COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.

820 Megan Avenue, Unit B
Rifle, Colorado 81650
T 970.285.9985 / F 970.285.2467

August 8, 2013

Mr. Alex Fischer
West Environmental Supervisor
Colorado Oil & Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, Colorado

RE: Form 4 – Sundry Notice - Voloshin-Morton 1-8
Source Release Findings Summary & Remedial Action Plan
Spill Tracking Numbers: 2231691 & 2231799

Dear Mr. Fischer:

Peakview Operating Company LLC (Peakview), has contracted LT Environmental Inc. (LTE) to provide you this summary of findings associated with the release determination at the Voloshin-Morton 1-8 Well Pad (Site) identified on Figure 1. On January 25, 2013, a release of 80 barrels (bbls) of hydrocarbon liquid (oil) was observed on the pad surface by a contractor. Peakview responded immediately to resolve and mitigate the release.

An industrial vacuum truck was dispatched to the site to remove all visible oil from the pad surface, approximately 76 bbls of oil was recovered. Most of the hydrocarbon liquid had migrated to the east north-east edge of the site and ponded in the designed diversion ditch and associated soil containment berm. Upon removal of all visible hydrocarbon liquids, the top approximate three inches soil in immediate contact with the oil was removed and properly disposed of at La Point Storage and Recycling, a licensed disposal facility in Utah. Due to blowing snow, subzero temperatures, and access issues; Peakview could not remove all affected soils during these response activities. Peakview returned to the site to collect soil samples on 2/5/2013. Sample locations are identified on Figure 2 and laboratory analytical results are summarized in Table 1 (produced by Olsson Associates).

Peakview again returned to the site on May 6, 2103, to commence additional soil assessment and excavation activities. The workplan called for assessing soil along the release pathway approximately 60 feet (ft.) in length by 2 ft. wide to an approximate depth of 3 to 6 ft. in depth depending on soil screening and visible signs of hydrocarbon impacted soils. A photoionization detector (PID) was used screen soils for the presence of hydrocarbons. Soil screening samples were collected from six locations. PID concentrations ranged from 230 parts per million (ppm) to 490 ppm, at depths ranging from 1.5 ft. below ground surface (bgs) to 2 ft. bgs respectively. Additional soil samples were collected for laboratory analysis on May 6, 2013.

In an attempt to define the hydrocarbon impacts vertically a “bell hole” was excavated at the south end of the release area. Hydrocarbon impacts to soil were observed in the excavation down to 8 ft. bgs. The observance of hydrocarbons down at 8 ft. bgs was considered inconsistent

with the surface release observed on January 25, 2013. As the excavation was left open for a short period of time, groundwater was observed seeping in to the bottom of the excavation from the sidewalls. After a short period of time hydrocarbon liquids were observed floating on the surface of the observed groundwater in the excavation. Groundwater is estimated to be encountered from approximately 3.5 to 5.5 ft. bgs. Excavation activities were halted when it was determined that further investigation was warranted to determine the potential source and extent of hydrocarbon impacts.

Due to the extents of the hydrocarbon impacts in soil and the observance of free product in groundwater, it became apparent that there was an undetermined source of this separate hydrocarbon release. To locate the source of the release, excavation activities were continued toward the well pad and along the fence line in the adjacent hay field. Peakview immediately contacted the Colorado Oil and Gas Conservation Commission (COGCC). In addition, Peakview notified the affected surface owner, Mr. Oker, within 24 hours of the discovery of the release.

In order to facilitate the removal of the impacted groundwater, an interceptor trench was dug from the initial excavation trench, westward for approximately 28 ft. Washed rock was placed in the bottom of the sloped trench and covered with landscape fabric. A 2 ft. diameter culvert was placed upright at the west end of the trench. The bottom 4 ft. of the culvert was perforated to allow for the infiltration of hydrocarbon affected groundwater. A submersible pump was installed in the bottom of the culvert to remove affected groundwater from the sump to be stored on site in a water tank for subsequent disposal. To date approximately 3800 bbls of hydrocarbon impacted groundwater have been recovered and removed offsite for disposal at Elk Hills Recovery and Recycling.

At the surface owner's request and with the agreement of the COGCC staff, work was initiated by Peakview to remove the first three ft. of hydrocarbon impacted soil in the area along the fence line and replace it with clean top soil. Approximately 135 yards of hydrocarbon impacted soil were removed and transported to La Point Storage and Recycling. The excavated area was then backfilled, the fence was replaced, and the disturbed area was reseeded. Additional soil samples were collected on May 31, 2013. Laboratory analytical results from the above-mentioned field activities are included as Attachment 1 (collected by Olsson Associates).

On June 6, 2013, Peakview returned to the site to conduct additional excavation activities to try and locate the source of the observed subsurface petroleum-hydrocarbon release. A series of potholes and trenches were conducted between the meter house and the separator house. Three potholes were excavated to 10 ft. bgs; while one trench was dug 10 ft. in length to a depth of 7 ft. bgs. On this occasion there were no indications of an obvious source of release. Soil and groundwater samples were not collected during these activities.

On June 18, 2013, Peakview again returned to the site with an excavation subcontractor to assess the integrity of suspect subsurface piping. Three pipelines were located and excavated; an abandoned produced water line, a dry gas fuel line, and a wet-gas gathering line. The produced water line and dry gas line appeared to be in adequate condition with no apparent leaking.

However, the wet-gas gathering line was found to be leaking at two different connections; a hammer union connection and a pipe collar connection that were on piping coming off the discharge side of a liquid colleting drip pot. All three buried lines and the drip pot were inspected and removed. It is believed that the leaking hammer union connection, the pipe collar connection, and a corroded weld on the drip pot blow down line were the sources of the subsurface release observed subsequent to the surface release discovered on January 25, 2013.

Subsurface Assessment Activities:

Under the direction of Peakview, LTE conducted environmental assessment activities at the Site on May 22 and May 23, 2013. LTE advanced 21 soil borings at the Site, converting SB01 through SB05, SB08, SB09, SB13, and SB16 through SB20 to groundwater monitoring wells. Soil and groundwater samples were collected and submitted for laboratory analysis. These activities are detailed in the Form 4 - Sundry Notice (COGCC Document Number 400454177) submitted electronically to the COGCC on July 24, 2013. Additional groundwater monitoring and sampling activities will be conducted to assess groundwater plume stability.

Remedial Action Plan:

At the request of Peakview, LTE plans to return to the Voloshin Morton 1-8 location to oversee onsite excavation activities of previously identified "critical" areas (MW-09, MW-18, interceptor trench, and the wet-gas pipeline route) of known petroleum-hydrocarbon impacted soil. The soil will be characterized by visually inspecting soil samples for observed impacts in addition to using a PID to monitor the soil headspace for the presence of volatile organic vapors. Any petroleum-hydrocarbon impacted soil identified will be removed using heavy equipment for the purpose of segregation and will ultimately be transported offsite for disposal to an approved facility. Successful completion of remediation efforts will be demonstrated through sample collection and laboratory analysis conducted in accordance with COGCC Rule 910. These activities are scheduled to occur in late summer or early fall depending on the cropland harvested by the adjacent land owner, pursuant to the agreed upon property access agreement.

Petroleum-hydrocarbon impacted groundwater is expected to be encountered during these excavation activities. Impacted groundwater encountered will be removed and temporarily stored in a mobile storage tank onsite until it can be transported offsite for disposal at an approved facility. These activities would be described in a subsequent Form 4 - Sundry Notice / Notification of Completion for this remediation project.

Limitations

No investigation is infallible. Some uncertainty will always exist concerning the presence or absence of potential contaminants at a particular property, irrespective of the rigor of the investigation. Accordingly, LTE does not warrant that contaminants, other than those identified in this report, do not exist at the subject property or may not exist there in the future.

LTE believes that it has performed the services summarized in this report in a manner consistent with the level of care and skill ordinarily exercised by members of the environmental profession practicing at the same time and under similar conditions in the area of the project.

Please feel free to contact us at 970-285-9985 with questions or concerns associated with this submittal.

Sincerely,

LT ENVIRONMENTAL, INC.

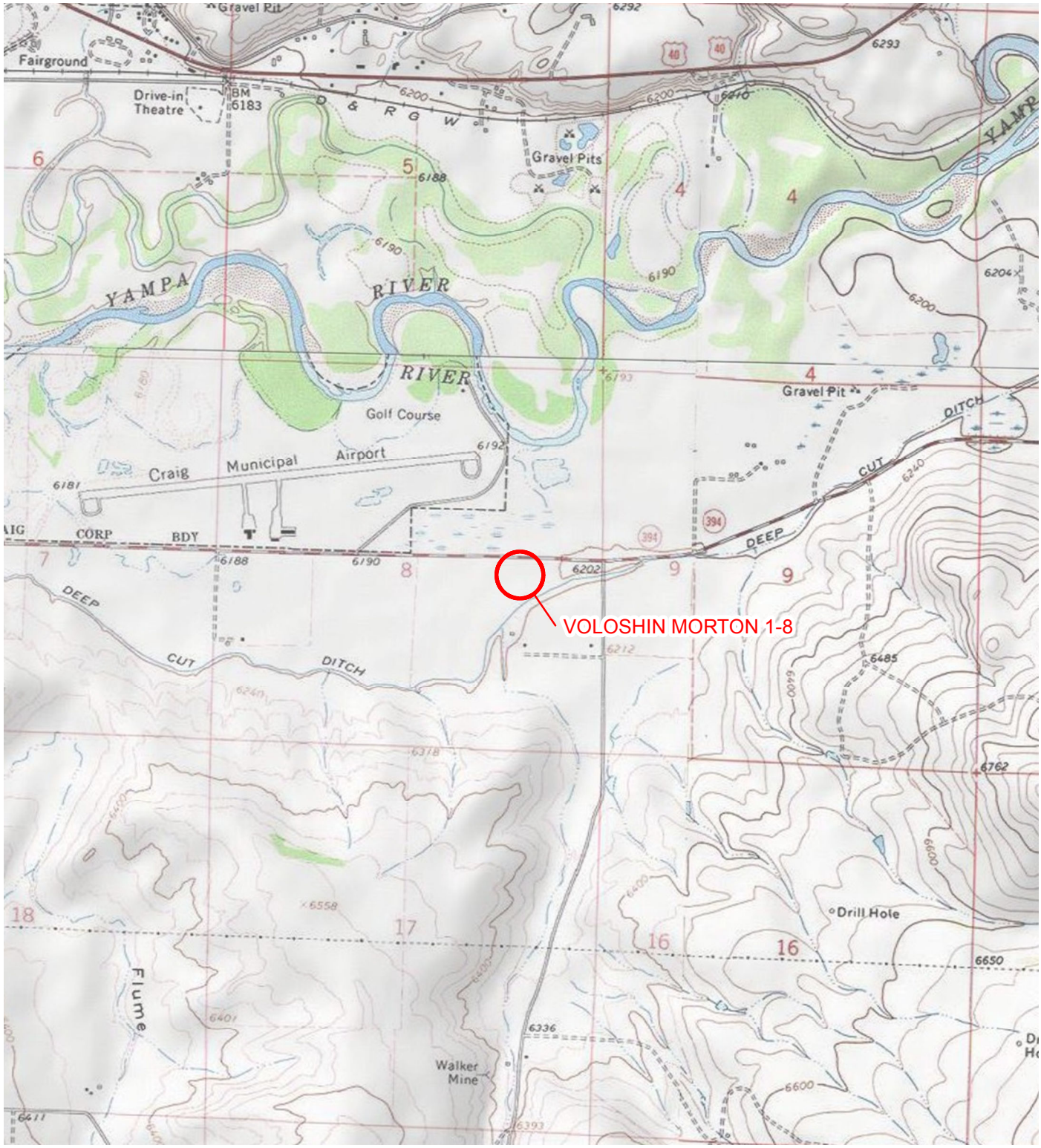
Chris McKisson
Project Environmental Scientist

Rob Fishburn, P.G.
Senior Hydrogeologist

Attachments:

Figure 1- Site Location Map
Figure 2 – Soil Sample Location Map
Table 1 - Soil Analytical Results
Attachment 1 - Laboratory Analytical Report

FIGURES



LEGEND

SITE LOCATION

IMAGE COURTESY OF ESRI/BING MAPS

0 2,000 4,000

Feet

N

FIGURE 1
SITE LOCATION MAP
VOLOSHIN MORTON 1-8
MOFFAT COUNTY, COLORADO

PEAKVIEW OPERATING COMPANY

P:\Peakview\GIS\MXD\VOLOSHIN_MORTON_1-8\VOLOSHIN_MORTON_1-8_FIG01_SL.mxd

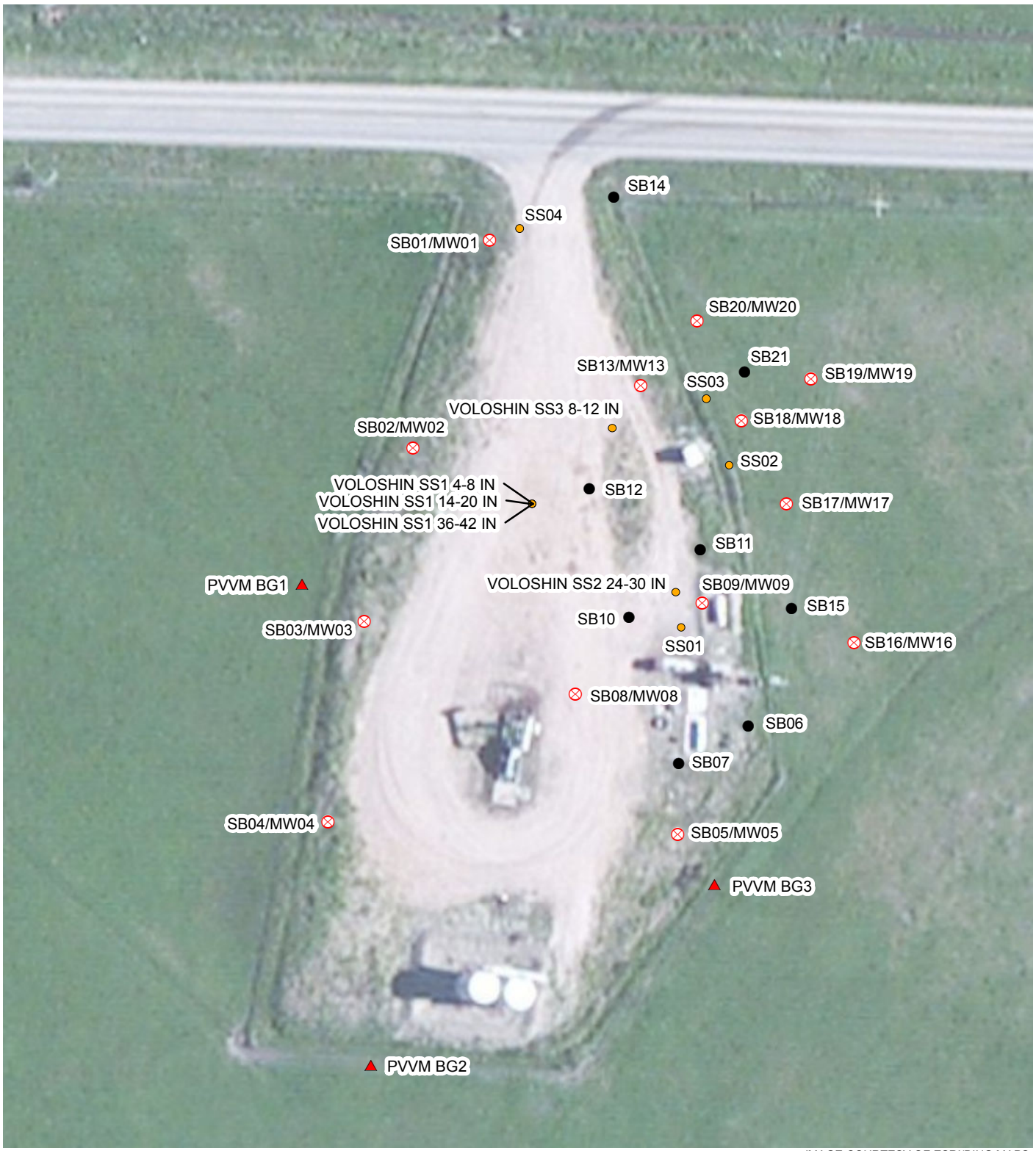


IMAGE COURTESY OF ESRI/BING MAPS

LEGEND

- SOIL SAMPLE
- BACKGROUND SOIL SAMPLE
- SOIL BORING/MONITORING WELL
- SOIL BORING

0 60 120

Feet

N

FIGURE 2
SITE MAP
VOLOSHIN MORTON 1-8
MOFFAT COUNTY, COLORADO

PEAKVIEW OPERATING COMPANY

P:\Peakview\GIS\MXD\047813001_VOLOSHIN_MORTON_1-8\VOLOSHIN_MORTON_1-8_FIG02_SITE.mxd

TABLES

Table 1
Peakview Voloshin Morton Spill Investigation
Soil Sample Summary

SAMPLE SUMMARY	
Location Description	**Voloshin Morton**
Sample Type	**Soil Grab**

