EPA 8260	1	na	na
1,4-Dichlorobenzene	EPA 8260	1	75	yes
2,2-Dichloropropane	EPA 8260	4	na	na
2-Butanone (MEK)	EPA 8260	4	na	na
2-Chlorotoluene	EPA 8260	1	na	na
4-Chlorotoluene	EPA 8260	1	na	na
4-Methyl-2-pentanone (MIBK)	EPA 8260	4	na	na
Acetone	EPA 8260	25	na	na
Allyl chloride	EPA 8260	4	na	na
Benzene	EPA 8260	1	5	yes
Bromobenzene	EPA 8260	1	na	na
Bromochloromethane	EPA 8260	1	na	na
Bromodichloromethane	EPA 8260	1	10	yes
Bromoform	EPA 8260	4	80	yes
Bromomethane	EPA 8260	4	10	yes
Carbon tetrachloride	EPA 8260	1	3	yes
Chlorobenzene	EPA 8260	1	100	yes
Chloroethane	EPA 8260	1	na	na
Chloroform	EPA 8260	1	70	yes
Chloromethane	EPA 8260	4	30	yes
cis-1,3-Dichloropropene	EPA 8260	4	4	yes
Dibromochloromethane	EPA 8260	1	4	yes
Dibromomethane	EPA 8260	4	na	na
Dichlorodifluoromethane	EPA 8260	1	1000	yes
Dichlorofluoromethane	EPA 8260	1	na	na
Diethyl ether (Ethyl ether)	EPA 8260	4	na	na
Ethylbenzene	EPA 8260	1	700	yes
Hexachloro-1,3-butadiene	EPA 8260	5	5	yes
Isopropylbenzene (Cumene)	EPA 8260	1	na	na
Methyl-tert-butyl ether	EPA 8260	1	30	yes
Methylene Chloride	EPA 8260	4	5	yes
Naphthalene	EPA 8260	4	100	yes
Styrene	EPA 8260	1	100	yes

Table 7. Reporting Limits Compared to Groundwater Standards

Knife River Property, Kalispell, Montana

Analyte	Analytical Method	Reporting Limit µg/L	Screening Level * µg/L	Is the reporting limit less or equal to the screening level?
Tetrachloroethene	EPA 8260	1	5	yes
Tetrahydrofuran	EPA 8260	10	na	na
Toluene	EPA 8260	1	1,000	yes
Trichloroethene	EPA 8260	1	5	yes
Trichlorofluoromethane	EPA 8260	1	10,000	yes
Vinyl chloride	EPA 8260	0.4	0.2	no, will request MDL of 0.17
Xylene (Total)	EPA 8260	3	10,000	yes
cis-1,2-Dichloroethene	EPA 8260	1	70	yes
m- + p- Xylene	EPA 8260	2	10,000	yes
n-Butylbenzene	EPA 8260	1	na	na
n-Propylbenzene	EPA 8260	1	na	na
o-Xylene	EPA 8260	1	10,000	yes
p-Isopropyltoluene	EPA 8260	1	na	na
sec-Butylbenzene	EPA 8260	1	na	na
tert-Butylbenzene	EPA 8260	1	na	na
trans-1,2-Dichloroethene	EPA 8260	4	100	yes
trans-1,3-Dichloropropene	EPA 8260	4	2	no, will request MDL of 0.18
Petroleum Hydrocarbons				
Total Purgeable Hydrocarbons	MDEP VPH	20	1000	yes
C5-C8 Aliphatics	MDEP VPH	20	700	yes
C9-C12 Aliphatics	MDEP VPH	20	1,000	yes
C9-C10 Aromatics	MDEP VPH	20	1,000	yes
MTBE	MDEP VPH	0.5	30	yes
Benzene	MDEP VPH	0.5	5	yes
Toluene	MDEP VPH	0.5	1,000	yes
Ethylbenzene	MDEP VPH	0.5	700	yes
Xylenes	MDEP VPH	1.5	10,000	yes
Naphthalene	MDEP VPH	5	100	yes
EPH Screen	MDEP EPH	200	1,000	yes
C9-C18 Aliphatics	MDEP EPH	200	1,000	yes
C19-C36 Aliphatics	MDEP EPH	200	1,000	yes
C11-C22 Aromatics	MDEP EPH	200	1,000	yes

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 24-SEP-2011 17:35
Lab File ID: BCK26649.D Init. Cal. Date(s): 30-AUG-2011 30-AUG-2011
Analysis Type: SOIL Init. Cal. Times: 18:43 21:25
Lab Sample ID: eph ccv 7658-141 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\092311a.b\3EscB083011.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3687	3841	0.010	4.20271	25.00000	Averaged
S 57 Aliphatic (C9-C18)	3762	4518	0.010	20.09374	25.00000	Averaged
S 58 Aliphatic (C19-C36)	3630	3334	0.010	-8.14952	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3794	3969	0.010	4.59692	25.00000	Averaged
$ 54 o-Terphenyl (S)	4637	5067	0.010	9.27799	25.00000	Averaged

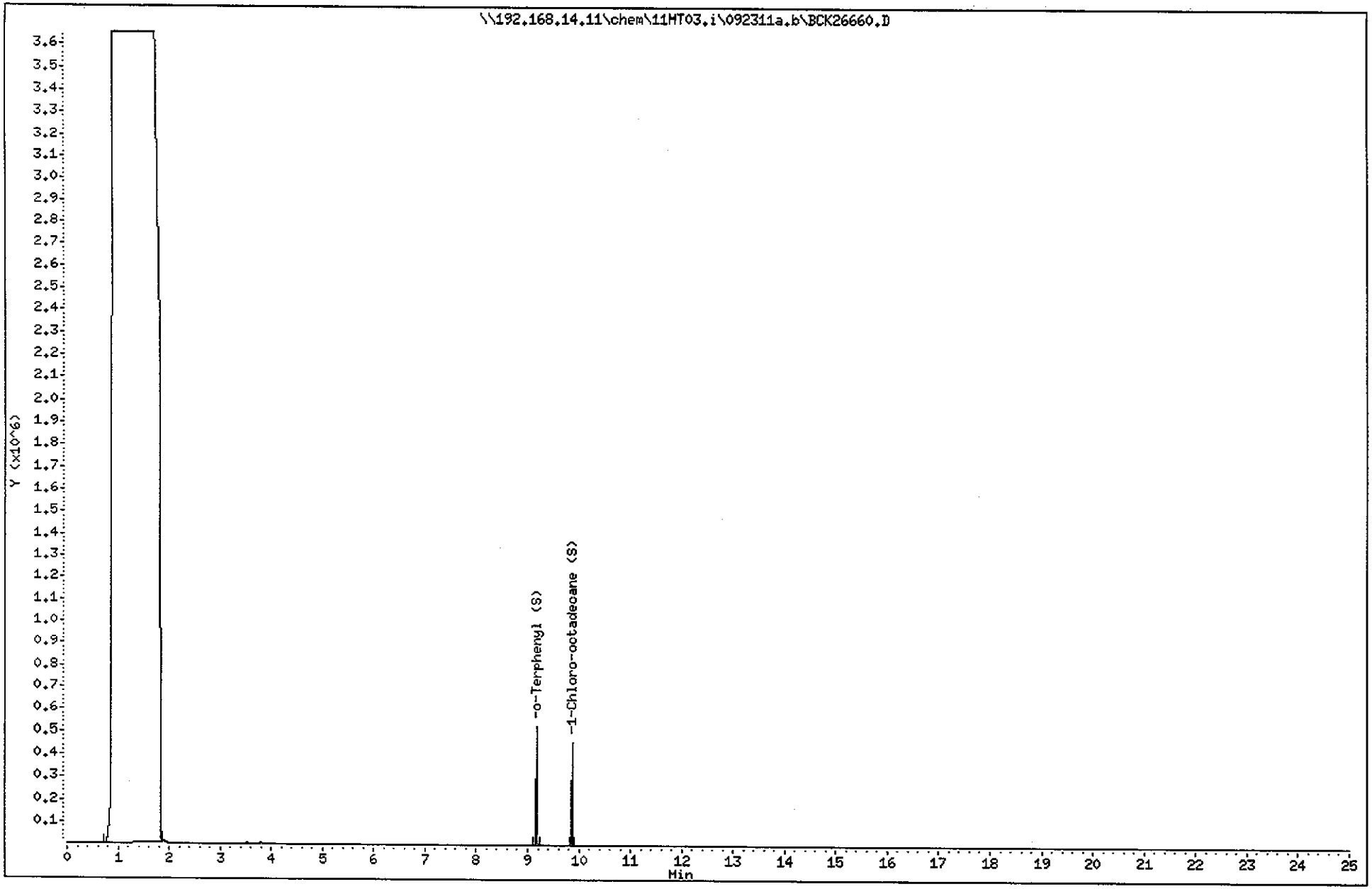
Average %D / Drift Results.

Calculated Average %D/Drift = 10.17280
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT03.i\092311a.b\BCK26660.D
Date : 24-SEP-2011 23:22
Client ID:
Sample Info: 10170015001
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



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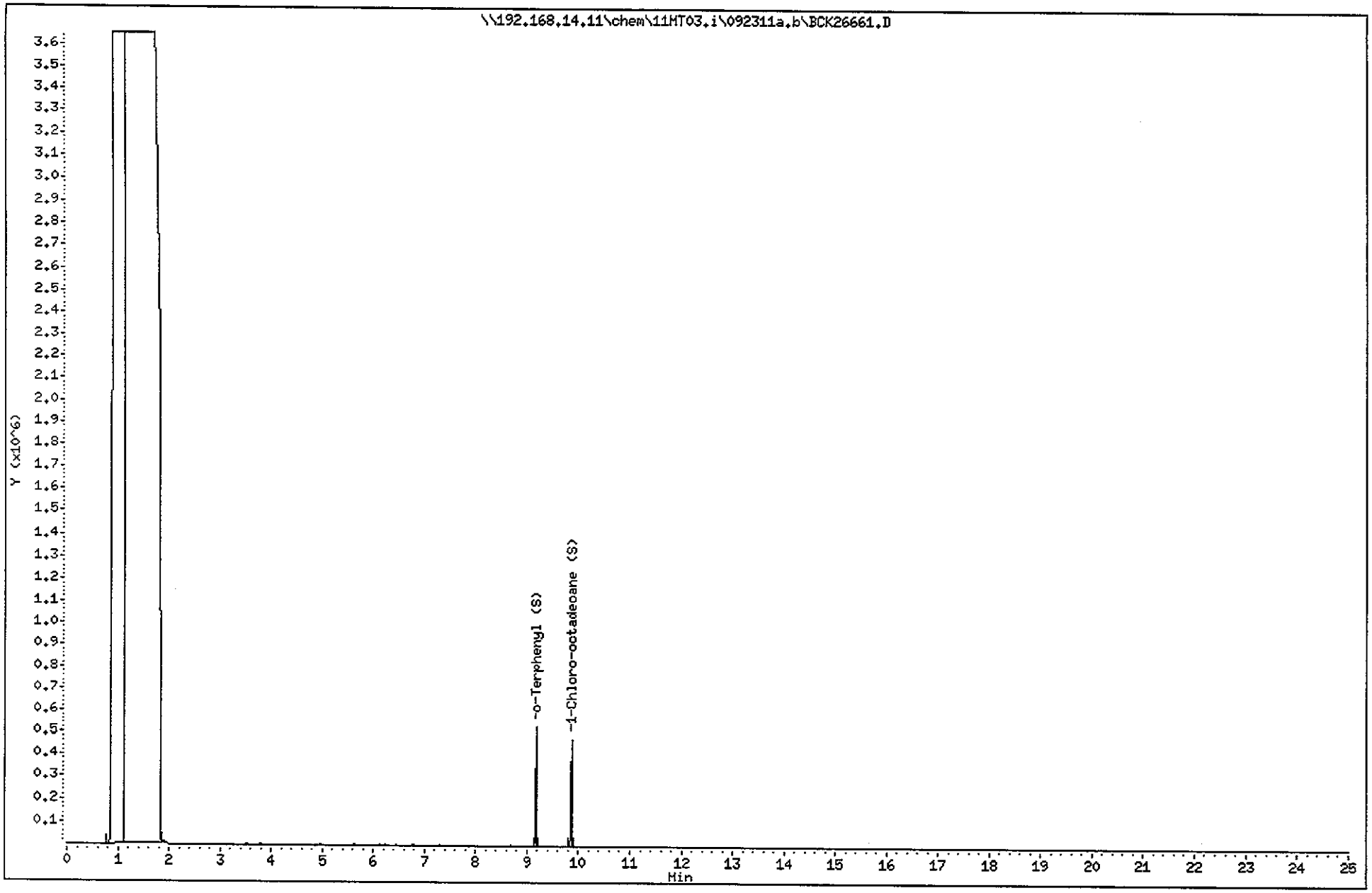
Date : 24-SEP-2011 23:54
Client ID:
Sample Info: 10170015003
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

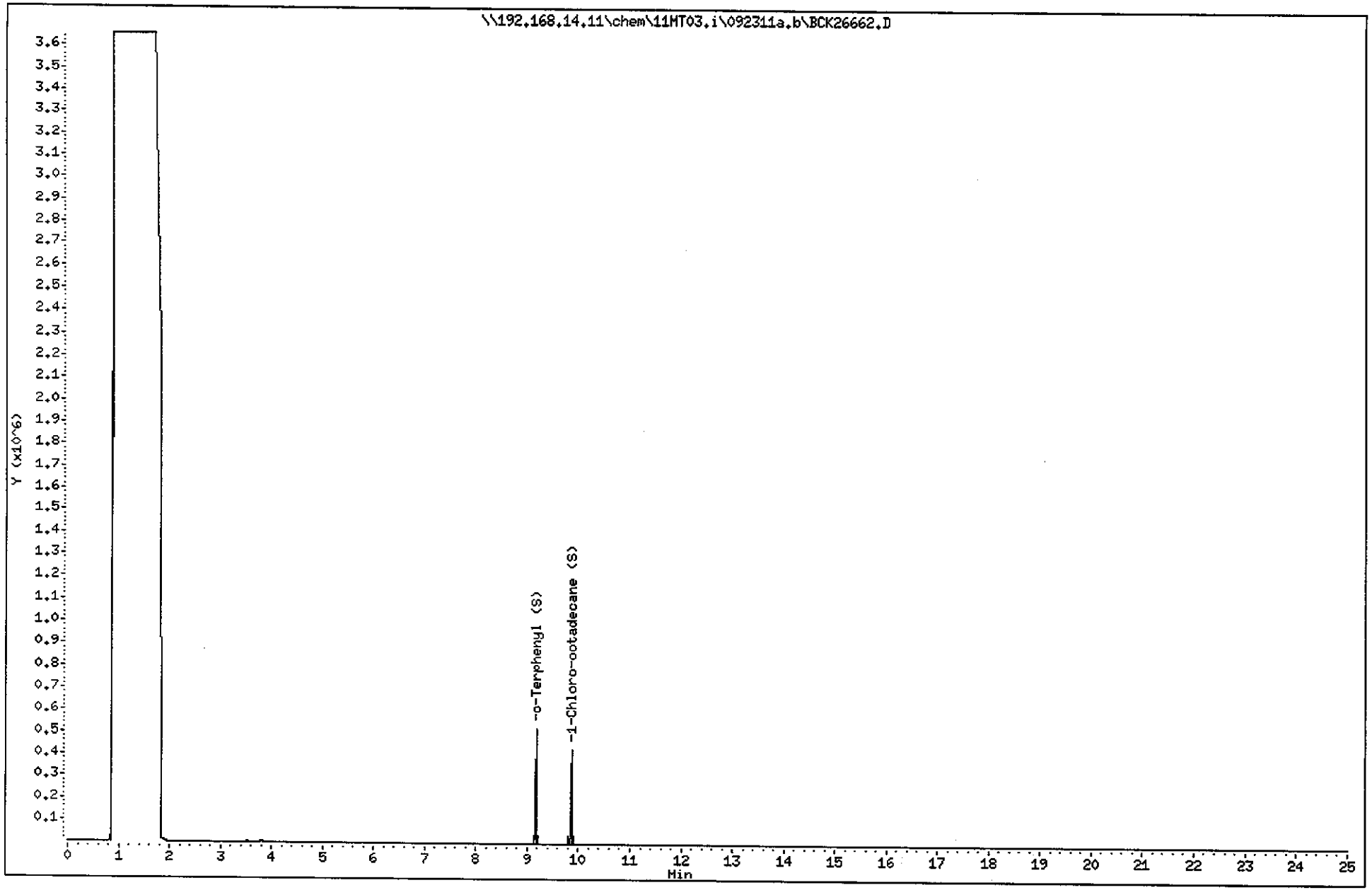
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\092311a.b\BCK26662.D
Date : 25-SEP-2011 00:26
Client ID:
Sample Info: 10170015004
Volume Injected (uL): 1.0
Column phase: DB-5HS

Instrument: 11MT03.i

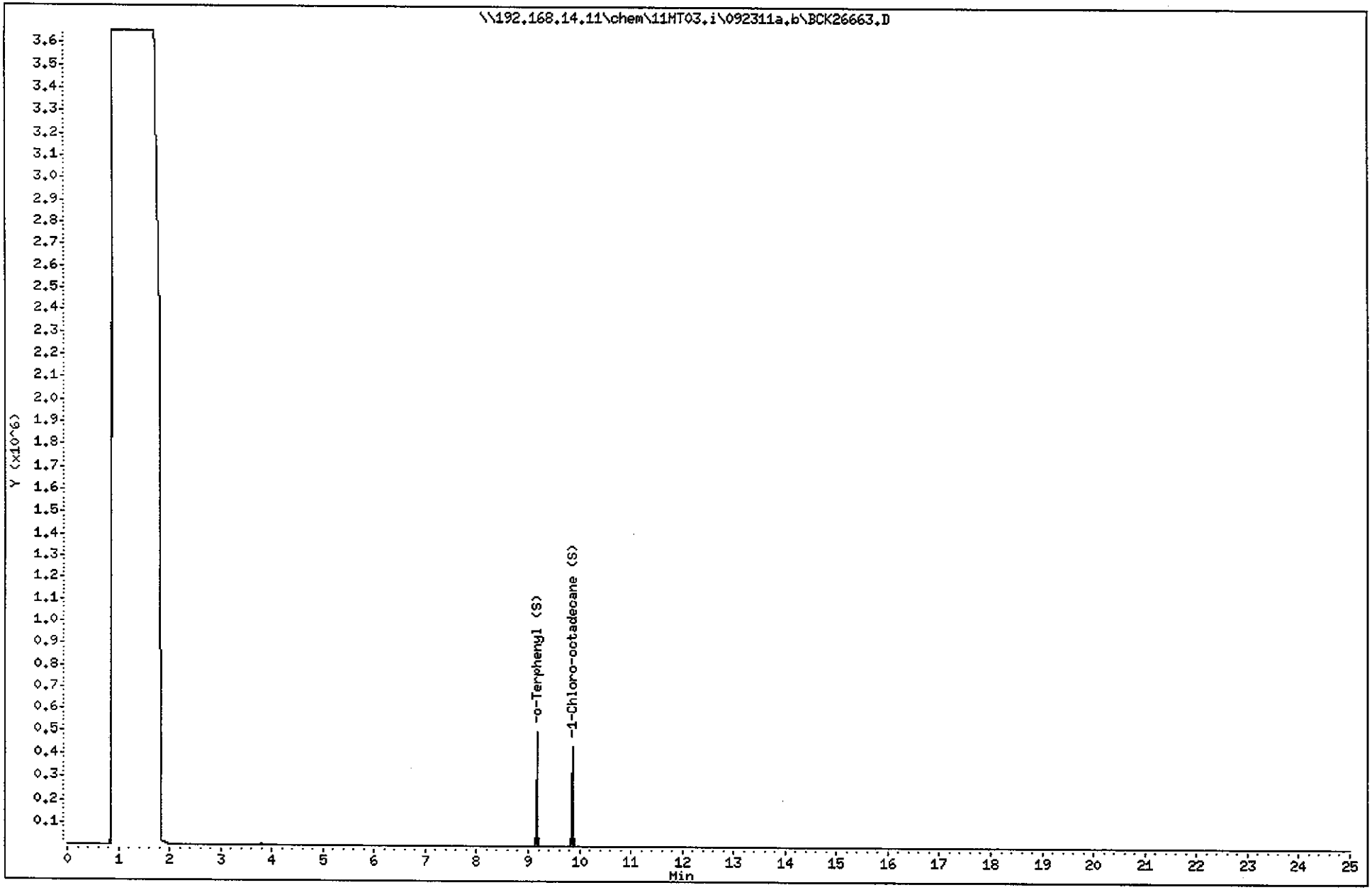
Operator: EJS
Column diameter: 0.25



Data File: \\192.168.14.11\chem\11MT03.i\092311a.b\BCK26663.D
Date : 25-SEP-2011 00:57
Client ID:
Sample Info: 10170015005
Volume Injected (uL): 1.0
Column phase: DB-5MS

Instrument: 11MT03.i

Operator: EJS
Column diameter: 0.25



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT03.i Injection Date: 25-SEP-2011 01:29
Lab File ID: BCK26664.D Init. Cal. Date(s): 30-AUG-2011 30-AUG-2011
Analysis Type: SOIL Init. Cal. Times: 18:43 21:25
Lab Sample ID: eph ccv 7658-141 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT03.i\092311a.b\3EscB083011.m

COMPOUND	RRF / AMOUNT	RF1400	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 4 Total Extractable Hydrocarb	3687	3894	0.010	5.63444	25.00000	Averaged
S 57 Aliphatic (C9-C18)	3762	4558	0.010	21.16872	25.00000	Averaged
S 58 Aliphatic (C19-C36)	3630	3396	0.010	-6.44046	25.00000	Averaged
$ 7 1-Chloro-octadecane (S)	3794	4008	0.010	5.63588	25.00000	Averaged
$ 54 o-Terphenyl (S)	4637	5110	0.010	10.19171	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 10.17280
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

VPH 10170015

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 23-SEP-2011 22:16
Lab File ID: FID26615.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8543-071i icv Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\F27VPH092311.m

COMPOUND	RRF / AMOUNT	RF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	11581	10867	0.010	-6.16256	25.00000	Averaged
$ 9 a,a,a-Trifluorotoluene (S)	7452	7256	0.010	-2.62727	25.00000	Averaged
S 4 Aliphatic (C05-C08)	10282	10379	0.010	0.94644	25.00000	Averaged
S 5 Aliphatic (C09-C12)	12296	12593	0.010	2.42277	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 15.04144
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 23-SEP-2011 22:16
Lab File ID: PID26615.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8543-071i icv Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\P27BTEX092311.m

COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	325	387	0.010	19.24949	25.00000	Averaged
2 Benzene	13326	13862	0.010	4.01920	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	3624	3512	0.010	-3.08167	25.00000	Averaged
4 Toluene	13811	13761	0.010	-0.36033	25.00000	Averaged
5 Ethylbenzene	12861	12900	0.010	0.29925	25.00000	Averaged
6 m&p-Xylene	15001	15259	0.010	1.71766	25.00000	Averaged
7 o-Xylene	13075	13130	0.010	0.41791	25.00000	Averaged
T 8 Aromatic (C09-C10)	13994	14470	0.010	3.40168	25.00000	Averaged
9 Naphthalene	6591	6318	0.010	-4.13895	25.00000	Averaged

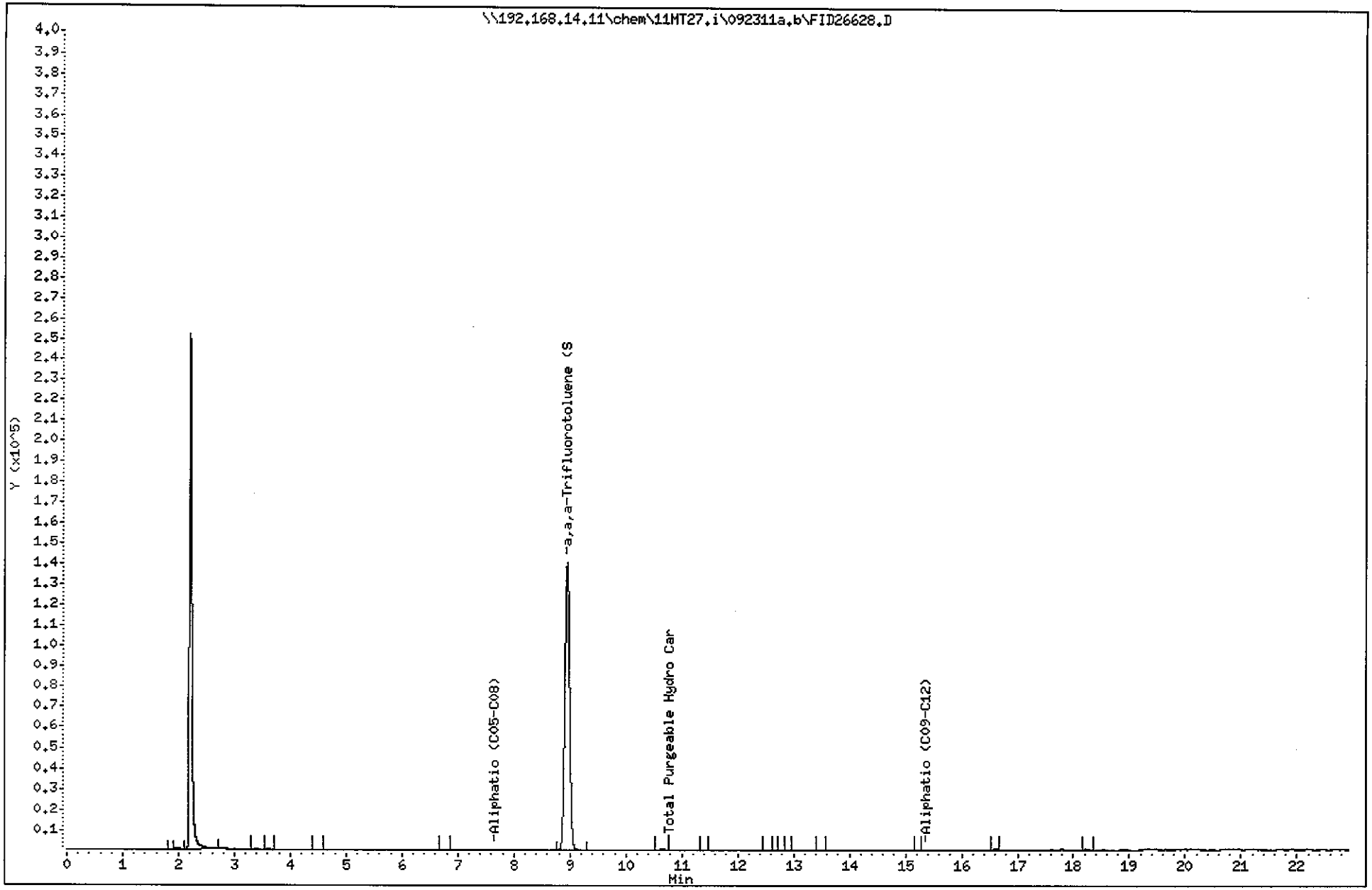
Average %D / Drift Results.