LABORATORY DATA SUMMARY														
Sample ID	SS1	SS2	SS3	SS4	VOLOSHIN SS1 (4-8 in.)	V/OLOSHIN SS1 (14-20 in.)	VOLOSHIN SS1 (36-42 in.)	VOLOSHIN SS2 (24-30 in.)	VOLOSHIN SS3 (8-12 in.)	PVVM BG1	PVVM BG2	PVVM BG3	**ALLOWABLE LIMITS**	**UNITS**
Sample Date	2/5/2013	2/5/2013	2/5/2013	2/5/2013	5/31/2013	5/31/2013	5/31/2013	5/31/2013	5/312013	5/6/2013	5/6/2013	5/6/2013		
Latitude N	40.49165	40.49184	40.49192	40.49211	40.49179	40.49179	40.49179	40.49169	40.49188	40.49169	40.49113	40.49135		
Longitude W	-107.50891	-107.50884	-107.50888	-107.50917	-107.50914	-107.50914	-107.50914	-107.50892	-107.50902	-107.50949	-107.50937	-107.50885		
Depth	0-6"	0-6"	0-6"	0-6"	4-8"	14-20"	36-42"	24-30"	8-12"	36-42"	28-32"	36-40"		
Analytical Parameters														
TPH														
TPH-GRO	39.5	372	570	2140	310	389	1230	1090	ND	NT	NT	NT	NA	mg/kg
TPH-DRO	4410	6700	4740	13800	1910	5730	143	448	14.1	NT	NT	NT	NA	mg/kg
Total TPH	4449.5	7072	5310	15940	2220	6119	1373	1538	14.1	NT	NT	NT	500	mg/kg
BTEX														
Benzene	ND	0.759	0.996	2.040	0.223	1.070	3.400	0.143	ND	NT	NT	NT	0.17	mg/kg
Toluene	0.139	6.180	10.100	35.100	2.240	4.640	15.000	0.322	ND	NT	NT	NT	85	mg/kg
Ethylbenzene	0.146	3.860	5.370	19.700	1.150	1.530	5.570	2.630	ND	NT	NT	NT	100	mg/kg
Total Xylene	0.748	23.400	30.300	106.000	7.180	11.200	30.700	14.700	ND	NT	NT	NT	175	mg/kg
Metals														
Arsenic	3.1	7.2	7.1	3.1	8.1	5.3	7.0	5.2	9.1	7.1	7.3	7.2	0.39	mg/kg
Barium	1090	295	127	862	229	138	110	89.6	2000	NT	NT	NT	15,000	mg/kg
Boron	ND	ND	6.9	ND	NT	NT	NT	NT	NT	NT	NT	NT	NA	mg/kg
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	70	mg/kg
Chromium	6.7	14.5	11.4	7.8	12.1	10.5	9.6	7.2	9.6	NT	NT	NT	NA	mg/kg
Copper	8.2	22.4	18.4	9.4	14.6	16	14.3	11.1	9.0	NT	NT	NT	3,100	mg/kg
Lead	6.7	18.0	13.3	9.4	13.4	13.9	12.0	9.8	12.0	NT	NT	NT	400	mg/kg
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	23	mg/kg
Nickel	14.8	15.6	13.8	10.2	15.9	11.7	11.9	9.6	11.0	NT	NT	NT	1,600	mg/kg
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	390	mg/kg
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	390	mg/kg
Zinc	26.4	70.1	58.1	33.7	50.8	56.0	55.7	39.1	31.1	NT	NT	NT	23,000	mg/kg
Polynuclear Aromatic Hyrdrocarbons														
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	y	NT	1,000	mg/kg
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	1,000	mg/kg
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	0.22	mg/kg
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	0.22	mg/kg
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	2.2	mg/kg
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	0.022	mg/kg
Chrysene	0.306	0.309	0.323	0.678	0.0893	0.178	0.0066	0.0343	ND	NT	NT	NT	22	mg/kg
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	0.022	mg/kg
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	1,000	mg/kg
Fluorene	0.532	1.36	1.32	3.3	0.413	0.696	0.0288	0.2	ND	NT	NT	NT	1,000	mg/kg
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	0.22	mg/kg
Napthalene	0.547	3.65	4.24	7.64	0.674	2.71	0.082	0.562	ND	NT	NT	NT	23	mg/kg
Pyrene	0.103	0.121	0.126	0.301	0.0302	0.0632	ND	0.0124	ND	NT	NT	NT	1,000	mg/kg
General Chemistry														
Chromium Hexavalent	ND	ND	ND	ND	ND	ND	ND	ND	ND	NT	NT	NT	23	mg/kg
Chromium Trivalent	6.7	14.5	11.4	7.8	12.1	10.5	9.6	7.2	9.6	NT	NT	NT	120,000	mg/kg
Redox Potential Vs H2	355	370	349	339	133	177	280	142	321	NT	NT	NT	NA	mv
SAR	5.23	0.446	0.537	3.22	10.4	4.22	2.54	10.2	3.08	NT	NT	NT	<12	ratio
Solids, Percent	90.8	68.5	79.7	85	77.9	77.7	78.3	81.8	95	NT	NT	NT	NA	%
Specific Conductivity	2.05	0.342	0.321	0.469	0.766	0.546	0.46	1.25	2.08	NT	NT	NT	<4	mmhos/cm
pH	8.92	7.51	8.95	9.42	9.73	8.59	8.82	7.65	8.86	NT	NT	NT	6-9	su

mg/kg - milligrams per kilogram
BDL - parameter was below the detection limit
umhos/cm - micromhos per centimeter
su - standard units
mv - millivolts
NA - not applicable

Indicates a sample which is over the allowable limits.
Indicates a sample which is over alllowable and background limits.
Indicates a sample which is over allowable limits but within the background limits.

ATTACHMENTS

Mountain States ACCUTEST LABORATORIES

02/18/13

Technical Report for

Olsson Associates

Peakview Voloshin Morton Spill Investigation

Accutest Job Number: D43137

Sampling Date: 02/05/13

Report to:

Olsson Associates

jsutrina@oaconsulting.com

ATTN: Jessica Sutrina

Total number of pages in report: **46**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Accutest Laboratories is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.

Sections: 1 2 3 4 5

Table of Contents

-1-

Section 1: Sample Summary **3**
Section 2: Case Narrative/Conformance Summary **4**
Section 3: Summary of Hits **8**
Section 4: Sample Results **11**
4.1: D43137-1: SS1 12
4.2: D43137-1A: SS1 18
4.3: D43137-2: SS2 20
4.4: D43137-2A: SS2 26
4.5: D43137-3: SS3 28
4.6: D43137-3A: SS3 34
4.7: D43137-4: SS4 36
4.8: D43137-4A: SS4 42
Section 5: Misc. Forms **44**
5.1: Chain of Custody 45

Accutest LabLink@10:56 18-Feb-2013

Sample Summary

Olsson Associates

Job No: D43137

Peakview Voloshin Morton Spill Investigation

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D43137-1	02/05/13	09:40	JS	02/06/13	SO	Soil	SS1
D43137-1A	02/05/13	09:40	JS	02/06/13	SO	Soil	SS1
D43137-2	02/05/13	09:50	JS	02/06/13	SO	Soil	SS2
D43137-2A	02/05/13	09:50	JS	02/06/13	SO	Soil	SS2
D43137-3	02/05/13	10:00	JS	02/06/13	SO	Soil	SS3
D43137-3A	02/05/13	10:00	JS	02/06/13	SO	Soil	SS3
D43137-4	02/05/13	10:10	JS	02/06/13	SO	Soil	SS4
D43137-4A	02/05/13	10:10	JS	02/06/13	SO	Soil	SS4

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Olsson Associates	**Job No**	D43137
Site:	Peakview Voloshin Morton Spill Investigation	**Report Date**	2/18/2013 10:43:59 AM

On 02/06/2013, 4 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.8 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D43137 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix SO **Batch ID:** V5V1555

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43137-1MS, D43137-1MSD were used as the QC samples indicated.

Matrix SO **Batch ID:** V5V1559

- All samples were analyzed within the recommended method holding time.
- Sample(s) D43399-1MS, D43399-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP7351

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43061-1MS, D43061-1MSD were used as the QC samples indicated.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB1060

- All samples were analyzed within the recommended method holding time.
- Sample(s) D43151-1MS, D43151-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43137-2, D43137-4 have surrogates outside control limits. Probable cause due to matrix interference.
- D43137-4 for 1,2,4 Trichlorobenzene: Outside control limits due to possible matrix interference.
- D43137-2 for 1,2,4 Trichlorobenzene: Outside control limits due to possible matrix interference.

Extractables by GC By Method SW846-8015B

Matrix SO **Batch ID:** OP7343

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43189-1MS, D43189-1MSD were used as the QC samples indicated.
- The matrix spike duplicate (MSD) recovery(s) of TPH-DRO (C10-C28) are outside control limits. Probable cause due to matrix interference.
- The RPD(s) for the MS and MSD recoveries of TPH-DRO (C10-C28) are outside control limits for sample OP7343-MSD. High RPD due to possible sample nonhomogeneity.
- Sample(s) OP7343-MSD have surrogates outside control limits. Probable cause due to matrix interference.
- OP7343-MSD for o-Terphenyl: Variability of recovery may be due to sample matrix/homogeneity.

Metals By Method SW846 6010C

Matrix AQ **Batch ID:** MP9400

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43137-1AMS, D43137-1AMSD, D43137-1ASDL were used as the QC samples for the metals analysis.

Matrix SO **Batch ID:** MP9393

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43137-1MS, D43137-1MSD, D43137-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Chromium are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- The matrix spike (MS) recovery(s) of Barium are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
- The RPD(s) for the MS and MSD recoveries of Chromium are outside control limits for sample MP9393-S2. High RPD due to possible sample matrix or nonhomogeneity.
- The serial dilution RPD(s) for Cadmium, Silver, Barium, Nickel are outside control limits for sample MP9393-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP9393-SD1 for Nickel: Serial dilution indicates possible matrix interference.
- MP9393-SD1 for Barium: Serial dilution indicates possible matrix interference.

Matrix SO **Batch ID:** MP9446

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43449-1MS, D43449-1MSD, D43449-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Zinc are outside control limits for sample MP9446-SD1. Probable cause due to sample homogeneity.
- MP9446-SD1 for Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix	SO	Batch ID:	MP9394

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43137-1MS, D43137-1MSD, D43137-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix	SO	Batch ID:	MP9392

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43066-1MS, D43066-1MSD were used as the QC samples for the metals analysis.
- The RPD(s) for the MS and MSD recoveries of Mercury are outside control limits for sample MP9392-S2. High RPD due to possible sample matrix or nonhomogeneity.

Wet Chemistry By Method ASTM D1498-76M

Matrix	SO	Batch ID:	GN18768

- Sample(s) D43137-4DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix	SO	Batch ID:	GN18720

- The data for SM19 2540B M meets quality control requirements.

Wet Chemistry By Method SW846 3060A/7196A

Matrix	SO	Batch ID:	GP9284

- All samples were prepared within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D43137-4DUP, D43137-4MS, D43137-4MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 3060A/7196A M

Matrix	SO	Batch ID:	R15865

- The data for SW846 3060A/7196A M meets quality control requirements.
- D43137-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix	SO	Batch ID:	R15866

- The data for SW846 3060A/7196A M meets quality control requirements.
- D43137-4 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix	SO	Batch ID:	R15867

- The data for SW846 3060A/7196A M meets quality control requirements.
- D43137-3 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix	SO	Batch ID:	R15868

- The data for SW846 3060A/7196A M meets quality control requirements.
- D43137-2 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method USDA HANDBOOK 60

Matrix	SO	Batch ID:	MP9400

- D43137-1A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]
- D43137-2A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]
- D43137-3A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]
- D43137-4A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D43137
Account: Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation
Collected: 02/05/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D43137-1	**SS1**					
Toluene		139	120	59	ug/kg	SW846 8260B
Ethylbenzene		146	120	23	ug/kg	SW846 8260B
Xylene (total)		748	240	120	ug/kg	SW846 8260B
Chrysene		306	37	19	ug/kg	SW846 8270C BY SIM
Fluorene		532	37	22	ug/kg	SW846 8270C BY SIM
Naphthalene		547	51	45	ug/kg	SW846 8270C BY SIM
Pyrene		103	37	19	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		39.5	12	5.9	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		4410	73	44	mg/kg	SW846-8015B
Arsenic		3.1	0.11		mg/kg	SW846 6020A
Barium		1090	1.1		mg/kg	SW846 6010C
Chromium		6.7	1.1		mg/kg	SW846 6010C
Copper		8.2	1.1		mg/kg	SW846 6010C
Lead		6.7	5.5		mg/kg	SW846 6010C
Nickel		14.8	3.3		mg/kg	SW846 6010C
Zinc		26.4	3.1		mg/kg	SW846 6010C
Specific Conductivity		2050	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent [a]		6.7	2.1		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2		355			mv	ASTM D1498-76M
pH		8.92			su	SW846 9045D
D43137-1A	**SS1**					
Calcium		135	2.0		mg/l	SW846 6010C
Magnesium		27.1	1.0		mg/l	SW846 6010C
Sodium		255	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [b]		5.23			ratio	USDA HANDBOOK 60
D43137-2	**SS2**					
Benzene		759	95	48	ug/kg	SW846 8260B
Toluene		6180	190	95	ug/kg	SW846 8260B
Ethylbenzene		3860	190	36	ug/kg	SW846 8260B
Xylene (total)		23400	380	190	ug/kg	SW846 8260B
Chrysene		309	49	25	ug/kg	SW846 8270C BY SIM
Fluorene		1360	49	29	ug/kg	SW846 8270C BY SIM
Naphthalene		3650	68	60	ug/kg	SW846 8270C BY SIM
Pyrene		121	49	25	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		372	19	9.5	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		6700	190	120	mg/kg	SW846-8015B
Arsenic		7.2	0.15		mg/kg	SW846 6020A
Barium		295	1.5		mg/kg	SW846 6010C
Chromium		14.5	1.5		mg/kg	SW846 6010C

Summary of Hits

Job Number: D43137
Account: Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation
Collected: 02/05/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Copper		22.4	1.5		mg/kg	SW846 6010C
Lead		18.0	7.3		mg/kg	SW846 6010C
Nickel		15.6	4.4		mg/kg	SW846 6010C
Zinc		70.1	4.2		mg/kg	SW846 6010C
Specific Conductivity		342	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent [a]		14.5	2.5		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2		370			mv	ASTM D1498-76M
pH		7.51			su	SW846 9045D
D43137-2A	**SS2**					
Calcium		54.6	2.0		mg/l	SW846 6010C
Magnesium		14.8	1.0		mg/l	SW846 6010C
Sodium		14.4	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [b]		0.446			ratio	USDA HANDBOOK 60
D43137-3	**SS3**					
Benzene		996	74	37	ug/kg	SW846 8260B
Toluene		10100	150	74	ug/kg	SW846 8260B
Ethylbenzene		5370	150	28	ug/kg	SW846 8260B
Xylene (total)		30300	300	150	ug/kg	SW846 8260B
Chrysene		323	42	22	ug/kg	SW846 8270C BY SIM
Fluorene		1320	42	25	ug/kg	SW846 8270C BY SIM
Naphthalene		4240	58	52	ug/kg	SW846 8270C BY SIM
Pyrene		126	42	22	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		570	30	15	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		4740	170	100	mg/kg	SW846-8015B
Arsenic		7.1	0.13		mg/kg	SW846 6020A
Barium		127	1.3		mg/kg	SW846 6010C
Boron		6.9	6.3		mg/kg	SW846 6010C
Chromium		11.4	1.3		mg/kg	SW846 6010C
Copper		18.4	1.3		mg/kg	SW846 6010C
Lead		13.3	6.3		mg/kg	SW846 6010C
Nickel		13.8	3.8		mg/kg	SW846 6010C
Zinc		58.1	3.8		mg/kg	SW846 6010C
Specific Conductivity		321	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent [a]		11.4	2.3		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2		349			mv	ASTM D1498-76M
pH		8.95			su	SW846 9045D
D43137-3A	**SS3**					
Calcium		42.1	2.0		mg/l	SW846 6010C
Magnesium		14.3	1.0		mg/l	SW846 6010C

Summary of Hits

Job Number: D43137
Account: Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation
Collected: 02/05/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Sodium		15.8	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [b]		0.537			ratio	USDA HANDBOOK 60
D43137-4	**SS4**					
Benzene		2040	270	130	ug/kg	SW846 8260B
Toluene		35100	540	270	ug/kg	SW846 8260B
Ethylbenzene		19700	540	100	ug/kg	SW846 8260B
Xylene (total)		106000	1100	540	ug/kg	SW846 8260B
Chrysene		678	120	61	ug/kg	SW846 8270C BY SIM
Fluorene		3300	120	70	ug/kg	SW846 8270C BY SIM
Naphthalene		7640	160	150	ug/kg	SW846 8270C BY SIM
Pyrene		301	120	61	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		2140	54	27	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		13800	310	190	mg/kg	SW846-8015B
Arsenic		3.1	0.12		mg/kg	SW846 6020A
Barium		862	1.2		mg/kg	SW846 6010C
Chromium		7.8	1.2		mg/kg	SW846 6010C
Copper		9.4	1.2		mg/kg	SW846 6010C
Lead		9.4	5.9		mg/kg	SW846 6010C
Nickel		10.2	3.5		mg/kg	SW846 6010C
Zinc		33.7	3.3		mg/kg	SW846 6010C
Specific Conductivity		469	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent [a]		7.8	2.2		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2		339			mv	ASTM D1498-76M
pH		9.42			su	SW846 9045D
D43137-4A	**SS4**					
Calcium		26.2	2.0		mg/l	SW846 6010C
Magnesium		11.1	1.0		mg/l	SW846 6010C
Sodium		78.1	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [b]		3.22			ratio	USDA HANDBOOK 60

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)
(b) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	SS1		
Lab Sample ID:	D43137-1	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8260B	**Percent Solids:**	90.8
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V25488.D	1	02/11/13	BD	n/a	n/a	V5V1555
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.07 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	59	30	ug/kg	
108-88-3	Toluene	139	120	59	ug/kg	
100-41-4	Ethylbenzene	146	120	23	ug/kg	
1330-20-7	Xylene (total)	748	240	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	96%		64-130%
460-00-4	4-Bromofluorobenzene	113%		62-131%
17060-07-0	1,2-Dichloroethane-D4	94%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS1		
Lab Sample ID:	D43137-1	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	90.8
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G13308.D	4	02/11/13	DC	02/08/13	OP7351	E3G638
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	37	19	ug/kg	
120-12-7	Anthracene	ND	37	19	ug/kg	
56-55-3	Benzo(a)anthracene	ND	37	19	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	37	19	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	37	19	ug/kg	
50-32-8	Benzo(a)pyrene	ND	37	19	ug/kg	
218-01-9	Chrysene	306	37	19	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	37	19	ug/kg	
206-44-0	Fluoranthene	ND	37	19	ug/kg	
86-73-7	Fluorene	532	37	22	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	37	19	ug/kg	
91-20-3	Naphthalene	547	51	45	ug/kg	
129-00-0	Pyrene	103	37	19	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	70%		10-159%
321-60-8	2-Fluorobiphenyl	62%		19-131%
1718-51-0	Terphenyl-d14	99%		18-150%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS1		
Lab Sample ID:	D43137-1	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8015B	**Percent Solids:**	90.8
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB19401.D	1	02/06/13	BD	n/a	n/a	GGB1060
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	39.5	12	5.9	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	128%		60-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS1		
Lab Sample ID:	D43137-1	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846-8015B SW846 3546	**Percent Solids:**	90.8
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD21760.D	10	02/08/13	AV	02/07/13	OP7343	GFD1093
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	4410	73	44	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	128%		35-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS1		
Lab Sample ID:	D43137-1	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	90.8
Project:	Peakview Voloshin Morton Spill Investigation		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	3.1	0.11	mg/kg	5	02/08/13	02/11/13	JB	SW846 6020A [3]	SW846 3050B [7]
Barium	1090	1.1	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Boron	< 5.5	5.5	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Cadmium	< 1.1	1.1	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Chromium	6.7	1.1	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Copper	8.2	1.1	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Lead	6.7	5.5	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Mercury	< 0.092	0.092	mg/kg	1	02/08/13	02/08/13	JB	SW846 7471B [1]	SW846 7471B [5]
Nickel	14.8	3.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Selenium	< 5.5	5.5	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Silver	< 3.3	3.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Zinc	26.4	3.1	mg/kg	1	02/14/13	02/14/13	JB	SW846 6010C [4]	SW846 3050B [8]

(1) Instrument QC Batch: MA3252
(2) Instrument QC Batch: MA3255
(3) Instrument QC Batch: MA3259
(4) Instrument QC Batch: MA3274
(5) Prep QC Batch: MP9392
(6) Prep QC Batch: MP9393
(7) Prep QC Batch: MP9394
(8) Prep QC Batch: MP9446

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS1		
Lab Sample ID:	D43137-1	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	90.8
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	2050	1.0	umhos/cm	1	02/08/13	JD	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	02/11/13	KB	SW846 3060A/7196A
Chromium, Trivalent [a]	6.7	2.1	mg/kg	1	02/11/13	KB	SW846 3060A/7196A M
Redox Potential Vs H2	355		mv	1	02/08/13	CT	ASTM D1498-76M
Solids, Percent	90.8		%	1	02/06/13	SWT	SM19 2540B M
pH	8.92		su	1	02/06/13 14:55	JD	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS1		
Lab Sample ID:	D43137-1A	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	90.8
Project:	Peakview Voloshin Morton Spill Investigation		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	135	2.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	27.1	1.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	255	2.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3255
(2) Prep QC Batch: MP9400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS1		
Lab Sample ID:	D43137-1A	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	90.8
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	5.23		ratio	1	02/08/13 14:17	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS2		
Lab Sample ID:	D43137-2	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8260B	**Percent Solids:**	68.5
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V25491.D	1	02/11/13	BD	n/a	n/a	V5V1555
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.04 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	759	95	48	ug/kg	
108-88-3	Toluene	6180	190	95	ug/kg	
100-41-4	Ethylbenzene	3860	190	36	ug/kg	
1330-20-7	Xylene (total)	23400	380	190	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	103%		64-130%
460-00-4	4-Bromofluorobenzene	116%		62-131%
17060-07-0	1,2-Dichloroethane-D4	81%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS2		
Lab Sample ID:	D43137-2	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	68.5
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G13309.D	4	02/11/13	DC	02/08/13	OP7351	E3G638
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	49	25	ug/kg	
120-12-7	Anthracene	ND	49	25	ug/kg	
56-55-3	Benzo(a)anthracene	ND	49	25	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	49	25	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	49	25	ug/kg	
50-32-8	Benzo(a)pyrene	ND	49	25	ug/kg	
218-01-9	Chrysene	309	49	25	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	49	25	ug/kg	
206-44-0	Fluoranthene	ND	49	25	ug/kg	
86-73-7	Fluorene	1360	49	29	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	49	25	ug/kg	
91-20-3	Naphthalene	3650	68	60	ug/kg	
129-00-0	Pyrene	121	49	25	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	74%		10-159%
321-60-8	2-Fluorobiphenyl	60%		19-131%
1718-51-0	Terphenyl-d14	96%		18-150%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS2		
Lab Sample ID:	D43137-2	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8015B	**Percent Solids:**	68.5
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB19402.D	1	02/06/13	BD	n/a	n/a	GGB1060
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	372	19	9.5	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	170% [a]		60-140%

(a) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS2		
Lab Sample ID:	D43137-2	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846-8015B SW846 3546	**Percent Solids:**	68.5
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD21762.D	20	02/08/13	AV	02/07/13	OP7343	GFD1093
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	6700	190	120	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	45%		35-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS2		
Lab Sample ID:	D43137-2	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	68.5
Project:	Peakview Voloshin Morton Spill Investigation		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	7.2	0.15	mg/kg	5	02/08/13	02/11/13	JB	SW846 6020A [3]	SW846 3050B [7]
Barium	295	1.5	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Boron	< 7.3	7.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Cadmium	< 1.5	1.5	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Chromium	14.5	1.5	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Copper	22.4	1.5	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Lead	18.0	7.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Mercury	< 0.12	0.12	mg/kg	1	02/08/13	02/08/13	JB	SW846 7471B [1]	SW846 7471B [5]
Nickel	15.6	4.4	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Selenium	< 7.3	7.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Silver	< 4.4	4.4	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Zinc	70.1	4.2	mg/kg	1	02/14/13	02/14/13	JB	SW846 6010C [4]	SW846 3050B [8]

(1) Instrument QC Batch: MA3252
(2) Instrument QC Batch: MA3255
(3) Instrument QC Batch: MA3259
(4) Instrument QC Batch: MA3274
(5) Prep QC Batch: MP9392
(6) Prep QC Batch: MP9393
(7) Prep QC Batch: MP9394
(8) Prep QC Batch: MP9446

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS2		
Lab Sample ID:	D43137-2	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	68.5
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	342	1.0	umhos/cm	1	02/08/13	JD	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	02/11/13	KB	SW846 3060A/7196A
Chromium, Trivalent [a]	14.5	2.5	mg/kg	1	02/11/13	KB	SW846 3060A/7196A M
Redox Potential Vs H2	370		mv	1	02/08/13	CT	ASTM D1498-76M
Solids, Percent	68.5		%	1	02/06/13	SWT	SM19 2540B M
pH	7.51		su	1	02/06/13 14:55	JD	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS2		
Lab Sample ID:	D43137-2A	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	68.5
Project:	Peakview Voloshin Morton Spill Investigation		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	54.6	2.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	14.8	1.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	14.4	2.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3255
(2) Prep QC Batch: MP9400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS2		
Lab Sample ID:	D43137-2A	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	68.5
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	0.446		ratio	1	02/08/13 14:44	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS3		
Lab Sample ID:	D43137-3	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8260B	**Percent Solids:**	79.7
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V25492.D	1	02/11/13	BD	n/a	n/a	V5V1555
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.09 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	996	74	37	ug/kg	
108-88-3	Toluene	10100	150	74	ug/kg	
100-41-4	Ethylbenzene	5370	150	28	ug/kg	
1330-20-7	Xylene (total)	30300	300	150	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	115%		64-130%
460-00-4	4-Bromofluorobenzene	110%		62-131%
17060-07-0	1,2-Dichloroethane-D4	83%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS3		
Lab Sample ID:	D43137-3	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	79.7
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G13310.D	4	02/11/13	DC	02/08/13	OP7351	E3G638
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	42	22	ug/kg	
120-12-7	Anthracene	ND	42	22	ug/kg	
56-55-3	Benzo(a)anthracene	ND	42	22	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	42	22	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	42	22	ug/kg	
50-32-8	Benzo(a)pyrene	ND	42	22	ug/kg	
218-01-9	Chrysene	323	42	22	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	42	22	ug/kg	
206-44-0	Fluoranthene	ND	42	22	ug/kg	
86-73-7	Fluorene	1320	42	25	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	42	22	ug/kg	
91-20-3	Naphthalene	4240	58	52	ug/kg	
129-00-0	Pyrene	126	42	22	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	85%		10-159%
321-60-8	2-Fluorobiphenyl	60%		19-131%
1718-51-0	Terphenyl-d14	98%		18-150%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS3		
Lab Sample ID:	D43137-3	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8015B	**Percent Solids:**	79.7
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB19403.D	1	02/06/13	BD	n/a	n/a	GGB1060
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	50.0 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	570	30	15	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	129%		60-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS3		
Lab Sample ID:	D43137-3	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846-8015B SW846 3546	**Percent Solids:**	79.7
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD21764.D	20	02/08/13	AV	02/07/13	OP7343	GFD1093
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	4740	170	100	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	51%		35-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS3		
Lab Sample ID:	D43137-3	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	79.7
Project:	Peakview Voloshin Morton Spill Investigation		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	7.1	0.13	mg/kg	5	02/08/13	02/11/13	JB	SW846 6020A [3]	SW846 3050B [7]
Barium	127	1.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Boron	6.9	6.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Cadmium	< 1.3	1.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Chromium	11.4	1.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Copper	18.4	1.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Lead	13.3	6.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Mercury	< 0.10	0.10	mg/kg	1	02/08/13	02/08/13	JB	SW846 7471B [1]	SW846 7471B [5]
Nickel	13.8	3.8	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Selenium	< 6.3	6.3	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Silver	< 3.8	3.8	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Zinc	58.1	3.8	mg/kg	1	02/14/13	02/14/13	JB	SW846 6010C [4]	SW846 3050B [8]

(1) Instrument QC Batch: MA3252
(2) Instrument QC Batch: MA3255
(3) Instrument QC Batch: MA3259
(4) Instrument QC Batch: MA3274
(5) Prep QC Batch: MP9392
(6) Prep QC Batch: MP9393
(7) Prep QC Batch: MP9394
(8) Prep QC Batch: MP9446

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS3		
Lab Sample ID:	D43137-3	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	79.7
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	321	1.0	umhos/cm	1	02/08/13	JD	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	02/11/13	KB	SW846 3060A/7196A
Chromium, Trivalent [a]	11.4	2.3	mg/kg	1	02/11/13	KB	SW846 3060A/7196A M
Redox Potential Vs H2	349		mv	1	02/08/13	CT	ASTM D1498-76M
Solids, Percent	79.7		%	1	02/06/13	SWT	SM19 2540B M
pH	8.95		su	1	02/06/13 14:55	JD	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS3		
Lab Sample ID:	D43137-3A	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	79.7
Project:	Peakview Voloshin Morton Spill Investigation		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	42.1	2.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	14.3	1.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	15.8	2.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3255
(2) Prep QC Batch: MP9400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS3		
Lab Sample ID:	D43137-3A	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	79.7
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	0.537		ratio	1	02/08/13 14:50	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS4		
Lab Sample ID:	D43137-4	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8260B	**Percent Solids:**	85.0
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V25598.D	1	02/14/13	BD	n/a	n/a	V5V1559
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.04 g	5.0 ml	25.0 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	2040	270	130	ug/kg	
108-88-3	Toluene	35100	540	270	ug/kg	
100-41-4	Ethylbenzene	19700	540	100	ug/kg	
1330-20-7	Xylene (total)	106000	1100	540	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	116%		64-130%
460-00-4	4-Bromofluorobenzene	129%		62-131%
17060-07-0	1,2-Dichloroethane-D4	91%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS4		
Lab Sample ID:	D43137-4	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	85.0
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G13311.D	4	02/11/13	DC	02/08/13	OP7351	E3G638
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	3.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	120	61	ug/kg	
120-12-7	Anthracene	ND	120	61	ug/kg	
56-55-3	Benzo(a)anthracene	ND	120	61	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	120	61	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	120	61	ug/kg	
50-32-8	Benzo(a)pyrene	ND	120	61	ug/kg	
218-01-9	Chrysene	678	120	61	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	120	61	ug/kg	
206-44-0	Fluoranthene	ND	120	61	ug/kg	
86-73-7	Fluorene	3300	120	70	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	120	61	ug/kg	
91-20-3	Naphthalene	7640	160	150	ug/kg	
129-00-0	Pyrene	301	120	61	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	86%		10-159%
321-60-8	2-Fluorobiphenyl	51%		19-131%
1718-51-0	Terphenyl-d14	81%		18-150%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS4		
Lab Sample ID:	D43137-4	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
Method:	SW846 8015B	**Percent Solids:**	85.0
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB19404.D	1	02/06/13	BD	n/a	n/a	GGB1060
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	25.0 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	2140	54	27	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	174% [a]		60-140%