Calculated Average %D/Drift = 4.07624
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26628.D
Date : 24-SEP-2011 07:49
Client ID:
Sample Info: 10170015001
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

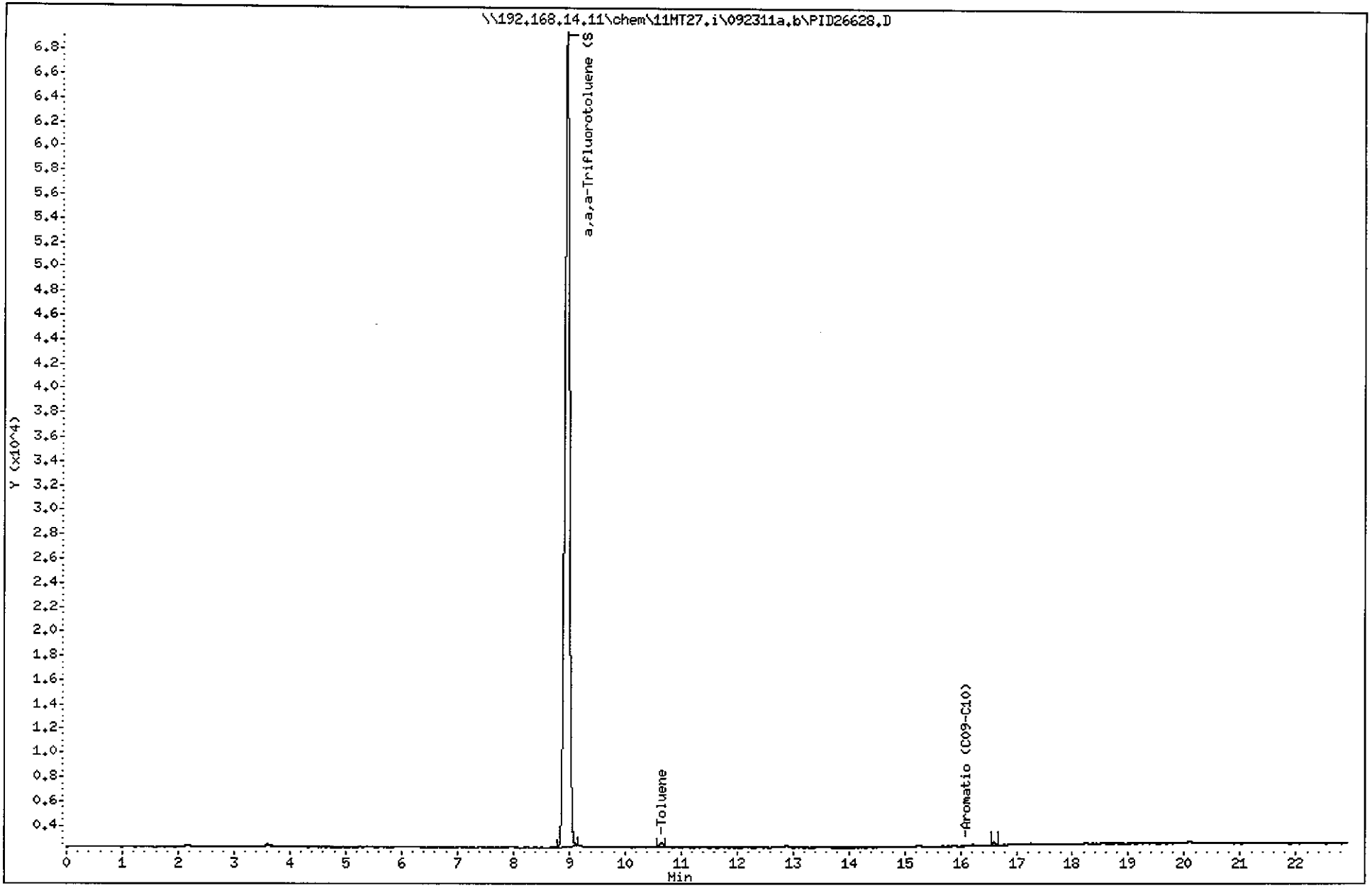
Instrument: 11MT27.i

Operator: MFP
Column diameter: 0.53



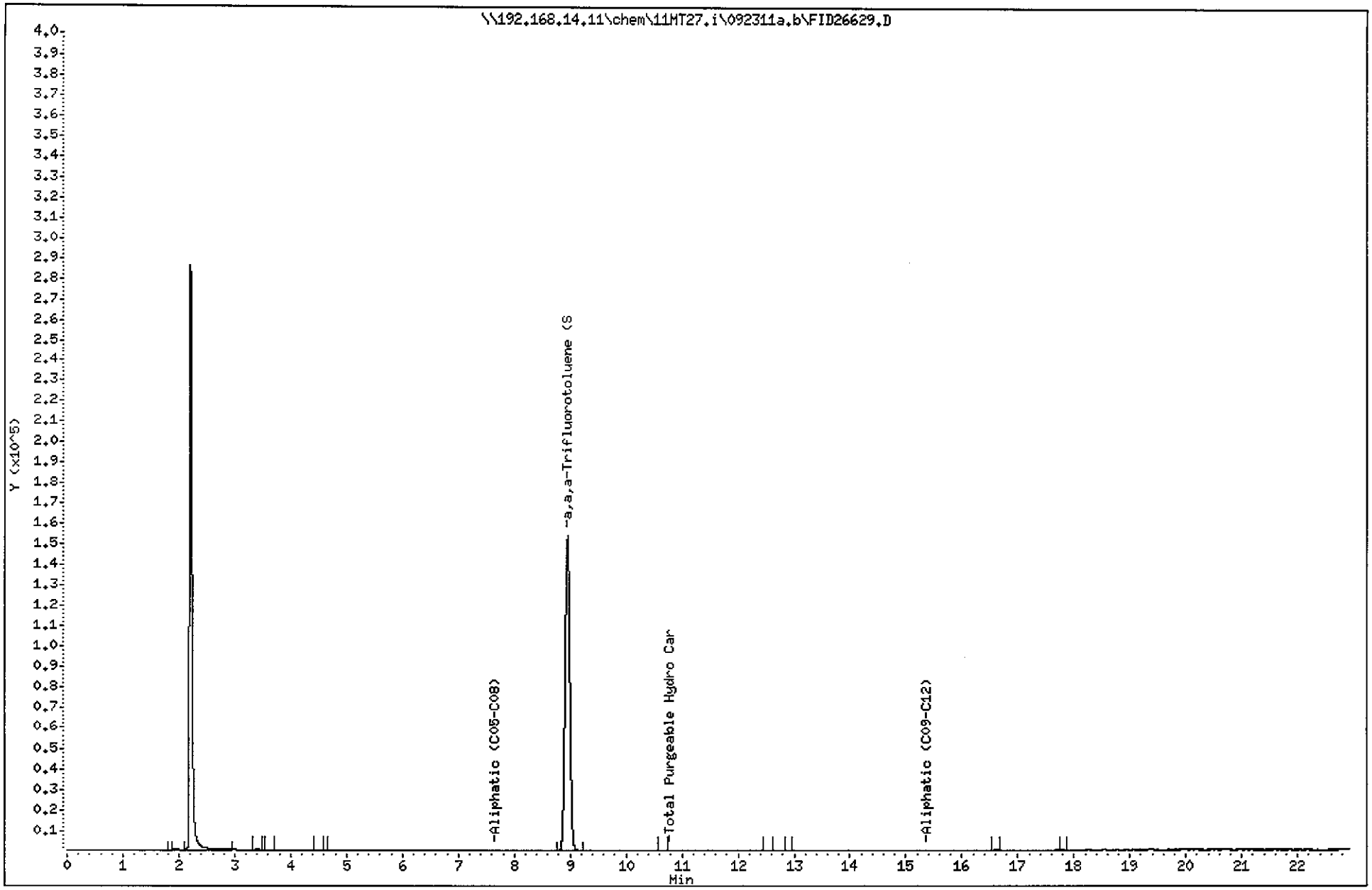
Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26628.D
Date : 24-SEP-2011 07:49
Client ID:
Sample Info: 10170015001
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26629.D
Date : 24-SEP-2011 08:32
Client ID:
Sample Info: 10170015003
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i
Operator: MFP
Column diameter: 0.53

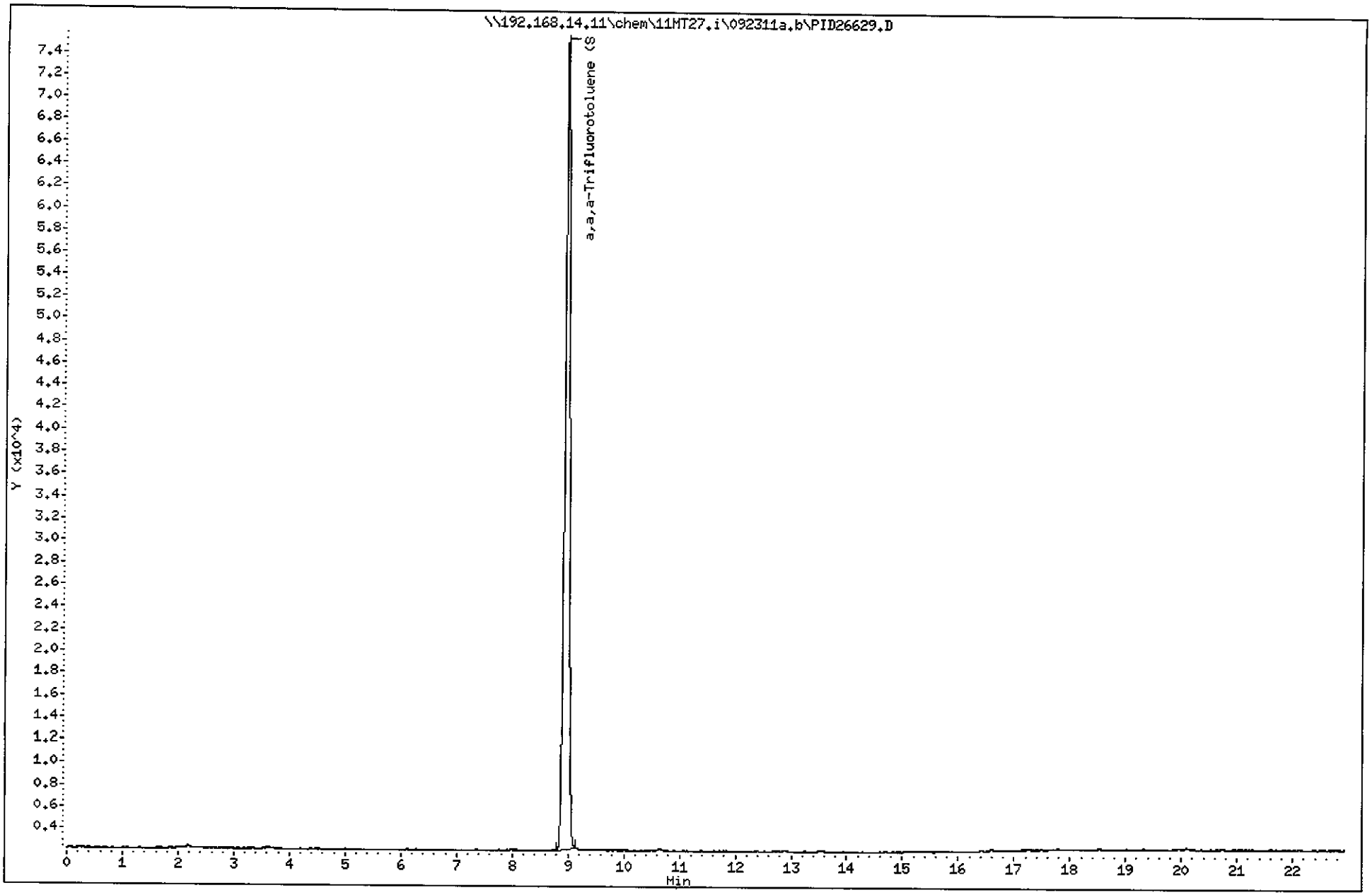


Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26629.D
Date : 24-SEP-2011 08:32
Client ID:
Sample Info: 10170015003
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Page 1

Instrument: 11MT27.i

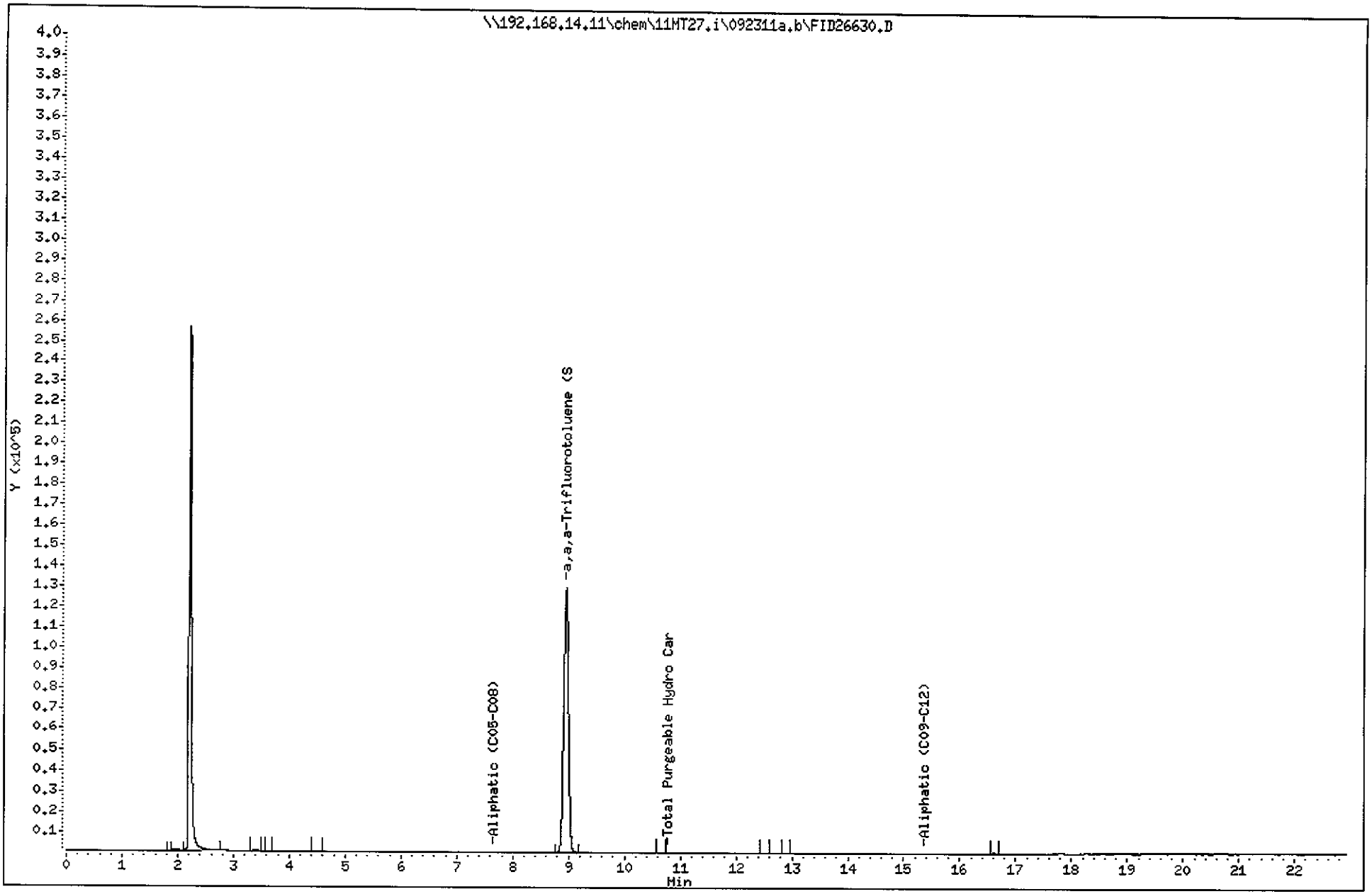
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26630.D
Date : 24-SEP-2011 09:16
Client ID:
Sample Info: 10170015004
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

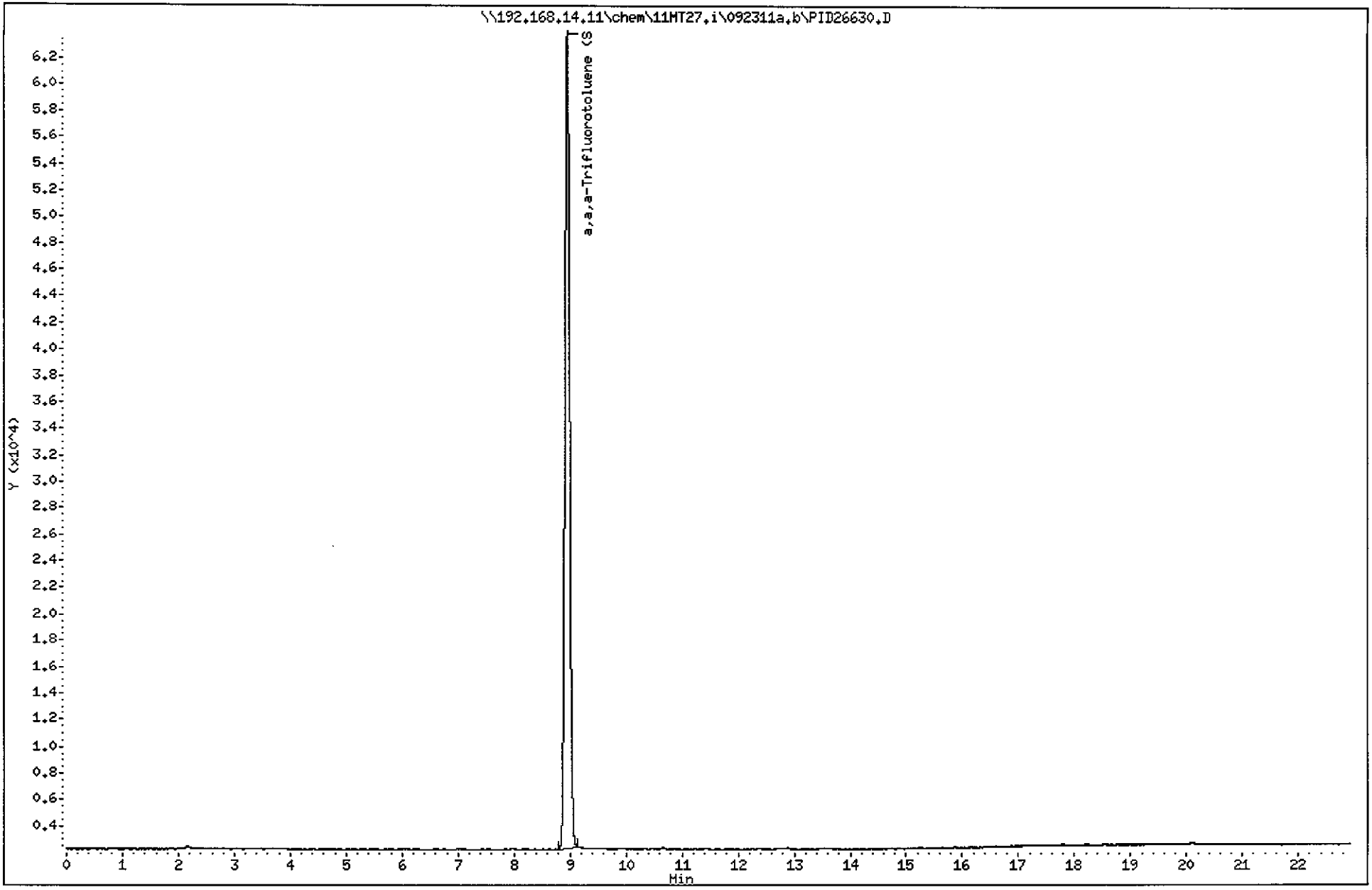
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26630.D
Date : 24-SEP-2011 09:16
Client ID:
Sample Info: 10170015004
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

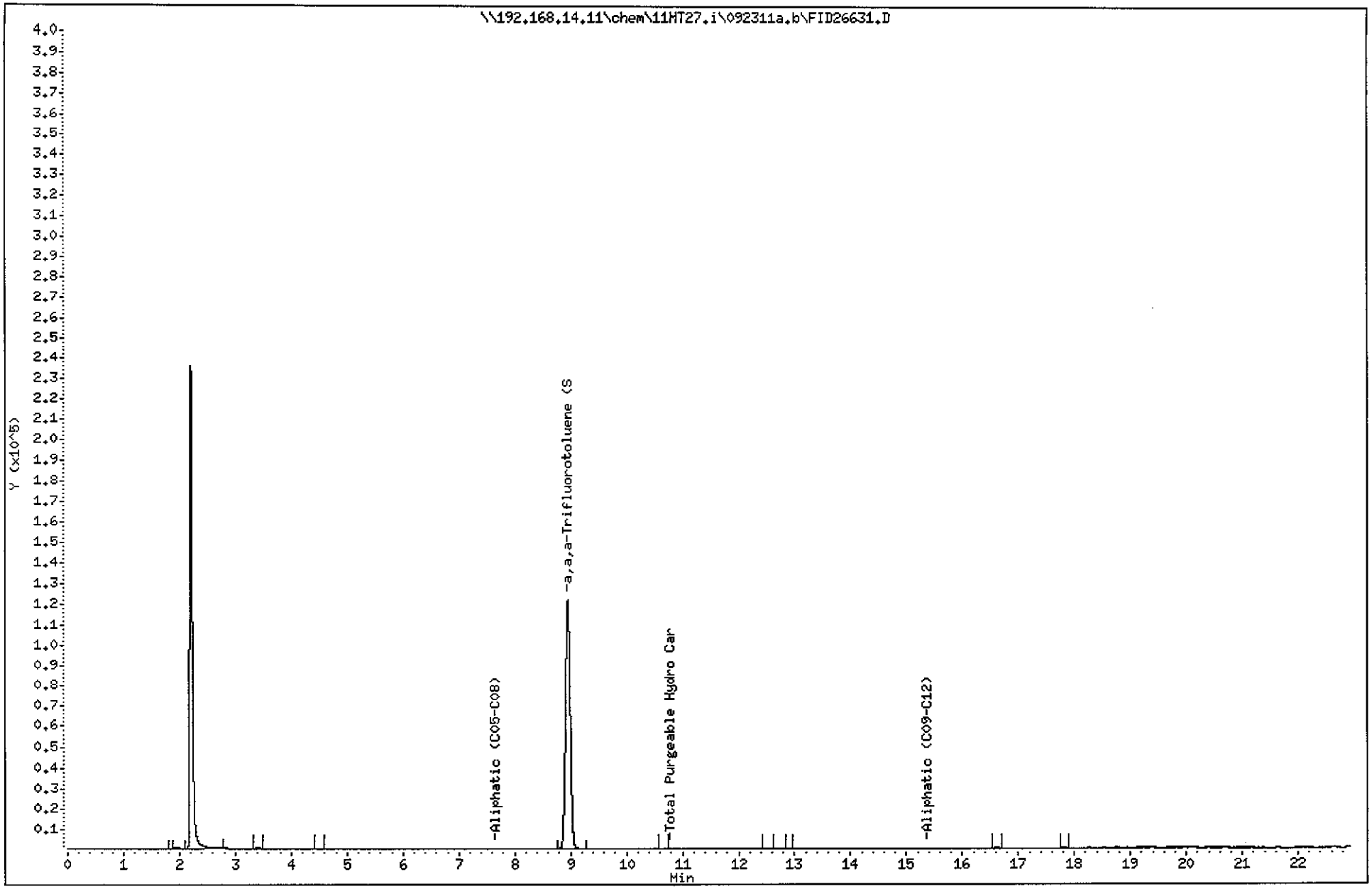
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26631.D
Date : 24-SEP-2011 10:00
Client ID:
Sample Info: 10170015005
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

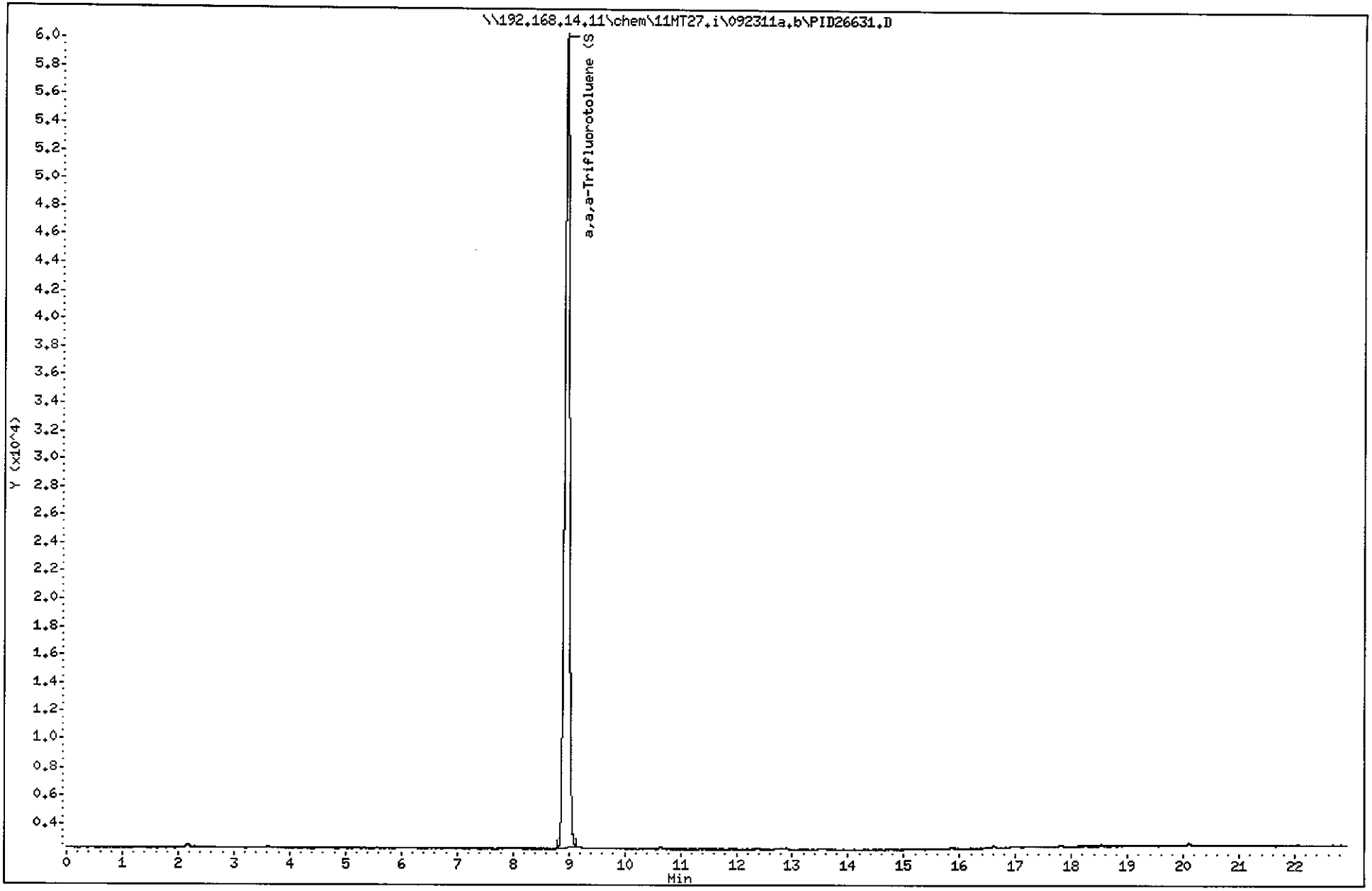
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26631.D
Date : 24-SEP-2011 10:00
Client ID:
Sample Info: 10170015005
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i

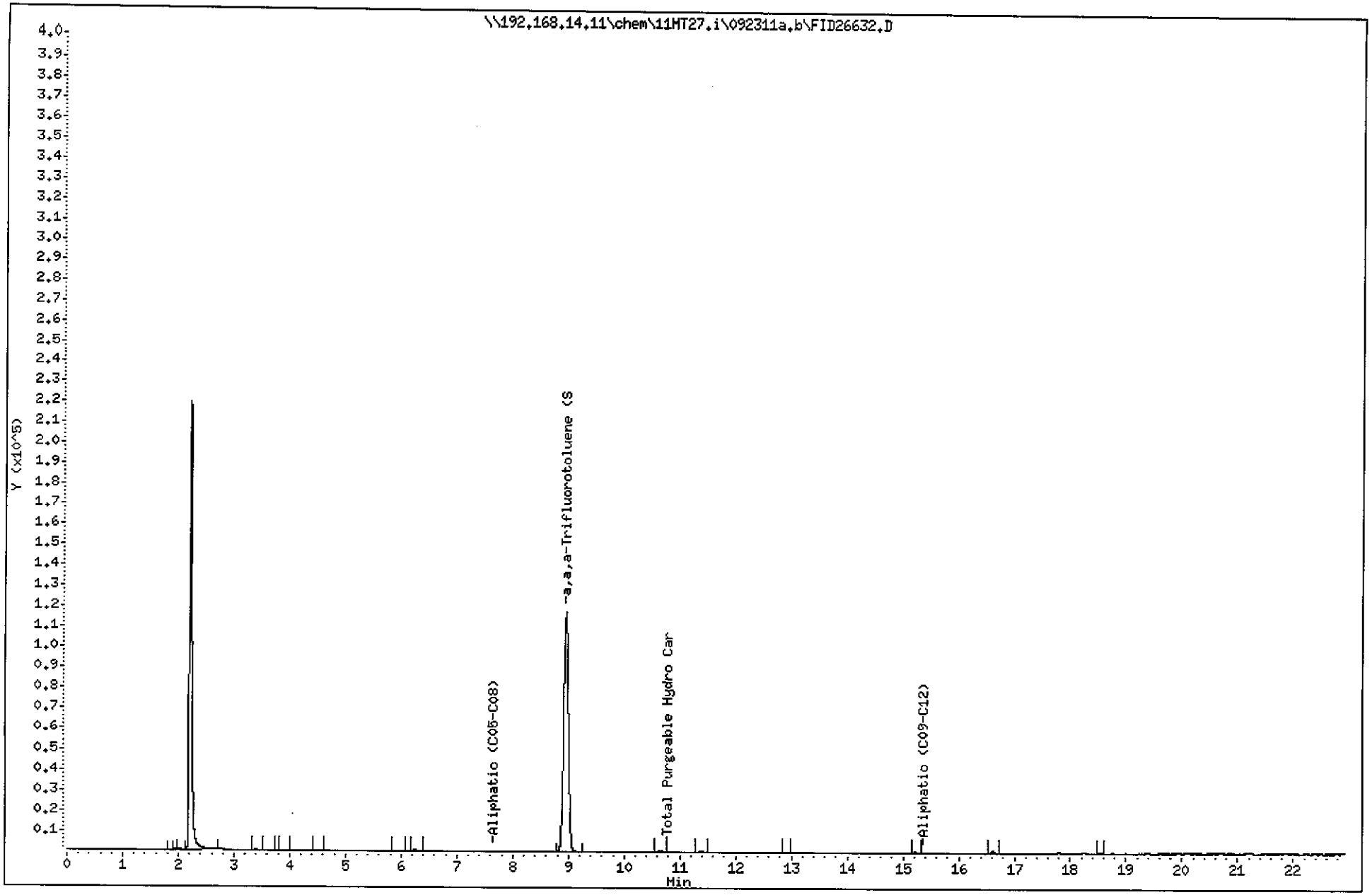
Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\FID26632.D
Date : 24-SEP-2011 10:43
Client ID:
Sample Info: 10170015006
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

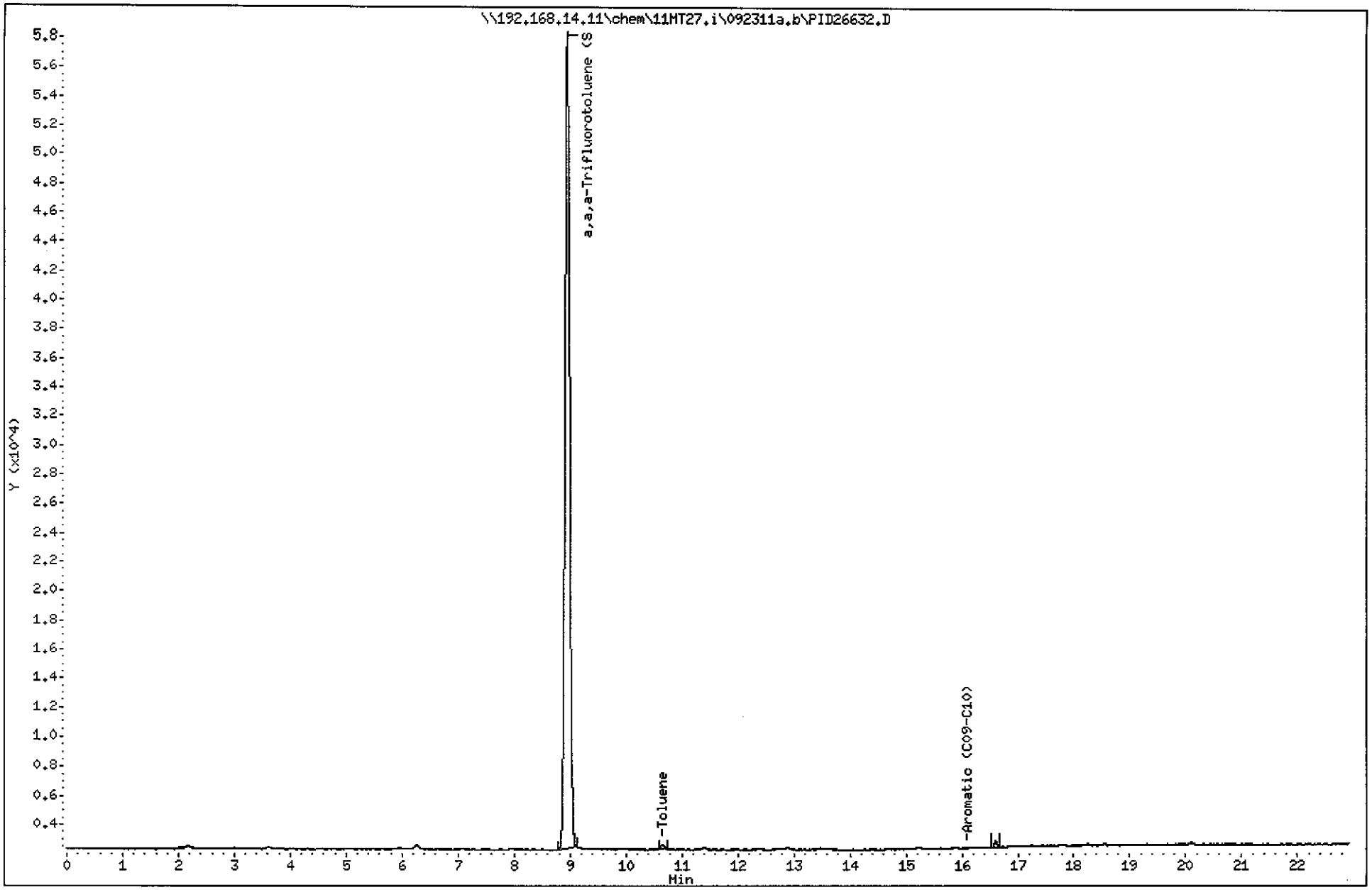
Instrument: 11MT27.i

Operator: MFP
Column diameter: 0.53



Data File: \\192.168.14.11\chem\11MT27.i\092311a.b\PID26632.D
Date : 24-SEP-2011 10:43
Client ID:
Sample Info: 10170015006
Purge Volume: 1.0
Column phase: DB-502 Film: 3.00nm

Instrument: 11MT27.i
Operator: MFP
Column diameter: 0.53



Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 24-SEP-2011 11:27
Lab File ID: FID26633.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8859-0229 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\F27VPH092311.m

COMPOUND	RRF / AMOUNT	RF600	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
S 1 Total Purgeable Hydro Carbo	11581	8998	0.010	-22.30020	25.00000	Averaged
$ 9 a,a,a-Trifluorotoluene (S)	7452	7785	0.010	4.46615	25.00000	Averaged
S 4 Aliphatic (C05-C08)	10282	7916	0.010	-23.00999	25.00000	Averaged
S 5 Aliphatic (C09-C12)	12296	11018	0.010	-10.38943	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 15.04144
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.