(a) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SS4
Lab Sample ID: D43137-4
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 02/05/13
Date Received: 02/06/13
Percent Solids: 85.0

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD21766.D	20	02/08/13	AV	02/07/13	OP7343	GFD1093
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	13800	310	190	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	85%		35-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS4		
Lab Sample ID:	D43137-4	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	85.0
Project:	Peakview Voloshin Morton Spill Investigation		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	3.1	0.12	mg/kg	5	02/08/13	02/11/13	JB	SW846 6020A [3]	SW846 3050B [7]
Barium	862	1.2	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Boron	< 5.9	5.9	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Cadmium	< 1.2	1.2	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Chromium	7.8	1.2	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Copper	9.4	1.2	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Lead	9.4	5.9	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Mercury	< 0.096	0.096	mg/kg	1	02/08/13	02/08/13	JB	SW846 7471B [1]	SW846 7471B [5]
Nickel	10.2	3.5	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Selenium	< 5.9	5.9	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Silver	< 3.5	3.5	mg/kg	1	02/08/13	02/08/13	JB	SW846 6010C [2]	SW846 3050B [6]
Zinc	33.7	3.3	mg/kg	1	02/14/13	02/14/13	JB	SW846 6010C [4]	SW846 3050B [8]

(1) Instrument QC Batch: MA3252
(2) Instrument QC Batch: MA3255
(3) Instrument QC Batch: MA3259
(4) Instrument QC Batch: MA3274
(5) Prep QC Batch: MP9392
(6) Prep QC Batch: MP9393
(7) Prep QC Batch: MP9394
(8) Prep QC Batch: MP9446

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS4		
Lab Sample ID:	D43137-4	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	85.0
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	469	1.0	umhos/cm	1	02/08/13	JD	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	02/11/13	KB	SW846 3060A/7196A
Chromium, Trivalent [a]	7.8	2.2	mg/kg	1	02/11/13	KB	SW846 3060A/7196A M
Redox Potential Vs H2	339		mv	1	02/08/13	CT	ASTM D1498-76M
Solids, Percent	85		%	1	02/06/13	SWT	SM19 2540B M
pH	9.42		su	1	02/06/13 14:55	JD	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS4		
Lab Sample ID:	D43137-4A	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	85.0
Project:	Peakview Voloshin Morton Spill Investigation		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	26.2	2.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	11.1	1.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	78.1	2.0	mg/l	1	02/08/13	02/08/13	JB	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3255
(2) Prep QC Batch: MP9400

RL = Reporting Limit

Report of Analysis

Client Sample ID:	SS4		
Lab Sample ID:	D43137-4A	**Date Sampled:**	02/05/13
Matrix:	SO - Soil	**Date Received:**	02/06/13
		Percent Solids:	85.0
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	3.22		ratio	1	02/08/13 14:57	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

ACCUTEST Laboratories

4036 Youngfield St., Wheat Ridge, CO 80033; 303-425-6021; 303-425-6854

FED-EX Tracking #: | Bottle Order Control #:

Accutest Quote # BS8/2010-41 | Accutest Job # D43137

Client / Reporting Information

Company Name: Olsson Associates
Project Contact: Stuart Hall | E-Mail: shall@olssonassociates.com
Address: 826 21 1/2 Road
City: Grand Junction | State: CO | Zip: 81505
Phone No.: 970-263-7800 | Fax No.:
Samplers's Name: Jessica Sutrina

Project Information

Project Name / No.: Peakview Voloshin Morton Spill Investigation
Bill to: Olsson Associates | Invoice Attn.: Stuart Hall
Address: 826 21 1/2 Road
City: Grand Junction | State: CO | Zip: 81505
Phone No.: 970-263-7800 | Fax No.:
Client Purchase Order #

Requested Analyses

Accutest Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Matrix	# of bottles	Number of preserved bottles	TPH (GRO)	TPH (DRO)	BTEX	PAH (See List 1)	Electrical Conductivity	Sodium Adsorption Ratio	pH	Metals (See List 2)	LAB USE ONLY
	SS1	2/5/2013	0940	SO	2		X	X	X	X	X	X	X	X	01
	SS2	2/5/2013	0950	SO	2		X	X	X	X	X	X	X	X	02
	SS3	2/5/2013	1000	SO	2		X	X	X	X	X	X	X	X	03
	SS4	2/5/2013	1010	SO	2		X	X	X	X	X	X	X	X	04

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Wastewater; SO - Soil; SL - Sludge; OI - Oil; LIQ - Liquid; SOL - Other Solid

2/6/13

Turnaround Time (Business days)

- [X] 10 Day *STANDARD*
- [ ] 7 Day (per contract)
- [ ] 4 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*
- [ ] Other

Approved By:/ Date:

Real time analytical data available via Lablink

Data Deliverable Information

- [ ] Commercial "A"
- [X] Commercial "B"
- [ ] Reduced Tier 1
- [ ] Full Data Package
- [ ] TRRP-13
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results & Standard QC

Comments / Remarks

AMS FEDEX Account Number - 487721860

List 1 - Acenaphthene, Anthracene, Benzo(A)anthracene, Benzo(B)fluoranthene, Benzo(K)fluoranthene, Benzo(A)pyrene, Chrysene, Dibenzo(A,H)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3,C,D)pyrene, Napthalene, Pyrene

List 2 - As, B, Ba, Cd, Cr3, Cr6, Cu, Pb, Hg, Ni, Se, Ag, Zn

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		2/5/13 1500	1	2		2
2	Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
			3	4		4
3	Relinquished by:	Date Time:	Received By:	Custody Seal #	On Ice	Cooler Temp.
5			5	Fed Ex	☐	4.8

5.1 5

D43137: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D43137 **Client:** OLSSON ASSOC. **Immediate Client Services Action Required:** No

Date / Time Received: 2/6/2013 10:00:00 AM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: PEAKVIEW VOLOSHIN MORTON SPILL INVE **Airbill #'s:** FedEx

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	
2. Trip Blank listed on COC:	☐		☐	
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume rec'd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

D43137: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

05/22/13

Technical Report for

Olsson Associates

Peakview Voloshin Morton Spill Investigation

Accutest Job Number: D45976

Sampling Date: 05/06/13

Report to:

Olsson Associates

jsutrina@oaconsulting.com

ATTN: Jessica Sutrina

Total number of pages in report: **12**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Accutest Laboratories is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.

Sections: 1 2 3 4 5

Table of Contents

-1-

Section 1: Sample Summary **3**
Section 2: Case Narrative/Conformance Summary **4**
Section 3: Summary of Hits **5**
Section 4: Sample Results **6**
4.1: D45976-1: PVVM BG1 7
4.2: D45976-2: PVVM BG2 8
4.3: D45976-3: PVVM BG3 9
Section 5: Misc. Forms **10**
5.1: Chain of Custody 11

Sample Summary

Olsson Associates

Job No: D45976

Peakview Voloshin Morton Spill Investigation

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
D45976-1	05/06/13	11:45	JS	05/08/13	SO	Soil	PVVM BG1
D45976-2	05/06/13	12:00	JS	05/08/13	SO	Soil	PVVM BG2
D45976-3	05/06/13	12:15	JS	05/08/13	SO	Soil	PVVM BG3

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Olsson Associates	**Job No**	D45976
Site:	Peakview Voloshin Morton Spill Investigation	**Report Date**	5/22/2013 8:46:28 AM

On 05/08/2013, 3 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 5.8 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D45976 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method SW846 6020A

Matrix SO **Batch ID:** MP10025

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D46101-1MS, D46101-1MSD, D46101-1SDL were used as the QC samples for the metals analysis.
- The RPD(s) for the MS and MSD recoveries of Arsenic are outside control limits for sample MP10025-S2. High RPD due to possible sample matrix or nonhomogeneity.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP10025-SD1. Probable cause due to sample homogeneity.
- MP10025-SD1 for Arsenic: Serial dilution indicates possible matrix interference.

Wet Chemistry By Method SM19 2540B M

Matrix SO **Batch ID:** GN20084

- The data for SM19 2540B M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D45976
Account: Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation
Collected: 05/06/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D45976-1	**PVVM BG1**					
Arsenic		7.1	0.11		mg/kg	SW846 6020A
D45976-2	**PVVM BG2**					
Arsenic		7.3	0.12		mg/kg	SW846 6020A
D45976-3	**PVVM BG3**					
Arsenic		7.2	0.11		mg/kg	SW846 6020A

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	PVVM BG1		
Lab Sample ID:	D45976-1	**Date Sampled:**	05/06/13
Matrix:	SO - Soil	**Date Received:**	05/08/13
		Percent Solids:	80.7
Project:	Peakview Voloshin Morton Spill Investigation		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	7.1	0.11	mg/kg	5	05/13/13	05/14/13	JB	SW846 6020A [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA3556
(2) Prep QC Batch: MP10025

RL = Reporting Limit

Report of Analysis

Client Sample ID:	PVVM BG2		
Lab Sample ID:	D45976-2	**Date Sampled:**	05/06/13
Matrix:	SO - Soil	**Date Received:**	05/08/13
		Percent Solids:	81.1
Project:	Peakview Voloshin Morton Spill Investigation		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	7.3	0.12	mg/kg	5	05/13/13	05/14/13	JB	SW846 6020A [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA3556
(2) Prep QC Batch: MP10025

RL = Reporting Limit

Report of Analysis

Client Sample ID:	PVVM BG3		
Lab Sample ID:	D45976-3	**Date Sampled:**	05/06/13
Matrix:	SO - Soil	**Date Received:**	05/08/13
		Percent Solids:	81.4
Project:	Peakview Voloshin Morton Spill Investigation		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	7.2	0.11	mg/kg	5	05/13/13	05/14/13	JB	SW846 6020A [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA3556
(2) Prep QC Batch: MP10025

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

1 of 1

ACCUTEST Laboratories

10165 Harwin Drive , Houston, TX 77036 ; Phone 713-271-4700 ; Fax 713-271-4770

FED-EX Tracking # | Bottle Order Control #

Accutest Quote | Accutest Job # D45976

Client / Reporting Information

Company Name: Olsson Associates

Project Contact: Stuart Hall | E-Mail: shall@oaconsulting.com

Address: 760 Horizon Drive, Suite 102

City: Grand Junction | State: CO | Zip: 81506

Phone No.: 970-263-7800 | Fax No.:

Samplers's Name: Jessica Sutrina

Project Information

Project Name / No.: Peakview Energy Voloshin Morton Spill Sampling

Bill to: Olsson Associates | Invoice Attn.: Stuart Hall

Address: 760 Horizon Drive, Suite 102

City: Grand Junction | State: CO | Zip: 81506

Phone No.: 970-263-7800 | Fax No.:

Client Purchase Order #

Requested Analyses

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Wastewater
SO - Soil
SL - Sludge
OI - Oil
LIQ - Liquid
SOL - Other Solid

Accutest Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH	HNO3	H2SO4	ENCORE	NaHSO4	MEOH	NONE	TPH (GRO)	TPH (DRO)	BTEX	PAH (See List 1)	Electrical Conductivity	Sodium Adsorption Ratio	pH	Metals (See List 2)	Arsenic only	LAB USE ONLY
	PVVM BG1	5/6/13	1145	SO	1																	X	01
	PVVM BG2	5/6/13	1200	SO	1																	X	02
	PVVM BG3	5/6/13	1215	SO	1																	X	03
																							NR 5/8

Turnaround Time (Business days)

- [x] 10 Day *STANDARD*
- [ ] 7 Day (per contract)
- [ ] 4 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*
- [ ] Other

Approved By:/ Date:

Real time analytical data available via Lablink

Data Deliverable Information

- [ ] Commercial "A"
- [x] Commercial "B"
- [ ] Reduced Tier 1
- [ ] Full Data Package
- [ ] TRRP-13
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results & Standard QC

Comments / Remarks

PLEASE RUN 1 DAY EMERGENCY ON TPH GRO/DRO and BTEX ONLY. Normal TAT on all other analyses

List 1 - Acenaphthene, Anthracene, Benzo(A)anthracene, Benzo(B)fluoranthene, Benzo(K)fluoranthene, Benzo(A)pyrene, Chrysene, Dibenzo(A,H)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3,C,D)pyrene, Napthalene, Pyrene

List 2 - As, Ba, Cd, Cr3, Cr6, Cu, Pb, Hg, Ni, Se, Ag, Zn

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1		5/6/13 1130	1	2		2
3	Relinquished by:	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4 5-8-13
5	Relinquished by:	Date Time:	Received By: 5	Custody Seal #		Cooler Temp. 5.8

Intact

D45976: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D45976 **Client:** OLSSON ASS. **Immediate Client Services Action Required:** No

Date / Time Received: 5/8/2013 10:15:00 AM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: PEAKVIEW ENERGY VOLOSHIN MORTON S **Airbill #'s:** USP

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	
2. Trip Blank listed on COC:	☐		☐	
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume rec'd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

5.1

5

D45976: Chain of Custody
Page 2 of 2

Mountain States ACCUTEST LABORATORIES

06/12/13

Technical Report for

Olsson Associates

Peakview Voloshin Morton Spill Investigation

Accutest Job Number: D46729

Sampling Date: 05/31/13

Report to:

Olsson Associates

jsutrina@oaconsulting.com

ATTN: Jessica Sutrina

Total number of pages in report: **109**

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Accutest Laboratories is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.

Sections: 1 2 3 4 5 6 7 8 9 10 11

Table of Contents

-1-

Section 1: Sample Summary **3**
Section 2: Case Narrative/Conformance Summary **4**
Section 3: Summary of Hits **8**
Section 4: Sample Results **12**
4.1: D46729-1: VOLOSHIN SS1 (4-8 IN) 13
4.2: D46729-1A: VOLOSHIN SS1 (4-8 IN) 19
4.3: D46729-2: VOLOSHIN SS2 (24-30 IN) 21
4.4: D46729-2A: VOLOSHIN SS2 (24-30 IN) 27
4.5: D46729-3: VOLOSHIN SS1 (14-20 IN) 29
4.6: D46729-3A: VOLOSHIN SS1 (14-20 IN) 35
4.7: D46729-4: VOLOSHIN SS1 (36-42 IN) 37
4.8: D46729-4A: VOLOSHIN SS1 (36-42 IN) 43
4.9: D46729-5: VOLOSHIN SS3 (8-12 IN) 45
4.10: D46729-5A: VOLOSHIN SS3 (8-12 IN) 51
Section 5: Misc. Forms **53**
5.1: Chain of Custody 54
Section 6: GC/MS Volatiles - QC Data Summaries **56**
6.1: Method Blank Summary 57
6.2: Blank Spike Summary 58
6.3: Matrix Spike/Matrix Spike Duplicate Summary 59
Section 7: GC/MS Semi-volatiles - QC Data Summaries **60**
7.1: Method Blank Summary 61
7.2: Blank Spike Summary 62
7.3: Matrix Spike/Matrix Spike Duplicate Summary 63
Section 8: GC Volatiles - QC Data Summaries **64**
8.1: Method Blank Summary 65
8.2: Blank Spike Summary 67
8.3: Matrix Spike/Matrix Spike Duplicate Summary 69
Section 9: GC Semi-volatiles - QC Data Summaries **71**
9.1: Method Blank Summary 72
9.2: Blank Spike Summary 73
9.3: Matrix Spike/Matrix Spike Duplicate Summary 74
Section 10: Metals Analysis - QC Data Summaries **75**
10.1: Prep QC MP10176: Hg 76
10.2: Prep QC MP10177: Ba,Cd,Cr,Cu,Pb,Ni,Se,Ag,Zn 80
10.3: Prep QC MP10178: As 90
10.4: Prep QC MP10200: Ca,Mg,Na,Sodium Adsorption Ratio 95
Section 11: General Chemistry - QC Data Summaries **105**
11.1: Method Blank and Spike Results Summary 106
11.2: Duplicate Results Summary 107
11.3: Matrix Spike Results Summary 108
11.4: Matrix Spike Duplicate Results Summary 109

Sample Summary

Olsson Associates

Job No: D46729

Peakview Voloshin Morton Spill Investigation

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
D46729-1	05/31/13	09:20	JS	06/01/13	SO	Soil	VOLOSHIN SS1 (4-8 IN)
D46729-1A	05/31/13	09:20	JS	06/01/13	SO	Soil	VOLOSHIN SS1 (4-8 IN)
D46729-2	05/31/13	11:55	JS	06/01/13	SO	Soil	VOLOSHIN SS2 (24-30 IN)
D46729-2A	05/31/13	11:55	JS	06/01/13	SO	Soil	VOLOSHIN SS2 (24-30 IN)
D46729-3	05/31/13	09:45	JS	06/01/13	SO	Soil	VOLOSHIN SS1 (14-20 IN)
D46729-3A	05/31/13	09:45	JS	06/01/13	SO	Soil	VOLOSHIN SS1 (14-20 IN)
D46729-4	05/31/13	09:55	JS	06/01/13	SO	Soil	VOLOSHIN SS1 (36-42 IN)
D46729-4A	05/31/13	09:55	JS	06/01/13	SO	Soil	VOLOSHIN SS1 (36-42 IN)
D46729-5	05/31/13	12:30	JS	06/01/13	SO	Soil	VOLOSHIN SS3 (8-12 IN)
D46729-5A	05/31/13	12:30	JS	06/01/13	SO	Soil	VOLOSHIN SS3 (8-12 IN)

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Olsson Associates	**Job No**	D46729
Site:	Peakview Voloshin Morton Spill Investigation	**Report Date**	6/12/2013 8:25:27 AM

On 06/01/2013, 5 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.8 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D46729 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix SO **Batch ID:** V5V1660

- All samples were analyzed within the recommended method holding time.
- Sample(s) D46727-1MS, D46727-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix SO **Batch ID:** OP7962

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D46729-1MS, D46729-1MSD were used as the QC samples indicated.
- The matrix spike (MS) recovery(s) of Naphthalene are outside control limits. Outside control limits due to high level in sample relative to spike amount.
- D46729-1: Dilution required due to matrix interference. Internal standard failure without dilution.

Volatiles by GC By Method SW846 8015B

Matrix SO **Batch ID:** GGB1133

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D46848-1MS, D46848-1MSD were used as the QC samples indicated.
- Sample(s) D46729-2 have surrogates outside control limits. Probable cause due to matrix interference.

Matrix SO **Batch ID:** GGB1134

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D46865-5MS, D46865-5MSD were used as the QC samples indicated.
- Sample(s) D46729-2 have surrogates outside control limits. Probable cause due to matrix interference.
- D46729-2 for 1,2,4 Trichlorobenzene: Outside control limits due to possible matrix interference.

Extractables by GC By Method SW846-8015B

Matrix SO **Batch ID:** OP7970

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D46791-1MS, D46791-1MSD were used as the QC samples indicated.

Metals By Method SW846 6010C

Matrix AQ **Batch ID:** MP10200

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D46729-5AMS, D46729-5AMSD, D46729-5ASDL were used as the QC samples for the metals analysis.

Matrix SO **Batch ID:** MP10177

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D46729-1MS, D46729-1MSD, D46729-1SDL were used as the QC samples for the metals analysis.
- The matrix spike (MS) recovery(s) of Nickel, Zinc are outside control limits. Spike recovery indicates possible matrix interference.
- The matrix spike duplicate (MSD) recovery(s) of Nickel, Zinc, Barium are outside control limits. High RPD due to possible sample matrix or nonhomogeneity.
- The RPD(s) for the MS and MSD recoveries of Barium are outside control limits for sample MP10177-S2. High RPD due to possible sample matrix or nonhomogeneity.
- The serial dilution RPD(s) for Cadmium, Lead, Selenium, Barium, Chromium, Copper, Nickel, Zinc are outside control limits for sample MP10177-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL).
- MP10177-SD1 for Copper: Serial dilution indicates possible matrix interference.
- MP10177-SD1 for Nickel: Serial dilution indicates possible matrix interference.
- MP10177-SD1 for Chromium: Serial dilution indicates possible matrix interference.
- MP10177-SD1 for Barium: Serial dilution indicates possible matrix interference.
- MP10177-SD1 for Zinc: Serial dilution indicates possible matrix interference.

Metals By Method SW846 6020A

Matrix SO **Batch ID:** MP10178

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D46729-1MS, D46729-1MSD, D46729-1SDL were used as the QC samples for the metals analysis.

Metals By Method SW846 7471B

Matrix SO **Batch ID:** MP10176

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D46739-1MS, D46739-1MSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method ASTM D1498-76M

Matrix SO **Batch ID:** GN20512

- Sample(s) D46729-5DUP were used as the QC samples for the Redox Potential Vs H2 analysis.

Wet Chemistry By Method SM19 2540B M

Matrix	SO	Batch ID:	GN20431

- The data for SM19 2540B M meets quality control requirements.

Wet Chemistry By Method SW846 3060A/7196A

Matrix	SO	Batch ID:	GP10135

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D46748-3DUP, D46748-3MS, D46748-3MSD were used as the QC samples for the Chromium, Hexavalent analysis.

Wet Chemistry By Method SW846 3060A/7196A M

Matrix	SO	Batch ID:	R17492

- The data for SW846 3060A/7196A M meets quality control requirements.
- D46729-1 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix	SO	Batch ID:	R17493

- The data for SW846 3060A/7196A M meets quality control requirements.
- D46729-2 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix	SO	Batch ID:	R17494

- The data for SW846 3060A/7196A M meets quality control requirements.
- D46729-3 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix	SO	Batch ID:	R17495

- The data for SW846 3060A/7196A M meets quality control requirements.
- D46729-4 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Matrix	SO	Batch ID:	R17496

- The data for SW846 3060A/7196A M meets quality control requirements.
- D46729-5 for Chromium, Trivalent: Calculated as: (Chromium) - (Chromium, Hexavalent)

Wet Chemistry By Method SW846 9045D

Matrix	SO	Batch ID:	GN20429

- The following samples were run outside of holding time for method SW846 9045D: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Wet Chemistry By Method USDA HANDBOOK 60

Matrix	SO	Batch ID:	MP10200

- D46729-5A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]
- D46729-1A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]
- D46729-2A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]
- D46729-3A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]
- D46729-4A for Sodium Adsorption Ratio: Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+(Mg meq/L)/2]

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D46729
Account: Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation
Collected: 05/31/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D46729-1	**VOLOSHIN SS1 (4-8 IN)**					
Benzene		223	78	39	ug/kg	SW846 8260B
Toluene		2240	160	78	ug/kg	SW846 8260B
Ethylbenzene		1150	160	30	ug/kg	SW846 8260B
Xylene (total)		7180	310	160	ug/kg	SW846 8260B
Chrysene [a]		89.3	43	22	ug/kg	SW846 8270C BY SIM
Fluorene [a]		413	43	26	ug/kg	SW846 8270C BY SIM
Naphthalene [a]		674	60	53	ug/kg	SW846 8270C BY SIM
Pyrene [a]		30.2 J	43	22	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		310	16	7.8	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		1910	85	64	mg/kg	SW846-8015B
Arsenic		8.1	0.11		mg/kg	SW846 6020A
Barium		229	1.1		mg/kg	SW846 6010C
Chromium		12.1	1.1		mg/kg	SW846 6010C
Copper		14.6	1.1		mg/kg	SW846 6010C
Lead		13.4	5.6		mg/kg	SW846 6010C
Nickel		15.9	3.3		mg/kg	SW846 6010C
Zinc		50.8	3.3		mg/kg	SW846 6010C
Specific Conductivity		766	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent [b]		12.1	2.1		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2		133			mv	ASTM D1498-76M
pH		9.73			su	SW846 9045D
D46729-1A	**VOLOSHIN SS1 (4-8 IN)**					
Calcium		7.46	2.0		mg/l	SW846 6010C
Magnesium		5.96	1.0		mg/l	SW846 6010C
Sodium		157	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [c]		10.4			ratio	USDA HANDBOOK 60
D46729-2	**VOLOSHIN SS2 (24-30 IN)**					
Benzene		143	72	36	ug/kg	SW846 8260B
Toluene		322	140	72	ug/kg	SW846 8260B
Ethylbenzene		2630	140	27	ug/kg	SW846 8260B
Xylene (total)		14700	290	140	ug/kg	SW846 8260B
Chrysene		34.3	10	5.3	ug/kg	SW846 8270C BY SIM
Fluorene		200	10	6.1	ug/kg	SW846 8270C BY SIM
Naphthalene		562	14	13	ug/kg	SW846 8270C BY SIM
Pyrene		12.4	10	5.3	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		1090	29	14	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		448	8.1	6.1	mg/kg	SW846-8015B
Arsenic		5.2	0.11		mg/kg	SW846 6020A
Barium		89.6	1.1		mg/kg	SW846 6010C

Summary of Hits

Job Number: D46729
Account: Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation
Collected: 05/31/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Chromium		7.2	1.1		mg/kg	SW846 6010C
Copper		11.1	1.1		mg/kg	SW846 6010C
Lead		9.8	5.6		mg/kg	SW846 6010C
Nickel		9.6	3.4		mg/kg	SW846 6010C
Zinc		39.1	3.4		mg/kg	SW846 6010C
Specific Conductivity		1250	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent [b]		7.2	2.1		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2		142			mv	ASTM D1498-76M
pH		7.65			su	SW846 9045D
D46729-2A	**VOLOSHIN SS2 (24-30 IN)**					
Calcium		32.1	2.0		mg/l	SW846 6010C
Magnesium		10.7	1.0		mg/l	SW846 6010C
Sodium		261	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [c]		10.2			ratio	USDA HANDBOOK 60
D46729-3	**VOLOSHIN SS1 (14-20 IN)**					
Benzene		1070	78	39	ug/kg	SW846 8260B
Toluene		4640	160	78	ug/kg	SW846 8260B
Ethylbenzene		1530	160	30	ug/kg	SW846 8260B
Xylene (total)		11200	310	160	ug/kg	SW846 8260B
Chrysene		178	43	22	ug/kg	SW846 8270C BY SIM
Fluorene		696	43	26	ug/kg	SW846 8270C BY SIM
Naphthalene		2710	60	53	ug/kg	SW846 8270C BY SIM
Pyrene		63.2	43	22	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		389	16	7.8	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		5730	85	64	mg/kg	SW846-8015B
Arsenic		5.3	0.12		mg/kg	SW846 6020A
Barium		138	1.2		mg/kg	SW846 6010C
Chromium		10.5	1.2		mg/kg	SW846 6010C
Copper		16.0	1.2		mg/kg	SW846 6010C
Lead		13.9	6.2		mg/kg	SW846 6010C
Nickel		11.7	3.7		mg/kg	SW846 6010C
Zinc		56.0	3.7		mg/kg	SW846 6010C
Specific Conductivity		546	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent [b]		10.5	2.2		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2		177			mv	ASTM D1498-76M
pH		8.59			su	SW846 9045D
D46729-3A	**VOLOSHIN SS1 (14-20 IN)**					
Calcium		15.9	2.0		mg/l	SW846 6010C
Magnesium		11.0	1.0		mg/l	SW846 6010C

Summary of Hits

Job Number: D46729
Account: Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation
Collected: 05/31/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Sodium		89.4	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [c]		4.22			ratio	USDA HANDBOOK 60
D46729-4	**VOLOSHIN SS1 (36-42 IN)**					
Benzene		3400	77	39	ug/kg	SW846 8260B
Toluene		15000	150	77	ug/kg	SW846 8260B
Ethylbenzene		5570	150	29	ug/kg	SW846 8260B
Xylene (total)		30700	310	150	ug/kg	SW846 8260B
Chrysene		6.6 J	11	5.5	ug/kg	SW846 8270C BY SIM
Fluorene		28.8	11	6.4	ug/kg	SW846 8270C BY SIM
Naphthalene		82.0	15	13	ug/kg	SW846 8270C BY SIM
TPH-GRO (C6-C10)		1230	31	15	mg/kg	SW846 8015B
TPH-DRO (C10-C28)		143	8.4	6.3	mg/kg	SW846-8015B
Arsenic		7.0	0.12		mg/kg	SW846 6020A
Barium		110	1.2		mg/kg	SW846 6010C
Chromium		9.6	1.2		mg/kg	SW846 6010C
Copper		14.3	1.2		mg/kg	SW846 6010C
Lead		12.0	6.0		mg/kg	SW846 6010C
Nickel		11.9	3.6		mg/kg	SW846 6010C
Zinc		55.7	3.6		mg/kg	SW846 6010C
Specific Conductivity		460	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent [b]		9.6	2.2		mg/kg	SW846 3060A/7196A M
Redox Potential Vs H2		280			mv	ASTM D1498-76M
pH		8.82			su	SW846 9045D
D46729-4A	**VOLOSHIN SS1 (36-42 IN)**					
Calcium		27.3	2.0		mg/l	SW846 6010C
Magnesium		20.6	1.0		mg/l	SW846 6010C
Sodium		72.1	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [c]		2.54			ratio	USDA HANDBOOK 60
D46729-5	**VOLOSHIN SS3 (8-12 IN)**					
TPH-DRO (C10-C28)		14.1	7.0	5.2	mg/kg	SW846-8015B
Arsenic		9.1	0.10		mg/kg	SW846 6020A
Barium		2000	1.0		mg/kg	SW846 6010C
Chromium		9.6	1.0		mg/kg	SW846 6010C
Copper		9.0	1.0		mg/kg	SW846 6010C
Lead		12.0	5.0		mg/kg	SW846 6010C
Nickel		11.0	3.0		mg/kg	SW846 6010C
Zinc		31.1	3.0		mg/kg	SW846 6010C
Specific Conductivity		2080	1.0		umhos/cm	SM 2510B-2011 MOD
Chromium, Trivalent [b]		9.6	2.0		mg/kg	SW846 3060A/7196A M

Summary of Hits

Job Number: D46729
Account: Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation
Collected: 05/31/13

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Redox Potential Vs H2		321			mv	ASTM D1498-76M
pH		8.86			su	SW846 9045D
D46729-5A	**VOLOSHIN SS3 (8-12 IN)**					
Calcium		115	2.0		mg/l	SW846 6010C
Magnesium		97.6	1.0		mg/l	SW846 6010C
Sodium		186	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio [c]		3.08			ratio	USDA HANDBOOK 60

(a) Dilution required due to matrix interference. Internal standard failure without dilution.
(b) Calculated as: (Chromium) - (Chromium, Hexavalent)
(c) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

Mountain States ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (4-8 IN)		
Lab Sample ID:	D46729-1	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8260B	**Percent Solids:**	77.9
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V27276.D	1	06/03/13	BD	n/a	n/a	V5V1660
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	223	78	39	ug/kg	
108-88-3	Toluene	2240	160	78	ug/kg	
100-41-4	Ethylbenzene	1150	160	30	ug/kg	
1330-20-7	Xylene (total)	7180	310	160	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	104%		64-130%
460-00-4	4-Bromofluorobenzene	123%		62-131%
17060-07-0	1,2-Dichloroethane-D4	100%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (4-8 IN)		
Lab Sample ID:	D46729-1	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	77.9
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	3G14938.D	4	06/04/13	DC	06/04/13	OP7962	E3G729
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	43	22	ug/kg	
120-12-7	Anthracene	ND	43	22	ug/kg	
56-55-3	Benzo(a)anthracene	ND	43	22	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	43	22	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	43	22	ug/kg	
50-32-8	Benzo(a)pyrene	ND	43	22	ug/kg	
218-01-9	Chrysene	89.3	43	22	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	43	22	ug/kg	
206-44-0	Fluoranthene	ND	43	22	ug/kg	
86-73-7	Fluorene	413	43	26	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	43	22	ug/kg	
91-20-3	Naphthalene	674	60	53	ug/kg	
129-00-0	Pyrene	30.2	43	22	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	83%		10-159%
321-60-8	2-Fluorobiphenyl	89%		19-131%
1718-51-0	Terphenyl-d14	100%		18-150%