CONTINUING CALIBRATION COMPOUNDS

Instrument ID: 11MT27.i Injection Date: 24-SEP-2011 11:27
Lab File ID: PID26633.D Init. Cal. Date(s): 23-SEP-2011 23-SEP-2011
Analysis Type: WATER Init. Cal. Times: 13:07 20:40
Lab Sample ID: 8859-0229 Quant Type: ESTD
Method: \\192.168.14.11\chem\11MT27.i\092311a.b\P27BTEX092311.m

COMPOUND	RRF / AMOUNT	RF100	MIN RRF	%D / %DRIFT	MAX %D / %DRIFT	CURVE TYPE
1 Methyl-t-butyl ether	325	308	0.010	-5.22544	25.00000	Averaged
2 Benzene	13326	11936	0.010	-10.43507	25.00000	Averaged
$ 3 a,a,a-Trifluorotoluene (S)	3624	3707	0.010	2.30582	25.00000	Averaged
4 Toluene	13811	12268	0.010	-11.16740	25.00000	Averaged
5 Ethylbenzene	12861	11461	0.010	-10.88685	25.00000	Averaged
6 m&p-Xylene	15001	13254	0.010	-11.64605	25.00000	Averaged
7 o-Xylene	13075	11935	0.010	-8.71808	25.00000	Averaged
T 8 Aromatic (C09-C10)	13994	12799	0.010	-8.54461	25.00000	Averaged
9 Naphthalene	6591	6064	0.010	-7.98707	25.00000	Averaged

Average %D / Drift Results.

Calculated Average %D/Drift = 8.54627
Maximun Average %D/Drift = 25.00000
* Passed Average %D/Drift Test.

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

www.pacelabs.com

Report Prepared for:

Chris Cerquone
AMEC Geomatrix, Inc.
1001 South Higgins
B-1
Missoula MT 59801

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Prepared Date:
October 7, 2011

Report Information:

Pace Project #: 10169816
Sample Receipt Date: 09/16/2011
Client Project #: MT10160050
Client Sub PO #: N/A
State Cert #: 92

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed by:

October 07, 2011

Scott Unze, Project Manager
(612) 607-6383
(612) 607-6444 (fax)
scott.unze@pacelabs.com

ACCREDITED IN ACCORDANCE WITH nelac

Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on five samples submitted by a representative of AMEC. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290. The reporting limits were based on signal-to-noise measurements.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 45-101%. All of the labeled standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

In some cases, interfering substances impacted the determinations of PCDD or PCDF congeners. The affected values were flagged "I" where incorrect isotope ratios were obtained.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain a trace level of OCDF. This level was below the calibration range of the method. Sample levels similar to the corresponding blank level were flagged "B" on the results tables and may be, at least partially, attributed to the background. It should be noted that levels less than ten times the background are not generally considered to be statistically different from the background.

Laboratory spike samples were also prepared using clean water that had been fortified with native standard materials. Recoveries of the native compounds ranged from 101-127%, with relative percent differences of 0.9-16.2%. These results indicate high degrees of accuracy and precision for these determinations. Matrix spikes were not prepared with the sample batch.

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Montana	92
Alaska	MN00064	Nebraska	
Arizona	AZ0014	Nevada	MN_00064_200
Arkansas	88-0680	New Jersey (NE	MN002
California	01155CA	New Mexico	MN00064
Colorado	MN00064	New York (NEL	11647
Connecticut	PH-0256	North Carolina	27700
EPA Region 5	WD-15J	North Dakota	R-036
EPA Region 8	8TMS-Q	Ohio	4150
Florida (NELAP	E87605	Ohio VAP	CL101 9507
Georgia (DNR)	959	Oklahoma	D9922
Guam	959	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN300001-001
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana	C-MN-01	South Carolina	74003001
Indiana	C-MN-01	Tennesee	2818
Iowa	368	Tennessee	02818
Kansas	E-10167	Texas	T104704192-08
Kentucky	90062	Utah (NELAP)	PAM
Louisiana	LA0900015	Virginia	00251
Maine	2007029	Washington	C755
Maryland	322	West Virginia	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-Q
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

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Appendix A

Sample Management

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2

1321730

Section A Required Client Information:

Company: Amec
Address: 1001 S. Higgins ave. Building B-1 Missoula, MT 59801
Email To: adam.n.johnson@amec.com
Phone: (406) 542-0129 Fax:
Requested Due Date/TAT: NORMAL

Section B Required Project Information:

Report To: adam.n.johnson@amec.com
Copy To: Chris.Cerquone@amec.com
Purchase Order No.:
Project Name: Knife River Property Project
Project Number: MT 10160050

Section C Invoice Information:

Attention: Donna McCammon
Company Name: Amec
Address: 1001 S. Higgins Ave Missoula MT
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: MT

Report No.: 10169816_8290

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N): Pentachlorophenol EPA 8151 (N); EPH by MA DEP EPH (N); VPH by MA DEP VPH (N); RCRA metals Fe, Mn (N); Dioxins (N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Pentachlorophenol EPA	8151	EPH by MA DEP EPH	VPH by MA DEP VPH	RCRA metals Fe, Mn	Dioxins	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. (Dioxin 10169816)
1	KRY 102 A	WT	G			9/15/11	1415		10	3		1	6				X		X	X	X	X		001
2	KPT 16	WT	G			9/15/11	1645		11	4		1	6											002
3	DUP-1	WT	G			9/15/11	—		11	4		1	6											003
4	KRY 104 A	WT	G			9/15/11	1135		11	4		1	6											004
5	KRY 107 A	WT	G			9/14/11	1310		11	4		1	6											005
6	ERB-1	WT	G			9/14/11	1925		9	2		1	6											~~006~~ ①
7	Liner Pit -1-a,b,c,d,e	SL	C			9/14/11	1815		5	5							X		X	X	X			~~007~~ ①
8	Liner Pit 1 -comp	SL	C			9/14/11	1815		1	1							X		X	X	X			~~008~~ ①
9	Liner Pit -2-a,b,c,d,e	SL	C			9/14/11	1835		5	5							X		X	X	X			~~009~~ ①
10	Liner Pit -2-comp	SL	C			9/14/11	1835		1	1							X		X	X	X			~~010~~ ①
11	Liner Pit -3-a,b,c,d,e	SL	C			9/14/11	1900		5	5							X		X	X	X			~~011~~ ①
12	Liner Pit -3- comp	SL	C			9/14/11	1900		1	1							X		X	X	X			~~012~~ ①

① RW 9/15/11

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
Please lab composite item #'s 7, 9, 11 * item #'s 8, 10, 12 are field composited *** ** 6 coders total **	Heather Grotbo / Amec	9/16/11	9:00	Pacy Courier	9/16/11	900
				[signature]	9/16/11	11:15

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	5.2	y	y	y
	5.6	y	y	y
	2.8	y	y	y
	5.2	y	y	y
	5.8	y	y	y
	5.6	y	y	y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Heather Grotbo

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 9/16/2011

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1321731

Section A Required Client Information:
Company: Amec
Address: 1001 S. Higgins Ave building B-1 Missoula MT 59801
Email To: adam.n.johnson@amec.com
Phone: (406) 542-0129 Fax:
Requested Due Date/TAT:

Section B Required Project Information:
Report To: adam.n.johnson@amec.com
Copy To: chris.cerqueone@amec.com
Purchase Order No.:
Project Name: Knife River Property Project
Project Number: MT10160050

Section C Invoice Information:
Attention: Donna McCammon
Company Name: 1001 S. Higgins ave (Amec)
Address: Missoula MT 59801
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY
☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____
Site Location STATE: MT

Report No.: 10169816_8290

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): VPH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	TRIP BLANK 1,2,3,4,5,6	WT	G			9/16/11	—		6				X					X		~~013~~ RW 9/18/11
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Heather Grotbo / Amec	9/16/11	900	Pace Courier	9/16/11	900	5.2	Y	Y	Y
				Blake Thor	9/16/11	11:15	5.6	Y	Y	Y
							2.8	Y	Y	Y
							5.2	Y	Y	Y
							5.3	Y	Y	Y
							5.6	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Heather Grotbo
SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 9/16/11

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical

Client Name: Amoc

Project # 10169816 (Dioxin)

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: Blake

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____ Temp Blank: Yes X No _____

Thermometer Used 1383045 or 135 Type of Ice: Wet Blue None ☒ Samples on ice, cooling process has begun

Cooler Temperature 5.2/5.6/2.8/5.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C 5.8/5.6

Date and Initials of person examining contents: RW 9/18/11

Comments:

Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT/SL		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☒Yes ☐No ☐N/A	13. ☒ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes ☐No ☐N/A	Samp # 001-006 (1/1)
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☒Yes ☐No	Initial when completed RW Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☒No ☐N/A	15.
Trip Blank Present:	☒Yes ☐No ☐N/A	16.
Trip Blank Custody Seals Present	☒Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased): No label	RW 9/18/11	

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Kari Parks **Date:** 9-19-11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical™	Document Name: MT/MN Sample Transfer Form	Revised Date: 1Aug2011 Page 1 of 1
	Document Number: F-MT-179-Rev.00	Issuing Authority: Pace Montana Quality Office

Multiple Coders

Shipping Tracking #	UPS / Fed Ex 5022 0763 7549 7581
Client	AMEC
Due Date	10/7/2011
Pace WO	10169816

MT/MN Sample Transfer Condition Upon Receipt Form

ANALYSIS REQUESTED

Method Number & Description	Container Type	# of Bottles	Number of Samples	Preservative Yes___ No___	Verify Arrival Date & Initials
Tests					
Dioxin	AG1U	10	5	None	

REPORTING REQUIREMENTS/ADDITIONAL COMMENTS

MONTANA SAMPLE RECEIPT INFORMATION

Cooler Temperature: 1383045 80512447	2.7, 0.8	Sample Matrix:	WT
Arrived on Ice:	Yes ✓ No__	Filtred volume rec'd for dissolved tests:	Yes __ No__ NA ✓
Custody Seal Present:	Yes ✓ No__	Samples pH have been checked:	Yes __ No__ NA ✓
Short Hold Time Requested < 72 Hours:	Yes __ No ✓	Trip Blank Present:	Yes __ No__ NA ✓
Rush TAT Requested:	Yes __ No ✓	Trip Blank Custody Seals Present:	Yes __ No__ NA ✓
Sufficient Sample Volume:	Yes ✓ No__	Pace Trip Blank Lot #:	
Samples Arrived within Hold Time:	Yes ✓ No__	Sample Composites Required:	Yes __ No__ NA ✓
Containers Intact:	Yes ✓ No__	Report Samples:	Wet Wt. __ Dry Wt.__
		Reporting Units:	

CUSTODY TRANSFER

Relinquished by/Affiliation	Date	Time	Accepted By Affiliation	Date	Time
Ray Waty PACE	9/19/11	1700	[illegible] / Pace	9/20/11	1000

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interference present

J = Estimated value

Nn = Value obtained from additional analysis

P = PCDE Interference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = See Discussion

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Appendix B

Sample Analysis Summary

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - AMEC Geomatrix, Inc.

Client's Sample ID	KRY 102 A		
Lab Sample ID	10169816001		
Filename	F111006A_05		
Injected By	ACE		
Total Amount Extracted	932 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	09/15/2011 14:15
ICAL ID	F110926	Received	09/16/2011 11:15
CCal Filename(s)	F111006A_02 & F111006A_10	Extracted	10/03/2011 13:45
Method Blank ID	BLANK-30397	Analyzed	10/06/2011 12:19

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	2.4		2,3,7,8-TCDF-13C	2.00	66
Total TCDF	ND	-----	2.4		2,3,7,8-TCDD-13C	2.00	77
					1,2,3,7,8-PeCDF-13C	2.00	68 Y
2,3,7,8-TCDD	ND	-----	2.8		2,3,4,7,8-PeCDF-13C	2.00	66 Y
Total TCDD	ND	-----	2.8		1,2,3,7,8-PeCDD-13C	2.00	74 Y
					1,2,3,4,7,8-HxCDF-13C	2.00	66
1,2,3,7,8-PeCDF	ND	-----	1.5		1,2,3,6,7,8-HxCDF-13C	2.00	66
2,3,4,7,8-PeCDF	ND	-----	1.4		2,3,4,6,7,8-HxCDF-13C	2.00	71
Total PeCDF	ND	-----	1.4		1,2,3,7,8,9-HxCDF-13C	2.00	68
					1,2,3,4,7,8-HxCDD-13C	2.00	65
1,2,3,7,8-PeCDD	ND	-----	1.3		1,2,3,6,7,8-HxCDD-13C	2.00	63
Total PeCDD	ND	-----	1.3		1,2,3,4,6,7,8-HpCDF-13C	2.00	60
					1,2,3,4,7,8,9-HpCDF-13C	2.00	60
1,2,3,4,7,8-HxCDF	ND	-----	1.1		1,2,3,4,6,7,8-HpCDD-13C	2.00	63
1,2,3,6,7,8-HxCDF	ND	-----	1.1		OCDD-13C	4.00	55
2,3,4,6,7,8-HxCDF	ND	-----	1.2				
1,2,3,7,8,9-HxCDF	ND	-----	1.4		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	1.2		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	1.4		2,3,7,8-TCDD-37Cl4	0.20	99
1,2,3,6,7,8-HxCDD	ND	-----	1.2				
1,2,3,7,8,9-HxCDD	ND	-----	1.2				
Total HxCDD	ND	-----	1.3				
1,2,3,4,6,7,8-HpCDF	ND	-----	1.6		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	1.8		Equivalence: 2.9 pg/L		
Total HpCDF	ND	-----	1.7		(Using 2005 WHO Factors - Using PRL/2 where ND)		
1,2,3,4,6,7,8-HpCDD	-----	3.5	1.4	I			
Total HpCDD	ND	-----	1.4				
OCDF	-----	4.9	2.5	I			
OCDD	29	-----	2.7	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

J = Estimated value
I = Interference present
Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - AMEC Geomatrix, Inc.

Client's Sample ID	KPT 16			
Lab Sample ID	10169816002			
Filename	F111006A_06			
Injected By	ACE			
Total Amount Extracted	958 mL	Matrix	Water	
% Moisture	NA	Dilution	NA	
Dry Weight Extracted	NA	Collected	09/15/2011	16:45
ICAL ID	F110926	Received	09/16/2011	11:15
CCal Filename(s)	F111006A_02 & F111006A_10	Extracted	10/03/2011	13:45
Method Blank ID	BLANK-30397	Analyzed	10/06/2011	13:05

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	2.4		2,3,7,8-TCDF-13C	2.00	68
Total TCDF	5.5	-----	2.4	J	2,3,7,8-TCDD-13C	2.00	80
					1,2,3,7,8-PeCDF-13C	2.00	68 Y
2,3,7,8-TCDD	ND	-----	2.4		2,3,4,7,8-PeCDF-13C	2.00	69 Y
Total TCDD	2.8	-----	2.4	J	1,2,3,7,8-PeCDD-13C	2.00	75 Y
					1,2,3,4,7,8-HxCDF-13C	2.00	67
1,2,3,7,8-PeCDF	ND	-----	1.4		1,2,3,6,7,8-HxCDF-13C	2.00	69
2,3,4,7,8-PeCDF	ND	-----	1.2		2,3,4,6,7,8-HxCDF-13C	2.00	66
Total PeCDF	ND	-----	1.3		1,2,3,7,8,9-HxCDF-13C	2.00	69
					1,2,3,4,7,8-HxCDD-13C	2.00	70
1,2,3,7,8-PeCDD	ND	-----	1.1		1,2,3,6,7,8-HxCDD-13C	2.00	64
Total PeCDD	ND	-----	1.1		1,2,3,4,6,7,8-HpCDF-13C	2.00	55
					1,2,3,4,7,8,9-HpCDF-13C	2.00	51
1,2,3,4,7,8-HxCDF	ND	-----	1.4		1,2,3,4,6,7,8-HpCDD-13C	2.00	56
1,2,3,6,7,8-HxCDF	ND	-----	1.7		OCDD-13C	4.00	45
2,3,4,6,7,8-HxCDF	ND	-----	1.3				
1,2,3,7,8,9-HxCDF	ND	-----	1.8		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	5.1	-----	1.6	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	1.4		2,3,7,8-TCDD-37Cl4	0.20	96
1,2,3,6,7,8-HxCDD	ND	-----	1.7				
1,2,3,7,8,9-HxCDD	ND	-----	1.5				
Total HxCDD	ND	-----	1.5				
1,2,3,4,6,7,8-HpCDF	6.2	-----	1.5	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	3.0		Equivalence: 3.3 pg/L		
Total HpCDF	6.2	-----	2.2	J	(Using 2005 WHO Factors - Using PRL/2 where ND)		
1,2,3,4,6,7,8-HpCDD	43.0	-----	1.9	J			
Total HpCDD	80.0	-----	1.9				
OCDF	26.0	-----	3.6	BJ			
OCDD	530.0	-----	2.3				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

J = Estimated value
B = Less than 10x higher than method blank level
Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - AMEC Geomatrix, Inc.

Client's Sample ID	DUP-1		
Lab Sample ID	10169816003		
Filename	F111006A_07		
Injected By	ACE		
Total Amount Extracted	974 mL	Matrix	Water
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	09/15/2011
ICAL ID	F110926	Received	09/16/2011 11:15
CCal Filename(s)	F111006A_02 & F111006A_10	Extracted	10/03/2011 13:45
Method Blank ID	BLANK-30397	Analyzed	10/06/2011 13:52

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.50		2,3,7,8-TCDF-13C	2.00	85
Total TCDF	ND	-----	1.50		2,3,7,8-TCDD-13C	2.00	101
					1,2,3,7,8-PeCDF-13C	2.00	86 Y
2,3,7,8-TCDD	ND	-----	1.80		2,3,4,7,8-PeCDF-13C	2.00	87 Y
Total TCDD	ND	-----	1.80		1,2,3,7,8-PeCDD-13C	2.00	98 Y
					1,2,3,4,7,8-HxCDF-13C	2.00	88
1,2,3,7,8-PeCDF	ND	-----	1.20		1,2,3,6,7,8-HxCDF-13C	2.00	98
2,3,4,7,8-PeCDF	ND	-----	0.84		2,3,4,6,7,8-HxCDF-13C	2.00	83
Total PeCDF	ND	-----	1.00		1,2,3,7,8,9-HxCDF-13C	2.00	92
					1,2,3,4,7,8-HxCDD-13C	2.00	93
1,2,3,7,8-PeCDD	ND	-----	0.96		1,2,3,6,7,8-HxCDD-13C	2.00	93
Total PeCDD	ND	-----	0.96		1,2,3,4,6,7,8-HpCDF-13C	2.00	73
					1,2,3,4,7,8,9-HpCDF-13C	2.00	62
1,2,3,4,7,8-HxCDF	ND	-----	0.66		1,2,3,4,6,7,8-HpCDD-13C	2.00	70
1,2,3,6,7,8-HxCDF	ND	-----	0.58		OCDD-13C	4.00	52
2,3,4,6,7,8-HxCDF	ND	-----	0.84				
1,2,3,7,8,9-HxCDF	ND	-----	0.80		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	0.72		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	1.00		2,3,7,8-TCDD-37Cl4	0.20	97
1,2,3,6,7,8-HxCDD	ND	-----	1.00				
1,2,3,7,8,9-HxCDD	ND	-----	1.10				
Total HxCDD	ND	-----	1.00				
1,2,3,4,6,7,8-HpCDF	-----	1.5	1.30	I	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	1.90		Equivalence: 2.0 pg/L		
Total HpCDF	1.9	-----	1.60	J	(Using 2005 WHO Factors - Using PRL/2 where ND)		
1,2,3,4,6,7,8-HpCDD	3.2	-----	0.94	J			
Total HpCDD	8.0	-----	0.94	J			
OCDF	ND	-----	3.40				
OCDD	24.0	-----	2.60	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

J = Estimated value
I = Interference present
Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - AMEC Geomatrix, Inc.

Client's Sample ID	KRY 104 A			
Lab Sample ID	10169816004			
Filename	F111006A_08			
Injected By	ACE			
Total Amount Extracted	958 mL	Matrix	Water	
% Moisture	NA	Dilution	NA	
Dry Weight Extracted	NA	Collected	09/15/2011	11:35
ICAL ID	F110926	Received	09/16/2011	11:15
CCal Filename(s)	F111006A_02 & F111006A_10	Extracted	10/03/2011	13:45
Method Blank ID	BLANK-30397	Analyzed	10/06/2011	14:38

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery	
2,3,7,8-TCDF	ND	-----	1.60		2,3,7,8-TCDF-13C	2.00	81	
Total TCDF	ND	-----	1.60		2,3,7,8-TCDD-13C	2.00	93	
					1,2,3,7,8-PeCDF-13C	2.00	81	Y
2,3,7,8-TCDD	ND	-----	1.90		2,3,4,7,8-PeCDF-13C	2.00	83	Y
Total TCDD	5.1	-----	1.90	J	1,2,3,7,8-PeCDD-13C	2.00	92	Y
					1,2,3,4,7,8-HxCDF-13C	2.00	85	
1,2,3,7,8-PeCDF	ND	-----	1.00		1,2,3,6,7,8-HxCDF-13C	2.00	89	
2,3,4,7,8-PeCDF	ND	-----	1.00		2,3,4,6,7,8-HxCDF-13C	2.00	77	
Total PeCDF	ND	-----	1.00		1,2,3,7,8,9-HxCDF-13C	2.00	85	
					1,2,3,4,7,8-HxCDD-13C	2.00	85	
1,2,3,7,8-PeCDD	ND	-----	0.99		1,2,3,6,7,8-HxCDD-13C	2.00	88	
Total PeCDD	ND	-----	0.99		1,2,3,4,6,7,8-HpCDF-13C	2.00	64	
					1,2,3,4,7,8,9-HpCDF-13C	2.00	56	
1,2,3,4,7,8-HxCDF	ND	-----	0.75		1,2,3,4,6,7,8-HpCDD-13C	2.00	63	
1,2,3,6,7,8-HxCDF	ND	-----	0.64		OCDD-13C	4.00	47	
2,3,4,6,7,8-HxCDF	ND	-----	0.70					
1,2,3,7,8,9-HxCDF	ND	-----	0.82		1,2,3,4-TCDD-13C	2.00	NA	
Total HxCDF	ND	-----	0.73		1,2,3,7,8,9-HxCDD-13C	2.00	NA	
1,2,3,4,7,8-HxCDD	ND	-----	1.00		2,3,7,8-TCDD-37Cl4	0.20	92	
1,2,3,6,7,8-HxCDD	ND	-----	0.94					
1,2,3,7,8,9-HxCDD	ND	-----	0.83					
Total HxCDD	ND	-----	0.93					
1,2,3,4,6,7,8-HpCDF	ND	-----	1.40		Total 2,3,7,8-TCDD			
1,2,3,4,7,8,9-HpCDF	ND	-----	1.90		Equivalence: 2.0 pg/L			
Total HpCDF	2.6	-----	1.60	J	(Using 2005 WHO Factors - Using PRL/2 where ND)			
1,2,3,4,6,7,8-HpCDD	4.6	-----	1.20	J				
Total HpCDD	4.6	-----	1.20	J				
OCDF	-----	3.6	3.30	I				
OCDD	32.0	-----	2.60	J				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

J = Estimated value
I = Interference present
Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - AMEC Geomatrix, Inc.