(a) Dilution required due to matrix interference. Internal standard failure without dilution.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (4-8 IN)		
Lab Sample ID:	D46729-1	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8015B	**Percent Solids:**	77.9
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB20698.D	1	06/06/13	BD	n/a	n/a	GGB1133
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	310	16	7.8	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	117%		60-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VOLOSHIN SS1 (4-8 IN)
Lab Sample ID: D46729-1
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 77.9

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25176.D	10	06/07/13	TU	06/05/13	OP7970	GFD1249
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1910	85	64	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	81%		35-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VOLOSHIN SS1 (4-8 IN)
Lab Sample ID: D46729-1
Matrix: SO - Soil
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 77.9

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	8.1	0.11	mg/kg	5	06/04/13	06/05/13	JB	SW846 6020A [3]	SW846 3050B [6]
Barium	229	1.1	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Cadmium	< 1.1	1.1	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Chromium	12.1	1.1	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Copper	14.6	1.1	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Lead	13.4	5.6	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Mercury	< 0.10	0.10	mg/kg	1	06/04/13	06/04/13	JB	SW846 7471B [1]	SW846 7471B [4]
Nickel	15.9	3.3	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Selenium	< 5.6	5.6	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Silver	< 3.3	3.3	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Zinc	50.8	3.3	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]

(1) Instrument QC Batch: MA3622
(2) Instrument QC Batch: MA3624
(3) Instrument QC Batch: MA3628
(4) Prep QC Batch: MP10176
(5) Prep QC Batch: MP10177
(6) Prep QC Batch: MP10178

RL = Reporting Limit

Report of Analysis

Client Sample ID: VOLOSHIN SS1 (4-8 IN)
Lab Sample ID: D46729-1
Matrix: SO - Soil
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 77.9

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	766	1.0	umhos/cm	1	06/06/13	RW	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	06/05/13	AK	SW846 3060A/7196A
Chromium, Trivalent [a]	12.1	2.1	mg/kg	1	06/05/13	AK	SW846 3060A/7196A M
Redox Potential Vs H2	133		mv	1	06/07/13	AK	ASTM D1498-76M
Solids, Percent	77.9		%	1	06/04/13	SWT	SM19 2540B M
pH	9.73		su	1	06/03/13 15:50	BF	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (4-8 IN)		
Lab Sample ID:	D46729-1A	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	77.9
Project:	Peakview Voloshin Morton Spill Investigation		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	7.46	2.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	5.96	1.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	157	2.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3633
(2) Prep QC Batch: MP10200

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (4-8 IN)		
Lab Sample ID:	D46729-1A	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	77.9
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	10.4		ratio	1	06/06/13 14:22	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS2 (24-30 IN)		
Lab Sample ID:	D46729-2	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8260B	**Percent Solids:**	81.8
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V27279.D	1	06/03/13	BD	n/a	n/a	V5V1660
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.00 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	143	72	36	ug/kg	
108-88-3	Toluene	322	140	72	ug/kg	
100-41-4	Ethylbenzene	2630	140	27	ug/kg	
1330-20-7	Xylene (total)	14700	290	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	88%		64-130%
460-00-4	4-Bromofluorobenzene	121%		62-131%
17060-07-0	1,2-Dichloroethane-D4	95%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS2 (24-30 IN)		
Lab Sample ID:	D46729-2	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	81.8
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G14946.D	1	06/04/13	DC	06/04/13	OP7962	E3G729
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	10	5.3	ug/kg	
120-12-7	Anthracene	ND	10	5.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	10	5.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	10	5.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	10	5.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	10	5.3	ug/kg	
218-01-9	Chrysene	34.3	10	5.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	10	5.3	ug/kg	
206-44-0	Fluoranthene	ND	10	5.3	ug/kg	
86-73-7	Fluorene	200	10	6.1	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	10	5.3	ug/kg	
91-20-3	Naphthalene	562	14	13	ug/kg	
129-00-0	Pyrene	12.4	10	5.3	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	64%		10-159%
321-60-8	2-Fluorobiphenyl	83%		19-131%
1718-51-0	Terphenyl-d14	86%		18-150%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS2 (24-30 IN)		
Lab Sample ID:	D46729-2	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8015B	**Percent Solids:**	81.8
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB20722.D	1	06/07/13	BD	n/a	n/a	GGB1134
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	50.0 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	1090	29	14	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	178% [a]		60-140%

(a) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VOLOSHIN SS2 (24-30 IN)
Lab Sample ID: D46729-2
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 81.8

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25141.D	1	06/06/13	TU	06/05/13	OP7970	GFD1248
Run #2							

	Initial Weight	Final Volume
Run #1	30.2 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	448	8.1	6.1	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	86%		35-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VOLOSHIN SS2 (24-30 IN)
Lab Sample ID: D46729-2
Matrix: SO - Soil
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 81.8

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	5.2	0.11	mg/kg	5	06/04/13	06/05/13	JB	SW846 6020A [3]	SW846 3050B [6]
Barium	89.6	1.1	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Cadmium	< 1.1	1.1	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Chromium	7.2	1.1	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Copper	11.1	1.1	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Lead	9.8	5.6	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Mercury	< 0.096	0.096	mg/kg	1	06/04/13	06/04/13	JB	SW846 7471B [1]	SW846 7471B [4]
Nickel	9.6	3.4	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Selenium	< 5.6	5.6	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Silver	< 3.4	3.4	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]
Zinc	39.1	3.4	mg/kg	1	06/04/13	06/04/13	JB	SW846 6010C [2]	SW846 3050B [5]

(1) Instrument QC Batch: MA3622
(2) Instrument QC Batch: MA3624
(3) Instrument QC Batch: MA3628
(4) Prep QC Batch: MP10176
(5) Prep QC Batch: MP10177
(6) Prep QC Batch: MP10178

RL = Reporting Limit

Report of Analysis

Client Sample ID: VOLOSHIN SS2 (24-30 IN)
Lab Sample ID: D46729-2
Matrix: SO - Soil
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 81.8

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	1250	1.0	umhos/cm	1	06/06/13	RW	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	06/05/13	AK	SW846 3060A/7196A
Chromium, Trivalent [a]	7.2	2.1	mg/kg	1	06/05/13	AK	SW846 3060A/7196A M
Redox Potential Vs H2	142		mv	1	06/07/13	AK	ASTM D1498-76M
Solids, Percent	81.8		%	1	06/04/13	SWT	SM19 2540B M
pH	7.65		su	1	06/03/13 15:50	BF	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS2 (24-30 IN)		
Lab Sample ID:	D46729-2A	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	81.8
Project:	Peakview Voloshin Morton Spill Investigation		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	32.1	2.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	10.7	1.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	261	2.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3633
(2) Prep QC Batch: MP10200

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS2 (24-30 IN)		
Lab Sample ID:	D46729-2A	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	81.8
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	10.2		ratio	1	06/06/13 14:28	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (14-20 IN)		
Lab Sample ID:	D46729-3	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8260B	**Percent Solids:**	77.7
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V27277.D	1	06/03/13	BD	n/a	n/a	V5V1660
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.02 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	1070	78	39	ug/kg	
108-88-3	Toluene	4640	160	78	ug/kg	
100-41-4	Ethylbenzene	1530	160	30	ug/kg	
1330-20-7	Xylene (total)	11200	310	160	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	107%		64-130%
460-00-4	4-Bromofluorobenzene	119%		62-131%
17060-07-0	1,2-Dichloroethane-D4	98%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (14-20 IN)		
Lab Sample ID:	D46729-3	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	77.7
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G15025.D	4	06/10/13	DC	06/04/13	OP7962	E3G734
Run #2							

	Initial Weight	Final Volume
Run #1	30.0 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	43	22	ug/kg	
120-12-7	Anthracene	ND	43	22	ug/kg	
56-55-3	Benzo(a)anthracene	ND	43	22	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	43	22	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	43	22	ug/kg	
50-32-8	Benzo(a)pyrene	ND	43	22	ug/kg	
218-01-9	Chrysene	178	43	22	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	43	22	ug/kg	
206-44-0	Fluoranthene	ND	43	22	ug/kg	
86-73-7	Fluorene	696	43	26	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	43	22	ug/kg	
91-20-3	Naphthalene	2710	60	53	ug/kg	
129-00-0	Pyrene	63.2	43	22	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	112%		10-159%
321-60-8	2-Fluorobiphenyl	96%		19-131%
1718-51-0	Terphenyl-d14	106%		18-150%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (14-20 IN)		
Lab Sample ID:	D46729-3	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8015B	**Percent Solids:**	77.7
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB20699.D	1	06/06/13	BD	n/a	n/a	GGB1133
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	389	16	7.8	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	128%		60-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VOLOSHIN SS1 (14-20 IN)
Lab Sample ID: D46729-3
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 77.7

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25143.D	10	06/06/13	TU	06/05/13	OP7970	GFD1248
Run #2							

	Initial Weight	Final Volume
Run #1	30.3 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	5730	85	64	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	100%		35-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VOLOSHIN SS1 (14-20 IN)
Lab Sample ID: D46729-3
Matrix: SO - Soil
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 77.7

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	5.3	0.12	mg/kg	5	06/04/13	06/05/13	JB	SW846 6020A [3]	SW846 3050B [6]
Barium	138	1.2	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Cadmium	< 1.2	1.2	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Chromium	10.5	1.2	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Copper	16.0	1.2	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Lead	13.9	6.2	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Mercury	< 0.11	0.11	mg/kg	1	06/04/13	06/04/13	JB	SW846 7471B [1]	SW846 7471B [4]
Nickel	11.7	3.7	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Selenium	< 6.2	6.2	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Silver	< 3.7	3.7	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Zinc	56.0	3.7	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]

(1) Instrument QC Batch: MA3622
(2) Instrument QC Batch: MA3624
(3) Instrument QC Batch: MA3628
(4) Prep QC Batch: MP10176
(5) Prep QC Batch: MP10177
(6) Prep QC Batch: MP10178

RL = Reporting Limit

Report of Analysis

Client Sample ID: VOLOSHIN SS1 (14-20 IN)
Lab Sample ID: D46729-3
Matrix: SO - Soil
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 77.7

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	546	1.0	umhos/cm	1	06/06/13	RW	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	06/05/13	AK	SW846 3060A/7196A
Chromium, Trivalent [a]	10.5	2.2	mg/kg	1	06/05/13 08:19	JB	SW846 3060A/7196A M
Redox Potential Vs H2	177		mv	1	06/07/13	AK	ASTM D1498-76M
Solids, Percent	77.7		%	1	06/04/13	SWT	SM19 2540B M
pH	8.59		su	1	06/03/13 15:50	BF	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (14-20 IN)		
Lab Sample ID:	D46729-3A	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	77.7
Project:	Peakview Voloshin Morton Spill Investigation		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	15.9	2.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	11.0	1.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	89.4	2.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3633
(2) Prep QC Batch: MP10200

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (14-20 IN)		
Lab Sample ID:	D46729-3A	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	77.7
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	4.22		ratio	1	06/06/13 14:53	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (36-42 IN)		
Lab Sample ID:	D46729-4	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8260B	**Percent Solids:**	78.3
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V27278.D	1	06/03/13	BD	n/a	n/a	V5V1660
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.04 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	3400	77	39	ug/kg	
108-88-3	Toluene	15000	150	77	ug/kg	
100-41-4	Ethylbenzene	5570	150	29	ug/kg	
1330-20-7	Xylene (total)	30700	310	150	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	123%		64-130%
460-00-4	4-Bromofluorobenzene	115%		62-131%
17060-07-0	1,2-Dichloroethane-D4	102%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VOLOSHIN SS1 (36-42 IN)
Lab Sample ID: D46729-4
Matrix: SO - Soil
Method: SW846 8270C BY SIM SW846 3546
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 78.3

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G14948.D	1	06/04/13	DC	06/04/13	OP7962	E3G729
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	11	5.5	ug/kg	
120-12-7	Anthracene	ND	11	5.5	ug/kg	
56-55-3	Benzo(a)anthracene	ND	11	5.5	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	11	5.5	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	11	5.5	ug/kg	
50-32-8	Benzo(a)pyrene	ND	11	5.5	ug/kg	
218-01-9	Chrysene	6.6	11	5.5	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	ND	11	5.5	ug/kg	
206-44-0	Fluoranthene	ND	11	5.5	ug/kg	
86-73-7	Fluorene	28.8	11	6.4	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	11	5.5	ug/kg	
91-20-3	Naphthalene	82.0	15	13	ug/kg	
129-00-0	Pyrene	ND	11	5.5	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	55%		10-159%
321-60-8	2-Fluorobiphenyl	68%		19-131%
1718-51-0	Terphenyl-d14	86%		18-150%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (36-42 IN)		
Lab Sample ID:	D46729-4	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8015B	**Percent Solids:**	78.3
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB20723.D	1	06/07/13	BD	n/a	n/a	GGB1134
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	50.0 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	1230	31	15	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	116%		60-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: VOLOSHIN SS1 (36-42 IN)
Lab Sample ID: D46729-4
Matrix: SO - Soil
Method: SW846-8015B SW846 3546
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 78.3

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25145.D	1	06/06/13	TU	06/05/13	OP7970	GFD1248
Run #2							

	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	143	8.4	6.3	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	83%		35-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (36-42 IN)		
Lab Sample ID:	D46729-4	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	78.3
Project:	Peakview Voloshin Morton Spill Investigation		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	7.0	0.12	mg/kg	5	06/04/13	06/05/13	JB	SW846 6020A [3]	SW846 3050B [6]
Barium	110	1.2	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Cadmium	< 1.2	1.2	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Chromium	9.6	1.2	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Copper	14.3	1.2	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Lead	12.0	6.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Mercury	< 0.097	0.097	mg/kg	1	06/04/13	06/04/13	JB	SW846 7471B [1]	SW846 7471B [4]
Nickel	11.9	3.6	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Selenium	< 6.0	6.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Silver	< 3.6	3.6	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Zinc	55.7	3.6	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]

(1) Instrument QC Batch: MA3622
(2) Instrument QC Batch: MA3624
(3) Instrument QC Batch: MA3628
(4) Prep QC Batch: MP10176
(5) Prep QC Batch: MP10177
(6) Prep QC Batch: MP10178

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (36-42 IN)		
Lab Sample ID:	D46729-4	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	78.3
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	460	1.0	umhos/cm	1	06/06/13	RW	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	06/05/13	AK	SW846 3060A/7196A
Chromium, Trivalent [a]	9.6	2.2	mg/kg	1	06/05/13 08:25	JB	SW846 3060A/7196A M
Redox Potential Vs H2	280		mv	1	06/07/13	AK	ASTM D1498-76M
Solids, Percent	78.3		%	1	06/04/13	SWT	SM19 2540B M
pH	8.82		su	1	06/03/13 15:50	BF	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (36-42 IN)		
Lab Sample ID:	D46729-4A	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	78.3
Project:	Peakview Voloshin Morton Spill Investigation		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	27.3	2.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	20.6	1.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	72.1	2.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3633
(2) Prep QC Batch: MP10200

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS1 (36-42 IN)		
Lab Sample ID:	D46729-4A	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	78.3
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	2.54		ratio	1	06/06/13 14:58	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS3 (8-12 IN)		
Lab Sample ID:	D46729-5	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8260B	**Percent Solids:**	95.0
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V27268.D	1	06/03/13	BD	n/a	n/a	V5V1660
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.01 g	5.0 ml	100 ul
Run #2			

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	55	28	ug/kg	
108-88-3	Toluene	ND	110	55	ug/kg	
100-41-4	Ethylbenzene	ND	110	21	ug/kg	
1330-20-7	Xylene (total)	ND	220	110	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	92%		64-130%
460-00-4	4-Bromofluorobenzene	106%		62-131%
17060-07-0	1,2-Dichloroethane-D4	101%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS3 (8-12 IN)		
Lab Sample ID:	D46729-5	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8270C BY SIM SW846 3546	**Percent Solids:**	95.0
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3G14949.D	1	06/04/13	DC	06/04/13	OP7962	E3G729
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

COGCC Table 910-1 PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.8	4.6	ug/kg	
120-12-7	Anthracene	ND	8.8	4.6	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.8	4.6	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.8	4.6	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.8	4.6	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.8	4.6	ug/kg	
218-01-9	Chrysene	ND	8.8	4.6	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.8	4.6	ug/kg	
206-44-0	Fluoranthene	ND	8.8	4.6	ug/kg	
86-73-7	Fluorene	ND	8.8	5.3	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.8	4.6	ug/kg	
91-20-3	Naphthalene	ND	12	11	ug/kg	
129-00-0	Pyrene	ND	8.8	4.6	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	74%		10-159%
321-60-8	2-Fluorobiphenyl	93%		19-131%
1718-51-0	Terphenyl-d14	100%		18-150%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS3 (8-12 IN)		
Lab Sample ID:	D46729-5	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846 8015B	**Percent Solids:**	95.0
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB20695.D	1	06/06/13	BD	n/a	n/a	GGB1133
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.5	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	89%		60-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS3 (8-12 IN)		
Lab Sample ID:	D46729-5	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
Method:	SW846-8015B SW846 3546	**Percent Solids:**	95.0
Project:	Peakview Voloshin Morton Spill Investigation		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD25147.D	1	06/06/13	TU	06/05/13	OP7970	GFD1248
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	14.1	7.0	5.2	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		35-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	VOLOSHIN SS3 (8-12 IN)		
Lab Sample ID:	D46729-5	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	95.0
Project:	Peakview Voloshin Morton Spill Investigation		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Arsenic	9.1	0.10	mg/kg	5	06/04/13	06/05/13	JB	SW846 6020A [3]	SW846 3050B [6]
Barium	2000	1.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Cadmium	< 1.0	1.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Chromium	9.6	1.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Copper	9.0	1.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Lead	12.0	5.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Mercury	< 0.089	0.089	mg/kg	1	06/04/13	06/04/13	JB	SW846 7471B [1]	SW846 7471B [4]
Nickel	11.0	3.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Selenium	< 5.0	5.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Silver	< 3.0	3.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]
Zinc	31.1	3.0	mg/kg	1	06/04/13	06/05/13	JB	SW846 6010C [2]	SW846 3050B [5]

(1) Instrument QC Batch: MA3622
(2) Instrument QC Batch: MA3624
(3) Instrument QC Batch: MA3628
(4) Prep QC Batch: MP10176
(5) Prep QC Batch: MP10177
(6) Prep QC Batch: MP10178

RL = Reporting Limit

Report of Analysis

Client Sample ID: VOLOSHIN SS3 (8-12 IN)
Lab Sample ID: D46729-5
Matrix: SO - Soil
Project: Peakview Voloshin Morton Spill Investigation

Date Sampled: 05/31/13
Date Received: 06/01/13
Percent Solids: 95.0

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	2080	1.0	umhos/cm	1	06/06/13	RW	SM 2510B-2011 MOD
Chromium, Hexavalent	< 1.0	1.0	mg/kg	1	06/05/13	AK	SW846 3060A/7196A
Chromium, Trivalent [a]	9.6	2.0	mg/kg	1	06/05/13 08:31	JB	SW846 3060A/7196A M
Redox Potential Vs H2	321		mv	1	06/07/13	AK	ASTM D1498-76M
Solids, Percent	95		%	1	06/04/13	SWT	SM19 2540B M
pH	8.86		su	1	06/03/13 15:50	BF	SW846 9045D

(a) Calculated as: (Chromium) - (Chromium, Hexavalent)

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS3 (8-12 IN)		
Lab Sample ID:	D46729-5A	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	95.0
Project:	Peakview Voloshin Morton Spill Investigation		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Calcium	115	2.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Magnesium	97.6	1.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]
Sodium	186	2.0	mg/l	1	06/06/13	06/06/13	JB	SW846 6010C [1]	SW846 3010A/M [2]

(1) Instrument QC Batch: MA3633
(2) Prep QC Batch: MP10200

RL = Reporting Limit

Report of Analysis

Client Sample ID:	VOLOSHIN SS3 (8-12 IN)		
Lab Sample ID:	D46729-5A	**Date Sampled:**	05/31/13
Matrix:	SO - Soil	**Date Received:**	06/01/13
		Percent Solids:	95.0
Project:	Peakview Voloshin Morton Spill Investigation		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio [a]	3.08		ratio	1	06/06/13 13:52	JB	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L)+ (Mg meq/L)/2]

RL = Reporting Limit

Mountain States ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

CHAIN OF CUSTODY

1 OF 1

ACCUTEST Laboratories

10165 Harwin Drive , Houston, TX 77036 ; Phone 713-271-4700 ; Fax 713-271-4770

FED-EX Tracking #	Bottle Order Control #
Accutest Quote	Accutest Job # D46729

Client / Reporting Information

Company Name: Olsson Associates
Project Contact: Stuart Hall
E-Mail: shall@oaconsulting.com
Address: 760 Horizon Drive, Suite 102
City: Grand Junction State: CO Zip: 81506
Phone No.: 970-263-7800 Fax No.:
Samplers's Name: Jessica Sutrina

Project Information

Project Name / No.: Peakview Voloshin Morton Spill Investigation
Bill to: Olsson Assocaites Invoice Attn.: Stuart Hall
Address: 760 Horizon Drive, Suite 102
City: Grand Junction State: CO Zip: 81506
Phone No.: 970-263-7800 Fax No.:
Client Purchase Order #

Requested Analyses

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Wastewater; SO - Soil; SL - Sludge; OI - Oil; LIQ - Liquid; SOL - Other Solid

Accutest Sample #	Field ID / Point of Collection	Collection Date	Collection Time	Matrix	# of bottles	Number of preserved bottles: HCl	NaOH	HNO3	H2SO4	EnCore	NaHSO4	MeOH	NONE	TPH (GRO)	TPH (DRO)	BTEX	PAH (See List 1)	Electrical Conductivity	Sodium Adsorption Ratio	pH	Metals (See List 2)	LAB USE ONLY
	VOLOSHIN SS1 (4-8 in)	5/31/2013	0920	SO	2									X	X	X	X	X	X	X	X	01
	VOLOSHIN SS2 (24-30 in)	5/31/2013	1155	SO	2									X	X	X	X	X	X	X	X	02
	VOLOSHIN SS1 (14-20 in)	5/31/2013	0945	SO	2									X	X	X	X	X	X	X	X	03
	VOLOSHIN SS1 (36-42 in)	5/31/2013	0955	SO	2									X	X	X	X	X	X	X	X	04
	VOLOSHIN SS3 (8-12 in)	5/31/2013	1231	SO	2									X	X	X	X	X	X	X	X	05

Turnaround Time (Business days)

- [x] 10 Day *STANDARD* — Approved By:/ Date:
- [ ] 7 Day (per contract)
- [ ] 4 Day *RUSH*
- [ ] 3 Day *EMERGENCY*
- [ ] 2 Day *EMERGENCY*
- [ ] 1 Day *EMERGENCY*
- [ ] Other

Real time analytical data available via Lablink

Data Deliverable Information

- [ ] Commercial "A"
- [x] Commercial "B"
- [ ] Reduced Tier 1
- [ ] Full Data Package
- [ ] TRRP-13
- [ ] EDD Format
- [ ] Other

Commercial "A" = Results Only
Commercial "B" = Results & Standard QC

Comments / Remarks

AMS FEDEX Account Number - 467721860

List 1 - Acenaphthene, Anthracene, Benzo(A)anthracene, Benzo(B)fluoranthene, Benzo(K)fluoranthene, Benzo(A)pyrene, Chrysene, Dibenzo(A,H)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3,C,D)pyrene, Napthalene, Pyrene

List 2 - As, Ba, Cd, Cr3, Cr6, Cu, Pb, Hg, Ni, Se, Ag, Zn

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY

Relinquished by Sampler:	Date Time: 5/31/13 1600	Received By: 1	Relinquished By: 2	Date Time:	Received By: 2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # FX ☐	On Ice ☑	Cooler Temp. 2.8

5.1 5

D46729: Chain of Custody
Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D46729 **Client:** OLSSON ASSOC. **Immediate Client Services Action Required:** No

Date / Time Received: 6/1/2013 9:15:00 AM **No. Coolers:** 1 **Client Service Action Required at Login:** No

Project: PEAKVIEW VOLOSHIN MORTON SPILL INVE **Airbill #'s:** FX

Cooler Security	Y	or	N		Y	or	N
1. Custody Seals Present:	☑		☐	3. COC Present:	☑		☐
2. Custody Seals Intact:	☑		☐	4. Smpl Dates/Time OK	☑		☐

Cooler Temperature	Y	or	N
1. Temp criteria achieved:	☑		☐
2. Cooler temp verification:	Infared gun		
3. Cooler media:	Ice (bag)		

Quality Control Preservation	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	
2. Trip Blank listed on COC:	☐		☐	
3. Samples preserved properly:	☑		☐	
4. VOCs headspace free:	☐		☐	☑

Sample Integrity - Documentation	Y	or	N
1. Sample labels present on bottles:	☑		☐
2. Container labeling complete:	☑		☐
3. Sample container label / COC agree:	☑		☐

Sample Integrity - Condition	Y	or	N
1. Sample recvd within HT:	☑		☐
2. All containers accounted for:	☑		☐
3. Condition of sample:	Intact		

Sample Integrity - Instructions	Y	or	N	N/A
1. Analysis requested is clear:	☑		☐	
2. Bottles received for unspecified tests	☐		☑	
3. Sufficient volume rec'd for analysis:	☑		☐	
4. Compositing instructions clear:	☐		☐	☑
5. Filtering instructions clear:	☐		☐	☑

Comments

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www/accutest.com

5.1

5

D46729: Chain of Custody

Page 2 of 2

Mountain States ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1660-MB	5V27263.D	1	06/03/13	BD	n/a	n/a	V5V1660

The QC reported here applies to the following samples: **Method:** SW846 8260B

D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	25	ug/kg	
100-41-4	Ethylbenzene	ND	100	19	ug/kg	
108-88-3	Toluene	ND	100	50	ug/kg	
1330-20-7	Xylene (total)	ND	200	100	ug/kg	

CAS No.	Surrogate Recoveries		Limits
2037-26-5	Toluene-D8	97%	64-130%
460-00-4	4-Bromofluorobenzene	95%	62-131%
17060-07-0	1,2-Dichloroethane-D4	106%	70-130%

Blank Spike Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1660-BS	5V27264.D	1	06/03/13	BD	n/a	n/a	V5V1660

The QC reported here applies to the following samples: **Method:** SW846 8260B

D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2490	100	70-130
100-41-4	Ethylbenzene	2500	2600	104	70-130
108-88-3	Toluene	2500	2370	95	70-130
1330-20-7	Xylene (total)	7500	7840	105	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	99%	64-130%
460-00-4	4-Bromofluorobenzene	103%	62-131%
17060-07-0	1,2-Dichloroethane-D4	101%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D46727-1MS	5V27266.D	1	06/03/13	BD	n/a	n/a	V5V1660
D46727-1MSD	5V27267.D	1	06/03/13	BD	n/a	n/a	V5V1660
D46727-1	5V27265.D	1	06/03/13	BD	n/a	n/a	V5V1660

The QC reported here applies to the following samples: **Method:** SW846 8260B

D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

CAS No.	Compound	D46727-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	ND		3350	3390	101	3400	101	0	64-139/30
100-41-4	Ethylbenzene	ND		3350	3360	100	3340	100	1	68-136/30
108-88-3	Toluene	ND		3350	2970	89	2980	89	0	60-130/30
1330-20-7	Xylene (total)	ND		10100	10300	102	10300	102	0	58-142/30

CAS No.	Surrogate Recoveries	MS	MSD	D46727-1	Limits
2037-26-5	Toluene-D8	92%	93%	92%	64-130%
460-00-4	4-Bromofluorobenzene	112%	113%	107%	62-131%
17060-07-0	1,2-Dichloroethane-D4	100%	98%	98%	70-130%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7962-MB	3G14933.D	1	06/04/13	DC	06/04/13	OP7962	E3G729

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	8.3	4.3	ug/kg	
120-12-7	Anthracene	ND	8.3	4.3	ug/kg	
56-55-3	Benzo(a)anthracene	ND	8.3	4.3	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	8.3	4.3	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	8.3	4.3	ug/kg	
50-32-8	Benzo(a)pyrene	ND	8.3	4.3	ug/kg	
218-01-9	Chrysene	ND	8.3	4.3	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	8.3	4.3	ug/kg	
206-44-0	Fluoranthene	ND	8.3	4.3	ug/kg	
86-73-7	Fluorene	ND	8.3	5.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	8.3	4.3	ug/kg	
91-20-3	Naphthalene	ND	12	10	ug/kg	
129-00-0	Pyrene	ND	8.3	4.3	ug/kg	

CAS No.	Surrogate Recoveries		Limits
4165-60-0	Nitrobenzene-d5	73%	10-159%
321-60-8	2-Fluorobiphenyl	93%	19-131%
1718-51-0	Terphenyl-d14	98%	18-150%

Blank Spike Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7962-BS	3G14934.D	1	06/04/13	DC	06/04/13	OP7962	E3G729

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
83-32-9	Acenaphthene	83.3	72.9	87	68-130
120-12-7	Anthracene	83.3	71.8	86	67-130
56-55-3	Benzo(a)anthracene	83.3	70.9	85	65-130
205-99-2	Benzo(b)fluoranthene	83.3	82.6	99	44-130
207-08-9	Benzo(k)fluoranthene	83.3	73.8	89	56-131
50-32-8	Benzo(a)pyrene	83.3	73.9	89	62-130
218-01-9	Chrysene	83.3	77.5	93	70-130
53-70-3	Dibenzo(a,h)anthracene	83.3	77.0	92	55-130
206-44-0	Fluoranthene	83.3	70.1	84	70-130
86-73-7	Fluorene	83.3	71.4	86	70-130
193-39-5	Indeno(1,2,3-cd)pyrene	83.3	77.0	92	56-130
91-20-3	Naphthalene	83.3	74.8	90	70-130
129-00-0	Pyrene	83.3	73.6	88	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	75%	10-159%
321-60-8	2-Fluorobiphenyl	90%	19-131%
1718-51-0	Terphenyl-d14	95%	18-150%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7962-MS	3G14939.D	4	06/04/13	DC	06/04/13	OP7962	E3G729
OP7962-MSD	3G14940.D	4	06/04/13	DC	06/04/13	OP7962	E3G729
D46729-1 [a]	3G14938.D	4	06/04/13	DC	06/04/13	OP7962	E3G729

The QC reported here applies to the following samples: **Method:** SW846 8270C BY SIM

D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

CAS No.	Compound	D46729-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	ND		107	110	103	117	109	6	25-151/30
120-12-7	Anthracene	ND		107	106	99	113	106	6	39-159/30
56-55-3	Benzo(a)anthracene	ND		107	95.3	89	107	100	12	39-168/30
205-99-2	Benzo(b)fluoranthene	ND		107	116	109	123	115	6	24-163/30
207-08-9	Benzo(k)fluoranthene	ND		107	75.1	70	76.2	71	1	10-188/30
50-32-8	Benzo(a)pyrene	ND		107	85.4	80	90.1	84	5	32-144/30
218-01-9	Chrysene	89.3		107	156	62	179	84	14	43-150/30
53-70-3	Dibenzo(a,h)anthracene	ND		107	79.7	75	88.0	82	10	21-152/30
206-44-0	Fluoranthene	ND		107	113	106	119	111	5	36-157/30
86-73-7	Fluorene	413		107	440	25	517	97	16	10-182/30
193-39-5	Indeno(1,2,3-cd)pyrene	ND		107	79.1	74	85.8	80	8	20-154/30
91-20-3	Naphthalene	674		107	672	-2* [b]	883	195* [b]	27	10-163/30
129-00-0	Pyrene	30.2	J	107	126	90	141	104	11	25-180/30