Client's Sample ID	KRY 107 A			
Lab Sample ID	10169816005			
Filename	F111006A_09			
Injected By	ACE			
Total Amount Extracted	948 mL	Matrix	Water	
% Moisture	NA	Dilution	NA	
Dry Weight Extracted	NA	Collected	09/14/2011	13:10
ICAL ID	F110926	Received	09/16/2011	11:15
CCal Filename(s)	F111006A_02 & F111006A_10	Extracted	10/03/2011	13:45
Method Blank ID	BLANK-30397	Analyzed	10/06/2011	15:24

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.90		2,3,7,8-TCDF-13C	2.00	73
Total TCDF	ND	-----	1.90		2,3,7,8-TCDD-13C	2.00	82
					1,2,3,7,8-PeCDF-13C	2.00	71 Y
2,3,7,8-TCDD	ND	-----	1.80		2,3,4,7,8-PeCDF-13C	2.00	73 Y
Total TCDD	ND	-----	1.80		1,2,3,7,8-PeCDD-13C	2.00	81 Y
					1,2,3,4,7,8-HxCDF-13C	2.00	76
1,2,3,7,8-PeCDF	ND	-----	1.30		1,2,3,6,7,8-HxCDF-13C	2.00	79
2,3,4,7,8-PeCDF	ND	-----	1.00		2,3,4,6,7,8-HxCDF-13C	2.00	70
Total PeCDF	ND	-----	1.20		1,2,3,7,8,9-HxCDF-13C	2.00	76
					1,2,3,4,7,8-HxCDD-13C	2.00	77
1,2,3,7,8-PeCDD	ND	-----	0.89		1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	ND	-----	0.89		1,2,3,4,6,7,8-HpCDF-13C	2.00	59
					1,2,3,4,7,8,9-HpCDF-13C	2.00	52
1,2,3,4,7,8-HxCDF	ND	-----	1.50		1,2,3,4,6,7,8-HpCDD-13C	2.00	58
1,2,3,6,7,8-HxCDF	ND	-----	1.20		OCDD-13C	4.00	45
2,3,4,6,7,8-HxCDF	ND	-----	1.30				
1,2,3,7,8,9-HxCDF	ND	-----	1.10		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	1.30		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	1.20		2,3,7,8-TCDD-37Cl4	0.20	80
1,2,3,6,7,8-HxCDD	-----	2.2	1.10	I			
1,2,3,7,8,9-HxCDD	ND	-----	1.30				
Total HxCDD	4.0	-----	1.20	J			
1,2,3,4,6,7,8-HpCDF	3.3	-----	1.10	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	1.50		Equivalence: 2.4 pg/L		
Total HpCDF	3.3	-----	1.30	J	(Using 2005 WHO Factors - Using PRL/2 where ND)		
1,2,3,4,6,7,8-HpCDD	25.0	-----	1.80	J			
Total HpCDD	46.0	-----	1.80	J			
OCDF	13.0	-----	3.60	BJ			
OCDD	190.0	-----	3.00				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

J = Estimated value
B = Less than 10x higher than method blank level
I = Interference present
Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Blank Analysis Results

Lab Sample ID	BLANK-30397	Matrix	Water
Filename	U111005A_10	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	10/03/2011 13:45
ICAL ID	U110912	Analyzed	10/05/2011 10:00
CCal Filename(s)	U111004B_12 & U111005A_11	Injected By	SMT

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	3.7		2,3,7,8-TCDF-13C	2.00	75
Total TCDF	ND	-----	3.7		2,3,7,8-TCDD-13C	2.00	79
					1,2,3,7,8-PeCDF-13C	2.00	83
2,3,7,8-TCDD	ND	-----	3.2		2,3,4,7,8-PeCDF-13C	2.00	83
Total TCDD	ND	-----	3.2		1,2,3,7,8-PeCDD-13C	2.00	90
					1,2,3,4,7,8-HxCDF-13C	2.00	98
1,2,3,7,8-PeCDF	ND	-----	2.3		1,2,3,6,7,8-HxCDF-13C	2.00	85
2,3,4,7,8-PeCDF	ND	-----	1.9		2,3,4,6,7,8-HxCDF-13C	2.00	93
Total PeCDF	ND	-----	2.1		1,2,3,7,8,9-HxCDF-13C	2.00	95
					1,2,3,4,7,8-HxCDD-13C	2.00	101
1,2,3,7,8-PeCDD	ND	-----	2.7		1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	ND	-----	2.7		1,2,3,4,6,7,8-HpCDF-13C	2.00	69
					1,2,3,4,7,8,9-HpCDF-13C	2.00	68
1,2,3,4,7,8-HxCDF	ND	-----	1.9		1,2,3,4,6,7,8-HpCDD-13C	2.00	70
1,2,3,6,7,8-HxCDF	ND	-----	1.3		OCDD-13C	4.00	59
2,3,4,6,7,8-HxCDF	-----	2.0	1.2	I			
1,2,3,7,8,9-HxCDF	-----	2.6	2.2	I	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	1.6		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	2.4		2,3,7,8-TCDD-37Cl4	0.20	82
1,2,3,6,7,8-HxCDD	ND	-----	2.4				
1,2,3,7,8,9-HxCDD	ND	-----	2.2				
Total HxCDD	ND	-----	2.3				
1,2,3,4,6,7,8-HpCDF	ND	-----	1.9		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	-----	2.5	2.2	I	Equivalence: 4.2 pg/L		
Total HpCDF	ND	-----	2.0		(Using 2005 WHO Factors - Using PRL/2 where ND)		
1,2,3,4,6,7,8-HpCDD	ND	-----	2.8				
Total HpCDD	ND	-----	2.8				
OCDF	7.2	-----	4.1	J			
OCDD	ND	-----	5.7				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

J = Estimated value
I = Interference present

REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-30398		
Filename	U111005A_07	Matrix	Water
Total Amount Extracted	1020 mL	Dilution	NA
ICAL ID	U110912	Extracted	10/03/2011 13:45
CCal Filename(s)	U111004B_12 & U111005A_11	Analyzed	10/05/2011 07:38
Method Blank ID	BLANK-30397	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.24	120	2,3,7,8-TCDF-13C	2.0	81
Total TCDF				2,3,7,8-TCDD-13C	2.0	83
				1,2,3,7,8-PeCDF-13C	2.0	87
2,3,7,8-TCDD	0.20	0.21	106	2,3,4,7,8-PeCDF-13C	2.0	89
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	93
				1,2,3,4,7,8-HxCDF-13C	2.0	106
1,2,3,7,8-PeCDF	1.0	1.2	116	1,2,3,6,7,8-HxCDF-13C	2.0	97
2,3,4,7,8-PeCDF	1.0	1.1	111	2,3,4,6,7,8-HxCDF-13C	2.0	76
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	90
				1,2,3,4,7,8-HxCDD-13C	2.0	78
1,2,3,7,8-PeCDD	1.0	1.0	101	1,2,3,6,7,8-HxCDD-13C	2.0	83
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	61
				1,2,3,4,7,8,9-HpCDF-13C	2.0	69
1,2,3,4,7,8-HxCDF	1.0	1.1	108	1,2,3,4,6,7,8-HpCDD-13C	2.0	69
1,2,3,6,7,8-HxCDF	1.0	1.1	110	OCDD-13C	4.0	65
2,3,4,6,7,8-HxCDF	1.0	1.1	113			
1,2,3,7,8,9-HxCDF	1.0	1.1	110	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.1	107	2,3,7,8-TCDD-37Cl4	0.20	79
1,2,3,6,7,8-HxCDD	1.0	1.1	111			
1,2,3,7,8,9-HxCDD	1.0	1.2	125			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.1	109			
1,2,3,4,7,8,9-HpCDF	1.0	1.1	108			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	1.0	102			
Total HpCDD						
OCDF	2.0	2.2	108			
OCDD	2.0	2.2	109			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

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Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCSD-30399		
Filename	U111005A_08	Matrix	Water
Total Amount Extracted	1020 mL	Dilution	NA
ICAL ID	U110912	Extracted	10/03/2011 13:45
CCal Filename(s)	U111004B_12 & U111005A_11	Analyzed	10/05/2011 08:24
Method Blank ID	BLANK-30397	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.25	127	2,3,7,8-TCDF-13C	2.0	77
Total TCDF				2,3,7,8-TCDD-13C	2.0	88
				1,2,3,7,8-PeCDF-13C	2.0	90
2,3,7,8-TCDD	0.20	0.22	108	2,3,4,7,8-PeCDF-13C	2.0	94
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	96
				1,2,3,4,7,8-HxCDF-13C	2.0	97
1,2,3,7,8-PeCDF	1.0	1.2	119	1,2,3,6,7,8-HxCDF-13C	2.0	88
2,3,4,7,8-PeCDF	1.0	1.1	114	2,3,4,6,7,8-HxCDF-13C	2.0	94
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	92
				1,2,3,4,7,8-HxCDD-13C	2.0	95
1,2,3,7,8-PeCDD	1.0	1.1	108	1,2,3,6,7,8-HxCDD-13C	2.0	83
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	69
				1,2,3,4,7,8,9-HpCDF-13C	2.0	64
1,2,3,4,7,8-HxCDF	1.0	1.1	109	1,2,3,4,6,7,8-HpCDD-13C	2.0	68
1,2,3,6,7,8-HxCDF	1.0	1.2	116	OCDD-13C	4.0	57
2,3,4,6,7,8-HxCDF	1.0	1.2	115			
1,2,3,7,8,9-HxCDF	1.0	1.2	115	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.1	108	2,3,7,8-TCDD-37Cl4	0.20	88
1,2,3,6,7,8-HxCDD	1.0	1.1	113			
1,2,3,7,8,9-HxCDD	1.0	1.1	113			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.1	110			
1,2,3,4,7,8,9-HpCDF	1.0	1.1	111			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	1.1	108			
Total HpCDD						
OCDF	2.0	2.5	127			
OCDD	2.0	2.4	118			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

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Method 8290

Spike Recovery Relative Percent Difference (RPD) Results

Client AMEC Geomatrix, Inc.

Spike 1 ID LCS-30398
Spike 1 Filename U111005A_07

Spike 2 ID LCSD-30399
Spike 2 Filename U111005A_08

Compound	Spike 1 %REC	Spike 2 %REC	%RPD
2,3,7,8-TCDF	120	127	5.7
2,3,7,8-TCDD	106	108	1.9
1,2,3,7,8-PeCDF	116	119	2.6
2,3,4,7,8-PeCDF	111	114	2.7
1,2,3,7,8-PeCDD	101	108	6.7
1,2,3,4,7,8-HxCDF	108	109	0.9
1,2,3,6,7,8-HxCDF	110	116	5.3
2,3,4,6,7,8-HxCDF	113	115	1.8
1,2,3,7,8,9-HxCDF	110	115	4.4
1,2,3,4,7,8-HxCDD	107	108	0.9
1,2,3,6,7,8-HxCDD	111	113	1.8
1,2,3,7,8,9-HxCDD	125	113	10.1
1,2,3,4,6,7,8-HpCDF	109	110	0.9
1,2,3,4,7,8,9-HpCDF	108	111	2.7
1,2,3,4,6,7,8-HpCDD	102	108	5.7
OCDF	108	127	16.2
OCDD	109	118	7.9

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

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www.pacelabs.com

Report Prepared for:

Chris Cerquone
AMEC Geomatrix, Inc.
1001 South Higgins
B-1
Missoula MT 59801

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Prepared Date:
October 10, 2011

Report Information:

Pace Project #: 10170023
Sample Receipt Date: 09/20/2011
Client Project #: MT10160050
Client Sub PO #: N/A
State Cert #: 92

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Scott Unze, your Pace Project Manager.

This report has been reviewed by:

October 10, 2011

Scott Unze, Project Manager
(612) 607-6383
(612) 607-6444 (fax)
scott.unze@pacelabs.com

ACCREDITED IN ACCORDANCE WITH nelac

Report of Laboratory Analysis

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The results relate only to the samples included in this report.

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Phone: 612.607.1700
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DISCUSSION

This report presents the results from the analyses performed on four samples submitted by a representative of AMEC. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290. The reporting limits were based on signal-to-noise measurements.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 60-128%. All of the labeled standard recoveries obtained for this project were within the 40-135% target range specified in Method 8290. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

In some cases, interfering substances impacted the determinations of PCDD or PCDF congeners. The affected values were flagged "I" where incorrect isotope ratios were obtained or "P" where polychlorinated diphenyl ethers were present.

A laboratory method blank was prepared and analyzed with the sample batch as part of our routine quality control procedures. The results show the blank to contain a trace level of OCDF. This level was below the calibration range of the method. Sample levels similar to the corresponding blank level were flagged "B" on the results tables and may be, at least partially, attributed to the background. It should be noted that levels less than ten times the background are not generally considered to be statistically different from the background.

Laboratory spike samples were also prepared using clean water that had been fortified with native standard materials. Recoveries of the native compounds ranged from 101-127%, with relative percent differences of 0.9-16.2%. These results indicate high degrees of accuracy and precision for these determinations. Matrix spikes were not prepared with the sample batch.

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Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Montana	92
Alaska	MN00064	Nebraska	
Arizona	AZ0014	Nevada	MN_00064_200
Arkansas	88-0680	New Jersey (NE	MN002
California	01155CA	New Mexico	MN00064
Colorado	MN00064	New York (NEL	11647
Connecticut	PH-0256	North Carolina	27700
EPA Region 5	WD-15J	North Dakota	R-036
EPA Region 8	8TMS-Q	Ohio	4150
Florida (NELAP	E87605	Ohio VAP	CL101 9507
Georgia (DNR)	959	Oklahoma	D9922
Guam	959	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN300001-001
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana	C-MN-01	South Carolina	74003001
Indiana	C-MN-01	Tennesee	2818
Iowa	368	Tennessee	02818
Kansas	E-10167	Texas	T104704192-08
Kentucky	90062	Utah (NELAP)	PAM
Louisiana	LA0900015	Virginia	00251
Maine	2007029	Washington	C755
Maryland	322	West Virginia	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-Q
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

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Appendix A

Sample Management

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1321724

Section A Required Client Information:

Company: AMEC
Address: 1001 S. Higgins Ave, Building B-1, Missoula MT 59801
Email To: adam.n.jonsen@amec.com
Phone: (406)542-0129 Fax:
Requested Due Date/TAT: Normal

Section B Required Project Information:

Report To: adam.n.johnson@amec.com
Copy To: chris.cerquone@amec.com
Purchase Order No.:
Project Name: Knife River Project
Project Number: MT10160050

Section C Invoice Information:

Attention: Donna McCammon
Company Name: AMEC
Address: 1001 S. Higgins Ave, Missoula MT 59801
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: MT

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	Composite Start TIME	Composite End/Grab DATE	Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N): Pentachlorophenol EPA 8151	EPH by MA DEP EPH	VPH by MA DEP VPH	RCRA METALS Fe, Mn	Dioxins	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D. 10170023
1	ERB-2	WT	G			9/16/11	1500		11	4		1	6					X	X	X	X	X		001
2	Purge Water	WT	G			9/16/11	1715		2	2								X						~~002~~ ①
3	KRY 111B	WT	G			9/16/11	1600		8	2		1	5					X	X	X	X	X		~~003~~ ① 002
4	KRY 102B	WT	G			9/16/11	1020		11	4		1	6					X	X	X	X	X		~~004~~ ① 003
5	KRY 107B	WT	G			9/16/11	1226		11	4		1	6					X	X	X	X	X		~~005~~ ① 004
6	Trip blank																							
7																								
8																								
9																								① RW 9/20/11
10																								
11																								
12																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
See attached tables for analytical methods	Heather Grotbo / Amec	9/19/11	1150	FedEx	9/19/11	1150
	FedEx (E)	9/20/11	0955	Ray Valey PACE	9/20/11	955

SAMPLE CONDITIONS	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	5.5	Y	Y	Y
	1.1	Y	Y	Y
	4.3	Y	Y	Y
	5.2	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: HEATHER GROTBO

SIGNATURE of SAMPLER: [signature] DATE Signed (MM/DD/YY): 09/19/2011

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical

Client Name: Amec

Project # 10170023

Dioxin

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 7952 0172 0150

Optional: Proj. Due Date: Proj. Name:

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Packing Material: ☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other _____ Temp Blank: Yes X No _____

Thermometer Used 1383045 or 135 Type of Ice: Wet Blue None ☒ Samples on ice, cooling process has begun

Cooler Temperature 5.5 | 1.1 | 4.3 | 5.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: RW 9/20/11

		Comments:
Chain of Custody Present:	☒Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☒Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☒Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☒Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☒Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☒No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☒No ☐N/A	7.
Sufficient Volume:	☒Yes ☐No ☐N/A	8.
Correct Containers Used:	☒Yes ☐No ☐N/A	9.
-Pace Containers Used:	☒Yes ☐No ☐N/A	
Containers Intact:	☒Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☒N/A	11.
Sample Labels match COC:	☒Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐Yes ☐No ☒N/A	13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☒N/A	Samp #
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	☐Yes ☒No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☒N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☐No ☒N/A	15.
Trip Blank Present:	☐Yes ☒No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☒N/A	
Pace Trip Blank Lot # (if purchased): NA		

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Kari Roehl **Date:** 9-20-11

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical™	Document Name: **MT/MN Sample Transfer Form**	Revised Date: 1Aug2011 Page 1 of 1
	Document Number: **F-MT-179-Rev.00**	Issuing Authority: Pace Montana Quality Office

Shipping Tracking # UPS Fed Ex	5022 0763 7667
Client	AMEC
Due Date	10/11/2011
Pace WO	10170023

MT/MN Sample Transfer Condition Upon Receipt Form

ANALYSIS REQUESTED

Method Number & Description	Container Type	# of Bottles	Number of Samples	Preservative Yes___ No___	Verify Arrival Date & Initials
Tests					
Dioxin	AG1U	~~8~~ 7	4	none	

REPORTING REQUIREMENTS/ADDITIONAL COMMENTS

MONTANA SAMPLE RECEIPT INFORMATION

Cooler Temperature: 1383045 80512447	2.1	Sample Matrix:	WT
Arrived on Ice:	Yes ✓ No__	Filtred volume rec'd for dissolved tests:	Yes __ No__ NA ✓
Custody Seal Present:	Yes ✓ No__	Samples pH have been checked:	Yes __ No__ NA ✓
Short Hold Time Requested < 72 Hours:	Yes __ No ✓	Trip Blank Present:	Yes __ No__ NA ✓
Rush TAT Requested:	Yes __ No ✓	Trip Blank Custody Seals Present:	Yes __ No__ NA ✓
Sufficient Sample Volume:	Yes ✓ No__	Pace Trip Blank Lot #:	
Samples Arrived within Hold Time:	Yes ✓ No__	Sample Composites Required:	Yes __ No__ NA ✓
Containers Intact:	Yes ✓ No__	Report Samples:	Wet Wt. __ Dry Wt.__
		Reporting Units:	

CUSTODY TRANSFER

Relinquished by/Affiliation	Date	Time	Accepted By/Affiliation	Date	Time
Ray Vinty PACE	9/20/11	1700	Hunter/Pace	9/21/11	953

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interference present

J = Estimated value

Nn = Value obtained from additional analysis

P = PCDE Interference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = See Discussion

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Appendix B

Sample Analysis Summary

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - AMEC Geomatrix, Inc.

Client's Sample ID	ERB-2			
Lab Sample ID	10170023001			
Filename	F111006B_04			
Injected By	BAL			
Total Amount Extracted	890 mL	Matrix	Water	
% Moisture	NA	Dilution	NA	
Dry Weight Extracted	NA	Collected	09/16/2011	15:00
ICAL ID	F110926	Received	09/20/2011	09:55
CCal Filename(s)	F111006B_01 & F111006B_09	Extracted	10/03/2011	13:45
Method Blank ID	BLANK-30397	Analyzed	10/06/2011	20:26

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.95		2,3,7,8-TCDF-13C	2.00	66
Total TCDF	1.30	-----	0.95	J	2,3,7,8-TCDD-13C	2.00	74
					1,2,3,7,8-PeCDF-13C	2.00	87
2,3,7,8-TCDD	ND	-----	1.10		2,3,4,7,8-PeCDF-13C	2.00	92
Total TCDD	2.40	-----	1.10	J	1,2,3,7,8-PeCDD-13C	2.00	94
					1,2,3,4,7,8-HxCDF-13C	2.00	72
1,2,3,7,8-PeCDF	0.79	-----	0.57	J	1,2,3,6,7,8-HxCDF-13C	2.00	76
2,3,4,7,8-PeCDF	1.10	-----	0.48	J	2,3,4,6,7,8-HxCDF-13C	2.00	83
Total PeCDF	2.70	-----	0.52	J	1,2,3,7,8,9-HxCDF-13C	2.00	76
					1,2,3,4,7,8-HxCDD-13C	2.00	68
1,2,3,7,8-PeCDD	0.68	-----	0.51	J	1,2,3,6,7,8-HxCDD-13C	2.00	74
Total PeCDD	0.68	-----	0.51	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	61
					1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	-----	0.66	0.45	I	1,2,3,4,6,7,8-HpCDD-13C	2.00	68
1,2,3,6,7,8-HxCDF	-----	0.52	0.36	I	OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	0.94	-----	0.38	J			
1,2,3,7,8,9-HxCDF	0.76	-----	0.43	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	1.70	-----	0.40	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.62	-----	0.37	J	2,3,7,8-TCDD-37Cl4	0.20	76
1,2,3,6,7,8-HxCDD	0.75	-----	0.42	J			
1,2,3,7,8,9-HxCDD	0.68	-----	0.46	J			
Total HxCDD	3.00	-----	0.42	J			
1,2,3,4,6,7,8-HpCDF	1.50	-----	0.45	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	-----	0.94	0.61	I	Equivalence: 2.1 pg/L		
Total HpCDF	1.10	-----	0.53	J	(Using 2005 WHO Factors - Using PRL/2 where ND)		
1,2,3,4,6,7,8-HpCDD	3.50	-----	0.49	J			
Total HpCDD	7.20	-----	0.49	J			
OCDF	3.90	-----	0.76	BJ			
OCDD	21.00	-----	1.10	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

J = Estimated value
B = Less than 10x higher than method blank level
I = Interference present

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - AMEC Geomatrix, Inc.

Client's Sample ID	KRY 111B			
Lab Sample ID	10170023002			
Filename	F111006B_05			
Injected By	BAL			
Total Amount Extracted	964 mL	Matrix	Water	
% Moisture	NA	Dilution	NA	
Dry Weight Extracted	NA	Collected	09/16/2011	16:00
ICAL ID	F110926	Received	09/20/2011	09:55
CCal Filename(s)	F111006B_01 & F111006B_09	Extracted	10/03/2011	13:45
Method Blank ID	BLANK-30397	Analyzed	10/06/2011	21:13

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.71		2,3,7,8-TCDF-13C	2.00	89
Total TCDF	1.80	-----	0.71	J	2,3,7,8-TCDD-13C	2.00	99
					1,2,3,7,8-PeCDF-13C	2.00	120
2,3,7,8-TCDD	ND	-----	0.69		2,3,4,7,8-PeCDF-13C	2.00	123
Total TCDD	ND	-----	0.69		1,2,3,7,8-PeCDD-13C	2.00	128
					1,2,3,4,7,8-HxCDF-13C	2.00	94
1,2,3,7,8-PeCDF	0.61	-----	0.43	J	1,2,3,6,7,8-HxCDF-13C	2.00	102
2,3,4,7,8-PeCDF	-----	0.57	0.37	I	2,3,4,6,7,8-HxCDF-13C	2.00	108
Total PeCDF	1.10	-----	0.40	J	1,2,3,7,8,9-HxCDF-13C	2.00	99
					1,2,3,4,7,8-HxCDD-13C	2.00	96
1,2,3,7,8-PeCDD	ND	-----	0.37		1,2,3,6,7,8-HxCDD-13C	2.00	97
Total PeCDD	ND	-----	0.37		1,2,3,4,6,7,8-HpCDF-13C	2.00	81
					1,2,3,4,7,8,9-HpCDF-13C	2.00	83
1,2,3,4,7,8-HxCDF	0.65	-----	0.28	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	0.56	-----	0.27	J	OCDD-13C	4.00	77
2,3,4,6,7,8-HxCDF	-----	0.46	0.24	I			
1,2,3,7,8,9-HxCDF	0.62	-----	0.39	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	3.00	-----	0.29	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.43	-----	0.31	J	2,3,7,8-TCDD-37Cl4	0.20	86
1,2,3,6,7,8-HxCDD	0.72	-----	0.29	J			
1,2,3,7,8,9-HxCDD	0.38	-----	0.30	J			
Total HxCDD	2.60	-----	0.30	J			
1,2,3,4,6,7,8-HpCDF	1.30	-----	0.35	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	0.58		Equivalence: 1.1 pg/L		
Total HpCDF	1.30	-----	0.46	J	(Using 2005 WHO Factors - Using PRL/2 where ND)		
1,2,3,4,6,7,8-HpCDD	5.10	-----	0.80	J			
Total HpCDD	9.20	-----	0.80	J			
OCDF	4.60	-----	0.75	BJ			
OCDD	66.00	-----	0.93	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

J = Estimated value
B = Less than 10x higher than method blank level
I = Interference present

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - AMEC Geomatrix, Inc.

Client's Sample ID	KRY 102B			
Lab Sample ID	10170023003			
Filename	F111006B_06			
Injected By	BAL			
Total Amount Extracted	901 mL	Matrix	Water	
% Moisture	NA	Dilution	NA	
Dry Weight Extracted	NA	Collected	09/16/2011	10:20
ICAL ID	F110926	Received	09/20/2011	09:55
CCal Filename(s)	F111006B_01 & F111006B_09	Extracted	10/03/2011	13:45
Method Blank ID	BLANK-30397	Analyzed	10/06/2011	21:59

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.71		2,3,7,8-TCDF-13C	2.00	73
Total TCDF	3.80	-----	0.71	J	2,3,7,8-TCDD-13C	2.00	80
					1,2,3,7,8-PeCDF-13C	2.00	96
2,3,7,8-TCDD	ND	-----	1.20		2,3,4,7,8-PeCDF-13C	2.00	103
Total TCDD	2.50	-----	1.20	J	1,2,3,7,8-PeCDD-13C	2.00	109
					1,2,3,4,7,8-HxCDF-13C	2.00	79
1,2,3,7,8-PeCDF	ND	-----	0.54		1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	0.74	-----	0.50	J	2,3,4,6,7,8-HxCDF-13C	2.00	88
Total PeCDF	0.74	-----	0.52	J	1,2,3,7,8,9-HxCDF-13C	2.00	82
					1,2,3,4,7,8-HxCDD-13C	2.00	73
1,2,3,7,8-PeCDD	ND	-----	0.59		1,2,3,6,7,8-HxCDD-13C	2.00	84
Total PeCDD	ND	-----	0.59		1,2,3,4,6,7,8-HpCDF-13C	2.00	72
					1,2,3,4,7,8,9-HpCDF-13C	2.00	68
1,2,3,4,7,8-HxCDF	0.53	-----	0.32	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	67
1,2,3,6,7,8-HxCDF	-----	0.45	0.34	I	OCDD-13C	4.00	64
2,3,4,6,7,8-HxCDF	-----	0.50	0.30	I			
1,2,3,7,8,9-HxCDF	0.54	-----	0.38	J	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	1.10	-----	0.34	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	0.42		2,3,7,8-TCDD-37Cl4	0.20	83
1,2,3,6,7,8-HxCDD	ND	-----	0.45				
1,2,3,7,8,9-HxCDD	ND	-----	0.42				
Total HxCDD	ND	-----	0.43				
1,2,3,4,6,7,8-HpCDF	1.00	-----	0.65	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	0.84		Equivalence: 1.4 pg/L		
Total HpCDF	1.00	-----	0.75	J	(Using 2005 WHO Factors - Using PRL/2 where ND)		
1,2,3,4,6,7,8-HpCDD	-----	1.50	0.81	I			
Total HpCDD	2.30	-----	0.81	J			
OCDF	ND	-----	1.10				
OCDD	9.50	-----	0.92	J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

J = Estimated value
I = Interference present

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Sample Analysis Results

Client - AMEC Geomatrix, Inc.

Client's Sample ID	KRY 107B			
Lab Sample ID	10170023004			
Filename	F111006B_07			
Injected By	BAL			
Total Amount Extracted	787 mL	Matrix	Water	
% Moisture	NA	Dilution	NA	
Dry Weight Extracted	NA	Collected	09/16/2011	12:26
ICAL ID	F110926	Received	09/20/2011	09:55
CCal Filename(s)	F111006B_01 & F111006B_09	Extracted	10/03/2011	13:45
Method Blank ID	BLANK-30397	Analyzed	10/06/2011	22:46

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.20		2,3,7,8-TCDF-13C	2.00	77
Total TCDF	1.80	-----	1.20	J	2,3,7,8-TCDD-13C	2.00	89
					1,2,3,7,8-PeCDF-13C	2.00	103
2,3,7,8-TCDD	ND	-----	1.30		2,3,4,7,8-PeCDF-13C	2.00	109
Total TCDD	3.90	-----	1.30	J	1,2,3,7,8-PeCDD-13C	2.00	117
					1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	ND	-----	0.98		1,2,3,6,7,8-HxCDF-13C	2.00	86
2,3,4,7,8-PeCDF	-----	1.00	0.66	I	2,3,4,6,7,8-HxCDF-13C	2.00	93
Total PeCDF	2.40	-----	0.82	J	1,2,3,7,8,9-HxCDF-13C	2.00	87
					1,2,3,4,7,8-HxCDD-13C	2.00	84
1,2,3,7,8-PeCDD	0.74	-----	0.54	J	1,2,3,6,7,8-HxCDD-13C	2.00	83
Total PeCDD	0.74	-----	0.54	J	1,2,3,4,6,7,8-HpCDF-13C	2.00	70
					1,2,3,4,7,8,9-HpCDF-13C	2.00	71
1,2,3,4,7,8-HxCDF	2.60	-----	0.51	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	72
1,2,3,6,7,8-HxCDF	-----	2.50	0.44	P	OCDD-13C	4.00	64
2,3,4,6,7,8-HxCDF	-----	1.40	0.46	I			
1,2,3,7,8,9-HxCDF	-----	0.86	0.66	I	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	11.00	-----	0.52	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	0.73	-----	0.57	J	2,3,7,8-TCDD-37Cl4	0.20	83
1,2,3,6,7,8-HxCDD	2.80	-----	0.43	J			
1,2,3,7,8,9-HxCDD	1.60	-----	0.56	J			
Total HxCDD	11.00	-----	0.52	J			
1,2,3,4,6,7,8-HpCDF	16.00	-----	0.99	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	1.40		Equivalence: 3.4 pg/L		
Total HpCDF	16.00	-----	1.20	J	(Using 2005 WHO Factors - Using PRL/2 where ND)		
1,2,3,4,6,7,8-HpCDD	67.00	-----	1.60				
Total HpCDD	120.00	-----	1.60				
OCDF	40.00	-----	2.10	BJ			
OCDD	640.00	-----	0.88				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit.

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

J = Estimated value
B = Less than 10x higher than method blank level
P = PCDE Interference
I = Interference present

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Blank Analysis Results

Lab Sample ID	BLANK-30397	Matrix	Water
Filename	U111005A_10	Dilution	NA
Total Amount Extracted	1020 mL	Extracted	10/03/2011 13:45
ICAL ID	U110912	Analyzed	10/05/2011 10:00
CCal Filename(s)	U111004B_12 & U111005A_11	Injected By	SMT

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	3.7		2,3,7,8-TCDF-13C	2.00	75
Total TCDF	ND	-----	3.7		2,3,7,8-TCDD-13C	2.00	79
					1,2,3,7,8-PeCDF-13C	2.00	83
2,3,7,8-TCDD	ND	-----	3.2		2,3,4,7,8-PeCDF-13C	2.00	83
Total TCDD	ND	-----	3.2		1,2,3,7,8-PeCDD-13C	2.00	90
					1,2,3,4,7,8-HxCDF-13C	2.00	98
1,2,3,7,8-PeCDF	ND	-----	2.3		1,2,3,6,7,8-HxCDF-13C	2.00	85
2,3,4,7,8-PeCDF	ND	-----	1.9		2,3,4,6,7,8-HxCDF-13C	2.00	93
Total PeCDF	ND	-----	2.1		1,2,3,7,8,9-HxCDF-13C	2.00	95
					1,2,3,4,7,8-HxCDD-13C	2.00	101
1,2,3,7,8-PeCDD	ND	-----	2.7		1,2,3,6,7,8-HxCDD-13C	2.00	78
Total PeCDD	ND	-----	2.7		1,2,3,4,6,7,8-HpCDF-13C	2.00	69
					1,2,3,4,7,8,9-HpCDF-13C	2.00	68
1,2,3,4,7,8-HxCDF	ND	-----	1.9		1,2,3,4,6,7,8-HpCDD-13C	2.00	70
1,2,3,6,7,8-HxCDF	ND	-----	1.3		OCDD-13C	4.00	59
2,3,4,6,7,8-HxCDF	-----	2.0	1.2	I			
1,2,3,7,8,9-HxCDF	-----	2.6	2.2	I	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	1.6		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	2.4		2,3,7,8-TCDD-37Cl4	0.20	82
1,2,3,6,7,8-HxCDD	ND	-----	2.4				
1,2,3,7,8,9-HxCDD	ND	-----	2.2				
Total HxCDD	ND	-----	2.3				
1,2,3,4,6,7,8-HpCDF	ND	-----	1.9		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	-----	2.5	2.2	I	Equivalence: 4.2 pg/L		
Total HpCDF	ND	-----	2.0		(Using 2005 WHO Factors - Using PRL/2 where ND)		
1,2,3,4,6,7,8-HpCDD	ND	-----	2.8				
Total HpCDD	ND	-----	2.8				
OCDF	7.2	-----	4.1	J			
OCDD	ND	-----	5.7				

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

J = Estimated value
I = Interference present

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCS-30398		
Filename	U111005A_07	Matrix	Water
Total Amount Extracted	1020 mL	Dilution	NA
ICAL ID	U110912	Extracted	10/03/2011 13:45
CCal Filename(s)	U111004B_12 & U111005A_11	Analyzed	10/05/2011 07:38
Method Blank ID	BLANK-30397	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.24	120	2,3,7,8-TCDF-13C	2.0	81
Total TCDF				2,3,7,8-TCDD-13C	2.0	83
				1,2,3,7,8-PeCDF-13C	2.0	87
2,3,7,8-TCDD	0.20	0.21	106	2,3,4,7,8-PeCDF-13C	2.0	89
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	93
				1,2,3,4,7,8-HxCDF-13C	2.0	106
1,2,3,7,8-PeCDF	1.0	1.2	116	1,2,3,6,7,8-HxCDF-13C	2.0	97
2,3,4,7,8-PeCDF	1.0	1.1	111	2,3,4,6,7,8-HxCDF-13C	2.0	76
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	90
				1,2,3,4,7,8-HxCDD-13C	2.0	78
1,2,3,7,8-PeCDD	1.0	1.0	101	1,2,3,6,7,8-HxCDD-13C	2.0	83
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	61
				1,2,3,4,7,8,9-HpCDF-13C	2.0	69
1,2,3,4,7,8-HxCDF	1.0	1.1	108	1,2,3,4,6,7,8-HpCDD-13C	2.0	69
1,2,3,6,7,8-HxCDF	1.0	1.1	110	OCDD-13C	4.0	65
2,3,4,6,7,8-HxCDF	1.0	1.1	113			
1,2,3,7,8,9-HxCDF	1.0	1.1	110	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.1	107	2,3,7,8-TCDD-37Cl4	0.20	79
1,2,3,6,7,8-HxCDD	1.0	1.1	111			
1,2,3,7,8,9-HxCDD	1.0	1.2	125			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.1	109			
1,2,3,4,7,8,9-HpCDF	1.0	1.1	108			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	1.0	102			
Total HpCDD						
OCDF	2.0	2.2	108			
OCDD	2.0	2.2	109			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

REPORT OF LABORATORY ANALYSIS

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Tel: 612-607-1700
Fax: 612- 607-6444

Method 8290 Laboratory Control Spike Results

Lab Sample ID	LCSD-30399		
Filename	U111005A_08	Matrix	Water
Total Amount Extracted	1020 mL	Dilution	NA
ICAL ID	U110912	Extracted	10/03/2011 13:45
CCal Filename(s)	U111004B_12 & U111005A_11	Analyzed	10/05/2011 08:24
Method Blank ID	BLANK-30397	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.25	127	2,3,7,8-TCDF-13C	2.0	77
Total TCDF				2,3,7,8-TCDD-13C	2.0	88
				1,2,3,7,8-PeCDF-13C	2.0	90
2,3,7,8-TCDD	0.20	0.22	108	2,3,4,7,8-PeCDF-13C	2.0	94
Total TCDD				1,2,3,7,8-PeCDD-13C	2.0	96
				1,2,3,4,7,8-HxCDF-13C	2.0	97
1,2,3,7,8-PeCDF	1.0	1.2	119	1,2,3,6,7,8-HxCDF-13C	2.0	88
2,3,4,7,8-PeCDF	1.0	1.1	114	2,3,4,6,7,8-HxCDF-13C	2.0	94
Total PeCDF				1,2,3,7,8,9-HxCDF-13C	2.0	92
				1,2,3,4,7,8-HxCDD-13C	2.0	95
1,2,3,7,8-PeCDD	1.0	1.1	108	1,2,3,6,7,8-HxCDD-13C	2.0	83
Total PeCDD				1,2,3,4,6,7,8-HpCDF-13C	2.0	69
				1,2,3,4,7,8,9-HpCDF-13C	2.0	64
1,2,3,4,7,8-HxCDF	1.0	1.1	109	1,2,3,4,6,7,8-HpCDD-13C	2.0	68
1,2,3,6,7,8-HxCDF	1.0	1.2	116	OCDD-13C	4.0	57
2,3,4,6,7,8-HxCDF	1.0	1.2	115			
1,2,3,7,8,9-HxCDF	1.0	1.2	115	1,2,3,4-TCDD-13C	2.0	NA
Total HxCDF				1,2,3,7,8,9-HxCDD-13C	2.0	NA
1,2,3,4,7,8-HxCDD	1.0	1.1	108	2,3,7,8-TCDD-37Cl4	0.20	88
1,2,3,6,7,8-HxCDD	1.0	1.1	113			
1,2,3,7,8,9-HxCDD	1.0	1.1	113			
Total HxCDD						
1,2,3,4,6,7,8-HpCDF	1.0	1.1	110			
1,2,3,4,7,8,9-HpCDF	1.0	1.1	111			
Total HpCDF						
1,2,3,4,6,7,8-HpCDD	1.0	1.1	108			
Total HpCDD						
OCDF	2.0	2.5	127			
OCDD	2.0	2.4	118			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
R = Recovery outside of target range

Y = RF averaging used in calculations
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 8290

Spike Recovery Relative Percent Difference (RPD) Results

Client AMEC Geomatrix, Inc.

Spike 1 ID LCS-30398
Spike 1 Filename U111005A_07

Spike 2 ID LCSD-30399
Spike 2 Filename U111005A_08

Compound	Spike 1 %REC	Spike 2 %REC	%RPD
2,3,7,8-TCDF	120	127	5.7
2,3,7,8-TCDD	106	108	1.9
1,2,3,7,8-PeCDF	116	119	2.6
2,3,4,7,8-PeCDF	111	114	2.7
1,2,3,7,8-PeCDD	101	108	6.7
1,2,3,4,7,8-HxCDF	108	109	0.9
1,2,3,6,7,8-HxCDF	110	116	5.3
2,3,4,6,7,8-HxCDF	113	115	1.8
1,2,3,7,8,9-HxCDF	110	115	4.4
1,2,3,4,7,8-HxCDD	107	108	0.9
1,2,3,6,7,8-HxCDD	111	113	1.8
1,2,3,7,8,9-HxCDD	125	113	10.1
1,2,3,4,6,7,8-HpCDF	109	110	0.9
1,2,3,4,7,8,9-HpCDF	108	111	2.7
1,2,3,4,6,7,8-HpCDD	102	108	5.7
OCDF	108	127	16.2
OCDD	109	118	7.9

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

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APPENDIX H
ASBESTOS AND LEAD-BASED PAINT REPORT

TD&H Engineering

September 8, 2011

Mr. Chris Cerquone
AMEC Geomatrix Consultants
1001 S. Higgins Avenue
Missoula, Montana 59801

RE: Report of Findings for Pre-demolition Asbestos and Lead-Based Paint Inspection Services Knife River (Former McElroy and Wilken) Site – Kalispell, Montana TD&H Project No. K11-026

Dear Mr. Cerquone,

In accordance with our agreed upon scope work for this project, Thomas Dean & Hoskins (TD&H) and our subcontractor, A.L.M. Consulting, LLC (A.L.M.), completed the Phase II pre-demolition asbestos and lead-based paint (LBP) inspection of the Knife River (former McElroy and Wilken) site in Kalispell, Montana. The pre-demolition inspection was performed by Mr. Ryan McGee (MTA-1705) and Mr. Terry Stonehocker (MTA-3938), Montana-accredited asbestos inspectors.

SITE INSPECTION RESULTS

Asbestos

The asbestos portion of the inspection was completed in accordance with the State of Montana Department of Environmental Quality – Asbestos Control Program (MDEQ-ACP) Administrative Rules of Montana (ARM) 17.74.354, Section 3 of the Montana Asbestos Work Practices and Procedures Manual (MAWPPM), and relevant sections of the Environmental Protection Agency (EPA) – Asbestos Hazards and Emergency Response Act (AHERA) regulation 40 CFR 763. The asbestos inspection was also completed in accordance with the EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) regulation 40 CFR 61, which requires an asbestos inspection be completed prior to planned renovation or demolition of any public or commercial building.

To complete the asbestos portion of the inspection, interior and exterior building materials generally considered suspect for containing asbestos within the five buildings located on the property. The five buildings considered for this inspection included:

- The Scale Office
- The Mixing Plant
- The Main Shop
- The Tire Shop, and
- The Welding Shop (Quonset Hut)

TD&H Engineering

September 8, 2011

Mr. Chris Cerquone
AMEC Geomatrix Consultants
1001 S. Higgins Avenue
Missoula, Montana 59801

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Knife River (Former McElroy and Wilken) Site – Kalispell, Montana
TD&H Project No. K11-026

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- The Scale Office
- The Mixing Plant
- The Main Shop
- The Tire Shop, and
- The Welding Shop (Quonset Hut)

A total of 25 building materials were originally identified during the initial assessment and walkthrough of the property on July 13, 2011. However, during the inspection three additional building materials were identified. Building materials considered suspect for containing asbestos were categorized, numbered, and placed into homogeneous areas for sample collection, chain-of-custody preparation, and laboratory analysis. Building material samples were sent under chain-of-custody protocol to Carolina Environmental, Inc. (CEI) for laboratory analysis to confirm or deny the presence of asbestos.

Building materials considered suspect for this inspection included, but were not limited to vinyl sheet flooring; 12" x 12" vinyl floor tile and associated mastic; sheetrock wall and ceiling materials, window glazing, interior/exterior concrete, and roof materials. During the inspection, and in keeping with current EPA and MDEQ-ACP guidelines for sample collection and material identification, the building materials were placed into one of the following four categories for sample collection and analytical procedures.

- **Surfacing Materials (S):** A minimum of three samples for surfacing materials from 1 to 1,000 square feet, a minimum of five samples for surfacing materials between 1,000 to 5,000 square feet, and a minimum of seven samples for surfacing materials greater than 5,000 square feet.

- **Thermal System Insulation (T):** A minimum of three samples from each homogeneous area (HA) of thermal system insulation, which may include boiler insulation, mudded fittings, and expanded vermiculite insulation.

- **Miscellaneous Material (M):** A minimum of three samples from each homogeneous area (HA) of miscellaneous material, such as ceiling tile, floor tile, linoleum, concrete, brick and mortar, cement asbestos board, and roof materials.

- **Patching Materials (P):** One sample of patch material may be obtained from patching materials, where the patch materials are less than six square feet.

For purposes of this inspection, a positive-stop analytical approach was requested, whereby if a building material was confirmed positive for containing asbestos, the remaining samples in that group were not analyzed. By using the positive-stop analytical approach, and with the ability to combine building materials during the inspection, a total of 58 building material samples were required to complete the inspection. Based on the laboratory analysis only 3 out of the 28 building materials were confirmed positive for containing asbestos in concentrations greater than one percent asbestos.

Building materials confirmed positive for containing asbestos in concentrations of greater than one percent are considered as an asbestos-containing building material (ACBM) and will require special considerations for removal, handling, and containerization prior to demolition. Building materials confirmed as ACBM will also require special considerations for transport to and disposal at a Class II Landfill authorized to accept asbestos waste. Flathead County Solid Waste District will accept any asbestos containing waste at the landfill, friable or non-friable, only if it is properly sealed in six-mil plastic sheeting bags or "burritos".

Current MDEQ-ACP and EPA regulations require that building materials which contain greater than one percent asbestos be placed into one of the following three NESHAP categories for abatement considerations.

- Category I non-friable ACBM are generally considered as packing, gaskets, resilient floor coverings, and asphalt roof products, which contain greater than one percent asbestos.

- Category II non-friable ACBM are ACBM, excluding Category I non-friable ACBM, such as cement asbestos board and cement asbestos pipe materials, which contain greater than one percent asbestos.

- Regulated Asbestos-Containing Materials (RACM) are friable materials, Category I non-friable ACBM that will or may be subjected to sanding, grinding, cutting, or abrading or Category II non-friable ACBM that have a high probability of becoming or have become crumbled, pulverized, or reduced to powder by forces acting on or expected to act on the ACBM through the course of renovations and/or demolition activities.

Table 1 below, identifies the three building materials confirmed positive for containing asbestos in concentrations of greater than one percent. Table I also includes the sample identification number (Sample ID), building material description, sample location, concentration of asbestos, NESHAP category, and recommended response actions for abatement prior to commencing with demolition activities.

Table 1. Knife River (Former McElroy and Wilken) Site - Asbestos

Sample ID	Building Material Description	Sample Location	% Asbestos	Est. Quantity	*NESHAP Category	Response Action
F2.1	Mastic	Scale Office	10% - Mastic	575 SF	Category I	Remove
R4.1	Flat Built-up Roofing/Silver Paint	Main Shop	4% - Paint 10% - Tar	20 SF	Category I	Remove
M6.1	Window Glazing	Tire Shop	2%	3 EA	Category II	Remove

ND = Non-Detect for Asbestos
VFT = Vinyl Floor Tile
SF = Square Feet
EA = Each

The following building materials were also considered suspect for containing asbestos, however, based on laboratory analytical results did not contain asbestos. These materials will not require special handling or containerization prior to demolition activities.

<u>The Scale Office</u>

- F1.1 – Marble Pattern Vinyl Sheet Flooring
- F1.2 – Cream Vinyl Sheet Flooring
- F2.1 – 12" x 12" Beige VFT/Gray Specks
- F4.1 – Floor Leveler under VSF

- F2.2 – 12" x 12" White VFT/Gray Specks
- S1.1 – Heavy Troweled-on Texture
- S1.2 – Light Brush Pattern Texture

- M1.1– Sheetrock, Joint and Tape Materials
- R1.1 – Flat Built-up Roof Materials
- M17.1 – Formica Counter Top Adhesive
- F4.2 – Floor Leveler
- M14.1 – Interior Concrete
- M14.2 – Exterior Concrete

The Mixing Plant

- T11.1 – Boiler Gasket Material
- M17.1 – Formica Adhesive
- M14.3 – Interior Concrete
- M14.7 – Exterior Concrete

The Main Shop

- M14.4 – Interior Concrete

The Tire Shop

- M20.1 – Moisture Barrier/Underlayment
- M17.1 – Formica Adhesive
- M14.5 – Exterior Concrete

The Welding Shop (Quonset Hut)

- M14.6 – Interior Concrete
- M6.1 – Window Glazing

Copies of the laboratory analytical results and chain-of-custody paperwork are presented in Appendix A. Building material sample locations for each building are presented in Appendix B. Appendix C includes photographs of sample locations taken during the inspection.

Lead-Based Paint

For purposes of this project, A.L.M. completed pre-demolition lead-based paint (LBP) sampling in accordance with Plan Three - Composite Sample and Demolish of the ASTM Standard E 1908-97, which uses a composite sample to assess the lead content of the demolition waste anticipated to be comprised within the waste stream from demolition operations. The buildings on this site have various dates of construction and were sampled separately.

For purposes of this inspection, A.L.M. personnel obtained one bulk material sample of all potential substrates, in accordance with ASTM E 1908-97, for waste characterization under the EPA Resource Conservation and Recovery Act (RCRA). The analysis used to determine the lead concentration was completed by the Toxicity Characteristics Leaching Procedure (TCLP). Results from the TCLP analysis

showed that the anticipated waste stream for four out of five of the buildings remained below the RCRA regulatory standard of 5 milligrams per liter (mg/L) lead.

Based on the results from the TCLP testing of the scale office, the mixing plant, the main shop, and the welding shop (quonset hut) no special considerations for disposal will be required. However, special considerations for lead abatement will be required prior to completing the demolition of the tire shop. The tire shop TCLP test failed, with a lead concentration of 5.6 mg/L. The paint on the wood siding of the tire shop is in bad condition, with much of it peeling and paint chip debris on the ground. Please see the recommendations for lead abatement activities below. A copy of the laboratory analytical report and chain-of-custody paperwork for the TCLP sampling are provided in Appendix D.

RECOMMENDATIONS

The asbestos and LBP inspection of the scale office, the mixing plant, the main shop, and the welding shop (quonset hut) was completed to confirm or deny the presence of asbestos, LBP within the building prior to scheduling demolition operations for the property. The following recommendations have been completed assuming the buildings will be demolished.

Based on laboratory analytical results from the asbestos inspection, the owner should plan on scheduling for asbestos abatement activities to remove the vinyl floor tile and associated asbestos-containing mastic from the scale office, the roof materials from the main shop, and the windows from the tire shop prior to scheduling demolition operations to remove the three buildings.

The owner should also plan on scheduling the removal of the exterior painted siding from the tire shop, which and is the reason for the elevated lead levels in the TCLP sample. Since the paint is on a wood substrate, it cannot be readily recycled in the manner of steel. Since the paint is loose and peeling, it cannot be readily altered chemically on the substrate. Abatement of the lead-based paint therefore appears the only feasible option. Once the exterior lead-based paint is removed from the tire shop the building may be scheduled for demolition. Likewise, once the asbestos abatement activities are complete, the scale office and the main shop may be scheduled for demolition.

We recommend the following be completed prior to commencing with demolition operations on the site.

1. Schedule removal of the Category I non-friable ACBM from the scale office and main shop, and the Category II non-friable ACBM and lead-based paint exterior siding from the tire shop.

2. Notify the MDEQ-ACP of the anticipated demolition and asbestos abatement of Category I and Category II non-friable ACBM by submitting an Application for an Asbestos Project Permit and NESHAP Demolition/Renovation Notification. The NESHAP notification will be required to be submitted at least 10 working days (two weeks) prior to scheduling the demolition in accordance with EPA 40 CFR 61.145.

3. Schedule removal of the exterior lead-based paint from the tire shop siding, along with the removal of the three windows, to coincide with other site abatement. The owner should discuss the process, with the abatement contractor for removal and treatment of the exterior siding for disposal purposes.

While contractor bids have not been obtained for this project, we estimate the cost to complete the asbestos abatement and cleanup work, (not including demolition or transportation and disposal of non-ACBM waste) at $5,000.00. The costs associated with the removal, containerization, and disposal of the lead-based paint can be estimated at $7,500.00.

LIMITATIONS

This asbestos inspection and lead in paint survey report was prepared based on information gathered during the site visits and interpretations of laboratory analytical results provided by Carolina Environmental, Inc. The inspection report has been prepared to provide information concerning the various types of building materials that were considered suspect for containing asbestos or lead and to inform the owner of the materials that tested positive for asbestos or paint containing lead. Most building components were visible and accessible at the time of the site visit. However, it is possible that additional suspect materials may be encountered during the demolition.

This asbestos inspection and lead in paint survey report is intended for use by AMEC Geomatrix Consultants and their clients. The scope of services performed by Thomas Dean & Hoskins, Inc., may not be appropriate to satisfy the needs of other users, and any use or re-use of this document, or the findings presented herein is at the sole risk of the user.

We appreciate this opportunity to provide these industrial hygiene consulting services to you and look forward to assisting you through the remainder of the project. Should you have questions or need further clarification about information contained herein please feel free to contact me or Peter Klevberg at (406) 761-3010.

Sincerely,
THOMAS, DEAN & HOSKINS, INC.

Terence L. Stonehocker, P.E.
Asbestos Inspector

Peter Klevberg, P.E.
Project Manager

APPENDIX A – Asbestos Laboratory Analytical Report
APPENDIX B – Site Sketch of Sample Locations
APPENDIX C – Inspection Photographs
APPENDIX D – Lead - TCLP Laboratory Analytical Report
APPENDIX E – Inspector Accreditations

APPENDIX A

ASBESTOS LABORATORY ANALYTICAL REPORT

CAROLINA ENVIRONMENTAL, INC.
107 New Edition Court, Cary, NC 27511
Phone: (919) 481-1413 Fax: (919) 481-1442

LABORATORY REPORT
ASBESTOS BULK ANALYSIS

Client: A.L.M. Consulting, LLC
P.O. Box 7886
Helena, MT 59604

Project: Knife River former McElroy & Wilken Site
110803-MWS

CEI Lab Code: A11-5898
Received: 08-09-11
Analyzed: 08-11-11
Reported: 08-11-11
Analyst: Megan Brooks

CLIENT ID	CEI LAB ID	HOMOGENEITY DESCRIPTION	% ASBESTOS
F1.1A	A1178469	LINOLEUM Heterogeneous, Yellow, Grey, Fibrous, Bound BIND 20 % CELL 30 % VINYL 25 % SYNT 20 % MAST 5 %	ND
F1.1B	A1178470	LINOLEUM Heterogeneous, Yellow, Grey, Fibrous, Bound BIND 20 % CELL 30 % VINYL 25 % SYNT 20 % MAST 5 %	ND
F1.1C	A1178471	LINOLEUM Heterogeneous, Yellow, Grey, Fibrous, Bound BIND 20 % CELL 30 % VINYL 25 % SYNT 20 % MAST 5 %	ND
F1.2A	A1178472	LINOLEUM Heterogeneous, Off-white, Tan, Fibrous, Bound BIND 25 % CELL 30 % VINYL 30 % FBGL 10 % MAST 5 %	ND
F1.2B	A1178473	LINOLEUM Heterogeneous, Off-white, Tan, Fibrous, Bound BIND 25 % CELL 30 % VINYL 30 % FBGL 10 % MAST 5 %	ND
F1.2C	A1178474	LINOLEUM Heterogeneous, Off-white, Tan, Fibrous, Bound BIND 25 % CELL 30 % VINYL 30 % FBGL 10 % MAST 5 %	ND

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Project: Knife River former McElroy & Wilken Site
110803-MWS

Lab Code: A11-5898

CLIENT ID	CEI LAB ID	HOMOGENEITY DESCRIPTION	% ASBESTOS
F4.1A	A1178475 Heterogeneous,	LEVELING COMPOUND Off-white, Non-fibrous, Bound BIND 50 % CELL 3 % VINYL 40 % MAST 7 %	ND
F4.1B	A1178476 Heterogeneous,	LEVELING COMPOUND Off-white, Non-fibrous, Bound BIND 50 % CELL 3 % VINYL 40 % MAST 7 %	ND
F4.1C	A1178477 Heterogeneous,	LEVELING COMPOUND Off-white, Non-fibrous, Bound BIND 50 % CELL 3 % VINYL 40 % MAST 7 %	ND
F2.1A	A1178478A Homogeneous,	FLOOR TILE Tan, Non-fibrous, Tightly Bound VINYL 60 % CACO 40 %	ND
	A1178478B Homogeneous,	MASTIC Black, Non-fibrous, Bound CHRY 10% TAR 90 %	CHRY 10%
F2.1B	A1178479	SAMPLE NOT ANALYZED PER COC	
F2.1C	A1178480	SAMPLE NOT ANALYZED PER COC	

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110803-MWS

Lab Code: A11-5898

CLIENT ID	CEI LAB ID	HOMOGENEITY DESCRIPTION	% ASBESTOS
F2.2A	A1178481A	FLOOR TILE	ND
	Homogeneous,	White, Non-fibrous, Tightly Bound VINYL 60 % CACO 40 %	
	A1178481B	MASTIC	ND
	Heterogeneous,	Yellow, Non-fibrous, Bound MAST 97 % CELL 3 %	
	A1178481C	LINOLEUM	ND
	Heterogeneous,	Black, Fibrous, Bound BIND 25 % CELL 35 % VINYL 30 % SYNT 10 %	
F2.2B	A1178482A	FLOOR TILE	ND
	Homogeneous,	White, Non-fibrous, Tightly Bound VINYL 60 % CACO 40 %	
	A1178482B	MASTIC	ND
	Heterogeneous,	Yellow, Non-fibrous, Bound MAST 97 % CELL 3 %	
	A1178482C	LINOLEUM	ND
	Heterogeneous,	Black, Fibrous, Bound BIND 25 % CELL 35 % VINYL 30 % SYNT 10 %	
F2.2C	A1178483A	FLOOR TILE	ND
	Homogeneous,	White, Non-fibrous, Tightly Bound VINYL 60 % CACO 40 %	

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Project: Knife River former McElroy & Wilken Site
110803-MWS

Lab Code: A11-5898

CLIENT ID	CEI LAB ID	HOMOGENEITY DESCRIPTION	% ASBESTOS
	A1178483B	MASTIC Heterogeneous, Yellow, Non-fibrous, Bound MAST 97 % CELL 3 %	ND
	A1178483C	LINOLEUM Heterogeneous, Black, Fibrous, Bound BIND 25 % CELL 35 % VINYL 30 % SYNT 10 %	ND
S1.1A	A1178484	TEXTURE Heterogeneous, Tan, White, Fibrous, Bound BIND 30 % CELL 30 % CACO 10 % PAINT 30 %	ND
S1.1B	A1178485	TEXTURE Heterogeneous, Tan, White, Fibrous, Bound BIND 30 % CELL 30 % CACO 10 % PAINT 30 %	ND
S1.1C	A1178486	TEXTURE Heterogeneous, Tan, White, Fibrous, Bound BIND 30 % CELL 30 % CACO 10 % PAINT 30 %	ND
S1.2A	A1178487	TEXTURE Heterogeneous, Tan, White, Fibrous, Bound BIND 30 % CELL 30 % CACO 10 % PAINT 30 %	ND
S1.2B	A1178488	TEXTURE Heterogeneous, Tan, White, Fibrous, Bound BIND 30 % CELL 30 % CACO 10 % PAINT 30 %	ND

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110803-MWS

Lab Code: A11-5898

CLIENT ID	CEI LAB ID	HOMOGENEITY DESCRIPTION	% ASBESTOS
S1.2C	A1178489	TEXTURE Heterogeneous, Tan, White, Fibrous, Bound BIND 30 % CELL 30 % CACO 10 % PAINT 30 %	ND
M1.1A	A1178490	SHEETROCK/JOINTCOMPOUND/TAPE Heterogeneous, White, Off-white, Fibrous, Bound GYPSUM 40 % CELL 20 % PAINT 10 % BIND 30 %	ND
M1.1B	A1178491	SHEETROCK/JOINTCOMPOUND/TAPE Heterogeneous, White, Off-white, Fibrous, Bound GYPSUM 40 % CELL 20 % PAINT 10 % BIND 30 %	ND
M1.1C	A1178492	SHEETROCK/JOINTCOMPOUND/TAPE Heterogeneous, White, Off-white, Fibrous, Bound GYPSUM 40 % CELL 20 % PAINT 10 % BIND 30 %	ND
R1.1A	A1178493	ROOFING Heterogeneous, Black, Brown, Fibrous, Bound TAR 20 % CELL 20 % BIND 20 % FBGL 20 % PERL 20 %	ND
R1.1B	A1178494	ROOFING Heterogeneous, Black, Brown, Fibrous, Bound TAR 20 % CELL 20 % BIND 20 % FBGL 20 % PERL 20 %	ND
R1.1C	A1178495	ROOFING Heterogeneous, Black, Brown, Fibrous, Bound TAR 20 % CELL 20 % BIND 20 % FBGL 20 % PERL 20 %	ND

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Project: Knife River former McElroy & Wilken Site
110803-MWS

Lab Code: A11-5898

CLIENT ID	CEI LAB ID	HOMOGENEITY DESCRIPTION	% ASBESTOS
M17.1A	A1178496	ADHESIVE Heterogeneous, Brown, Fibrous, Bound MAST 60 % CELL 40 %	ND
F4.2A	A1178497	LEVELING COMPOUND Heterogeneous, Off-white, Non-fibrous, Bound BIND 95 % CELL 5 %	ND
M14.1A	A1178498	CONCRETE Heterogeneous, Grey, Non-fibrous, Tightly Bound BIND 60 % SILI 40 %	ND
M14.2A	A1178499	CONCRETE Heterogeneous, Grey, Non-fibrous, Tightly Bound BIND 58 % CELL 2 % SILI 40 %	ND
M14.2B	A1178500	CONCRETE Heterogeneous, Grey, Non-fibrous, Tightly Bound BIND 58 % CELL 2 % SILI 40 %	ND
T11.1A	A1178501	GASKET Heterogeneous, White, Fibrous, Loosely Bound BIND 5 % CELL 5 % FBGL 90 %	ND
M17.1A	A1178502	ADHESIVE Heterogeneous, Brown, Fibrous, Bound MAST 60 % CELL 40 %	ND

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110803-MWS

Lab Code: A11-5898

CLIENT ID	CEI LAB ID	HOMOGENEITY DESCRIPTION	% ASBESTOS
M14.3A	A1178503	CONCRETE	ND
	Heterogeneous,	Grey, Non-fibrous, Tightly Bound	
		BIND 58 % CELL 2 %	
		SILI 40 %	
M14.7A	A1178504	CONCRETE	ND
	Heterogeneous,	Grey, Non-fibrous, Tightly Bound	
		BIND 58 % CELL 2 %	
		SILI 40 %	
R4.1A	A1178505A	PAINT	CHRY 2%
	Heterogeneous,	Silver, Non-fibrous, Bound	
		CHRY 2% PAINT 95 % CELL 3 %	
	A1178505B	ROOF TAR	ND
	Heterogeneous,	Black, Fibrous, Bound	
		BIND 30 % CELL 40 %	
		TAR 30 %	
R4.1B	A1178506A	PAINT	CHRY 2%
	Heterogeneous,	Silver, Non-fibrous, Bound	
		CHRY 2% PAINT 95 % CELL 3 %	
	A1178506B	ROOF TAR	ND
	Heterogeneous,	Black, Fibrous, Bound	
		BIND 30 % CELL 40 %	
		TAR 30 %	
R4.1C	A1178507A	PAINT	CHRY 2%
	Heterogeneous,	Silver, Non-fibrous, Bound	
		CHRY 2% PAINT 95 % CELL 3 %	

CAROLINA ENVIRONMENTAL, INC.
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Project: Knife River former McElroy & Wilken Site
110803-MWS

Lab Code: A11-5898

CLIENT ID	CEI LAB ID	HOMOGENEITY DESCRIPTION	% ASBESTOS
	A1178507B	ROOF TAR	CHRY 10%
	Heterogeneous,	Black, Fibrous, Bound	
		CHRY 10% BIND 30 % CELL 30 %	
		TAR 30 %	
M14.4A	A1178508	CONCRETE	ND
	Heterogeneous,	Grey, Non-fibrous, Tightly Bound	
		BIND 58 % CELL 2 %	
		SILI 40 %	
M20.1A	A1178509	MOISTURE BARRIER	ND
	Heterogeneous,	Red, Tan, Fibrous, Bound	
		PAINT 5 % CELL 95 %	
M20.1B	A1178510	MOISTURE BARRIER	ND
	Heterogeneous,	Red, Tan, Fibrous, Bound	
		PAINT 5 % CELL 95 %	
M20.1C	A1178511	MOISTURE BARRIER	ND
	Heterogeneous,	Red, Tan, Fibrous, Bound	
		PAINT 5 % CELL 95 %	
M6.1A	A1178512	WINDOW GLAZING	CHRY 2%
	Heterogeneous,	Tan, Brown, Non-fibrous, Bound	
		CHRY 2% BIND 90 %	
		PAINT 8 %	
M6.1B	A1178513	WINDOW GLAZING	ND
	Heterogeneous,	Tan, White, Non-fibrous, Bound	
		BIND 90 %	
		PAINT 10 %	

CAROLINA ENVIRONMENTAL, INC.
107 New Edition Court, Cary, NC 27511
Phone: 919-481-1413 Fax: 919-481-1442

Project: Knife River former McElroy & Wilken Site
110803-MWS

Lab Code: A11-5898

CLIENT ID	CEI LAB ID	HOMOGENEITY DESCRIPTION	% ASBESTOS
M6.1C	A1178514	WINDOW GLAZING Heterogeneous, Tan, Blue, Non-fibrous, Bound BIND 90 % PAINT 10 %	ND
M17.1A	A1178515	ADHESIVE Heterogeneous, Brown, Fibrous, Bound MAST 60 % CELL 40 %	ND
M14.5A	A1178516	CONCRETE Heterogeneous, Grey, Non-fibrous, Tightly Bound BIND 58 % CELL 2 % SILI 40 %	ND
M14.6A	A1178517	CONCRETE Heterogeneous, Grey, Non-fibrous, Tightly Bound BIND 58 % CELL 2 % SILI 40 %	ND
M6.1A	A1178518	WINDOW GLAZING Heterogeneous, Tan, White, Non-fibrous, Bound BIND 90 % PAINT 10 %	ND
M6.1B	A1178519	WINDOW GLAZING Heterogeneous, Tan, White, Non-fibrous, Bound BIND 90 % PAINT 10 %	ND
M6.1C	A1178520	WINDOW GLAZING Heterogeneous, Tan, White, Non-fibrous, Bound BIND 90 % PAINT 10 %	ND

The following definitions apply to the abbreviations used in the ASBESTOS BULK ANALYSIS REPORT:

CHRY = Chrysotile	CELL = Cellulose	DEBR = Debris
AMOS = Amosite	FBGL = Fibrous Glass	BIND = Binder
CROC = Crocidolite	CACO = Calcium Carbonate	SILI = Silicates
TREM = Tremolite	SYNT = Synthetics	GRAV = Gravel
ANTH = Anthophyllite	WOLL = Wollastonite	MAST = Mastic
ACTN = Actinolite	CERWL = Ceramic Wool	PLAS = Plaster
N D = None Detected	NTREM = Non-Asbestiform Tremolite	PERL = Perlite
NANTH = Non-Asbestiform Anthophyllite	FBGY = Fibrous Gypsum	RUBR =Rubber
		VER =Vermiculite

CLIENT: A.L.M. Consulting, LLC

PROJECT: Knife River former McElroy & Wilken Site
110803-MWS

CEI LAB CODE: A11-5898

Stereoscopic microscopy and polarized light microscopy coupled with dispersion staining is the analytical technique used for sample identification. The percentage of each component is visually estimated by volume. These results pertain only to the samples analyzed. The samples were analyzed as submitted by the client and may not be representative of the larger material in question. Unless notified in writing to return samples, Carolina Environmental, Inc. will discard all bulk samples after 30 days.

Many vinyl floor tiles have been manufactured using greater than 1% asbestos. Often the asbestos was milled to a fiber size below the detection limit of polarized light microscopy. Therefore, a "None Detected" (ND) reading on vinyl floor tile does not necessarily exclude the presence of asbestos. Transmission electron microscopy provides a more conclusive form of analysis for vinyl floor tiles.

It is certified by the signature below that Carolina Environmental, Inc. is accredited by the National Voluntary Accreditation Program (NVLAP) for the analysis of asbestos in bulk materials. The accredited test method is EPA / 600 / M4-82 / 020 for the analysis of asbestos in building materials. Procedures described in EPA / 600 / R-93 / 116 have been incorporated where applicable. The detection limit for the method is 0.1% (trace amount). Carolina Environmental, Inc.'s NVLAP accreditation number is #101768-0. This report is not to be used to claim product endorsement by NVLAP or any agency of the U. S. Government. This report and its contents are only valid when reproduced in full. Dust and soil analyses for asbestos using PLM are not covered under NVLAP accreditation.

ANALYST _____

REVIEWED BY _____

Tianbao Bai, Ph.D.
Laboratory Director

End of Report

A11-5016 (5x)

A1178469. A117

CHAIN OF CUSTODY RECORD
ASBESTOS/LEAD ANALYSIS

CAROLINA ENVIRONMENTAL, INC.
107 New Edition Court, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

Client: A.L.M. Consulting, LLC
Address: P.O. Box 7886
Helena, MT 59604
EMail: rmcgee@bresnan.net
PO #:

Project Manager: Ryan D. McGee
Phone: 406-461-4037
Fax: 406-449-0382

PROJECT DESCRIPTION	PROJECT CODE	ASBESTOS: PLM Bulk	PLM Point Count	PLM Gravimetric	PCM Air	TEM Bulk*	TEM Air*	LEAD PAINT: Lead Paint*	Lead Wipe*	Lead Soil*	Lead Air*	Other Analysis
Knife River former McElroy + Wilken site	110803-MWS	X										
Scale Office	~~110803~~ - TCLP-01							X				
Mixing Plant	TCLP-02							X				
Tire Shop	TCLP-03							X				
Main Shop	TCLP-04							X				
Welding Shop	TCLP-05							X				

TURN-AROUND TIME
* Lead and TEM results require 2 Day TAT or longer

- [x] 5 DAYS - TCLP
- [ ] 3 DAYS
- [x] 2 DAYS - Asbestos
- [ ] 1 DAY *
- [ ] SAME DAY*

CLIENT ID# 23625

Samples will be disposed of 30 days after analysis, unless otherwise requested.

- [x] Accept Samples
- [ ] Reject Samples

REMARKS: * Positive Stop-Asbestos / Analyze all TCLP samples 01 through 05

Relinquished By:	Date / Time:	Received By:	Date / Time:
Ryan D. McGee	8-8-11 4:30 pm	Fed Ex Carrier	8-8-11 4:30 pm
		Kristy Truitt	AUG 09 2011 9:40am

CEI FORM #200-1 VERSION 2006-1

A11-5898

CAROLINA ENVIRONMENTAL, INC.

ASBESTOS BULK INSPECTION

Client: AMEC	Date: 8-8-11
Project: Knife River former McElroy + Wilkin Site	Collector: R. McGee MTA 1705
Address: whitefish Stage	Project #: 110803MUS
City, State: Kalispell, MT	

Scale office

FIELD ID	SAMPLE LOCATION	SAMPLE DESCRIPTION	COND	AMOUNT	NOTES
F1.1A	North Wall	Marble Pattern w/ Diamond VSF			Storage Area
B	West Middle	↓			↓
C	East Wall	↓			↓
F1.2A,B,C	Restroom	Cream ~~Octagon~~ Octagon Pattern VSF			Restroom
F4.1A,B,C	↓	Floor Lever under VSF			↓
F2.1A	Entry from Scale House	12"x12" ~~Gray~~ Beige VFT w/ Gray Specs			~~Scale Office~~ Front Entrance & Office
B	Front Entry west Wall	↓			↓
C	↓ East Wall	↓			↓
F2.2A	NE Corner	12"x12" white w/ Gray Specs			Scale Office
B	SE Corner	↓			↓
C	West Middle	↓			↓
S1.1A	SW Corner – Scale Office	Heavy Troweled-on Texture			Scale Office
B	Middle ↓	↓			↓
C	NE Corner ↓	↓			↓
S1.2A	SW Corner – Office	Light Brush Pattern Texture			Office
B	Middle ↓	↓			↓

FT= Floor Tile CT= Ceiling Tile WLBRD = Wallboard JC= Joint Compound CLSPRY = Ceiling Spray On

7 HA's – 20 samples

2 HA's – 6 mastics

A11-5898

CAROLINA ENVIRONMENTAL, INC.

ASBESTOS BULK INSPECTION

Client:	Date:
Project: Same	Collector: Same
Address:	Project #:
City, State:	

FIELD ID	SAMPLE LOCATION	SAMPLE DESCRIPTION	COND	AMOUNT	NOTES
S1.2C	NE Corner - Office	Light Brush Pattern - Texture			Office
M1.1A	S. Entry Door	Sheetrock, Joint, + Tape			Throughout
B	East Wall Office	↓			
C	S. Wall Office				
R1.1A	Middle	Flat Built up Roof			
B	East Peak Middle				
C	NW Corner				
M17.1A	Scale House - Counter	Formica Adhesive			
F4.2A	Scale Office	Floor Leveler			
M14.1A	Interior Office Storage Area	Concrete			
M14.2A	Exterior Scale Area	Concrete			
B	Exterior Shop Area-Apron	Concrete			
Mixing Plant T11.1A	Interior Boiler Door	Boiler Gasket Material			Mixing / Batch Plant
M17.1A	Interior Office	Formica Adhesive			↓
M14.3A	~~Exterior~~ Interior Mixer Area	Concrete			
M14.7A	Exterior Wash Area	↓			

FT= Floor Tile CT= Ceiling Tile WLBRD = Wallboard JC= Joint Compound CLSPRY = Ceiling Spray On 11 HA's - 16 Samples

A11-5898

CAROLINA ENVIRONMENTAL, INC.

ASBESTOS BULK INSPECTION

Client:	Date:
Project: Same	Collector: Same
Address:	Project #:
City, State:	

	FIELD ID	SAMPLE LOCATION	SAMPLE DESCRIPTION	COND	AMOUNT	NOTES
Main Shop	R4.1A	Addition - North	Roof Tar Patch/Silver Paint			Main Shop
	B	- Middle				
	C	- South				
	M14.4A	Shop Floor	Concrete			
Tire Shop	M20.1A	SE Corner	Moisture Barrier Underlayment			Tire Shop
	B	South Middle				
	C	NE Corner				
	M6.1A	SE Corner	Window Glazing			
	B	S. Middle				
	C	SW Corner				
	M17.1A	Interior Counter Top	Formica Adhesive			
welding Shop	~~M5.~~ M14.5A	Exterior Drive Way	Concrete			
	M14.6A	Interior Concrete				Welding Shop
	M6.1A	NW Window	Window Glazing			
	B	NE Window				
	C	SE Window				

FT= Floor Tile CT= Ceiling Tile WLBRD = Wallboard JC= Joint Compound CLSPRY = Ceiling Spray On 8 HA's - 16 samples

APPENDIX B

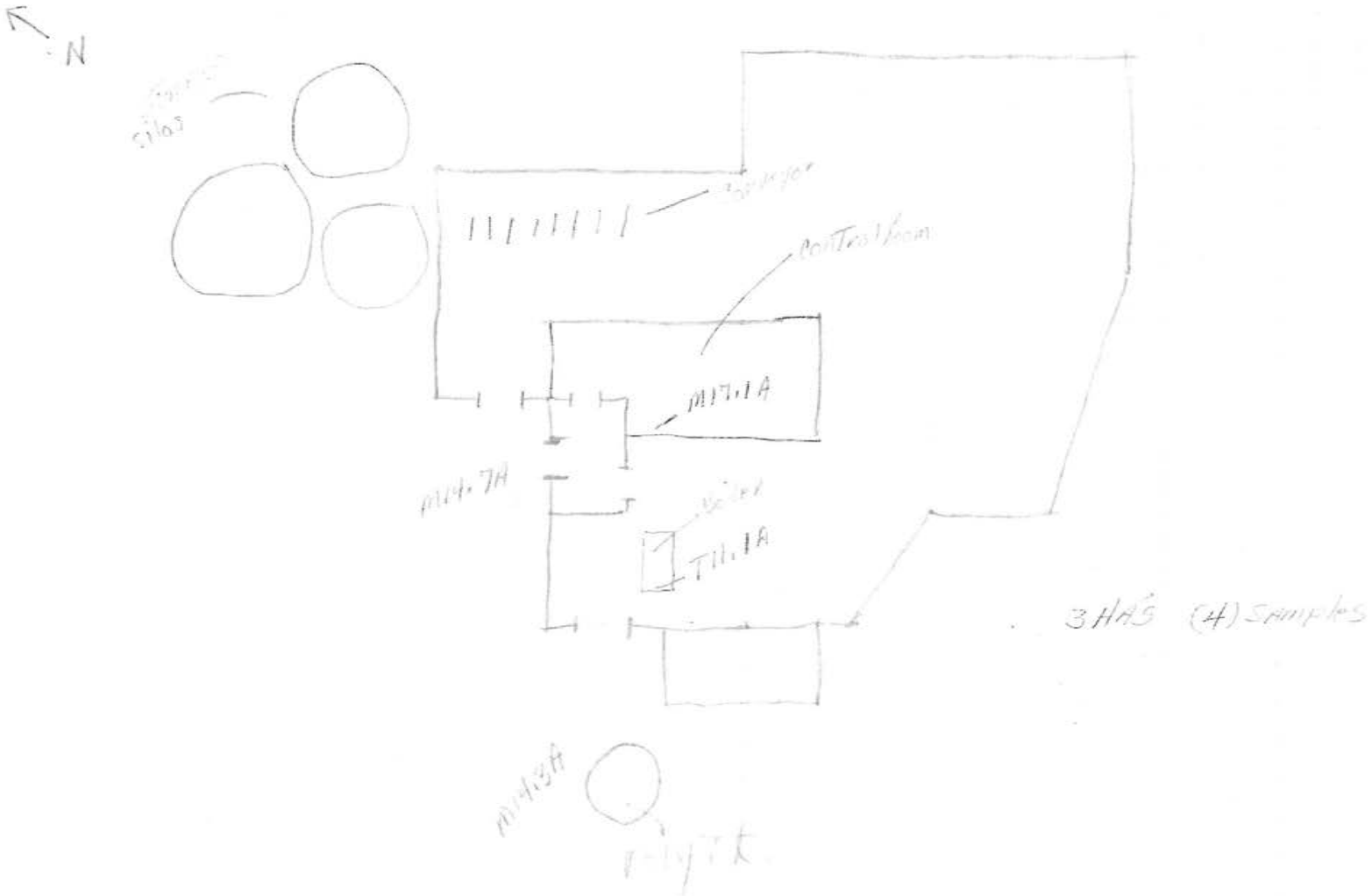
SITE SKETCH OF SAMPLE LOCATIONS

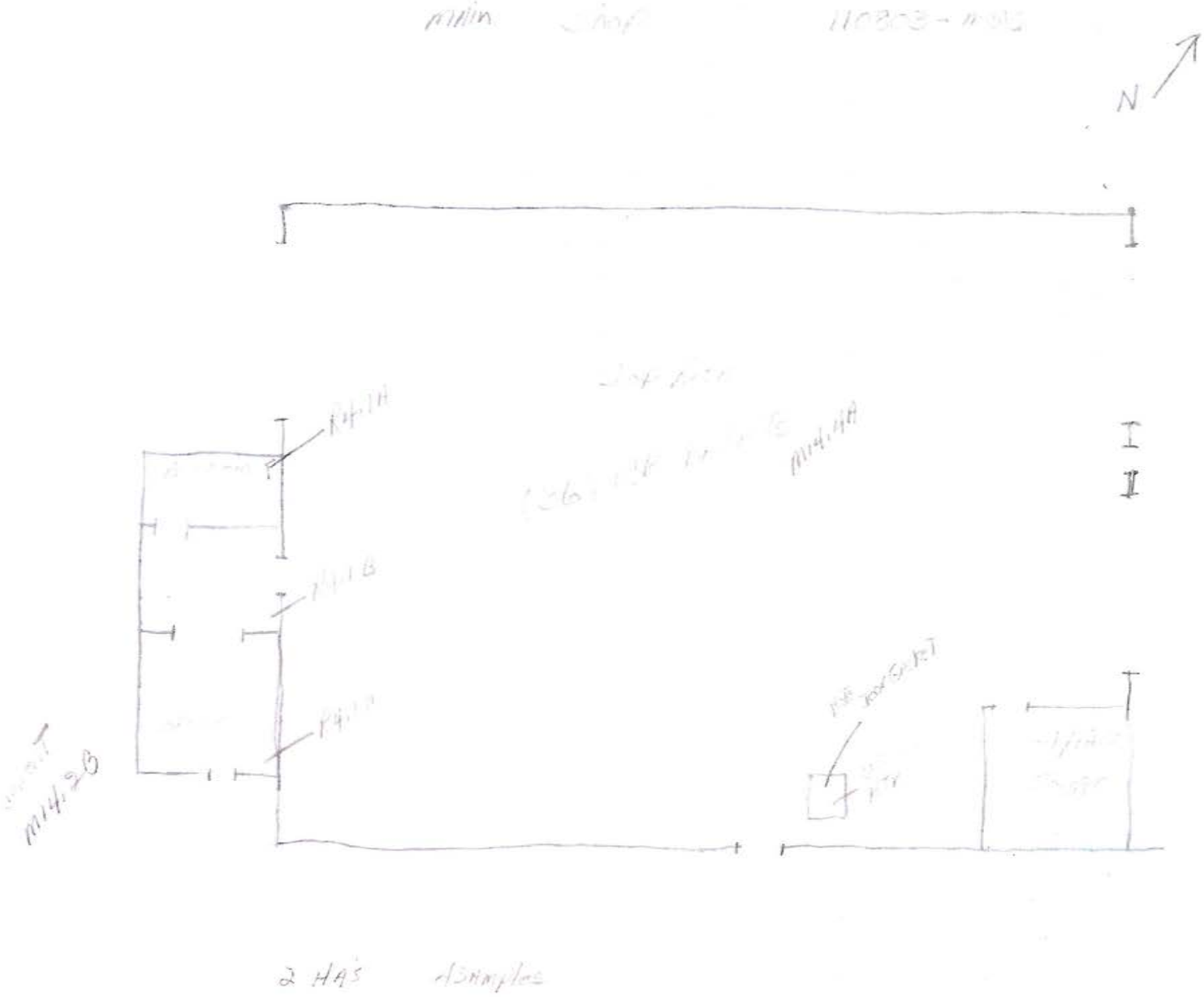
Scale

110803-MWS

Roof Samples - Fletcher Terrace
R1.1A Middle
R1.1B East Peak Middle
R1.1C N.W. Corner

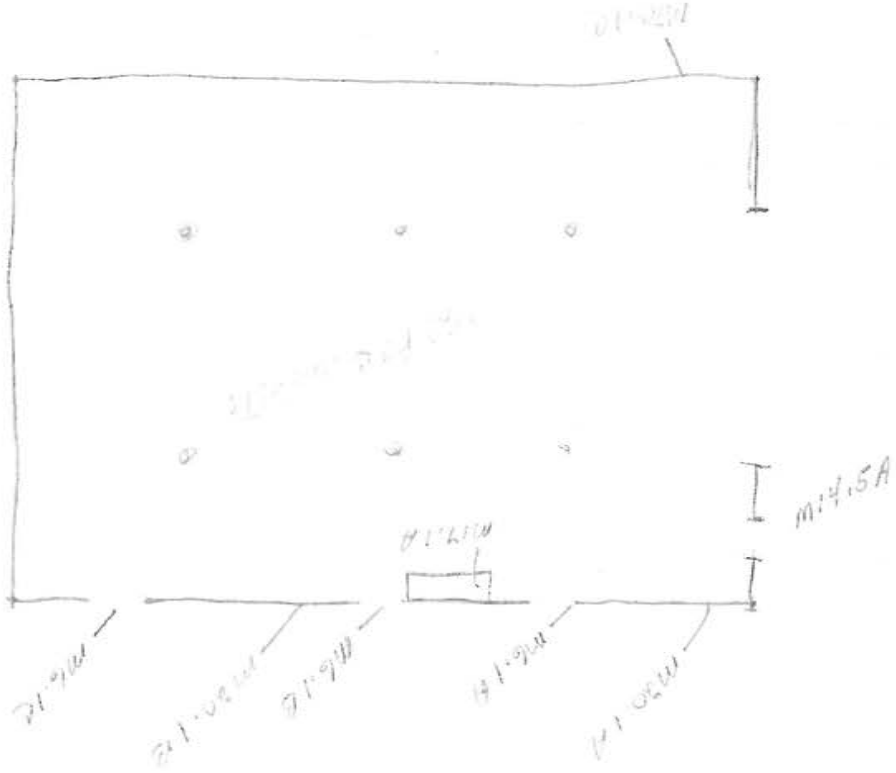
Inspection Mixing Plant 110803 MWS




N
M14.1A
M14.1B
M14.2B
2 HA's

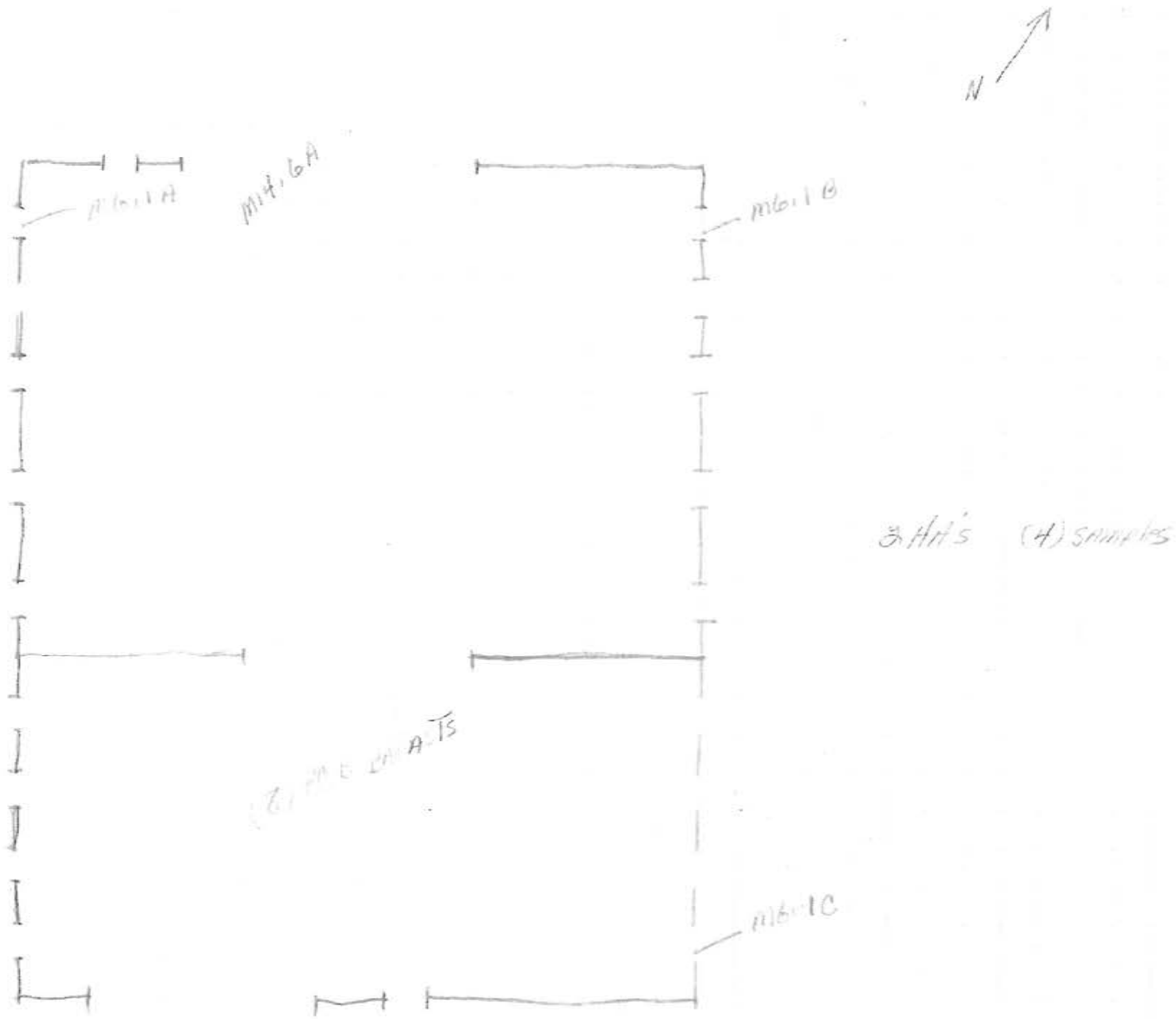
Knife River [illegible] Tire shop [illegible]

N



3 HRS 7 SHIFTS

Knife River Quonset hut welding shop. 110803 - MWS



APPENDIX C

INSPECTION PHOTOGRAPHS

Knife River (former McElroy and Wilken) Site

Photograph of the back of the Scale Office looking west

Photograph of the Tire Shop looking west. ACBM window glazing and lead-based paint.

Photograph of the front entrance of the Scale Office where the ACBM mastic is present.

Photograph of the Tire Shop looking west. ACBM window glazing and lead-based paint. Rough-cut lumber.

Photograph of the Mixing Plant looking south. No ACBM or Lead-Based Paint

Photograph of the Main Shop looking north. ACBM roofing located on the west end of the building.

Knife River (former McElroy and Wilken) Site

Photograph of the Welding Shop (Quonset Hut) looking east. No ACBM or Lead-Based Paint.

APPENDIX D

LEAD - TCLP LABORATORY ANALYTICAL REPORT

CAROLINA
ENVIRONMENTAL, INC.

CLIENT: **A.L.M. Consulting, LLC**
P.O. Box 7886
Helena, MT 59604

CEI Lab Code: C11-278
Received: 08-09-11
Reported: 08-15-11

LEAD TCLP ANALYSIS SUMMARY

Project: Knife River former McElroy & Wilken Site; 110803-MWS

CLIENT ID	CEI LAB ID	Sample Weight (g)	CONCENTRATION PPM (mg/L)
TCLP-01	CA39692	100	<0.50
TCLP-02	CA39693	100	<0.50
TCLP-03	CA39694	90	5.6
TCLP-04	CA39695	100	<0.50
TCLP-05	CA39696	100	<0.50

METHOD: EPA SW846 1311/3010A/7420

REVIEWED BY:

REGULATORY LIMITS	EPA Action Level = >5.0 mg/L

LEGEND	ppm = parts per million	mg = milligrams	L = Liter

All lead analyses are performed by a subcontracted accredited laboratory.

CII-278 (5)
CA 39692. CA 39696

CAROLINA ENVIRONMENTAL, INC.
107 New Edition Court, Cary, NC 27511
Tel: 866-481-1412; Fax: 919-481-1442

CHAIN OF CUSTODY RECORD
ASBESTOS/LEAD ANALYSIS

Client: A.L.M. Consulting, LLC
Address: P.O. Box 7886
Helena, MT. 59604
EMail: rmcgee@bresnan.net
PO # :

Project Manager: Ryan D. McGee
Phone: 406-461-4037
Fax: 406-449-0382

PROJECT DESCRIPTION	PROJECT CODE	ASBESTOS: PLM Bulk	PLM Point Count	PLM Gravimetric	PCM Air	TEM Bulk*	TEM Air*	LEAD PAINT: Lead Paint*	Lead Wipe*	Lead Soil*	Lead Air*	Other Analysis
Knife River former McEfroy + Wilken Site	110803-MWS	X										
Scale Office	~~110803~~ - TCLP-01							X				
Mixing Plant	TCLP-02							X				
Tire Shop	TCLP-03							X				
Main Shop	TCLP-04							X				
Welding Shop	TCLP-05							X				

TURN-AROUND TIME
* Lead and TEM results require 2 Day TAT or longer

- ☒ 5 DAYS ← TCLP
- ☐ 3 DAYS
- ☒ 2 DAYS ← Asbestos
- ☐ 1 DAY *
- ☐ SAME DAY*

CLIENT ID# 23625

REMARKS: * Positive Stop-Asbestos / Analyze all TCLP Samples 01 through 05

☒ Accept Samples
☐ Reject Samples

Samples will be disposed of 30 days after analysis, unless otherwise requested.

Relinquished By:	Date / Time:	Received By:	Date / Time:
Ryan D. McGee	8-8-11 4:30 pm	Fed Ex Carrier	8-8-11 4:30 pm
Relinquished By:	Date / Time:	Received By: Kerry Truett	Date / Time: AUG 09 2011 9:40am

APPENDIX E

INSPECTOR ACCREDITATIONS

Asbestos Consulting and Monitoring

Certificate of Completion

Name RYAN McGee
Address PO Box 7886
City Helena
~~SS#~~ DOB ~~[illegible]~~ 7-11-66

State MT

Cert. No. 10-29-10 I R M

Zip 59604

REFRESHER COURCE FOR ASBESTOS INSPECTOR
REQUIRED TRAINING FOR ASBESTOS ACCREDITION, TSCA TITLE II

COURSE DATE

10-29-10

EXPERATION DATE

10-29-11

INSTRUCTOR

Lyn Lang

LYN LANG

ACM
BOX 324
EAST HELENA, MT 59635
1-406-431-4757

DEPT. OF ENVIROMENTAL QUALITY
ASBESTOS CONTROL PROGRAM
BOX 200901
HELENA, MT 59602-0901

RYAN D MCGEE
has met the requirements of Montana Administrative Rule 17.74.362 and/or 17.74.363 for accreditation in the following asbestos-type occupation(s) as indicated by an expiration date(s).

MTA-1705

CS	MP	PD	IN
10/30/2011		02/12/2012	10/29/2011
WK			

MT DEQ Asbestos Control Program

TERENCE L STONEHOCKER

has met the requirements of Montana Administrative Rule 17.74.362 and/or 17.74.363 for accreditation in the following asbestos-type occupation(s) as indicated by an expiration date(s).

MTA-3938

CS	MP	PD	IN 11/17/2011
WK			

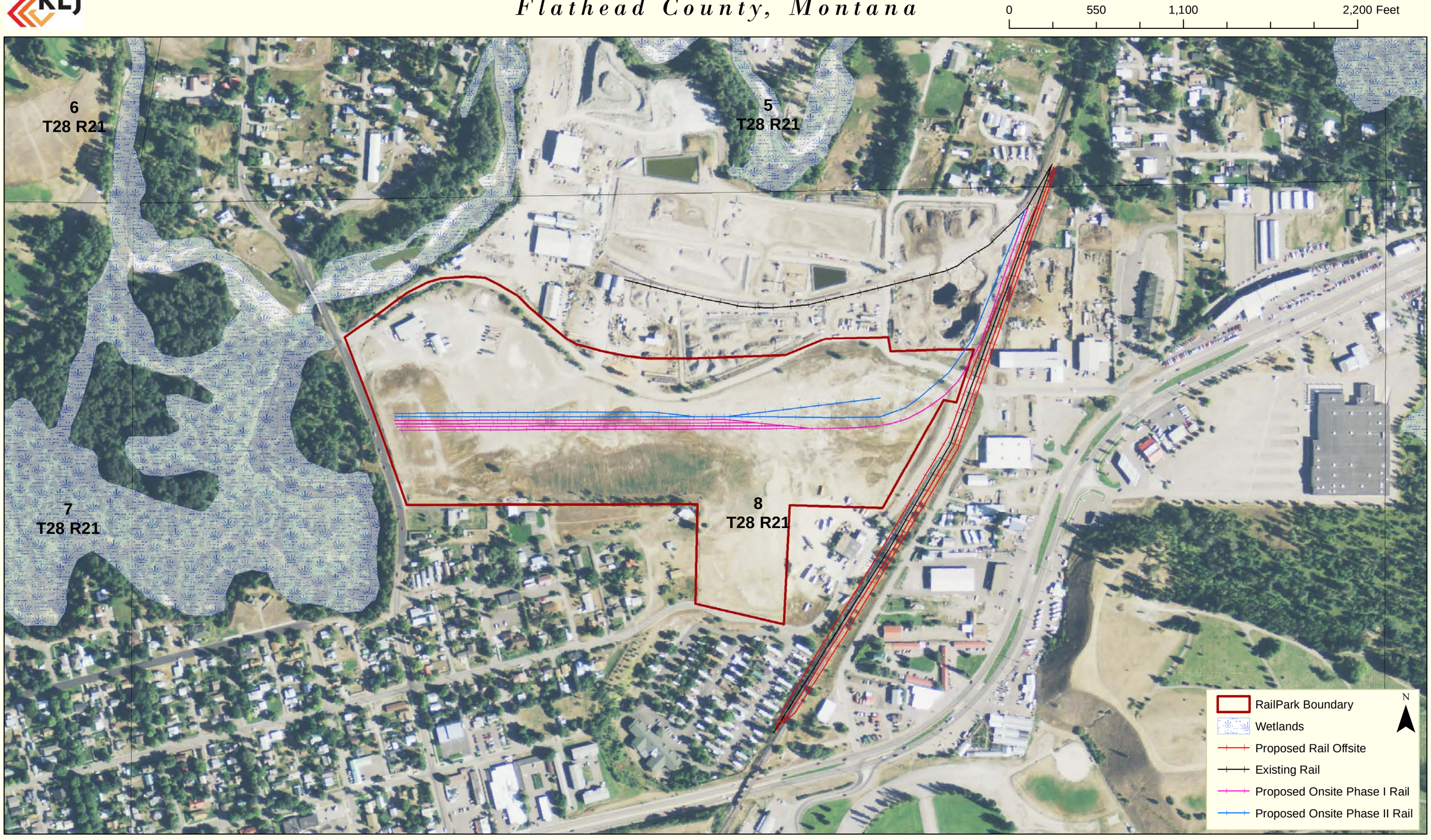
MT DEQ Asbestos Control Program

Attachment 10:

Kalispell Rail Project

Wetland Maps

Kalispell Rail Park
USFWS Wetland Inventory
Flathead County, Montana

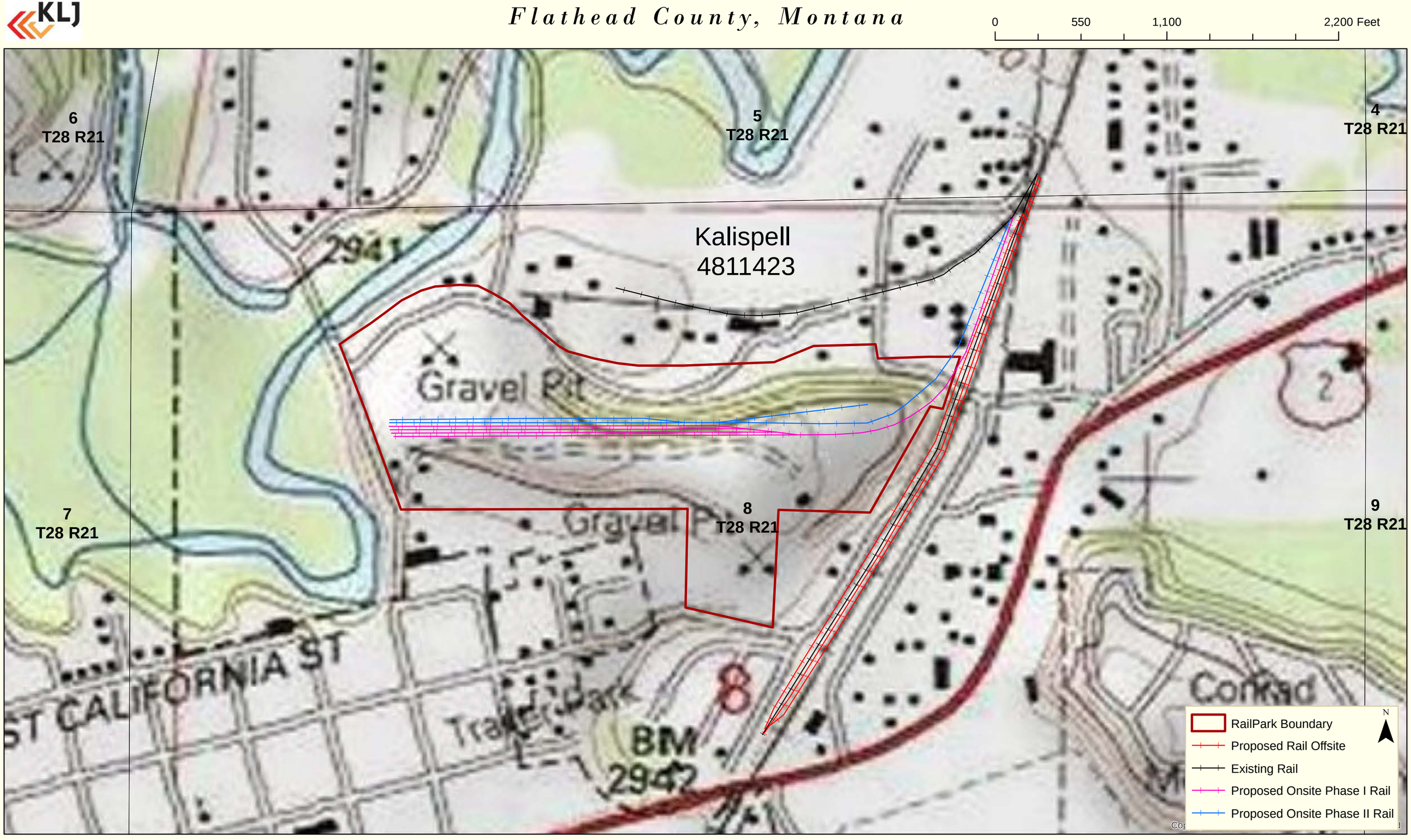


Attachment 11:

Kalispell Rail Project

Watershed Maps

Kalispell Rail Park
USGS Topographic Quadrangle
Flathead County, Montana

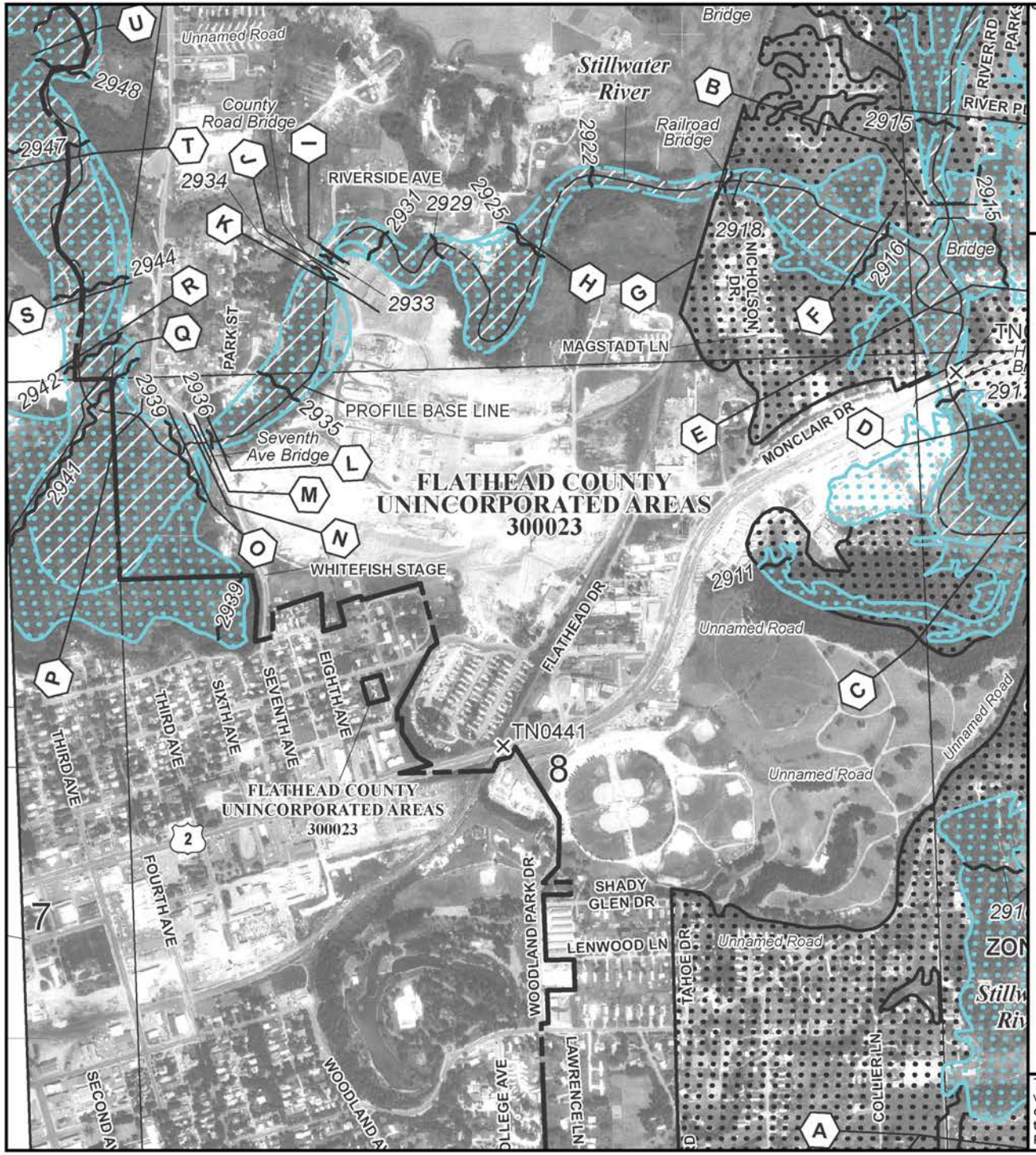


Kalispell Rail Park
Montana Watershed
Flathead County, Montana

Attachment 12:

Kalispell Rail Project

Floodplain Map



MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1810H

FIRM

FLOOD INSURANCE RATE MAP

FLATHEAD COUNTY, MONTANA

AND INCORPORATED AREAS

PANEL 1810 OF 3525

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
FLATHEAD COUNTY	300023	1810	H
KALISPELL, CITY OF	300025	1810	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
30029C1810H

MAP REVISED
JUNE 18, 2013

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Attachment 13:

Kalispell Rail Project

Public Involvement

Kalispell Rail Project

Site Photos

Kalispell/FCEDA Rail Industrial Park
Environmental Assessment
Agency Contact List
May 23, 2013

US EPA
10 West 15th Street, Ste 3200
Montana Office, Federal Bldg.
Helena, MT 59626

MT DNRC
P.O. Box 201601
Helena, MT 59620-1601

Patti Mason
Flathead Conservation Dist.
141 Interstate Lane
Kalispell, MT 59901

Darlene Schottle,
Superintendent of Schools
Kalispell School District 5
233 1st Avenue East
Kalispell, MT 59901

Dave Prunty, Director
Flathead County Public Works
4098 Hwy 93 South
Kalispell, MT 59901

Cindy Mulaney
Flathead County DES
625 Timberwolf Parkway
Kalispell, MT 59901

Joe Russell, Director
Flathead County Health Dept.
1035 1st Avenue West
Kalispell, MT 59901

MT Dept. Fish, Wildlife & Parks
Resource Assessment Unit
P.O. Box 200701
Helena, MT 59620-0701

Montana Env. Quality Council
Todd Everts, Director
P.O. Box 201704
Helena, MT 59620-1704

US Fish & Wildlife Service
Sub-Office Coordinator
2900 4th Ave. North, Room 301
Billings, MT 59101

Susie Turner, Director
Kalispell Public Works Dept.
201 First Avenue East
Kalispell, MT 59901

Mark Deleray, Biologist
MT Dept. Fish, Wildlife & Parks
490 Meridian Road
Kalispell, MT 59901

Tom Jentz, Director
Kalispell Planning Dept.
201 First Avenue East
Kalispell. MT 59901

Jed Fisher
Flathead County Parks Dept.
1257 Willow Glen Drive
Kalispell, MT 59901

MT DEQ
Tom Ellerhoff
P.O. Box 200901
Helena, MT 59620-0901

MT State Historic Preservation
Mark Baumler, Pres. Officer
P.O. Box 201202
Helena, MT 59620-1202

Bob Vosen
District Construction Eng.
MDT
P.O. Box 7308
Kalispell, MT 59904-0308

BJ Grieve, Director
Flathead County Planning Dept.
1035 1st Avenue West
Kalispell, MT 59901

Tim Bodurtha
US Fish and Wildlife Service
Creston Fish Hatchery
780 Creston Fish Hatchery Road
Kalispell, MT 59901

Dave Dedman, Chief
Kalispell Fire Department
201 First Avenue East
Kalispell, MT 59901

Mike Baker, Director
Kalispell parks Dept.
201 First Avenue East,
Kalispell, MT 59901

file

Planning Department
201 1st Avenue East
Kalispell, MT 59901
Phone: (406) 758-7940
Fax: (406) 758-7739
www.kalispell.com/planning

May 23, 2013

Mike Baker, Director
Kalispell Parks & Recreation Dept.
201 1st Avenue East
Kalispell, MT 59901

Dear Mr. Baker:

RE: Tiger Grant Application – Environmental Assessment Consultation

The City of Kalispell as lead agency in concert with the Flathead County Economic Development Authority (FCEDA) is submitting a grant proposal under the TIGER Discretionary Grant Program for the fiscal year 2013. This is part of the National Infrastructure Investments Program as administered by the US Department of Transportation.

This project will effectively transform the previously existing Knife River gravel pit and concrete batch plant into a modern rail-industrial park campus. This project is estimated to cost approximately $14.5 million and is planned to be constructed over a 24 – 36 month period. A more in-depth project description, discussion of historical uses, discussion of environmental concerns and project maps are attached.

For the purposes of an environmental review would you please comment on any impacts both positive and negative, associated with this project within your jurisdiction for the area(s) listed below. Also, please list conditions that you feel would mitigate any negative impacts or accentuate any positive impacts. If you are aware of other issues of concern associated with this project, comments are also welcome. In addition, if separate permits or permitting is required please comment accordingly. Please comment on the impacts related to the following:

- Parks & Recreation

Please comment by June 21, 2013 in writing or via email at tjentz@kalispell.com. If we have not heard from you by that date, we will assume that your office does not have any concerns. If you need more information, do not hesitate to contact this office immediately.

Sincerely,

Tom Jentz
Environmental Certifying Officer

Attachments: Project Description
Project area maps

KALISPELL/FCEDA RAIL INDUSTRIAL CAMPUS

DETAILED PROJECT SUMMARY:

The project is a $14.5M investment in rail, road and utility infrastructure to develop the 40 acre Kalispell/FCEDA Rail Park for tenants, leveraging the area's access to the BNSF rail line, resulting in job creation and the more efficient use of both public and private resources. An $8.7M investment of TIGER funds in this existing project will leverage $5.8M in Flathead County Economic Development Authority (FCEDA) funds to develop this recently purchased property. New and relocating businesses from both inside and outside of Montana have expressed an interest in locating in the park to improve efficiencies and cut costs while expanding their rail use. CENEX Grain and Harvest is anticipated to be the first tenant relocating from their downtown Kalispell location.

This Tiger project will include the following categories of work: railroad, roadway, water, sewer, electrical, and gas infrastructure. Following is a more detailed description of the TIGER Project.

Rail work inside the proposed park: Three rail lines will be extended into the proposed rail park all extending from the existing BNSF rail line along the east side of the proposed rail park. The longest rail line would enter on the east side of the park traversing westerly from the existing BNSF line a distance of 2,800 ft. with up to 5 additional parallel sidings for car storage which will add an additional 3,200 ft. of track. Two smaller rail lines will extend from the existing BNSF track on the east side of the park to provide an additional rail siding and to provide for a transload facility adding an additional 3,500 linear feet of track. The total new track in the park is approximately 9,500 linear feet.

Rail work outside the proposed park: Outside of the proposed rail park approximately 6,000 feet of new rail is proposed to be located within the existing BNSF railroad R/W that runs on the east side of the proposed rail park. A new rail line would extend north from the proposed rail park a distance of 2,000 feet and parallel the existing rail line. At the northern end of this run, an existing railroad bridge which extends over the Stillwater River will be reinforced to accommodate the weight of 2 tracks. Additionally, 2 parallel rail lines would be extended south from the proposed rail industrial park along the existing BNSF track a distance of 2,000 feet stopping just short of the existing bridge that traverses over US Highway 2. These two extra parallel lines would allow for additional car storage and provide a train run-around to allow trains to move engines around.

Road work: This task will include permitting, design, bidding and construction for the upgrade of 8,400 feet of roadway within the rail park facility. The planned roadway width is 32 feet with gravel base and asphalt pavement surfacing. Improvements outside of the facility are also proposed including improvement to and installation of a traffic signal light at the intersection of Highway 2 and Montclair Drive to facilitate traffic to and from the site. Approval from the Montana Department of Transportation is required for the intersection and signal work.

Gas and Electric: This task includes installation of electrical and gas service to accommodate each future user of the rail park facility. There is existing electrical and gas infrastructure within close vicinity to the rail park, but it will be required to network throughout the facility.

Sewer services: A lift station will be placed at the intersection of East Oregon Lane and Montclair Drive within existing R/W. Gravity mains will be installed through the center of the rail park facility and along East Oregon Lane and drain to the lift station. The lift station will pump along East Oregon Lane to its connection with the City of Kalispell's existing sewer main. Approximately 3,900 feet of sewer main will be installed.

Water services: Water infrastructure will connect to the existing City of Kalispell water main located south of the rail park. It will travel within existing R/W along East Oregon Lane to its intersection with Montclair Drive, west through the middle of the rail park facility to its intersection with Whitefish Stage Road, and south along Whitefish Stage Road to a point where it will connect back into City of Kalispell water system infrastructure. This will provide a looped system to maximize fire flows. 6,300 feet of water main is planned for installation. In addition, 13 hydrants will be placed on site.

Land Acquisition: There is no land acquisition proposed in this project.

LOCATION AND EXISTING LAND USES:

The site is located in an area of mixed commercial, residential and heavy industrial land uses. Whitefish Stage Road, a minor arterial, marks the western boundary of the proposed rail park. A small stretch of the Stillwater River flows near the northwestern boundary for a distance of 500 feet. Significant industrial uses (Glacier Stone and Klingler Lumber) as well as a BNSF siding form the northern boundary of the proposed rail park. The BNSF Railroad and Flathead Drive, a local county road, form the eastern boundary. Oregon Street forms a portion of the southern boundary. The site is located just outside of the city limits of Kalispell however, FCEDA, as the property owner, has signed a waiver of right to protest annexation and the FCEDA board has agreed to request annexation to the City of Kalispell. The legal description of the site is parcels 1-7 of Certificate of Survey No. 18380 in Section 8, Township 28N, Range 21W, P.M.M., Flathead County, Montana.

The land surface has been dramatically altered by past gravel mining operations over the past 80 years. The site underwent significant restoration work in 2012 as part of the required closing and decommissioning work overseen by the Montana Department of Environmental Quality with the official end of the existing gravel operations at the site. The site currently exists as a flat plain with a hillside rising approximately 40 feet along the south face marking the transition of the end of gravel extraction. No permanent water features are on the site. Unconfined ground water is present at depths of 20 feet below ground surface. Land cover consists of large expanses of exposed gravel and soil which has been seeded to grasses. A BNSF rail line parallels the east side of the site and a spur line extends from east to west on land immediately north of the proposed rail park.

HISTORICAL USES:

First American Title Company has provided a history of the owners and uses of the property involved in this assessment. The property (Tracts 1-7 of COS 18380) was quit claimed to a David McGinnis in 1891 shortly after the patent was recorded. He owned the property until his death, when it was distributed as part of his estate in 1954. During that time frame, there was a recorded lease referring to the "McGinnis Gravel Pit" in 1930. There was also easements recorded in 1915 referencing a mill pond and dam bridge, although it is not clear if the pond and bridge were on this property or an adjacent parcel, and there is no indication of these structures on site today. Subsequent to 1954, there are various documents indicating the continued use of the property as a gravel pit, including an agreement with the state in 1966 for removal of gravel and other material, a transfer of ownership to McElroy and Wilken (a gravel/construction company) in 1983, and that company's merger with JTL construction in 2003.

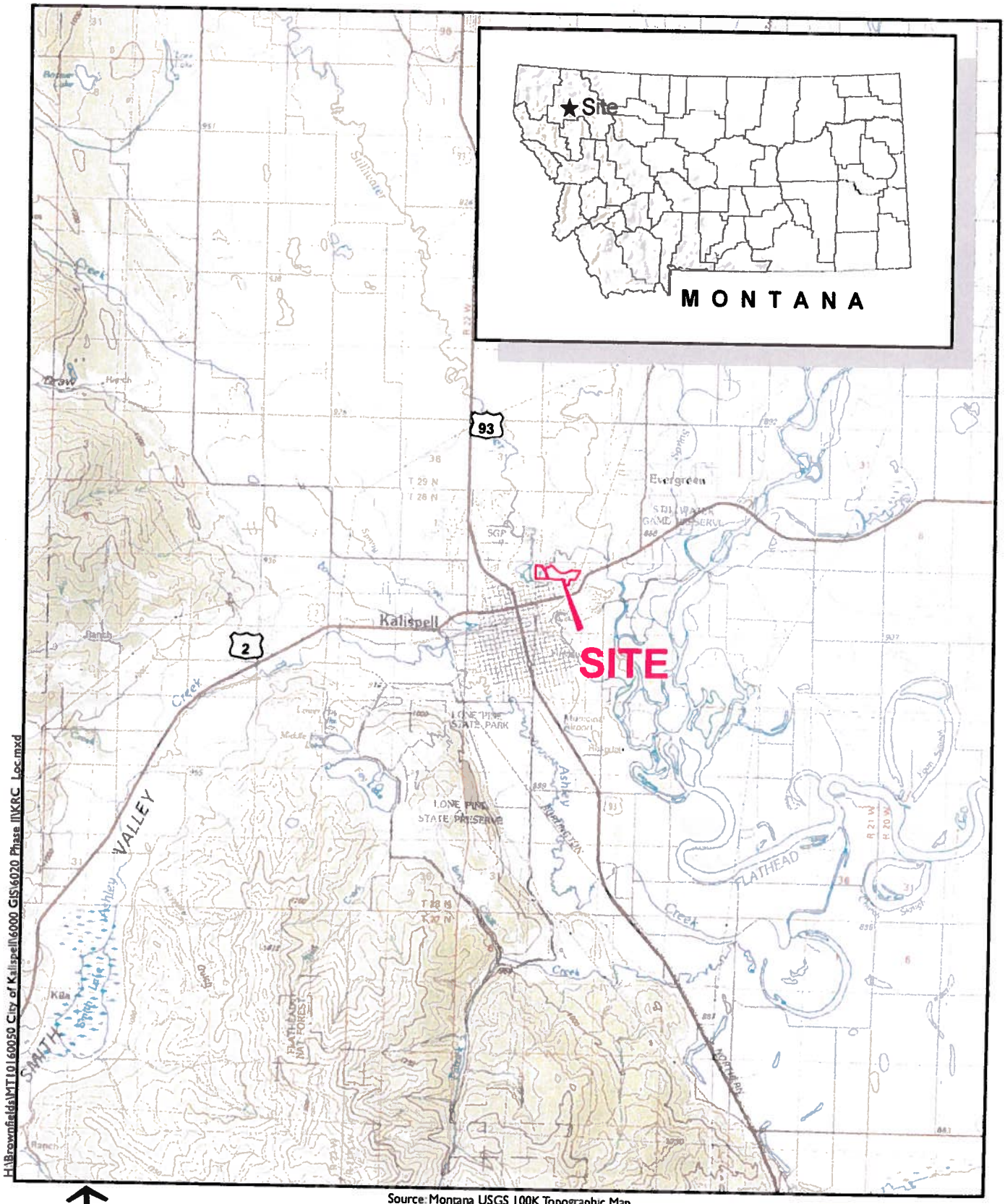
ENVIRONMENTAL CONCERNS:

The site abuts the KRY State CECRA (Superfund) Facility in Kalispell. This site is being remediated pursuant to a judicial abatement order under the authority of the CERCA Program. The Montana DEQ issued a Record of Decision (ROD) for the KRY facility in June 2008 (DEQ 2008) which included remedial actions to be undertaken. In October 2009 the DEQ issued a Remedial Action Work Plan (RAWP, DEQ 2009) for the KRY Facility that describes the implementation of the remedy. By October 2010 the DEQ determined that the soil excavation at the KRY site were complete. Contaminated groundwater still exists at the KRY facility and remediation of soil and groundwater is anticipated to continue at the KRY site for several years. Questions or concerns about the remediation process associated with the KRY facility should be directed to Moriah Bucy, of the Montana DEQ.

A Phase I Environmental Site Assessment (ESA) was completed on January 1, 2011 by Knife River, the owner at that time. Subsequent to that a Phase 2 environmental assessment was completed for the site on November 3, 2011. The assessments identified approximately $28,000 worth of restoration activities that needed to be addressed. Identified issues included:

- Petroleum hydrocarbons originating near the onsite truck repair facilities on the west side of the site.
- Sump sediments at the truck repair shop.
- Asbestos and lead based paint associated with on-site buildings remaining of the site after the cessation of gravel processing and extraction.
- Potential ground water contaminates from the adjacent KRY State CECRA (super fund) facility have migrated onto the northeastern corner of the site based on adjacent monitoring well data.

The first three activities were completed prior to FECDA taking ownership in 2012. No cleanup was perused relative to the concerns with the contaminants associated with the adjacent KRY CECRA facility because the remediation of these contaminants on the proposed site are being remediated under the direction of the Montana Department of Environmental Quality (DEQ) in accordance with the Record of Decision for the KRY site.



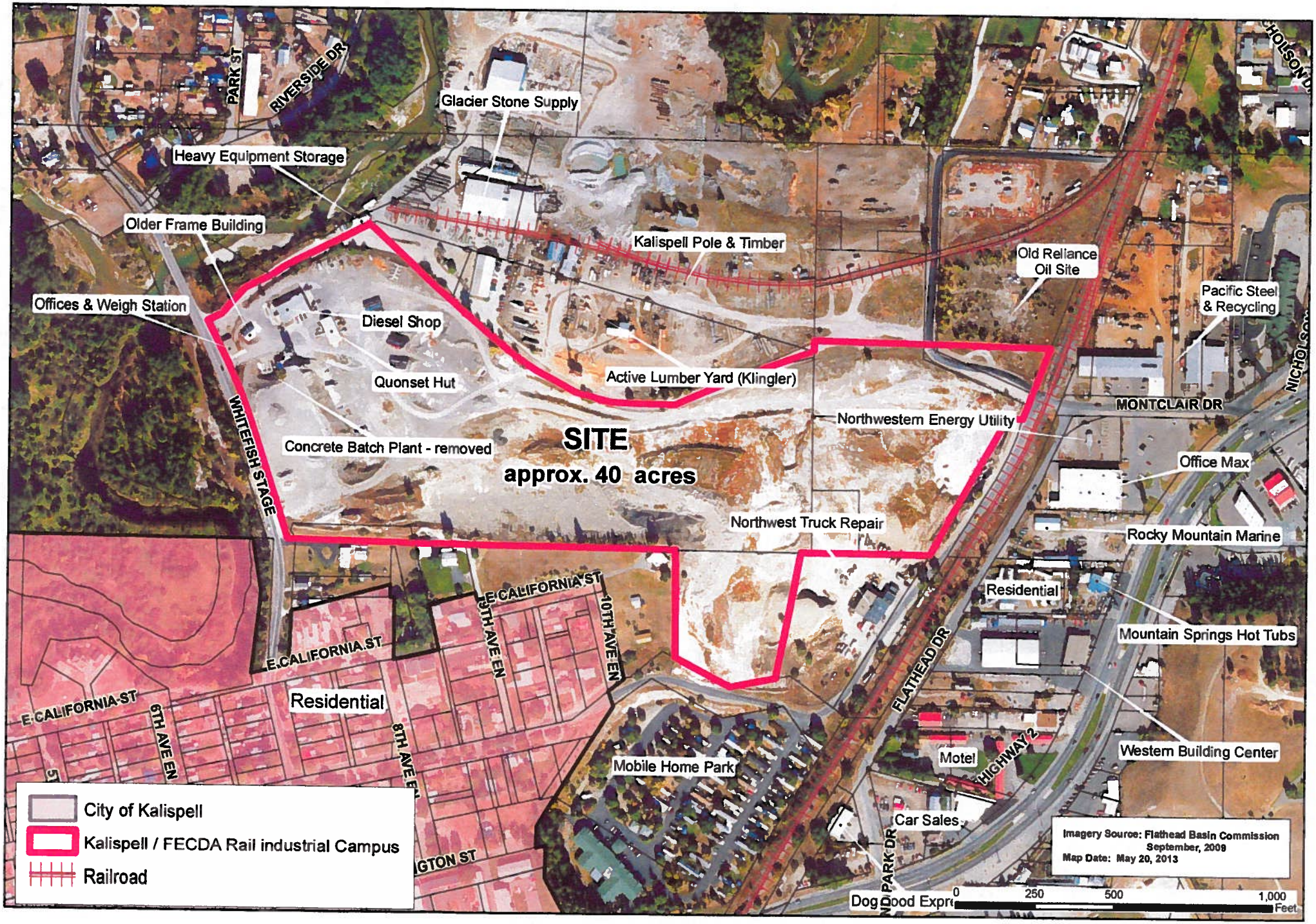
Source: Montana USGS 100K Topographic Map

N

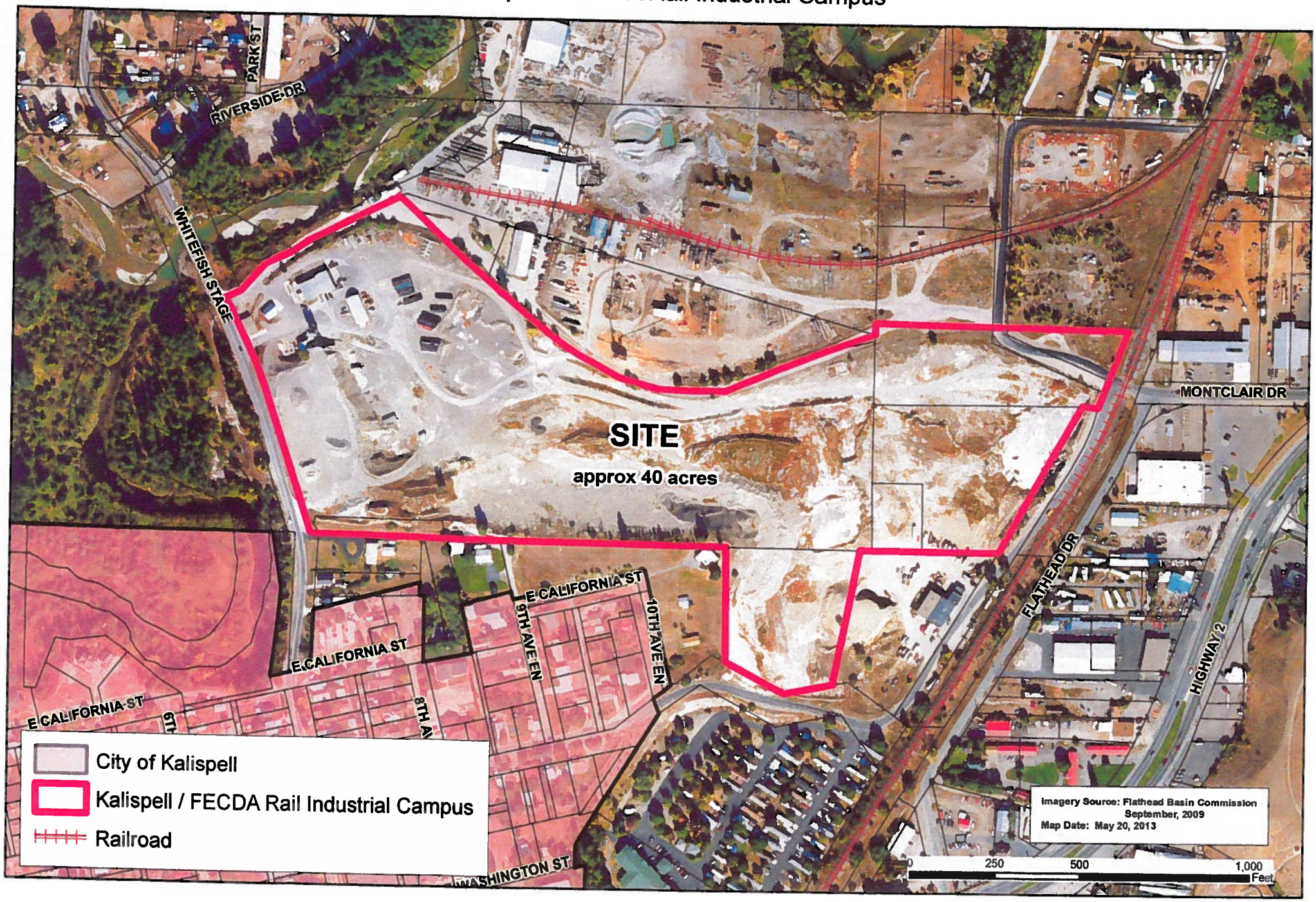
0 Feet 10,000

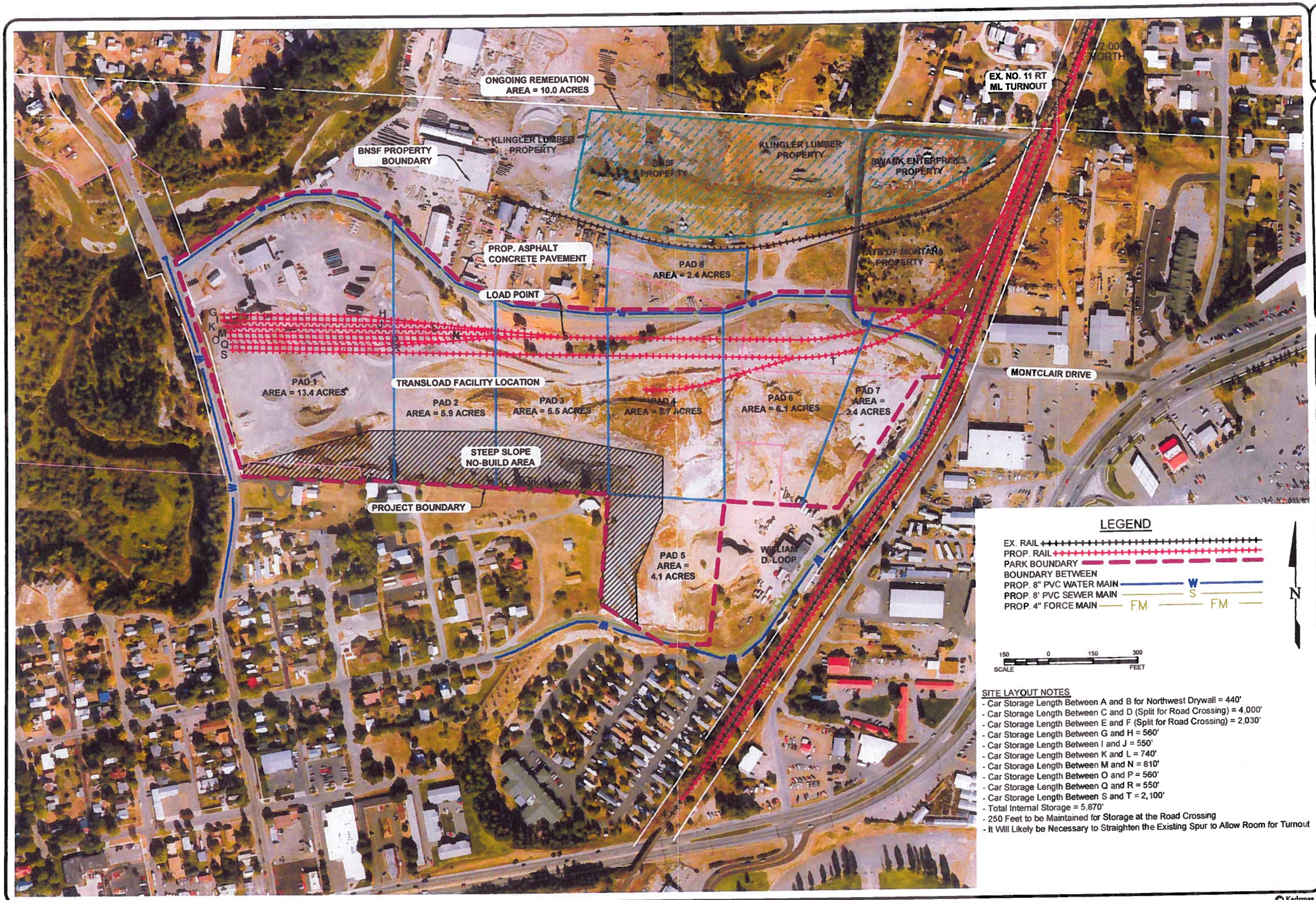
AMEC Geomatrix

TIGER - 5 APPLICATION
Kalispell \ FECDA Rail Industrial Campus - Existing Land Use



TIGER - 5 APPLICATION
Kalispell \ FECDA Rail Industrial Campus





KLJ
www.kljeng.com

NO.	DATE	REVISION

DRAFTED LLT
REVIEWED BJK
PROJECT NUMBER 4612020
ISSUE DATE 5/23/2013

FLATHEAD COUNTY RAIL PARK MARKET ANALYSIS

FLATHEAD COUNTY ECONOMIC DEVELOPMENT AUTHORITY
KALISPELL, MONTANA

PRELIMINARY SITE LAYOUT - OPTION 5

SHEET

© Kadrmas, Lee & Jackson, Inc. 2013

May 23, 2013 - 4:44pm - J:\Private\4612020_Flathead County Rail Park Market Analysis\052313 Rail Layout\052213RailLayout_Opt5.dwg

Tom Jentz

From: Deleray, Mark <MDeleray@mt.gov>
Sent: Tuesday, June 04, 2013 9:09 AM
To: Tom Jentz
Cc: Vore, John; Abbrescia, Martha
Subject: Tiger Grant application-Environmental Assessment Consultation

Dear Mr. Jentz,

Thank you for providing opportunity to comment on potential impacts to Park and Recreation; Threatened and Endangered Species associated with the proposed Tiger Grant Application. The most significant fish and wildlife habitat at the site is the Stillwater River corridor along the west and northwest edge of the property. This riparian area provides important habitat and migration corridor for numerous fish and wildlife species. The Stillwater River and riparian corridor is part of the much larger and interconnected Flathead River basin. Within this basin, fish and wildlife species are able to readily move. Maintaining the integrity of this area is important to preserving those resources. As the project moves forward, any protection or expansion of the riparian buffer along these edges will help protect the habitat from development and activities on the site.

There are no federally listed fish and wildlife species on or near the project area, and no wildlife species of concern that we are aware of. We do not expect direct impacts to threatened or endangered species by the conversion of the site from a gravel pit to a rail yard. If you have questions or require additional information regarding my comments, please contact me.

Sincerely,

Mark Deleray

Mark Deleray
Montana Fish Wildlife and Parks
Fisheries Biologist
490 N. Meridian Rd.
Kalispell, MT 59901
(406) 751-4543
mdeleray@mt.gov

Flathead City-County Health Department
1035 First Ave. West Kalispell, MT 59901
(406) 751-8101 FAX 751-8102
www.flatheadhealth.org

Community Health Services
751-8110 FAX 751-8111
Environmental Health Services
751-8130 FAX 751-8131
Family Planning Services
751-8150 FAX 751-8151
Home Health Services
751-6800 FAX 751-6807
WIC Services
751-8170 FAX 751-8171
Animal Shelter
752-1310 FAX 752-1546

June 18, 2013

Tom Jentz, Environmental Certifying Officer
City of Kalispell, Planning Department
201 First Avenue East
Kalispell, MT 59901

Re: Tiger Grant Application – Knife River Gravel Pit

Dear Tom,

I have reviewed the information provided regarding the Tiger Grant Application for the Knife River site and have the following comments:

- This property is in the Kalispell Air Pollution Control District administered by the Health Department.
- The project as proposed complies with the regulations and removes some ongoing compliance matters on this site.
- This project may remove two emission sources located in higher population density areas in Kalispell and relocate them to this site – an area zoned industrial with lower population densities.

Good luck with the grant application. The Health Department is certainly supportive. Please call me if you have any questions regarding this matter.

Sincerely,

Joseph W. Russell, M.P.H.
Health Officer

Big Sky. Big Land. Big History.
Montana Historical Society

RECEIVED
JUN 03 2013
KALISPELL PLANNING DEPARTMENT

Historic Preservation
Museum
Outreach & Interpretation
Publications
Research Center

May 29, 2013

Tom Jentz
City of Kalispell
Planning Department
201 1st Ave East
Kalispell MT 59901

RE: TIGER GRANT APPLICATION-KNIFE RIVER GRAVEL PIT TO MODERN RAIL-INDUSTRIAL PARK CAMPUS.
SHPO Project #:2013052907

Dear Mr. Jentz:

I have conducted a cultural resource file search for the above-cited project located in Section 8 T28N R21W. According to our records there have been a few previously recorded sites within the designated search locale. In addition to the sites there have been a few previously conducted cultural resource inventories done in the areas. I've attached a list of these sites and reports. If you would like any further information regarding these sites or reports you may contact me at the number listed below.

It is SHPO's position that any structure over fifty years of age is considered historic and is potentially eligible for listing on the National Register of Historic Places. If any structures are to be altered on this property and are over fifty years old we would recommend that they be recorded and a determination of their eligibility be made.

If this project involves a federal agency, it may constitute a federal undertaking subject to compliance with Section 106 of the National Historic Preservation Act. As such it will be important for you to coordinate efforts in the further consideration of impacts to cultural resources through the federal agency for consultation with our office.

If you have any further questions or comments you may contact me at (406) 444-7767 or by e-mail at dmurdo@mt.gov. I have attached an invoice for the file search. Thank you for consulting with us.

Sincerely,

Damon Murdo
Cultural Records Manager
State Historic Preservation Office

File: US/DOT/2013

225 North Roberts Street
P.O. Box 201201
Helena, MT 59620-1201
(406) 444-2694
(406) 444-2696 FAX
montanahistoricalsociety.org

Big Sky. Big Land. Big History.
Montana
Historical Society

STATE HISTORIC PRESERVATION OFFICE

Cultural Resource Information Systems

CRIS Township, Range, Section Report

Report Date: 05/29/2013

Site #	Twp	Rng	Sec	Qs	Site Type1	Site Type 2	Time Period	Owner	NR Status
24FH0219	28 N	21W	8	NE	Historic Energy Development	Historic Trash Dump	Historic Period	State Owned	undetermined
24FH0675	28 N	21W	8	SW	Historic District	Null	Historic More Than One Decade	Private	NR Listed
24FH0709	28 N	21W	8		Historic Residence	Null	Historic More Than One Decade	Private	NR Listed
24FH0715	28 N	21W	8		Historic Residence	Null	Historic More Than One Decade	Private	NR Listed
24FH1225	28 N	21W	8		Historic Cemetery/Grave	Null	1900-1909	Private	NR Listed
24FH0350	28 N	21W	8		Historic Railroad	Null	Historic More Than One Decade	Private	CD
24FH0683	28 N	21W	8		Historic Residence	Null	Historic More Than One Decade	Private	NR Listed

Township: 28 N Range: 21W Section: 8

HARTMANN GLEN D., ET AL.

/ /1985 *A CULTURAL RESOURCES ASSESSMENT OF BPA'S PROPOSED INTERTIE DEVELOPMENT AND USE, LAKE ROOSEVELT, LAKE PEND OREILLE, LAKE KOOCANUSA, DWORSHAK RESERVOIR, AND HUNGRY HORSE RESERVOIR (DRAFT)*

CRABS Document Number: LN 6 5205 Agency Document Number:

Township: 28 N Range: 21W Section: 8

MCKAY KATHRYN L.

/ /2001 *MONTANA MAINSTREETS: A GUIDE TO HISTORIC KALISPELL IN FLATHEAD COUNTY MONTANA*

CRABS Document Number: FH 6 24468 Agency Document Number: MHS PRESS 5

"Healthy environment, healthy people"

Montana Department of
ENVIRONMENTAL QUALITY

Steve Bullock, Governor
Tracy Stone-Manning, Director

P. O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • Website: www.deq.mt.gov

June 20, 2013

RECEIVED
JUN 24 2013
KALISPELL PLANNING DEPARTMENT

Mr. Tom Jentz
City of Kalispell Planning Department
201 1st Avenue East
Kalispell, MT 59901

Dear Mr. Jentz:

Thank you for the opportunity to review the TIGER Discretionary Grant Program proposal outlined in your letter of May 23, 2013. In response, the Montana Department of Environmental Quality offers the following comments.

Nonpoint Source issues:

The proximity to the Stillwater River and regional history of contaminant/pollutant discharges to ground water need to be considered in the context of the rail industrial park best management practices (BMP). In early phases of the transition, construction and storm water BMPs will need to be in place to prevent pollution, particularly sediment, from reaching the Stillwater River. Spill mitigation and consideration of the pathways of infiltration to ground water will need to be considered in the context of fuel storage, fuel transfer, and areas of contaminant/pollutant transfer such as fueling stations. BMPs will need to be in place to ensure ground water contamination does not impact the Stillwater River and that all beneficial uses continue to be supported. Please contact Robert Ray at rray@mt.gov with any further nonpoint source concerns.

Air Resources Management Bureau (ARMB):

The Kalispell area, including the location of the proposed industrial park, is classified as a nonattainment area for course particulate matter or PM_{10} air pollution. PM_{10} nonattainment areas are defined as areas that have violated the National Ambient Air Quality Standards (NAAQS) for PM_{10}. The legal boundary of the Kalispell PM_{10} nonattainment area is defined at http://deq.mt.gov/AirQuality/Planning/AirNonattainment.mcpx.

ARMB regulates industrial sources of air pollution and not the project site itself. Because the proposed industrial park falls within the PM_{10} nonattainment area boundary, any industrial source of air pollution subject to permitting and intending to locate within the proposed industrial park would be required to demonstrate that the proposed source will not cause or contribute to further violations of the PM_{10} NAAQS. Also, a source locating within the industrial park would be subject to more stringent regulatory requirements such as application of the highest

performing PM_{10} emission controls and/or PM_{10} emissions offsets in the area to ensure ongoing compliance with the PM_{10} NAAQS.

If you have questions or would like more specific information related to air quality regulatory requirements in nonattainment areas, please contact Stephen Coe at (406) 782-2689 ext. 209 or scoe@mt.gov. If you have questions specific to air quality permitting, please contact Ed Warner at (406) 444-2467 or ewarner@mt.gov.

Industrial and Energy Minerals Bureau:

Based on the information provided, this project will impact two permitted Opencut Mine Sites: Permit #1878 – Knife River, McElroy and Wilken Inc. Pack Site, and Permit #1909 – Knife River Wilcox Site. After review of our files, it does not appear that there has been a request for bond release for either of these sites, so they are still considered active permits. However, the identified post-mine land use for both sites is commercial/industrial. For additional information, please contact Ed Coleman at (406) 444-4973 or ecoleman@mt.gov.

Water Protection Bureau (WPB):

The proposed project may require a construction storm water permit if the permitting threshold is reached. The enclosed WPB Fact Sheet will allow you to plan permit needs according to your site conditions. If, after reviewing the Fact Sheet, you determine that your project may require further consultation with WPB staff, please call (406) 444-3080.

Sincerely,

Bonnie Lovelace

Bonnie Lovelace
Regulatory Affairs Manager
Director's Office
(406) 444-1760

enclosure

Fact Sheet

Water Quality Permits for Construction Related Activities

Water Protection Bureau
Montana Department of Environmental Quality

MPDES Storm Water Permit: Construction related activities that result in greater than one acre of disturbance and may generate storm water runoff from the construction site during the life of the project must obtain authorization prior to initiation of the construction activity. For purposes of this regulation, construction activities include clearing, grading, excavation, and stockpiling or placement of earthen materials. Routine maintenance activities that disturb less than 5 areas and do not change the original configuration of the site are not subject to this regulation. The owner or operator is required to develop a Storm Water Pollution Prevention Plan (SWPPP). These discharges are covered under a general permit (MTR10000). Coverage under the general permit is effective upon receipt of a completed NOI package (application, storm water pollution prevention plan, and fee).

MPDES Construction Dewatering: Non-storm water discharges of sediment laden water from coffer dams, trenches, pipeline construction, excavation pits, borrow areas, well development or other activities that is discharged to state waters, including irrigation canals, drainage ditches and wetlands, are prohibited unless authorized by the Department. Typically, these activities are authorized under the Department's general permit for construction dewatering (MTG070000). Under most conditions the permittee is required to construct and operate some form of treatment to remove turbidity and sediment to meet state water quality standards. The discharge of ground water that contains petroleum contaminates or other wastes must be authorized and comply with the requirements of the Department's petroleum clean up general permit (MTG790000 or MTX30000) prior to discharge to state surface or ground water. These permits are typically issued within 30 days of receipt of a completed application.

Short-term water quality standard for turbidity (318): Montana water quality standards prohibit the increase in sediment or turbidity above specific amounts in state surface waters. A Section 318 authorization provides a short-term turbidity standard for activities that are conducted in state waters and may cause disturbance of the streambed sediments. A 318 authorization is typically processed in 7 to 21 days but may require longer review for complexity or environmentally sensitive areas.

401 Certification: Section 404 of the federal Clean Water Act is administered by the US Army Corps of Engineers; these permits are for dredge and fill in waters of the US, including wetlands. Please contact the Corps at (406) 441-1375. The Department provides CWA 401 certification of 404 projects and works directly with the Corps on these issues. A joint application form is used.

General Information

Fees: All of the above permits require the applicant to pay a fee prior to Department review of the application. The fee varies depending on the type of permit and complexity of the project. A fee schedule is available upon request at (406) 444-3080, or on the Departments website at:

www.deq.mt.gov

Tom Jentz

From: David Prunty <dprunty@flathead.mt.gov>
Sent: Thursday, May 30, 2013 1:42 PM
To: 'tjentz@kalsipell.com'
Subject: Tiger Grant Application - Rail Park

Hi Tom:

Please accept this email with my comments for the proposed Rail Park based upon your letter dated May 23, 2013.

Previously I met with Bill Buxton, KLJ Engineering, on this project. Bill provided a map very similar to the ones included in your letter. His map showed some internal roads within the Park that will be connecting to County maintained roads on the south, west and east side of the site. The area of most concern that Bill and I discussed is the intersection of Montclair Dr. and Highway 2. Your attached narrative discusses the installation of a light at this intersection. This will be a needed improvement to this intersection. We also discussed the intersection of Montclair and Nicholson Drive in this area. I asked that they look at this intersection since the distance from the intersection of Montclair/Highway 2 intersection is in close proximity. Bill also mentioned there might be a chance of moving this access point to the park to the south and building an access road in the area of the western entrance to the old WalMart. This could be a good option to alleviate the issue of Nicholson Drive so close to the Montclair/Highway 2 intersection.

Another issue of note is on Whitefish Stage. The map from KLJ shows two internal roads accessing Whitefish Stage. The Kalispell City Limit is south of these new roads by a few hundred feet. It is my understanding that the Park will be annexed into the city limits. It would be prudent for Kalispell to take this stretch of Whitefish Stage that will be south of the southern internal road into the city also. Whitefish Stage currently alternates between City and County jurisdiction up to Reserve Drive. While we work extremely well with the City Street Department it is a confusing issue when it comes to maintenance of who is responsible for which stretch of the roadway.

The map shows a small southern protrusion of the site boundary for access to E Oregon and then on the east boundary it comes very close to the road again up to Montclair Drive. It may be beneficial to look at this area just like the Whitefish Stage area such that the City should take maintenance control of this stretch of roadway. We would work with the City Street Department as we do with other roads for maintenance requirements but this stretch should also be looked at for annexation in to the City.

It appears from the KLJ map that the internal roads will all access County roads. There are two on the west side accessing Whitefish Stage, one of the south accessing E Oregon and two on the east side (one accessing E Oregon and one accessing Flathead Drive). The contractor will need to apply for approach permits from the Road Department. The engineer should evaluate these approaches to assure compliance with our specifications. The permit is available on-line under the Road Department on Flathead County's website.

There doesn't appear to be any issues with solid waste removal that I am aware of. The tenants of the park will either have City hauled refuse or contractor hauled so there isn't any concerns from the Solid Waste District. Hazardous waste generated from their operations is governed by the Montana Department of Environmental Quality and the generators of such waste will need to comply with DEQ rules regarding it's transportation and disposal.

Thanks again for the opportunity to comment and I hope you are successful in this project. It appears to be a very important part of the economic growth of our area. Good luck!

Dave Prunty
Public Works Director
Flathead County

Road & Bridge 406-758-5790
Solid Waste 406-758-5912

Kalispell Public Schools

233 1st Ave. East - Kalispell, Montana 59901

Phone: (406)751-3400 **Fax** (406)751-3416

SUPERINTENDENT	ASST. SUPERINTENDENT	HUMAN RESOURCES	SPECIAL PROJECTS
Darlene Schottle Ed.D.	Dan Zorn Ed.D.	Karen Glasser	Chris Bilant
Phone (406)751-3434	Phone (406)751-3434	Phone (406)751-3444	Phone (406)751-3408

May 29, 2013

Mr. Tom Jentz
City of Kalispell Planning Department
201 1st Avenue East
Kalsipell, MT 59901

Re: Tiger Grant Application – Knife River gravel pit project

Dear Mr. Jentz,

Please accept this letter as an indication of Kalispell School District 5's full support for the City of Kalispell and the Flathead County Economic Development Authority's (FCEDA) joint grant application to secure funding for the transformation of the existing Knife River gravel pit and concrete batch plant into a modern rail-industrial park campus.

Thank you for your continued efforts to make Kalispell a better place.

Sincerely,

Darlene Schottle Ed.D.
Superintendent of Schools
233 1st Avenue East
Kalispell, MT 59901
(406)751-3434

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

NORTHWESTERN LAND OFFICE

STEVE BULLOCK, GOVERNOR

STATE OF MONTANA

KALISPELL UNIT
655 Timberwolf Parkway, Suite 2, Kalispell, MT 59901
Phone: (406) 751-2241, Fax: (406) 751-2286

POLSON FIELD OFFICE
PO Box 640, Polson, MT 59860
Phone: (406) 883-3960, Fax: (406) 883-1874

May 17, 2013

Ms. Katharine Thompson, M.P.A.
Community Development Manager
Community Development Department
City of Kalispell
201 First Ave. East
Kalispell, MT 59901

RE: Letter of Support -Kalispell TIGER Grant Application

Dear Ms. Thompson:

The Montana Department of Natural Resources and Conservation (DNRC) whole-heartedly supports the City of Kalispell's TIGER 5 grant application to develop a rail-industrial park on what was previously the Knife River Gravel facility. The DNRC is an adjoining property owner to the site, and we anticipate there will be many benefits to the entire Flathead Valley area's community and economy if redevelopment of the former gravel pit site were to occur. A properly designed and sited rail industrial facility in this location may offer new life to the adjacent properties with applicable input from neighboring owners. It would allow a centrally located piece of property in our community to be put to a new long-term use, create jobs, and potentially allow for the shifting of Kalispell's rail emphasis to a central site which matches rail access with highway access, occurring in a location that is planned for and designed to grow.

We would certainly look forward to working with you as appropriate on this valuable community project. In closing, if you have any questions or need any additional assistance, please do not hesitate to contact me.

Sincerely,

Stephen J. Frye
Area Manager, Northwestern Land Office
Montana Department of Natural Resources and Conservation