CAS No.	Surrogate Recoveries	MS	MSD	D46729-1	Limits
4165-60-0	Nitrobenzene-d5	84%	91%	83%	10-159%
321-60-8	2-Fluorobiphenyl	87%	87%	89%	19-131%
1718-51-0	Terphenyl-d14	95%	99%	100%	18-150%

(a) Dilution required due to matrix interference. Internal standard failure without dilution.
(b) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1133-MB	GB20690.D	1	06/06/13	BD	n/a	n/a	GGB1133

The QC reported here applies to the following samples: **Method:** SW846 8015B

D46729-1, D46729-3, D46729-5

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	92%	60-140%

Method Blank Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1134-MB	GB20717.D	1	06/07/13	BD	n/a	n/a	GGB1134

The QC reported here applies to the following samples: **Method:** SW846 8015B

D46729-2, D46729-4

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries		Limits
120-82-1	1,2,4-Trichlorobenzene	90%	60-140%

Blank Spike Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1133-BS	GB20691.D	1	06/06/13	BD	n/a	n/a	GGB1133

The QC reported here applies to the following samples: **Method:** SW846 8015B

D46729-1, D46729-3, D46729-5

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	109	99	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	100%	60-140%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB1134-BS	GB20718.D	1	06/07/13	BD	n/a	n/a	GGB1134

The QC reported here applies to the following samples: **Method:** SW846 8015B

D46729-2, D46729-4

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	110	100	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	97%	60-140%

8.2.2

8

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D46848-1MS	GB20693.D	1	06/06/13	BD	n/a	n/a	GGB1133
D46848-1MSD	GB20694.D	1	06/06/13	BD	n/a	n/a	GGB1133
D46848-1	GB20692.D	1	06/06/13	BD	n/a	n/a	GGB1133

The QC reported here applies to the following samples: **Method:** SW846 8015B

D46729-1, D46729-3, D46729-5

CAS No.	Compound	D46848-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		141	140	99	139	98	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D46848-1	Limits
120-82-1	1,2,4-Trichlorobenzene	93%	96%	82%	60-140%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D46865-5MS	GB20720.D	1	06/07/13	BD	n/a	n/a	GGB1134
D46865-5MSD	GB20721.D	1	06/07/13	BD	n/a	n/a	GGB1134
D46865-5	GB20719.D	1	06/07/13	BD	n/a	n/a	GGB1134

The QC reported here applies to the following samples: **Method:** SW846 8015B

D46729-2, D46729-4

CAS No.	Compound	D46865-5 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		141	140	99	139	98	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D46865-5	Limits
120-82-1	1,2,4-Trichlorobenzene	98%	96%	90%	60-140%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7970-MB	FD25119.D	1	06/06/13	TU	06/05/13	OP7970	GFD1248

The QC reported here applies to the following samples: **Method:** SW846-8015B

D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	6.7	5.0	mg/kg	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	101%	35-130%

Blank Spike Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7970-BS	FD25121.D	1	06/06/13	TU	06/05/13	OP7970	GFD1248

The QC reported here applies to the following samples: **Method:** SW846-8015B

D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	679	102	48-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	106%	35-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D46729
Account: CORCCOGJ Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP7970-MS	FD25123.D	1	06/06/13	TU	06/05/13	OP7970	GFD1248
OP7970-MSD	FD25125.D	1	06/06/13	TU	06/05/13	OP7970	GFD1248
D46791-1	FD25135.D	1	06/06/13	TU	06/05/13	OP7970	GFD1248

The QC reported here applies to the following samples: **Method:** SW846-8015B

D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

CAS No.	Compound	D46791-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	134		758	718	77	779	85	8	20-168/30

CAS No.	Surrogate Recoveries	MS	MSD	D46791-1	Limits
84-15-1	o-Terphenyl	81%	85%	75%	35-130%

* = Outside of Control Limits.

Mountain States ACCUTEST LABORATORIES

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10176 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 06/04/13

Metal	RL	IDL	MDL	MB raw	final
Mercury	0.083	.00088	.0067	-0.0012	<0.083

Associated samples MP10176: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10176 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 06/04/13

Metal	D46739-1 Original	MS	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.020	0.38	0.364	98.9	75-125

Associated samples MP10176: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10176 Methods: SW846 7471B
Matrix Type: SOLID Units: mg/kg

Prep Date: 06/04/13

Metal	D46739-1 Original	MSD	Spikelot HGWSR1	% Rec	MSD RPD	QC Limit
Mercury	0.020	0.37	0.364	96.1	2.7	20

Associated samples MP10176: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10176
Matrix Type: SOLID

Methods: SW846 7471B
Units: mg/kg

Prep Date: 06/04/13

Metal	BSP Result	Spikelot HGWSR1	% Rec	QC Limits
Mercury	0.33	0.333	99.0	80-120

Associated samples MP10176: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10177
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/04/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	10	.86	1.8		
Antimony	3.0	.32	.5		
Arsenic	2.5	.52	.63		
Barium	1.0	.14	.36	0.090	<1.0
Beryllium	1.0	.08	.06		
Boron	5.0	.67	.16		
Cadmium	1.0	.04	.28	0.010	<1.0
Calcium	40	.22	6.8		
Chromium	1.0	.04	.03	0.070	<1.0
Cobalt	0.50	.04	.039		
Copper	1.0	.12	.13	0.070	<1.0
Iron	7.0	.22	1.8		
Lead	5.0	.36	.25	0.26	<5.0
Lithium	0.50	.19	.13		
Magnesium	20	1.4	1.8		
Manganese	0.50	.001	.038		
Molybdenum	1.0	.08	.13		
Nickel	3.0	.09	.07	-0.010	<3.0
Phosphorus	10	1.5	1.2		
Potassium	200	13	12		
Selenium	5.0	.88	1.1	-0.23	<5.0
Silicon	5.0	.52	1.1		
Silver	3.0	.04	.05	0.0	<3.0
Sodium	40	.49	3.7		
Strontium	5.0	.001	.022		
Thallium	1.0	.29	.46		
Tin	5.0	1.3	2.3		
Titanium	1.0	.015	.46		
Uranium	5.0	.37	.31		
Vanadium	1.0	.04	.043		
Zinc	3.0	.06	.16	-0.050	<3.0

Associated samples MP10177: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10177
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10177
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/04/13

Metal	D46729-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr				
Antimony	anr				
Arsenic	anr				
Barium	229	521	252	116.0	75-125
Beryllium	anr				
Boron					
Cadmium	0.23	49.5	62.9	78.3	75-125
Calcium					
Chromium	12.1	61.4	62.9	78.3	75-125
Cobalt	anr				
Copper	14.6	67.8	62.9	84.5	75-125
Iron	anr				
Lead	13.4	109	126	76.0	75-125
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	15.9	62.9	62.9	74.7N(a)	75-125
Phosphorus					
Potassium					
Selenium	1.4	97.5	126	76.4	75-125
Silicon					
Silver	0.0	20.8	25.2	82.6	75-125
Sodium					
Strontium					
Thallium	anr				
Tin					
Titanium					
Uranium					
Vanadium	anr				
Zinc	50.8	95.3	62.9	70.7N(a)	75-125

Associated samples MP10177: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10177
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10177 Methods: SW846 6010C
Matrix Type: SOLID Units: mg/kg

Prep Date: 06/04/13

Metal	D46729-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	229	332	225	45.7N(a)	44.3 (b)	20
Beryllium	anr					
Boron						
Cadmium	0.23	44.5	56.3	78.6	10.6	20
Calcium						
Chromium	12.1	55.9	56.3	77.8	9.4	20
Cobalt	anr					
Copper	14.6	60.8	56.3	82.1	10.9	20
Iron	anr					
Lead	13.4	101	113	77.8	7.6	20
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	15.9	57.5	56.3	73.9N(a)	9.0	20
Phosphorus						
Potassium						
Selenium	1.4	86.8	113	75.8	11.6	20
Silicon						
Silver	0.0	18.7	22.5	83.0	10.6	20
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium						
Vanadium	anr					
Zinc	50.8	86.3	56.3	63.1N(a)	9.9	20

Associated samples MP10177: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10177
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference.
(b) High RPD due to possible sample matrix or nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10177
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date: 06/04/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	199	200	99.5	80-120
Beryllium	anr			
Boron				
Cadmium	46.1	50	92.2	80-120
Calcium				
Chromium	47.8	50	95.6	80-120
Cobalt	anr			
Copper	47.4	50	94.8	80-120
Iron	anr			
Lead	93.6	100	93.6	80-120
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	47.2	50	94.4	80-120
Phosphorus				
Potassium				
Selenium	93.1	100	93.1	80-120
Silicon				
Silver	19.2	20	96.0	80-120
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	48.3	50	96.6	80-120

Associated samples MP10177: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10177
Matrix Type: SOLID

Methods: SW846 6010C
Units: mg/kg

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10177 Methods: SW846 6010C
Matrix Type: SOLID Units: ug/l

Prep Date: 06/04/13

Metal	D46729-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	2050	2460	19.8*(a)	0-10
Beryllium	anr			
Boron				
Cadmium	2.10	0.00	100.0(b)	0-10
Calcium				
Chromium	108	128	18.2*(a)	0-10
Cobalt	anr			
Copper	131	147	12.1*(a)	0-10
Iron	anr			
Lead	120	164	36.4 (b)	0-10
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	142	175	22.6*(a)	0-10
Phosphorus				
Potassium				
Selenium	12.7	0.00	100.0(b)	0-10
Silicon				
Silver	0.00	2.00	NC	0-10
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium				
Vanadium	anr			
Zinc	456	564	23.8*(a)	0-10

Associated samples MP10177: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10177 Methods: SW846 6010C
Matrix Type: SOLID Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested
(a) Serial dilution indicates possible matrix interference.
(b) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10178
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/04/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.55	.75		
Antimony	0.20	.0011	.029		
Arsenic	0.10	.0085	.024	0.037	<0.10
Barium	1.0	.008	.16		
Beryllium	0.10	.008	.049		
Boron	20	.25	.07		
Cadmium	0.050	.018	.038		
Calcium	200	2.8	13		
Chromium	1.0	.027	.11		
Cobalt	0.10	.0025	.0085		
Copper	1.0	.03	.1		
Iron	5.0	1.8	1.8		
Lead	0.25	.004	.0075		
Magnesium	50	.65	.65		
Manganese	0.50	.06	.07		
Molybdenum	0.50	.025	.046		
Nickel	1.0	.0044	.17		
Phosphorus	30	1.3	4.9		
Potassium	100	1.5	2.5		
Selenium	0.20	.03	.13		
Silver	0.050	.00095	.01		
Sodium	250	2.5	5.5		
Strontium	10	.005	.027		
Thallium	0.10	.0012	.0075		
Thorium	0.25	.004			
Tin	5.0	.032	2.3		
Titanium	1.0	.03	.085		
Uranium	0.25	.00085	.0015		
Vanadium	2.0	.019	.11		
Zinc	5.0	.11	1.4		

Associated samples MP10178: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10178
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/04/13

Metal	D46729-1 Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	8.1	137	126	102.4	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Thorium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP10178: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10178 Methods: SW846 6020A
Matrix Type: SOLID Units: mg/kg

Prep Date: 06/04/13

Metal	D46729-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	8.1	128	113	106.5	6.8	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Thorium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP10178: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10178
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 06/04/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	102	100	102.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Thorium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP10178: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10178
Matrix Type: SOLID

Methods: SW846 6020A
Units: ug/l

Prep Date: 06/04/13

Metal	D46729-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	72.6	79.8	9.9	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Thorium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP10178: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10200
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 06/06/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	500	43	210		
Antimony	150	16	95		
Arsenic	130	26	28		
Barium	50	7	7		
Beryllium	50	4	6		
Boron	250	34	33		
Cadmium	50	2	1.8		
Calcium	2000	11	210	17.0	<2000
Chromium	50	2	2		
Cobalt	25	2	2.9		
Copper	50	6	9.5		
Iron	350	11	48		
Lead	250	18	110		
Lithium	25	9.5	14		
Magnesium	1000	70	95	7.0	<1000
Manganese	25	.05	2.3		
Molybdenum	50	4	4.2		
Nickel	150	4.5	4.4		
Phosphorus	500	75	100		
Potassium	5000	650	1400		
Selenium	250	44	55		
Silicon	250	26	26		
Silver	150	2	3		
Sodium	2000	25	850	180	<2000
Strontium	25	.05	.6		
Thallium	50	15	20		
Tin	250	65	80		
Titanium	50	.75	11		
Uranium	250	19	28		
Vanadium	50	2	2		
Zinc	150	3	16		

Associated samples MP10200: D46729-1A, D46729-2A, D46729-3A, D46729-4A, D46729-5A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10200
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10200
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 06/06/13

Metal	D46729-5A Original	MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Boron					
Cadmium					
Calcium	115000	246000	125000	104.8	75-125
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Lithium					
Magnesium	97600	232000	125000	107.5	75-125
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium	186000	310000	125000	99.2	75-125
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP10200: D46729-1A, D46729-2A, D46729-3A, D46729-4A, D46729-5A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10200
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10200
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 06/06/13

Metal	D46729-5A Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Boron						
Cadmium						
Calcium	115000	242000	125000	101.6	1.6	20
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Lithium						
Magnesium	97600	228000	125000	104.3	1.7	20
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium	186000	310000	125000	99.2	0.0	20
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP10200: D46729-1A, D46729-2A, D46729-3A, D46729-4A, D46729-5A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10200
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date:

Metal

(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10200
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 06/06/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	130000	125000	104.0	80-120
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	137000	125000	109.6	80-120
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	140000	125000	112.0	80-120
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP10200: D46729-1A, D46729-2A, D46729-3A, D46729-4A, D46729-5A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10200
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10200
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date: 06/06/13

Metal	D46729-5A Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Boron				
Cadmium				
Calcium	23000	23400	2.1	0-10
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Lithium				
Magnesium	19500	19900	1.8	0-10
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium	37100	37400	0.6	0-10
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP10200: D46729-1A, D46729-2A, D46729-3A, D46729-4A, D46729-5A

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits

SERIAL DILUTION RESULTS SUMMARY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

QC Batch ID: MP10200
Matrix Type: AQUEOUS

Methods: SW846 6010C, USDA HANDBOOK 60
Units: ug/l

Prep Date:

Metal

(anr) Analyte not requested

Mountain States ACCUTEST LABORATORIES

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chromium, Hexavalent	GP10135/GN20470	1.0	0.0	mg/kg	92.9	84.4	91.0	80-120%
Specific Conductivity	GP10140/GN20482			umhos/cm	9992	9870	98.8	90-110%
pH	GN20429			su	8.00	8.03	100.4	99.3-100.7%

Associated Samples:
Batch GN20429: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5
Batch GP10135: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5
Batch GP10140: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Chromium, Hexavalent	GP10135/GN20470	D46748-3	mg/kg	0.0	0.0	0.0	0-20%
Redox Potential Vs H2	GN20512	D46729-5	mv	321	310	3.5	0-20%

Associated Samples:
Batch GN20512: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5
Batch GP10135: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5
(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chromium, Hexavalent	GP10135/GN20470	D46748-3	mg/kg	0.0	40	35.5	89.0	75-125%

Associated Samples:
Batch GP10135: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D46729
Account: CORCCOGJ - Olsson Associates
Project: Peakview Voloshin Morton Spill Investigation

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chromium, Hexavalent	GP10135/GN20470	D46748-3	mg/kg	0.0	40	33.4	6.3	20%

Associated Samples:
Batch GP10135: D46729-1, D46729-2, D46729-3, D46729-4, D46729-5
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits