UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

October 6, 2014

Vickie Jarvis
11174 Green Acres Road
Mineral Point, MO 63660

Dear Vickie Jarvis:

Attached find the analytical data package for the proposed backfill that was sampled on 3 October 2014. There were three samples taken at 0-12 inch depth; 12 – 30 inch depth and 30 – 48 inch depth. Results indicate that no EPA Regional Screening levels for the contaminants analyzed for were exceeded. The data package and a summary of the data is enclosed.

Please call me at (913)551-7005 if you have any other questions or concerns about this activity.

Sincerely,

Janice Kroone, On-Scene Coordinator
Planning and Preparedness North Section
Superfund Division

Enclosures: Pace Analytical Environmental Data Package
Analytical Data Summary for Proposed Borrow Area

07CR 40478863 2.0
Superfund
OU-01
Printed on Recycled Paper

Analytical Data Summary for Proposed Borrow Area
Big River Mine Tailings - Operable Unit-1 Site, St Francois County, Missouri

Analytical Method	Jarvis Field 3				EPA Regional Screening Level for Residential Soil
	(0-1 in bgs)	(0-12 in bgs)	(12-30 in bgs)	(30-48 in bgs)	
Volatile Organic Compounds (µg/kg)	No analytes detected	Not analyzed	Not analyzed	Not analyzed	- -
Semivolatile Organic Compounds (µg/kg)	Not analyzed	No analytes detected			- -
Organochlorine Herbicides (µg/kg)	Not analyzed	No analytes detected			- -
Organochlorine Pesticides (µg/kg)	Not analyzed	No analytes detected			- -
Total Metals (mg/kg)					
Arsenic	Not analyzed	6.8	6.6	7.1	22
Barium	Not analyzed	174	128	141	15,000
Cadmium	Not analyzed	ND	ND	ND	70
Chromium	Not analyzed	13	14.1	14.9	not established
Lead	Not analyzed	51	38.6	42.1	100
Manganese	Not analyzed	1050	841	989	1800
Zinc	Not analyzed	55.5	53.0	60.3	not established

NOTES:
Samples collected on October 3, 2014.

in bgs Inches below ground surface
ND Not detected at or above adjusted reporting limit.
U Analyzed but not detected above the method detection limit.
µg/kg micrograms per kilogram
VOCs Volatile Organic Compounds

GPS Coordinates for Sampling Locations

	Latitude	Longitude
VOCs	37.869701	-90.663513
Trench #1	37.867168	-90.665076
Trench #2	37.869714	-90.60432
Trench #3	37.869534	-90.664495
Trench #4	37.86844	-90.665104
Trench #5	37.867928	-90.665389

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October 13, 2014

Emily Fisher
TETRA TECH EMI
415 Oak
Kansas City, MO 64106

RE: Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Dear Emily Fisher:
Enclosed are the analytical results for sample(s) received by the laboratory on October 07, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sherri Rosenstangle

Sherri Rosenstangle
sherri.rosenstangle@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
WY STR Certification #: 2456.01
Arkansas Certification #: 13-012-0
Illinois Certification #: 003097
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407
Utah Certification #: KS00021

Dallas Certification IDs:
400 West Bethany Dr Suite 190 75013 Allen TX 75013
EPA# TX00074
Texas Certification #: T104704232-14-8
Kansas Certification #: E-10388
Arkansas Certification #: 88-0647
Oklahoma Certification #: 2014-055
Louisiana Certification #: 02007

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SAMPLE SUMMARY

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60179657001	**JARVIS FIELD 3**	Solid	10/03/14 12:00	10/07/14 08:30
60179657002	**JARVIS FIELD 3 (0-12)**	Solid	10/03/14 14:20	10/07/14 08:30
60179657003	**JARVIS FIELD 3 (12-30)**	Solid	10/03/14 14:25	10/07/14 08:30
60179657004	**JARVIS FIELD 3 (30-48)**	Solid	10/03/14 14:30	10/07/14 08:30

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SAMPLE ANALYTE COUNT

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60179657001	**JARVIS FIELD 3**	EPA 8260	TJT	68	PASI-K
		ASTM D2974	DWC	1	PASI-K
60179657002	**JARVIS FIELD 3 (0-12)**	EPA 8081	TA	23	PASI-D
		EPA 8151	PMS	11	PASI-D
		EPA 6010	JGP	7	PASI-K
		EPA 8270	JMT	72	PASI-K
		ASTM D2974	DWC	1	PASI-K
60179657003	**JARVIS FIELD 3 (12-30)**	EPA 8081	TA	23	PASI-D
		EPA 8151	PMS	11	PASI-D
		EPA 6010	JGP	7	PASI-K
		EPA 8270	JMT	72	PASI-K
		ASTM D2974	DWC	1	PASI-K
60179657004	**JARVIS FIELD 3 (30-48)**	EPA 8081	TA	23	PASI-D
		EPA 8151	PMS	11	PASI-D
		EPA 6010	JGP	7	PASI-K
		EPA 8270	JMT	72	PASI-K
		ASTM D2974	DWC	1	PASI-K

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 **Lab ID: 60179657001** Collected: 10/03/14 12:00 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	25.1	1		10/08/14 18:34	67-64-1	
Benzene	ND	ug/kg	6.3	1		10/08/14 18:34	71-43-2	
Bromobenzene	ND	ug/kg	6.3	1		10/08/14 18:34	108-86-1	
Bromochloromethane	ND	ug/kg	6.3	1		10/08/14 18:34	74-97-5	
Bromodichloromethane	ND	ug/kg	6.3	1		10/08/14 18:34	75-27-4	
Bromoform	ND	ug/kg	6.3	1		10/08/14 18:34	75-25-2	
Bromomethane	ND	ug/kg	6.3	1		10/08/14 18:34	74-83-9	
2-Butanone (MEK)	ND	ug/kg	12.6	1		10/08/14 18:34	78-93-3	
n-Butylbenzene	ND	ug/kg	6.3	1		10/08/14 18:34	104-51-8	
sec-Butylbenzene	ND	ug/kg	6.3	1		10/08/14 18:34	135-98-8	
tert-Butylbenzene	ND	ug/kg	6.3	1		10/08/14 18:34	98-06-6	
Carbon disulfide	ND	ug/kg	6.3	1		10/08/14 18:34	75-15-0	
Carbon tetrachloride	ND	ug/kg	6.3	1		10/08/14 18:34	56-23-5	
Chlorobenzene	ND	ug/kg	6.3	1		10/08/14 18:34	108-90-7	
Chloroethane	ND	ug/kg	6.3	1		10/08/14 18:34	75-00-3	
Chloroform	ND	ug/kg	6.3	1		10/08/14 18:34	67-66-3	
Chloromethane	ND	ug/kg	6.3	1		10/08/14 18:34	74-87-3	
2-Chlorotoluene	ND	ug/kg	6.3	1		10/08/14 18:34	95-49-8	
4-Chlorotoluene	ND	ug/kg	6.3	1		10/08/14 18:34	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	12.6	1		10/08/14 18:34	96-12-8	
Dibromochloromethane	ND	ug/kg	6.3	1		10/08/14 18:34	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	6.3	1		10/08/14 18:34	106-93-4	
Dibromomethane	ND	ug/kg	6.3	1		10/08/14 18:34	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	6.3	1		10/08/14 18:34	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	6.3	1		10/08/14 18:34	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	6.3	1		10/08/14 18:34	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	6.3	1		10/08/14 18:34	75-71-8	
1,1-Dichloroethane	ND	ug/kg	6.3	1		10/08/14 18:34	75-34-3	
1,2-Dichloroethane	ND	ug/kg	6.3	1		10/08/14 18:34	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	6.3	1		10/08/14 18:34	540-59-0	
1,1-Dichloroethene	ND	ug/kg	6.3	1		10/08/14 18:34	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	6.3	1		10/08/14 18:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	6.3	1		10/08/14 18:34	156-60-5	
1,2-Dichloropropane	ND	ug/kg	6.3	1		10/08/14 18:34	78-87-5	
1,3-Dichloropropane	ND	ug/kg	6.3	1		10/08/14 18:34	142-28-9	
2,2-Dichloropropane	ND	ug/kg	6.3	1		10/08/14 18:34	594-20-7	
1,1-Dichloropropene	ND	ug/kg	6.3	1		10/08/14 18:34	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	6.3	1		10/08/14 18:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	6.3	1		10/08/14 18:34	10061-02-6	
Ethylbenzene	ND	ug/kg	6.3	1		10/08/14 18:34	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	6.3	1		10/08/14 18:34	87-68-3	
2-Hexanone	ND	ug/kg	25.1	1		10/08/14 18:34	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	6.3	1		10/08/14 18:34	98-82-8	
p-Isopropyltoluene	ND	ug/kg	6.3	1		10/08/14 18:34	99-87-6	
Methylene chloride	ND	ug/kg	6.3	1		10/08/14 18:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	12.6	1		10/08/14 18:34	108-10-1	

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 **Lab ID: 60179657001** Collected: 10/03/14 12:00 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Methyl-tert-butyl ether	ND	ug/kg	6.3	1		10/08/14 18:34	1634-04-4	
Naphthalene	ND	ug/kg	12.6	1		10/08/14 18:34	91-20-3	
n-Propylbenzene	ND	ug/kg	6.3	1		10/08/14 18:34	103-65-1	
Styrene	ND	ug/kg	6.3	1		10/08/14 18:34	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	6.3	1		10/08/14 18:34	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	6.3	1		10/08/14 18:34	79-34-5	
Tetrachloroethene	ND	ug/kg	6.3	1		10/08/14 18:34	127-18-4	
Toluene	ND	ug/kg	6.3	1		10/08/14 18:34	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	6.3	1		10/08/14 18:34	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	6.3	1		10/08/14 18:34	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	6.3	1		10/08/14 18:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	6.3	1		10/08/14 18:34	79-00-5	
Trichloroethene	ND	ug/kg	6.3	1		10/08/14 18:34	79-01-6	
Trichlorofluoromethane	ND	ug/kg	6.3	1		10/08/14 18:34	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	6.3	1		10/08/14 18:34	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	6.3	1		10/08/14 18:34	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	6.3	1		10/08/14 18:34	108-67-8	
Vinyl chloride	ND	ug/kg	6.3	1		10/08/14 18:34	75-01-4	
Xylene (Total)	ND	ug/kg	6.3	1		10/08/14 18:34	1330-20-7	
Surrogates								
Toluene-d8 (S)	100	%	80-120	1		10/08/14 18:34	2037-26-5	
4-Bromofluorobenzene (S)	98	%	76-123	1		10/08/14 18:34	460-00-4	
1,2-Dichloroethane-d4 (S)	105	%	75-129	1		10/08/14 18:34	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	**26.7**	%	0.50	1		10/08/14 00:00		

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 (0-12) **Lab ID: 60179657002** Collected: 10/03/14 14:20 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8081 GCS Pesticides	Analytical Method: EPA 8081 Preparation Method: EPA 3546							
Aldrin	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	309-00-2	
alpha-BHC	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	319-84-6	
beta-BHC	ND	ug/kg	2.0	1	10/10/14 07:50	10/10/14 13:55	319-85-7	
delta-BHC	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	319-86-8	
gamma-BHC (Lindane)	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	58-89-9	
alpha-Chlordane	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	5103-71-9	
gamma-Chlordane	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	5103-74-2	
4,4'-DDD	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 13:55	72-54-8	
4,4'-DDE	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 13:55	72-55-9	
4,4'-DDT	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 13:55	50-29-3	
Dieldrin	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	60-57-1	
Endosulfan I	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	959-98-8	
Endosulfan II	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 13:55	33213-65-9	
Endosulfan sulfate	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	1031-07-8	
Endrin	ND	ug/kg	2.0	1	10/10/14 07:50	10/10/14 13:55	72-20-8	
Endrin aldehyde	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	7421-93-4	
Endrin ketone	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 13:55	53494-70-5	
Heptachlor	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 13:55	76-44-8	
Heptachlor epoxide	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 13:55	1024-57-3	
Methoxychlor	ND	ug/kg	2.0	1	10/10/14 07:50	10/10/14 13:55	72-43-5	
Toxaphene	ND	ug/kg	39.6	1	10/10/14 07:50	10/10/14 13:55	8001-35-2	
Surrogates								
Tetrachloro-m-xylene (S)	66	%.	40-140	1	10/10/14 07:50	10/10/14 13:55	877-09-8	
Decachlorobiphenyl (S)	40	%.	40-140	1	10/10/14 07:50	10/10/14 13:55	2051-24-3	
8151 Chlorinated Herbicides	Analytical Method: EPA 8151 Preparation Method: EPA 8151							
2,4-D	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 10:42	94-75-7	
Dalapon	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 10:42	75-99-0	
2,4-DB	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 10:42	94-82-6	
Dicamba	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 10:42	1918-00-9	
Dichloroprop	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 10:42	120-36-5	
Dinoseb	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 10:42	88-85-7	
MCPA	ND	ug/kg	197	1	10/09/14 12:00	10/13/14 10:42	94-74-6	
MCPP	ND	ug/kg	197	1	10/09/14 12:00	10/13/14 10:42	7085-19-0	
2,4,5-T	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 10:42	93-76-5	
2,4,5-TP (Silvex)	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 10:42	93-72-1	
Surrogates								
2,4-DCAA (S)	123	%.	40-140	1	10/09/14 12:00	10/13/14 10:42	19719-28-9	
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Arsenic	**6.8**	mg/kg	1.2	1	10/08/14 10:00	10/08/14 15:32	7440-38-2	
Barium	**174**	mg/kg	1.2	1	10/08/14 10:00	10/08/14 15:32	7440-39-3	
Cadmium	ND	mg/kg	0.59	1	10/08/14 10:00	10/08/14 15:32	7440-43-9	
Chromium	**13.0**	mg/kg	0.59	1	10/08/14 10:00	10/08/14 15:32	7440-47-3	
Lead	**51.0**	mg/kg	1.2	1	10/08/14 10:00	10/08/14 15:32	7439-92-1	
Manganese	**1050**	mg/kg	0.59	1	10/08/14 10:00	10/08/14 15:32	7439-96-5	

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 (0-12) **Lab ID: 60179657002** Collected: 10/03/14 14:20 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Zinc	**55.5**	mg/kg	11.9	1	10/08/14 10:00	10/08/14 15:32	7440-66-6	
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	83-32-9	
Acenaphthylene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	208-96-8	
Anthracene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	120-12-7	
Benzo(a)anthracene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	56-55-3	
Benzo(a)pyrene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	207-08-9	
Benzoic acid	ND	ug/kg	1970	1	10/09/14 00:00	10/12/14 10:30	65-85-0	
Benzyl alcohol	ND	ug/kg	778	1	10/09/14 00:00	10/12/14 10:30	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	101-55-3	
Butylbenzylphthalate	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	85-68-7	
4-Chloro-3-methylphenol	ND	ug/kg	778	1	10/09/14 00:00	10/12/14 10:30	59-50-7	
4-Chloroaniline	ND	ug/kg	778	1	10/09/14 00:00	10/12/14 10:30	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	39638-32-9	
2-Chloronaphthalene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	91-58-7	
2-Chlorophenol	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	7005-72-3	
Chrysene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	53-70-3	
Dibenzofuran	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	778	1	10/09/14 00:00	10/12/14 10:30	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	120-83-2	
Diethylphthalate	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	105-67-9	
Dimethylphthalate	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	131-11-3	
Di-n-butylphthalate	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1970	1	10/09/14 00:00	10/12/14 10:30	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1970	1	10/09/14 00:00	10/12/14 10:30	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	606-20-2	
Di-n-octylphthalate	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	117-81-7	
Fluoranthene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	206-44-0	
Fluorene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	87-68-3	
Hexachlorobenzene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	77-47-4	

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 (0-12) **Lab ID: 60179657002** Collected: 10/03/14 14:20 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Hexachloroethane	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	193-39-5	
Isophorone	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	78-59-1	
2-Methylnaphthalene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30		
Naphthalene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	91-20-3	
2-Nitroaniline	ND	ug/kg	778	1	10/09/14 00:00	10/12/14 10:30	88-74-4	
3-Nitroaniline	ND	ug/kg	778	1	10/09/14 00:00	10/12/14 10:30	99-09-2	
4-Nitroaniline	ND	ug/kg	778	1	10/09/14 00:00	10/12/14 10:30	100-01-6	
Nitrobenzene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	98-95-3	
2-Nitrophenol	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	88-75-5	
4-Nitrophenol	ND	ug/kg	1970	1	10/09/14 00:00	10/12/14 10:30	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	86-30-6	
Pentachlorophenol	ND	ug/kg	1970	1	10/09/14 00:00	10/12/14 10:30	87-86-5	
Phenanthrene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	85-01-8	
Phenol	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	108-95-2	
Pyrene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	129-00-0	
Pyridine	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	110-86-1	
1,2,4-Trichlorobenzene	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	389	1	10/09/14 00:00	10/12/14 10:30	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	72	%	15-155	1	10/09/14 00:00	10/12/14 10:30	4165-60-0	
2-Fluorobiphenyl (S)	72	%	20-159	1	10/09/14 00:00	10/12/14 10:30	321-60-8	
Terphenyl-d14 (S)	74	%	18-160	1	10/09/14 00:00	10/12/14 10:30	1718-51-0	
Phenol-d6 (S)	68	%	44-120	1	10/09/14 00:00	10/12/14 10:30	13127-88-3	
2-Fluorophenol (S)	63	%	38-120	1	10/09/14 00:00	10/12/14 10:30	367-12-4	
2,4,6-Tribromophenol (S)	71	%	36-120	1	10/09/14 00:00	10/12/14 10:30	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	**16.0**	%	0.50	1		10/08/14 00:00		

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 (12-30) **Lab ID: 60179657003** Collected: 10/03/14 14:25 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8081 GCS Pesticides	Analytical Method: EPA 8081 Preparation Method: EPA 3546							
Aldrin	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	309-00-2	
alpha-BHC	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	319-84-6	
beta-BHC	ND	ug/kg	1.9	1	10/10/14 07:50	10/10/14 15:34	319-85-7	
delta-BHC	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	319-86-8	
gamma-BHC (Lindane)	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	58-89-9	
alpha-Chlordane	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	5103-71-9	
gamma-Chlordane	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	5103-74-2	
4,4'-DDD	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 15:34	72-54-8	
4,4'-DDE	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 15:34	72-55-9	
4,4'-DDT	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 15:34	50-29-3	
Dieldrin	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	60-57-1	
Endosulfan I	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	959-98-8	
Endosulfan II	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 15:34	33213-65-9	
Endosulfan sulfate	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	1031-07-8	
Endrin	ND	ug/kg	1.9	1	10/10/14 07:50	10/10/14 15:34	72-20-8	
Endrin aldehyde	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	7421-93-4	
Endrin ketone	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 15:34	53494-70-5	
Heptachlor	ND	ug/kg	0.77	1	10/10/14 07:50	10/10/14 15:34	76-44-8	
Heptachlor epoxide	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 15:34	1024-57-3	
Methoxychlor	ND	ug/kg	1.9	1	10/10/14 07:50	10/10/14 15:34	72-43-5	
Toxaphene	ND	ug/kg	38.4	1	10/10/14 07:50	10/10/14 15:34	8001-35-2	
Surrogates								
Tetrachloro-m-xylene (S)	67	%.	40-140	1	10/10/14 07:50	10/10/14 15:34	877-09-8	
Decachlorobiphenyl (S)	45	%.	40-140	1	10/10/14 07:50	10/10/14 15:34	2051-24-3	
8151 Chlorinated Herbicides	Analytical Method: EPA 8151 Preparation Method: EPA 8151							
2,4-D	ND	ug/kg	1.9	1	10/09/14 12:00	10/13/14 12:17	94-75-7	M1
Dalapon	ND	ug/kg	1.9	1	10/09/14 12:00	10/13/14 12:17	75-99-0	
2,4-DB	ND	ug/kg	1.9	1	10/09/14 12:00	10/13/14 12:17	94-82-6	
Dicamba	ND	ug/kg	1.9	1	10/09/14 12:00	10/13/14 12:17	1918-00-9	
Dichloroprop	ND	ug/kg	1.9	1	10/09/14 12:00	10/13/14 12:17	120-36-5	M1
Dinoseb	ND	ug/kg	1.9	1	10/09/14 12:00	10/13/14 12:17	88-85-7	
MCPA	ND	ug/kg	191	1	10/09/14 12:00	10/13/14 12:17	94-74-6	
MCPP	ND	ug/kg	191	1	10/09/14 12:00	10/13/14 12:17	7085-19-0	M1
2,4,5-T	ND	ug/kg	1.9	1	10/09/14 12:00	10/13/14 12:17	93-76-5	
2,4,5-TP (Silvex)	ND	ug/kg	1.9	1	10/09/14 12:00	10/13/14 12:17	93-72-1	
Surrogates								
2,4-DCAA (S)	108	%.	40-140	1	10/09/14 12:00	10/13/14 12:17	19719-28-9	
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Arsenic	**6.6**	mg/kg	0.95	1	10/08/14 10:00	10/08/14 15:35	7440-38-2	
Barium	**128**	mg/kg	0.95	1	10/08/14 10:00	10/08/14 15:35	7440-39-3	
Cadmium	ND	mg/kg	0.47	1	10/08/14 10:00	10/08/14 15:35	7440-43-9	
Chromium	**14.1**	mg/kg	0.47	1	10/08/14 10:00	10/08/14 15:35	7440-47-3	
Lead	**38.6**	mg/kg	0.95	1	10/08/14 10:00	10/08/14 15:35	7439-92-1	
Manganese	**841**	mg/kg	0.47	1	10/08/14 10:00	10/08/14 15:35	7439-96-5	

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 (12-30) **Lab ID: 60179657003** Collected: 10/03/14 14:25 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Zinc	**53.0**	mg/kg	9.5	1	10/08/14 10:00	10/08/14 15:35	7440-66-6	
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	83-32-9	
Acenaphthylene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	208-96-8	
Anthracene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	120-12-7	
Benzo(a)anthracene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	56-55-3	
Benzo(a)pyrene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	207-08-9	
Benzoic acid	ND	ug/kg	1910	1	10/09/14 00:00	10/12/14 10:51	65-85-0	
Benzyl alcohol	ND	ug/kg	757	1	10/09/14 00:00	10/12/14 10:51	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	101-55-3	
Butylbenzylphthalate	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	85-68-7	
4-Chloro-3-methylphenol	ND	ug/kg	757	1	10/09/14 00:00	10/12/14 10:51	59-50-7	
4-Chloroaniline	ND	ug/kg	757	1	10/09/14 00:00	10/12/14 10:51	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	39638-32-9	
2-Chloronaphthalene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	91-58-7	
2-Chlorophenol	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	7005-72-3	
Chrysene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	53-70-3	
Dibenzofuran	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	757	1	10/09/14 00:00	10/12/14 10:51	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	120-83-2	
Diethylphthalate	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	105-67-9	
Dimethylphthalate	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	131-11-3	
Di-n-butylphthalate	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1910	1	10/09/14 00:00	10/12/14 10:51	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1910	1	10/09/14 00:00	10/12/14 10:51	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	606-20-2	
Di-n-octylphthalate	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	117-81-7	
Fluoranthene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	206-44-0	
Fluorene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	87-68-3	
Hexachlorobenzene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	77-47-4	

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 (12-30) **Lab ID: 60179657003** Collected: 10/03/14 14:25 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Hexachloroethane	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	193-39-5	
Isophorone	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	78-59-1	
2-Methylnaphthalene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51		
Naphthalene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	91-20-3	
2-Nitroaniline	ND	ug/kg	757	1	10/09/14 00:00	10/12/14 10:51	88-74-4	
3-Nitroaniline	ND	ug/kg	757	1	10/09/14 00:00	10/12/14 10:51	99-09-2	
4-Nitroaniline	ND	ug/kg	757	1	10/09/14 00:00	10/12/14 10:51	100-01-6	
Nitrobenzene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	98-95-3	
2-Nitrophenol	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	88-75-5	
4-Nitrophenol	ND	ug/kg	1910	1	10/09/14 00:00	10/12/14 10:51	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	86-30-6	
Pentachlorophenol	ND	ug/kg	1910	1	10/09/14 00:00	10/12/14 10:51	87-86-5	
Phenanthrene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	85-01-8	
Phenol	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	108-95-2	
Pyrene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	129-00-0	
Pyridine	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	110-86-1	
1,2,4-Trichlorobenzene	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	378	1	10/09/14 00:00	10/12/14 10:51	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	82	%	15-155	1	10/09/14 00:00	10/12/14 10:51	4165-60-0	
2-Fluorobiphenyl (S)	82	%	20-159	1	10/09/14 00:00	10/12/14 10:51	321-60-8	
Terphenyl-d14 (S)	82	%	18-160	1	10/09/14 00:00	10/12/14 10:51	1718-51-0	
Phenol-d6 (S)	74	%	44-120	1	10/09/14 00:00	10/12/14 10:51	13127-88-3	
2-Fluorophenol (S)	69	%	38-120	1	10/09/14 00:00	10/12/14 10:51	367-12-4	
2,4,6-Tribromophenol (S)	77	%	36-120	1	10/09/14 00:00	10/12/14 10:51	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	**13.4**	%	0.50	1		10/08/14 00:00		

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 (30-48) **Lab ID: 60179657004** Collected: 10/03/14 14:30 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8081 GCS Pesticides	Analytical Method: EPA 8081 Preparation Method: EPA 3546							
Aldrin	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	309-00-2	
alpha-BHC	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	319-84-6	
beta-BHC	ND	ug/kg	2.0	1	10/10/14 07:50	10/10/14 14:59	319-85-7	
delta-BHC	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	319-86-8	
gamma-BHC (Lindane)	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	58-89-9	
alpha-Chlordane	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	5103-71-9	
gamma-Chlordane	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	5103-74-2	
4,4'-DDD	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 14:59	72-54-8	
4,4'-DDE	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 14:59	72-55-9	
4,4'-DDT	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 14:59	50-29-3	
Dieldrin	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	60-57-1	
Endosulfan I	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	959-98-8	
Endosulfan II	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 14:59	33213-65-9	
Endosulfan sulfate	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	1031-07-8	
Endrin	ND	ug/kg	2.0	1	10/10/14 07:50	10/10/14 14:59	72-20-8	
Endrin aldehyde	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	7421-93-4	
Endrin ketone	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 14:59	53494-70-5	
Heptachlor	ND	ug/kg	0.79	1	10/10/14 07:50	10/10/14 14:59	76-44-8	
Heptachlor epoxide	ND	ug/kg	1.2	1	10/10/14 07:50	10/10/14 14:59	1024-57-3	
Methoxychlor	ND	ug/kg	2.0	1	10/10/14 07:50	10/10/14 14:59	72-43-5	
Toxaphene	ND	ug/kg	39.3	1	10/10/14 07:50	10/10/14 14:59	8001-35-2	
Surrogates								
Tetrachloro-m-xylene (S)	65	%.	40-140	1	10/10/14 07:50	10/10/14 14:59	877-09-8	
Decachlorobiphenyl (S)	46	%.	40-140	1	10/10/14 07:50	10/10/14 14:59	2051-24-3	
8151 Chlorinated Herbicides	Analytical Method: EPA 8151 Preparation Method: EPA 8151							
2,4-D	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 12:49	94-75-7	
Dalapon	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 12:49	75-99-0	
2,4-DB	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 12:49	94-82-6	
Dicamba	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 12:49	1918-00-9	
Dichloroprop	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 12:49	120-36-5	
Dinoseb	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 12:49	88-85-7	
MCPA	ND	ug/kg	195	1	10/09/14 12:00	10/13/14 12:49	94-74-6	
MCPP	ND	ug/kg	195	1	10/09/14 12:00	10/13/14 12:49	7085-19-0	
2,4,5-T	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 12:49	93-76-5	
2,4,5-TP (Silvex)	ND	ug/kg	2.0	1	10/09/14 12:00	10/13/14 12:49	93-72-1	
Surrogates								
2,4-DCAA (S)	87	%.	40-140	1	10/09/14 12:00	10/13/14 12:49	19719-28-9	
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Arsenic	**7.1**	mg/kg	1.2	1	10/08/14 10:00	10/08/14 15:39	7440-38-2	
Barium	**141**	mg/kg	1.2	1	10/08/14 10:00	10/08/14 15:39	7440-39-3	
Cadmium	ND	mg/kg	0.58	1	10/08/14 10:00	10/08/14 15:39	7440-43-9	
Chromium	**14.9**	mg/kg	0.58	1	10/08/14 10:00	10/08/14 15:39	7440-47-3	
Lead	**42.1**	mg/kg	1.2	1	10/08/14 10:00	10/08/14 15:39	7439-92-1	
Manganese	**989**	mg/kg	0.58	1	10/08/14 10:00	10/08/14 15:39	7439-96-5	

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 (30-48) **Lab ID: 60179657004** Collected: 10/03/14 14:30 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP Red. Interference	Analytical Method: EPA 6010 Preparation Method: EPA 3050							
Zinc	**60.3**	mg/kg	11.6	1	10/08/14 10:00	10/08/14 15:39	7440-66-6	
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Acenaphthene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	83-32-9	
Acenaphthylene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	208-96-8	
Anthracene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	120-12-7	
Benzo(a)anthracene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	56-55-3	
Benzo(a)pyrene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	207-08-9	
Benzoic acid	ND	ug/kg	1960	1	10/09/14 00:00	10/12/14 11:11	65-85-0	
Benzyl alcohol	ND	ug/kg	774	1	10/09/14 00:00	10/12/14 11:11	100-51-6	
4-Bromophenylphenyl ether	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	101-55-3	
Butylbenzylphthalate	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	85-68-7	
4-Chloro-3-methylphenol	ND	ug/kg	774	1	10/09/14 00:00	10/12/14 11:11	59-50-7	
4-Chloroaniline	ND	ug/kg	774	1	10/09/14 00:00	10/12/14 11:11	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	39638-32-9	
2-Chloronaphthalene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	91-58-7	
2-Chlorophenol	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	7005-72-3	
Chrysene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	53-70-3	
Dibenzofuran	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	774	1	10/09/14 00:00	10/12/14 11:11	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	120-83-2	
Diethylphthalate	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	105-67-9	
Dimethylphthalate	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	131-11-3	
Di-n-butylphthalate	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1960	1	10/09/14 00:00	10/12/14 11:11	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1960	1	10/09/14 00:00	10/12/14 11:11	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	606-20-2	
Di-n-octylphthalate	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	117-84-0	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	117-81-7	
Fluoranthene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	206-44-0	
Fluorene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	87-68-3	
Hexachlorobenzene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	118-74-1	
Hexachlorocyclopentadiene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	77-47-4	

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ANALYTICAL RESULTS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Sample: JARVIS FIELD 3 (30-48) **Lab ID: 60179657004** Collected: 10/03/14 14:30 Received: 10/07/14 08:30 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270 MSSV Semivolatiles	Analytical Method: EPA 8270 Preparation Method: EPA 3546							
Hexachloroethane	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	193-39-5	
Isophorone	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	78-59-1	
2-Methylnaphthalene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	95-48-7	
3&4-Methylphenol(m&p Cresol)	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11		
Naphthalene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	91-20-3	
2-Nitroaniline	ND	ug/kg	774	1	10/09/14 00:00	10/12/14 11:11	88-74-4	
3-Nitroaniline	ND	ug/kg	774	1	10/09/14 00:00	10/12/14 11:11	99-09-2	
4-Nitroaniline	ND	ug/kg	774	1	10/09/14 00:00	10/12/14 11:11	100-01-6	
Nitrobenzene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	98-95-3	
2-Nitrophenol	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	88-75-5	
4-Nitrophenol	ND	ug/kg	1960	1	10/09/14 00:00	10/12/14 11:11	100-02-7	
N-Nitroso-di-n-propylamine	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	86-30-6	
Pentachlorophenol	ND	ug/kg	1960	1	10/09/14 00:00	10/12/14 11:11	87-86-5	
Phenanthrene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	85-01-8	
Phenol	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	108-95-2	
Pyrene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	129-00-0	
Pyridine	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	110-86-1	
1,2,4-Trichlorobenzene	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	95-95-4	
2,4,6-Trichlorophenol	ND	ug/kg	387	1	10/09/14 00:00	10/12/14 11:11	88-06-2	
Surrogates								
Nitrobenzene-d5 (S)	85	%	15-155	1	10/09/14 00:00	10/12/14 11:11	4165-60-0	
2-Fluorobiphenyl (S)	76	%	20-159	1	10/09/14 00:00	10/12/14 11:11	321-60-8	
Terphenyl-d14 (S)	85	%	18-160	1	10/09/14 00:00	10/12/14 11:11	1718-51-0	
Phenol-d6 (S)	80	%	44-120	1	10/09/14 00:00	10/12/14 11:11	13127-88-3	
2-Fluorophenol (S)	74	%	38-120	1	10/09/14 00:00	10/12/14 11:11	367-12-4	
2,4,6-Tribromophenol (S)	76	%	36-120	1	10/09/14 00:00	10/12/14 11:11	118-79-6	
Percent Moisture	Analytical Method: ASTM D2974							
Percent Moisture	**15.5**	%	0.50	1		10/08/14 00:00		

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

QC Batch: MPRP/29212 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 60179657002, 60179657003, 60179657004

METHOD BLANK: 1455718 Matrix: Solid
Associated Lab Samples: 60179657002, 60179657003, 60179657004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	1.0	10/08/14 15:14	
Barium	mg/kg	ND	1.0	10/08/14 15:14	
Cadmium	mg/kg	ND	0.50	10/08/14 15:14	
Chromium	mg/kg	ND	0.50	10/08/14 15:14	
Lead	mg/kg	ND	1.0	10/08/14 15:14	
Manganese	mg/kg	51.9	0.50	10/08/14 15:14	
Zinc	mg/kg	ND	10.0	10/08/14 15:14	

LABORATORY CONTROL SAMPLE: 1455719

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	100	92.4	92	80-120	
Barium	mg/kg	100	99.7	100	80-120	
Cadmium	mg/kg	100	93.6	94	80-120	
Chromium	mg/kg	100	95.5	96	80-120	
Lead	mg/kg	100	95.8	96	80-120	
Manganese	mg/kg	100	105	105	80-120	
Zinc	mg/kg	100	94.2	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1455720 1455721

Parameter	Units	60179640001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Arsenic	mg/kg	4.5	116	123	103	109	85	85	75-125	5	20	
Barium	mg/kg	170	116	123	321	300	130	106	75-125	7	20	M1
Cadmium	mg/kg	ND	116	123	100	107	86	87	75-125	7	20	
Chromium	mg/kg	19.1	116	123	123	127	89	88	75-125	4	20	
Lead	mg/kg	25.8	116	123	114	133	76	87	75-125	15	20	
Manganese	mg/kg	556	116	123	802	712	211	127	75-125	12	20	M1
Zinc	mg/kg	107	116	123	184	235	66	104	75-125	24	20	M1,R1

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

QC Batch: MSV/64917
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 60179657001

METHOD BLANK: 1455932
Matrix: Solid
Associated Lab Samples: 60179657001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.0	10/08/14 15:29	
1,1,1-Trichloroethane	ug/kg	ND	5.0	10/08/14 15:29	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	10/08/14 15:29	
1,1,2-Trichloroethane	ug/kg	ND	5.0	10/08/14 15:29	
1,1-Dichloroethane	ug/kg	ND	5.0	10/08/14 15:29	
1,1-Dichloroethene	ug/kg	ND	5.0	10/08/14 15:29	
1,1-Dichloropropene	ug/kg	ND	5.0	10/08/14 15:29	
1,2,3-Trichlorobenzene	ug/kg	ND	5.0	10/08/14 15:29	
1,2,3-Trichloropropane	ug/kg	ND	5.0	10/08/14 15:29	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	10/08/14 15:29	
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	10/08/14 15:29	
1,2-Dibromo-3-chloropropane	ug/kg	ND	10.0	10/08/14 15:29	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	10/08/14 15:29	
1,2-Dichlorobenzene	ug/kg	ND	5.0	10/08/14 15:29	
1,2-Dichloroethane	ug/kg	ND	5.0	10/08/14 15:29	
1,2-Dichloroethene (Total)	ug/kg	ND	5.0	10/08/14 15:29	
1,2-Dichloropropane	ug/kg	ND	5.0	10/08/14 15:29	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	10/08/14 15:29	
1,3-Dichlorobenzene	ug/kg	ND	5.0	10/08/14 15:29	
1,3-Dichloropropane	ug/kg	ND	5.0	10/08/14 15:29	
1,4-Dichlorobenzene	ug/kg	ND	5.0	10/08/14 15:29	
2,2-Dichloropropane	ug/kg	ND	5.0	10/08/14 15:29	
2-Butanone (MEK)	ug/kg	ND	10.0	10/08/14 15:29	
2-Chlorotoluene	ug/kg	ND	5.0	10/08/14 15:29	
2-Hexanone	ug/kg	ND	20.0	10/08/14 15:29	
4-Chlorotoluene	ug/kg	ND	5.0	10/08/14 15:29	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	10.0	10/08/14 15:29	
Acetone	ug/kg	ND	20.0	10/08/14 15:29	
Benzene	ug/kg	ND	5.0	10/08/14 15:29	
Bromobenzene	ug/kg	ND	5.0	10/08/14 15:29	
Bromochloromethane	ug/kg	ND	5.0	10/08/14 15:29	
Bromodichloromethane	ug/kg	ND	5.0	10/08/14 15:29	
Bromoform	ug/kg	ND	5.0	10/08/14 15:29	
Bromomethane	ug/kg	ND	5.0	10/08/14 15:29	
Carbon disulfide	ug/kg	ND	5.0	10/08/14 15:29	
Carbon tetrachloride	ug/kg	ND	5.0	10/08/14 15:29	
Chlorobenzene	ug/kg	ND	5.0	10/08/14 15:29	
Chloroethane	ug/kg	ND	5.0	10/08/14 15:29	
Chloroform	ug/kg	ND	5.0	10/08/14 15:29	
Chloromethane	ug/kg	ND	5.0	10/08/14 15:29	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	10/08/14 15:29	

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

METHOD BLANK: 1455932 Matrix: Solid
Associated Lab Samples: 60179657001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
cis-1,3-Dichloropropene	ug/kg	ND	5.0	10/08/14 15:29	
Dibromochloromethane	ug/kg	ND	5.0	10/08/14 15:29	
Dibromomethane	ug/kg	ND	5.0	10/08/14 15:29	
Dichlorodifluoromethane	ug/kg	ND	5.0	10/08/14 15:29	
Ethylbenzene	ug/kg	ND	5.0	10/08/14 15:29	
Hexachloro-1,3-butadiene	ug/kg	ND	5.0	10/08/14 15:29	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	10/08/14 15:29	
Methyl-tert-butyl ether	ug/kg	ND	5.0	10/08/14 15:29	
Methylene chloride	ug/kg	ND	5.0	10/08/14 15:29	
n-Butylbenzene	ug/kg	ND	5.0	10/08/14 15:29	
n-Propylbenzene	ug/kg	ND	5.0	10/08/14 15:29	
Naphthalene	ug/kg	ND	10.0	10/08/14 15:29	
p-Isopropyltoluene	ug/kg	ND	5.0	10/08/14 15:29	
sec-Butylbenzene	ug/kg	ND	5.0	10/08/14 15:29	
Styrene	ug/kg	ND	5.0	10/08/14 15:29	
tert-Butylbenzene	ug/kg	ND	5.0	10/08/14 15:29	
Tetrachloroethene	ug/kg	ND	5.0	10/08/14 15:29	
Toluene	ug/kg	ND	5.0	10/08/14 15:29	
trans-1,2-Dichloroethene	ug/kg	ND	5.0	10/08/14 15:29	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	10/08/14 15:29	
Trichloroethene	ug/kg	ND	5.0	10/08/14 15:29	
Trichlorofluoromethane	ug/kg	ND	5.0	10/08/14 15:29	
Vinyl chloride	ug/kg	ND	5.0	10/08/14 15:29	
Xylene (Total)	ug/kg	ND	5.0	10/08/14 15:29	
1,2-Dichloroethane-d4 (S)	%	99	75-129	10/08/14 15:29	
4-Bromofluorobenzene (S)	%	98	76-123	10/08/14 15:29	
Toluene-d8 (S)	%	100	80-120	10/08/14 15:29	

LABORATORY CONTROL SAMPLE: 1455933

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	100	108	108	80-122	
1,1,1-Trichloroethane	ug/kg	100	111	111	77-126	
1,1,2,2-Tetrachloroethane	ug/kg	100	106	106	73-120	
1,1,2-Trichloroethane	ug/kg	100	103	103	76-120	
1,1-Dichloroethane	ug/kg	100	104	104	71-120	
1,1-Dichloroethene	ug/kg	100	114	114	76-130	
1,1-Dichloropropene	ug/kg	100	107	107	77-130	
1,2,3-Trichlorobenzene	ug/kg	100	108	108	80-123	
1,2,3-Trichloropropane	ug/kg	100	104	104	75-120	
1,2,4-Trichlorobenzene	ug/kg	100	105	105	80-126	
1,2,4-Trimethylbenzene	ug/kg	100	101	101	78-120	
1,2-Dibromo-3-chloropropane	ug/kg	100	114	114	71-125	
1,2-Dibromoethane (EDB)	ug/kg	100	102	102	80-121	

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

LABORATORY CONTROL SAMPLE: 1455933

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/kg	100	105	105	80-120	
1,2-Dichloroethane	ug/kg	100	106	106	78-120	
1,2-Dichloroethene (Total)	ug/kg	200	209	104	79-121	
1,2-Dichloropropane	ug/kg	100	107	107	80-120	
1,3,5-Trimethylbenzene	ug/kg	100	106	106	78-120	
1,3-Dichlorobenzene	ug/kg	100	106	106	80-120	
1,3-Dichloropropane	ug/kg	100	106	106	75-120	
1,4-Dichlorobenzene	ug/kg	100	101	101	80-120	
2,2-Dichloropropane	ug/kg	100	103	103	65-129	
2-Butanone (MEK)	ug/kg	500	447	89	55-135	
2-Chlorotoluene	ug/kg	100	106	106	80-120	
2-Hexanone	ug/kg	500	509	102	57-136	
4-Chlorotoluene	ug/kg	100	106	106	77-120	
4-Methyl-2-pentanone (MIBK)	ug/kg	500	505	101	71-128	
Acetone	ug/kg	500	445	89	43-144	
Benzene	ug/kg	100	105	105	80-120	
Bromobenzene	ug/kg	100	110	110	80-122	
Bromochloromethane	ug/kg	100	112	112	76-122	
Bromodichloromethane	ug/kg	100	110	110	80-120	
Bromoform	ug/kg	100	94.8	95	75-124	
Bromomethane	ug/kg	100	105	105	38-150	
Carbon disulfide	ug/kg	100	111	111	58-137	
Carbon tetrachloride	ug/kg	100	116	116	75-140	
Chlorobenzene	ug/kg	100	102	102	80-120	
Chloroethane	ug/kg	100	104	104	65-127	
Chloroform	ug/kg	100	107	107	74-120	
Chloromethane	ug/kg	100	111	111	39-138	
cis-1,2-Dichloroethene	ug/kg	100	104	104	76-124	
cis-1,3-Dichloropropene	ug/kg	100	107	107	82-120	
Dibromochloromethane	ug/kg	100	110	110	80-124	
Dibromomethane	ug/kg	100	109	109	80-120	
Dichlorodifluoromethane	ug/kg	100	111	111	16-135	
Ethylbenzene	ug/kg	100	106	106	80-120	
Hexachloro-1,3-butadiene	ug/kg	100	114	114	73-138	
Isopropylbenzene (Cumene)	ug/kg	100	117	117	80-136	
Methyl-tert-butyl ether	ug/kg	100	98.8	99	78-121	
Methylene chloride	ug/kg	100	103	103	70-123	
n-Butylbenzene	ug/kg	100	109	109	72-132	
n-Propylbenzene	ug/kg	100	104	104	72-127	
Naphthalene	ug/kg	100	106	106	77-126	
p-Isopropyltoluene	ug/kg	100	105	105	78-128	
sec-Butylbenzene	ug/kg	100	106	106	73-134	
Styrene	ug/kg	100	109	109	79-120	
tert-Butylbenzene	ug/kg	100	106	106	77-130	
Tetrachloroethene	ug/kg	100	109	109	78-128	
Toluene	ug/kg	100	102	102	79-120	
trans-1,2-Dichloroethene	ug/kg	100	105	105	76-124	

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

LABORATORY CONTROL SAMPLE: 1455933

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
trans-1,3-Dichloropropene	ug/kg	100	118	118	80-124	
Trichloroethene	ug/kg	100	105	105	80-120	
Trichlorofluoromethane	ug/kg	100	115	115	64-126	
Vinyl chloride	ug/kg	100	108	108	57-132	
Xylene (Total)	ug/kg	300	318	106	79-120	
1,2-Dichloroethane-d4 (S)	%			99	75-129	
4-Bromofluorobenzene (S)	%			101	76-123	
Toluene-d8 (S)	%			101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1455934 1455935

Parameter	Units	60179694001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/kg	ND	113	112	42.9	39.9	38	36	10-151	7	44	
1,1,1-Trichloroethane	ug/kg	ND	113	112	75.2	80.6	66	72	21-144	7	43	
1,1,2,2-Tetrachloroethane	ug/kg	ND	113	112	32.0	28.8	28	26	10-151	11	46	
1,1,2-Trichloroethane	ug/kg	ND	113	112	42.2	38.2	37	34	10-140	10	46	
1,1-Dichloroethane	ug/kg	ND	113	112	64.2	67.3	57	60	19-137	5	43	
1,1-Dichloroethene	ug/kg	ND	113	112	84.7	94.2	75	84	27-143	11	41	
1,1-Dichloropropene	ug/kg	ND	113	112	71.0	76.2	63	68	19-144	7	43	
1,2,3-Trichlorobenzene	ug/kg	ND	113	112	9.0	7.9	8	7	10-147	13	50	M1
1,2,3-Trichloropropane	ug/kg	ND	113	112	33.7	31.6	30	28	10-151	6	46	
1,2,4-Trichlorobenzene	ug/kg	ND	113	112	10.3	9.1	9	8	10-146	12	50	M1
1,2,4-Trimethylbenzene	ug/kg	ND	113	112	29.0	29.2	26	26	10-145	1	49	
1,2-Dibromo-3-chloropropane	ug/kg	ND	113	112	31.3	26.0	28	23	10-152	19	48	
1,2-Dibromoethane (EDB)	ug/kg	ND	113	112	39.4	34.9	35	31	13-153	12	40	
1,2-Dichlorobenzene	ug/kg	ND	113	112	20.5	19.1	18	17	10-147	7	48	
1,2-Dichloroethane	ug/kg	ND	113	112	47.2	45.4	42	40	21-147	4	38	
1,2-Dichloroethene (Total)	ug/kg	ND	226	224	127	131	56	58	21-139	3	44	
1,2-Dichloropropane	ug/kg	ND	113	112	52.2	53.1	46	47	15-145	2	43	
1,3,5-Trimethylbenzene	ug/kg	ND	113	112	33.9	34.8	30	31	10-144	3	48	
1,3-Dichlorobenzene	ug/kg	ND	113	112	23.6	22.4	21	20	10-143	5	49	
1,3-Dichloropropane	ug/kg	ND	113	112	44.2	39.4	39	35	10-135	11	42	
1,4-Dichlorobenzene	ug/kg	ND	113	112	22.7	21.1	20	19	10-144	7	48	
2,2-Dichloropropane	ug/kg	ND	113	112	70.9	74.6	63	67	16-137	5	44	
2-Butanone (MEK)	ug/kg	ND	566	560	188	153	33	27	10-160	21	50	
2-Chlorotoluene	ug/kg	ND	113	112	33.7	32.3	30	29	10-143	4	48	
2-Hexanone	ug/kg	ND	566	560	123	72.0	22	13	10-160	52	50	R1
4-Chlorotoluene	ug/kg	ND	113	112	32.2	31.6	28	28	10-144	2	47	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	566	560	190	159	34	28	10-152	18	47	
Acetone	ug/kg	ND	566	560	203	197	35	35	10-160	3	49	
Benzene	ug/kg	ND	113	112	59.4	61.5	52	55	22-144	4	38	
Bromobenzene	ug/kg	ND	113	112	32.4	29.3	29	26	10-150	10	46	
Bromochloromethane	ug/kg	ND	113	112	51.5	50.1	45	45	17-142	3	45	

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1455934 1455935

Parameter	Units	60179694001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Bromodichloromethane	ug/kg	ND	113	112	50.0	49.7	44	44	10-143	1	42	
Bromoform	ug/kg	ND	113	112	31.4	28.2	28	25	10-145	11	44	
Bromomethane	ug/kg	ND	113	112	55.8	50.8	49	45	10-137	9	47	
Carbon disulfide	ug/kg	ND	113	112	77.9	83.3	69	74	10-142	7	44	
Carbon tetrachloride	ug/kg	ND	113	112	76.3	84.4	67	75	15-153	10	45	
Chlorobenzene	ug/kg	ND	113	112	41.5	40.3	37	36	10-145	3	46	
Chloroethane	ug/kg	ND	113	112	69.1	79.2	61	71	17-134	14	42	
Chloroform	ug/kg	ND	113	112	58.3	61.0	51	54	17-138	5	44	
Chloromethane	ug/kg	ND	113	112	77.6	101	69	90	10-128	26	39	
cis-1,2-Dichloroethene	ug/kg	ND	113	112	58.8	58.8	52	52	17-140	0	46	
cis-1,3-Dichloropropene	ug/kg	ND	113	112	38.9	32.6	34	29	10-142	18	43	
Dibromochloromethane	ug/kg	ND	113	112	40.3	36.8	36	33	10-149	9	42	
Dibromomethane	ug/kg	ND	113	112	45.5	44.6	40	40	14-144	2	46	
Dichlorodifluoromethane	ug/kg	ND	113	112	93.6	103	83	92	10-130	10	31	
Ethylbenzene	ug/kg	ND	113	112	49.2	50.3	43	45	10-154	2	42	
Hexachloro-1,3-butadiene	ug/kg	ND	113	112	16.1	16.0	14	14	10-151	0	50	
Isopropylbenzene (Cumene)	ug/kg	ND	113	112	48.5	50.1	43	45	10-159	3	49	
Methyl-tert-butyl ether	ug/kg	ND	113	112	42.1	41.2	37	37	20-148	2	38	
Methylene chloride	ug/kg	ND	113	112	52.3	50.6	46	45	15-140	3	46	
n-Butylbenzene	ug/kg	ND	113	112	26.3	28.1	23	25	10-148	7	50	
n-Propylbenzene	ug/kg	ND	113	112	37.9	41.6	33	37	10-146	9	50	
Naphthalene	ug/kg	ND	113	112	13.6	12.2	12	11	10-160	12	45	
p-Isopropyltoluene	ug/kg	ND	113	112	30.0	31.6	26	28	10-149	5	49	
sec-Butylbenzene	ug/kg	ND	113	112	33.6	37.0	30	33	10-150	10	50	
Styrene	ug/kg	ND	113	112	35.9	33.9	32	30	10-142	6	44	
tert-Butylbenzene	ug/kg	ND	113	112	36.6	39.6	32	35	10-151	8	48	
Tetrachloroethene	ug/kg	ND	113	112	56.9	61.3	50	55	10-150	7	48	
Toluene	ug/kg	ND	113	112	52.7	56.0	47	50	11-150	6	40	
trans-1,2-Dichloroethene	ug/kg	ND	113	112	68.4	72.3	60	64	20-140	6	42	
trans-1,3-Dichloropropene	ug/kg	ND	113	112	42.7	36.9	38	33	10-149	15	41	
Trichloroethene	ug/kg	ND	113	112	61.4	64.8	54	58	14-146	5	45	
Trichlorofluoromethane	ug/kg	ND	113	112	82.3	96.5	73	86	24-130	16	41	
Vinyl chloride	ug/kg	ND	113	112	83.8	92.4	74	82	19-131	10	37	
Xylene (Total)	ug/kg	ND	340	337	133	132	39	39	10-154	1	41	
1,2-Dichloroethane-d4 (S)	%						110	111	75-129			
4-Bromofluorobenzene (S)	%						101	101	76-123			
Toluene-d8 (S)	%						101	101	80-120			

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

QC Batch: OEXT/4792 Analysis Method: EPA 8081
QC Batch Method: EPA 3546 Analysis Description: 8081 GCS Pesticides
Associated Lab Samples: 60179657002, 60179657003, 60179657004

METHOD BLANK: 100621 Matrix: Solid
Associated Lab Samples: 60179657002, 60179657003, 60179657004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
4,4'-DDD	ug/kg	ND	0.99	10/10/14 12:18	
4,4'-DDE	ug/kg	ND	0.99	10/10/14 12:18	
4,4'-DDT	ug/kg	ND	0.99	10/10/14 12:18	
Aldrin	ug/kg	ND	0.66	10/10/14 12:18	
alpha-BHC	ug/kg	ND	0.66	10/10/14 12:18	
alpha-Chlordane	ug/kg	ND	0.66	10/10/14 12:18	
beta-BHC	ug/kg	ND	1.6	10/10/14 12:18	
delta-BHC	ug/kg	ND	0.66	10/10/14 12:18	
Dieldrin	ug/kg	ND	0.66	10/10/14 12:18	
Endosulfan I	ug/kg	ND	0.66	10/10/14 12:18	
Endosulfan II	ug/kg	ND	0.99	10/10/14 12:18	
Endosulfan sulfate	ug/kg	ND	0.66	10/10/14 12:18	
Endrin	ug/kg	ND	1.6	10/10/14 12:18	
Endrin aldehyde	ug/kg	ND	0.66	10/10/14 12:18	
Endrin ketone	ug/kg	ND	0.99	10/10/14 12:18	
gamma-BHC (Lindane)	ug/kg	ND	0.66	10/10/14 12:18	
gamma-Chlordane	ug/kg	ND	0.66	10/10/14 12:18	
Heptachlor	ug/kg	ND	0.66	10/10/14 12:18	
Heptachlor epoxide	ug/kg	ND	0.99	10/10/14 12:18	
Methoxychlor	ug/kg	ND	1.6	10/10/14 12:18	
Toxaphene	ug/kg	ND	32.9	10/10/14 12:18	
Decachlorobiphenyl (S)	%.	72	40-140	10/10/14 12:18	
Tetrachloro-m-xylene (S)	%.	77	40-140	10/10/14 12:18	

LABORATORY CONTROL SAMPLE: 100622

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
4,4'-DDD	ug/kg	33	28.9	88	40-140	
4,4'-DDE	ug/kg	33	30.2	91	40-140	
4,4'-DDT	ug/kg	33	25.3	77	40-140	
Aldrin	ug/kg	33	38.5	116	40-140	
alpha-BHC	ug/kg	33	35.9	109	40-140	
alpha-Chlordane	ug/kg	33	35.8	108	40-140	
beta-BHC	ug/kg	33	37.6	114	40-140	
delta-BHC	ug/kg	33	32.3	98	40-140	
Dieldrin	ug/kg	33	36.5	110	40-140	
Endosulfan I	ug/kg	33	30.2	91	40-140	
Endosulfan II	ug/kg	33	37.1	112	40-140	
Endosulfan sulfate	ug/kg	33	36.8	111	40-140	
Endrin	ug/kg	33	35.4	107	40-140	

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

LABORATORY CONTROL SAMPLE: 100622

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Endrin aldehyde	ug/kg	33	35.3	107	40-140	
Endrin ketone	ug/kg	33	37.2	112	40-140	
gamma-BHC (Lindane)	ug/kg	33	34.2	103	40-140	
gamma-Chlordane	ug/kg	33	34.8	105	40-140	
Heptachlor	ug/kg	33	28.0	85	40-140	
Heptachlor epoxide	ug/kg	33	34.9	106	40-140	
Methoxychlor	ug/kg	33	30.6	93	40-140	
Toxaphene	ug/kg		ND			
Decachlorobiphenyl (S)	%.			107	40-140	
Tetrachloro-m-xylene (S)	%.			109	40-140	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 100623 100624

Parameter	Units	60179657003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
4,4'-DDD	ug/kg	ND	38.5	38.5	26.7	27.5	69	72	40-140	3	40	
4,4'-DDE	ug/kg	ND	38.5	38.5	28.8	31.4	75	82	40-140	9	40	
4,4'-DDT	ug/kg	ND	38.5	38.5	27.0	28.7	70	75	40-140	6	40	
Aldrin	ug/kg	ND	38.5	38.5	25.3	26.6	66	69	40-140	5	40	
alpha-BHC	ug/kg	ND	38.5	38.5	31.8	30.8	83	80	40-140	3	40	
alpha-Chlordane	ug/kg	ND	38.5	38.5	28.5	30.1	74	78	40-140	5	40	
beta-BHC	ug/kg	ND	38.5	38.5	30.5	34.2	79	89	40-140	11	40	
delta-BHC	ug/kg	ND	38.5	38.5	29.5	29.7	77	77	40-140	1	40	
Dieldrin	ug/kg	ND	38.5	38.5	30.6	32.4	79	84	40-140	6	40	
Endosulfan I	ug/kg	ND	38.5	38.5	28.8	31.4	75	82	40-140	9	40	
Endosulfan II	ug/kg	ND	38.5	38.5	29.0	31.4	75	82	40-140	8	40	
Endosulfan sulfate	ug/kg	ND	38.5	38.5	29.5	32.3	77	84	40-140	9	40	
Endrin	ug/kg	ND	38.5	38.5	30.1	29.6	78	77	40-140	2	40	
Endrin aldehyde	ug/kg	ND	38.5	38.5	25.6	26.1	66	68	40-140	2	40	
Endrin ketone	ug/kg	ND	38.5	38.5	27.9	30.4	73	79	40-140	9	40	
gamma-BHC (Lindane)	ug/kg	ND	38.5	38.5	30.9	30.5	80	80	40-140	1	40	
gamma-Chlordane	ug/kg	ND	38.5	38.5	29.6	30.8	77	80	40-140	4	40	
Heptachlor	ug/kg	ND	38.5	38.5	27.8	26.5	72	69	40-140	5	40	
Heptachlor epoxide	ug/kg	ND	38.5	38.5	29.4	30.1	76	78	40-140	2	40	
Methoxychlor	ug/kg	ND	38.5	38.5	29.7	30.5	77	80	40-140	3	40	
Toxaphene	ug/kg	ND			ND	ND					40	
Decachlorobiphenyl (S)	%.						50	52	40-140			
Tetrachloro-m-xylene (S)	%.						69	61	40-140			

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

QC Batch: OEXT/4789 Analysis Method: EPA 8151
QC Batch Method: EPA 8151 Analysis Description: 8151 GCS Herbicides
Associated Lab Samples: 60179657002, 60179657003, 60179657004

METHOD BLANK: 100498 Matrix: Solid
Associated Lab Samples: 60179657002, 60179657003, 60179657004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,4,5-T	ug/kg	ND	1.7	10/13/14 10:10	
2,4,5-TP (Silvex)	ug/kg	ND	1.7	10/13/14 10:10	
2,4-D	ug/kg	ND	1.7	10/13/14 10:10	
2,4-DB	ug/kg	ND	1.7	10/13/14 10:10	
Dalapon	ug/kg	ND	1.7	10/13/14 10:10	
Dicamba	ug/kg	ND	1.7	10/13/14 10:10	
Dichloroprop	ug/kg	ND	1.7	10/13/14 10:10	
Dinoseb	ug/kg	ND	1.7	10/13/14 10:10	
MCPA	ug/kg	ND	165	10/13/14 10:10	
MCPP	ug/kg	ND	165	10/13/14 10:10	
2,4-DCAA (S)	%.	96	40-140	10/13/14 10:10	

LABORATORY CONTROL SAMPLE: 100499

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-T	ug/kg	66.6	68.2	102	40-140	
2,4,5-TP (Silvex)	ug/kg	66.6	63.7	96	40-140	
2,4-D	ug/kg	66.6	66.6	100	40-140	
2,4-DB	ug/kg	66.6	68.2	102	40-140	
Dalapon	ug/kg	66.6	39.2	59	10-140	
Dicamba	ug/kg	66.6	58.5	88	40-140	
Dichloroprop	ug/kg	66.6	76.9	115	40-140	
Dinoseb	ug/kg	66.6	10.8	16	10-140	
MCPA	ug/kg	6660	6450	97	40-140	
MCPP	ug/kg	6660	6710	101	40-140	
2,4-DCAA (S)	%.			100	40-140	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 100500 100501

Parameter	Units	60179657003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,4,5-T	ug/kg	ND	76.7	76.4	84.3	82.9	110	109	40-140	2	40	
2,4,5-TP (Silvex)	ug/kg	ND	76.7	76.4	81.9	82.9	107	109	40-140	1	40	
2,4-D	ug/kg	ND	76.7	76.4	107	115	140	151	40-140	7	40	M1
2,4-DB	ug/kg	ND	76.7	76.4	89.6	86.1	117	113	40-140	4	40	
Dalapon	ug/kg	ND	76.7	76.4	95.7	64.4	125	84	10-140	39	40	
Dicamba	ug/kg	ND	76.7	76.4	76.2	78.6	99	103	40-140	3	40	
Dichloroprop	ug/kg	ND	76.7	76.4	136	148	178	194	40-140	9	40	M1

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 100500 100501

Parameter	Units	60179657003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Dinoseb	ug/kg	ND	76.7	76.4	15.8	17.9	21	23	10-140	12	40	
MCPA	ug/kg	ND	7670	7640	8700	7990	113	105	40-140	8	40	
MCPP	ug/kg	ND	7670	7640	26000	27300	339	358	40-140	5	40	M1
2,4-DCAA (S)	%.						108	118	40-140			

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

QC Batch: OEXT/46563 Analysis Method: EPA 8270
QC Batch Method: EPA 3546 Analysis Description: 8270 Solid MSSV Microwave
Associated Lab Samples: 60179657002, 60179657003, 60179657004

METHOD BLANK: 1456400 Matrix: Solid
Associated Lab Samples: 60179657002, 60179657003, 60179657004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	ND	321	10/12/14 09:07	
1,2-Dichlorobenzene	ug/kg	ND	321	10/12/14 09:07	
1,3-Dichlorobenzene	ug/kg	ND	321	10/12/14 09:07	
1,4-Dichlorobenzene	ug/kg	ND	321	10/12/14 09:07	
2,4,5-Trichlorophenol	ug/kg	ND	321	10/12/14 09:07	
2,4,6-Trichlorophenol	ug/kg	ND	321	10/12/14 09:07	
2,4-Dichlorophenol	ug/kg	ND	321	10/12/14 09:07	
2,4-Dimethylphenol	ug/kg	ND	321	10/12/14 09:07	
2,4-Dinitrophenol	ug/kg	ND	1630	10/12/14 09:07	
2,4-Dinitrotoluene	ug/kg	ND	321	10/12/14 09:07	
2,6-Dinitrotoluene	ug/kg	ND	321	10/12/14 09:07	
2-Chloronaphthalene	ug/kg	ND	321	10/12/14 09:07	
2-Chlorophenol	ug/kg	ND	321	10/12/14 09:07	
2-Methylnaphthalene	ug/kg	ND	321	10/12/14 09:07	
2-Methylphenol(o-Cresol)	ug/kg	ND	321	10/12/14 09:07	
2-Nitroaniline	ug/kg	ND	643	10/12/14 09:07	
2-Nitrophenol	ug/kg	ND	321	10/12/14 09:07	
3&4-Methylphenol(m&p Cresol)	ug/kg	ND	321	10/12/14 09:07	
3,3'-Dichlorobenzidine	ug/kg	ND	643	10/12/14 09:07	
3-Nitroaniline	ug/kg	ND	643	10/12/14 09:07	
4,6-Dinitro-2-methylphenol	ug/kg	ND	1630	10/12/14 09:07	
4-Bromophenylphenyl ether	ug/kg	ND	321	10/12/14 09:07	
4-Chloro-3-methylphenol	ug/kg	ND	643	10/12/14 09:07	
4-Chloroaniline	ug/kg	ND	643	10/12/14 09:07	
4-Chlorophenylphenyl ether	ug/kg	ND	321	10/12/14 09:07	
4-Nitroaniline	ug/kg	ND	643	10/12/14 09:07	
4-Nitrophenol	ug/kg	ND	1630	10/12/14 09:07	
Acenaphthene	ug/kg	ND	321	10/12/14 09:07	
Acenaphthylene	ug/kg	ND	321	10/12/14 09:07	
Anthracene	ug/kg	ND	321	10/12/14 09:07	
Benzo(a)anthracene	ug/kg	ND	321	10/12/14 09:07	
Benzo(a)pyrene	ug/kg	ND	321	10/12/14 09:07	
Benzo(b)fluoranthene	ug/kg	ND	321	10/12/14 09:07	
Benzo(g,h,i)perylene	ug/kg	ND	321	10/12/14 09:07	
Benzo(k)fluoranthene	ug/kg	ND	321	10/12/14 09:07	
Benzoic acid	ug/kg	ND	1630	10/12/14 09:07	
Benzyl alcohol	ug/kg	ND	643	10/12/14 09:07	
bis(2-Chloroethoxy)methane	ug/kg	ND	321	10/12/14 09:07	
bis(2-Chloroethyl) ether	ug/kg	ND	321	10/12/14 09:07	
bis(2-Chloroisopropyl) ether	ug/kg	ND	321	10/12/14 09:07	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	321	10/12/14 09:07	

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

METHOD BLANK: 1456400 Matrix: Solid
Associated Lab Samples: 60179657002, 60179657003, 60179657004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/kg	ND	321	10/12/14 09:07	
Chrysene	ug/kg	ND	321	10/12/14 09:07	
Di-n-butylphthalate	ug/kg	ND	321	10/12/14 09:07	
Di-n-octylphthalate	ug/kg	ND	321	10/12/14 09:07	
Dibenz(a,h)anthracene	ug/kg	ND	321	10/12/14 09:07	
Dibenzofuran	ug/kg	ND	321	10/12/14 09:07	
Diethylphthalate	ug/kg	ND	321	10/12/14 09:07	
Dimethylphthalate	ug/kg	ND	321	10/12/14 09:07	
Fluoranthene	ug/kg	ND	321	10/12/14 09:07	
Fluorene	ug/kg	ND	321	10/12/14 09:07	
Hexachloro-1,3-butadiene	ug/kg	ND	321	10/12/14 09:07	
Hexachlorobenzene	ug/kg	ND	321	10/12/14 09:07	
Hexachlorocyclopentadiene	ug/kg	ND	321	10/12/14 09:07	
Hexachloroethane	ug/kg	ND	321	10/12/14 09:07	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	321	10/12/14 09:07	
Isophorone	ug/kg	ND	321	10/12/14 09:07	
N-Nitroso-di-n-propylamine	ug/kg	ND	321	10/12/14 09:07	
N-Nitrosodiphenylamine	ug/kg	ND	321	10/12/14 09:07	
Naphthalene	ug/kg	ND	321	10/12/14 09:07	
Nitrobenzene	ug/kg	ND	321	10/12/14 09:07	
Pentachlorophenol	ug/kg	ND	1630	10/12/14 09:07	
Phenanthrene	ug/kg	ND	321	10/12/14 09:07	
Phenol	ug/kg	ND	321	10/12/14 09:07	
Pyrene	ug/kg	ND	321	10/12/14 09:07	
Pyridine	ug/kg	ND	321	10/12/14 09:07	
2,4,6-Tribromophenol (S)	%	78	36-120	10/12/14 09:07	
2-Fluorobiphenyl (S)	%	80	20-159	10/12/14 09:07	
2-Fluorophenol (S)	%	76	38-120	10/12/14 09:07	
Nitrobenzene-d5 (S)	%	81	15-155	10/12/14 09:07	
Phenol-d6 (S)	%	77	44-120	10/12/14 09:07	
Terphenyl-d14 (S)	%	84	18-160	10/12/14 09:07	

LABORATORY CONTROL SAMPLE: 1456401

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	1620	1330	83	57-120	
1,2-Dichlorobenzene	ug/kg	1620	1320	81	56-120	
1,3-Dichlorobenzene	ug/kg	1620	1320	81	55-120	
1,4-Dichlorobenzene	ug/kg	1620	1300	80	54-120	
2,4,5-Trichlorophenol	ug/kg	1620	1420	88	57-120	
2,4,6-Trichlorophenol	ug/kg	1620	1430	89	57-120	
2,4-Dichlorophenol	ug/kg	1620	1420	88	57-120	
2,4-Dimethylphenol	ug/kg	1620	1380	85	35-120	
2,4-Dinitrophenol	ug/kg	1620	1190J	74	10-120	

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

LABORATORY CONTROL SAMPLE: 1456401

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dinitrotoluene	ug/kg	1620	1490	92	58-120	
2,6-Dinitrotoluene	ug/kg	1620	1470	91	58-120	
2-Chloronaphthalene	ug/kg	1620	1400	87	57-120	
2-Chlorophenol	ug/kg	1620	1390	86	57-120	
2-Methylnaphthalene	ug/kg	1620	1380	86	56-120	
2-Methylphenol(o-Cresol)	ug/kg	1620	1360	84	53-120	
2-Nitroaniline	ug/kg	1620	1420	88	56-120	
2-Nitrophenol	ug/kg	1620	1400	87	54-120	
3&4-Methylphenol(m&p Cresol)	ug/kg	1620	1360	84	55-120	
3,3'-Dichlorobenzidine	ug/kg	1620	ND	17	10-137	
3-Nitroaniline	ug/kg	1620	415J	26	10-131	
4,6-Dinitro-2-methylphenol	ug/kg	1620	1220J	76	20-120	
4-Bromophenylphenyl ether	ug/kg	1620	1390	86	58-120	
4-Chloro-3-methylphenol	ug/kg	1620	1420	88	58-120	
4-Chloroaniline	ug/kg	1620	417J	26	10-128	
4-Chlorophenylphenyl ether	ug/kg	1620	1420	88	58-120	
4-Nitroaniline	ug/kg	1620	1000	62	40-120	
4-Nitrophenol	ug/kg	1620	1590J	99	54-120	
Acenaphthene	ug/kg	1620	1420	88	58-120	
Acenaphthylene	ug/kg	1620	1430	88	58-120	
Anthracene	ug/kg	1620	1450	90	59-120	
Benzo(a)anthracene	ug/kg	1620	1500	93	60-120	
Benzo(a)pyrene	ug/kg	1620	1440	89	59-120	
Benzo(b)fluoranthene	ug/kg	1620	1580	98	59-120	
Benzo(g,h,i)perylene	ug/kg	1620	1430	88	58-120	
Benzo(k)fluoranthene	ug/kg	1620	1320	82	58-120	
Benzoic acid	ug/kg	1620	1080J	67	18-120	
Benzyl alcohol	ug/kg	1620	887	55	42-120	
bis(2-Chloroethoxy)methane	ug/kg	1620	1370	85	56-120	
bis(2-Chloroethyl) ether	ug/kg	1620	1340	83	52-120	
bis(2-Chloroisopropyl) ether	ug/kg	1620	1310	81	53-120	
bis(2-Ethylhexyl)phthalate	ug/kg	1620	1590	98	59-120	
Butylbenzylphthalate	ug/kg	1620	1580	98	59-120	
Chrysene	ug/kg	1620	1430	88	60-120	
Di-n-butylphthalate	ug/kg	1620	1530	95	59-120	
Di-n-octylphthalate	ug/kg	1620	1640	102	59-121	
Dibenz(a,h)anthracene	ug/kg	1620	1450	90	58-120	
Dibenzofuran	ug/kg	1620	1380	86	59-120	
Diethylphthalate	ug/kg	1620	1460	90	58-120	
Dimethylphthalate	ug/kg	1620	1440	89	59-120	
Fluoranthene	ug/kg	1620	1470	91	60-120	
Fluorene	ug/kg	1620	1450	90	57-120	
Hexachloro-1,3-butadiene	ug/kg	1620	1320	82	55-120	
Hexachlorobenzene	ug/kg	1620	1320	82	57-120	
Hexachlorocyclopentadiene	ug/kg	3230	1540	48	33-120	
Hexachloroethane	ug/kg	1620	1330	82	54-120	
Indeno(1,2,3-cd)pyrene	ug/kg	1620	1450	90	58-120	

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

LABORATORY CONTROL SAMPLE: 1456401

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isophorone	ug/kg	1620	1360	84	54-120	
N-Nitroso-di-n-propylamine	ug/kg	1620	1310	81	54-120	
N-Nitrosodiphenylamine	ug/kg	1620	1460	91	57-120	
Naphthalene	ug/kg	1620	1360	84	58-120	
Nitrobenzene	ug/kg	1620	1350	84	55-120	
Pentachlorophenol	ug/kg	1620	1470J	91	47-120	
Phenanthrene	ug/kg	1620	1420	88	59-120	
Phenol	ug/kg	1620	1270	79	56-120	
Pyrene	ug/kg	1620	1470	91	60-120	
Pyridine	ug/kg	1620	731	45	25-120	
2,4,6-Tribromophenol (S)	%			89	36-120	
2-Fluorobiphenyl (S)	%			86	20-159	
2-Fluorophenol (S)	%			83	38-120	
Nitrobenzene-d5 (S)	%			86	15-155	
Phenol-d6 (S)	%			85	44-120	
Terphenyl-d14 (S)	%			90	18-160	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1456402 1456403

Parameter	Units	60179657002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2,4-Trichlorobenzene	ug/kg	ND	1980	1980	1560	1480	79	75	43-120	5	29	
1,2-Dichlorobenzene	ug/kg	ND	1980	1980	1580	1580	80	80	42-120	0	29	
1,3-Dichlorobenzene	ug/kg	ND	1980	1980	1550	1530	78	78	42-120	1	29	
1,4-Dichlorobenzene	ug/kg	ND	1980	1980	1570	1510	79	77	42-120	4	30	
2,4,5-Trichlorophenol	ug/kg	ND	1980	1980	1750	1570	88	80	37-120	10	30	
2,4,6-Trichlorophenol	ug/kg	ND	1980	1980	1650	1520	83	77	31-120	8	32	
2,4-Dichlorophenol	ug/kg	ND	1980	1980	1580	1550	80	79	32-120	2	30	
2,4-Dimethylphenol	ug/kg	ND	1980	1980	740	697	37	35	21-121	6	33	
2,4-Dinitrophenol	ug/kg	ND	1980	1980	1290J	1170J	65	59	10-120		35	
2,4-Dinitrotoluene	ug/kg	ND	1980	1980	1790	1610	91	81	29-120	11	34	
2,6-Dinitrotoluene	ug/kg	ND	1980	1980	1780	1620	90	82	34-120	10	35	
2-Chloronaphthalene	ug/kg	ND	1980	1980	1660	1570	84	79	47-120	6	29	
2-Chlorophenol	ug/kg	ND	1980	1980	1550	1560	78	79	36-120	1	29	
2-Methylnaphthalene	ug/kg	ND	1980	1980	1620	1550	82	79	39-120	5	30	
2-Methylphenol(o-Cresol)	ug/kg	ND	1980	1980	1170	1180	59	60	37-120	1	32	
2-Nitroaniline	ug/kg	ND	1980	1980	1830	1730	92	88	35-128	6	30	
2-Nitrophenol	ug/kg	ND	1980	1980	1690	1630	85	83	14-127	3	31	
3&4-Methylphenol(m&p Cresol)	ug/kg	ND	1980	1980	1280	1290	65	65	37-120	1	33	
3,3'-Dichlorobenzidine	ug/kg	ND	1980	1980	ND	ND	14	12	10-132		43	
3-Nitroaniline	ug/kg	ND	1980	1980	1510	1420	76	72	10-142	6	47	
4,6-Dinitro-2-methylphenol	ug/kg	ND	1980	1980	1480J	1400J	75	71	10-120		35	
4-Bromophenylphenyl ether	ug/kg	ND	1980	1980	1680	1600	85	81	46-120	5	29	
4-Chloro-3-methylphenol	ug/kg	ND	1980	1980	1660	1550	84	79	35-121	7	30	

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1456402 1456403

Parameter	Units	60179657002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
4-Chloroaniline	ug/kg	ND	1980	1980	918	819	46	42	10-128	11	41	
4-Chlorophenylphenyl ether	ug/kg	ND	1980	1980	1700	1570	86	80	46-120	8	27	
4-Nitroaniline	ug/kg	ND	1980	1980	1320	1310	67	66	10-128	1	40	
4-Nitrophenol	ug/kg	ND	1980	1980	2000	1830J	101	93	23-127		30	
Acenaphthene	ug/kg	ND	1980	1980	1660	1560	84	79	40-120	6	31	
Acenaphthylene	ug/kg	ND	1980	1980	1710	1580	86	80	39-120	8	31	
Anthracene	ug/kg	ND	1980	1980	1690	1660	85	84	39-120	2	35	
Benzo(a)anthracene	ug/kg	ND	1980	1980	1760	1620	89	82	38-120	8	33	
Benzo(a)pyrene	ug/kg	ND	1980	1980	1730	1660	88	84	35-120	4	34	
Benzo(b)fluoranthene	ug/kg	ND	1980	1980	1950	1620	99	82	36-120	18	33	
Benzo(g,h,i)perylene	ug/kg	ND	1980	1980	1670	1560	84	79	35-120	6	33	
Benzo(k)fluoranthene	ug/kg	ND	1980	1980	1540	1640	78	83	41-120	6	31	
Benzoic acid	ug/kg	ND	1980	1980	1130J	1150J	57	58	10-120		35	
Benzyl alcohol	ug/kg	ND	1980	1980	1640	1640	83	83	37-120	0	31	
bis(2-Chloroethoxy)methane	ug/kg	ND	1980	1980	1630	1580	82	80	38-120	3	29	
bis(2-Chloroethyl) ether	ug/kg	ND	1980	1980	1640	1660	83	84	41-120	1	29	
bis(2-Chloroisopropyl) ether	ug/kg	ND	1980	1980	1560	1580	79	80	43-120	1	29	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	1980	1980	1860	1720	94	87	42-127	8	32	
Butylbenzylphthalate	ug/kg	ND	1980	1980	1880	1850	95	94	42-125	1	30	
Chrysene	ug/kg	ND	1980	1980	1690	1590	85	81	39-120	6	33	
Di-n-butylphthalate	ug/kg	ND	1980	1980	1830	1810	93	92	41-120	1	33	
Di-n-octylphthalate	ug/kg	ND	1980	1980	2040	1920	103	97	38-135	6	32	
Dibenz(a,h)anthracene	ug/kg	ND	1980	1980	1700	1600	86	81	38-120	6	33	
Dibenzofuran	ug/kg	ND	1980	1980	1730	1590	88	80	37-120	9	30	
Diethylphthalate	ug/kg	ND	1980	1980	1720	1560	87	79	43-120	9	29	
Dimethylphthalate	ug/kg	ND	1980	1980	1710	1600	86	81	34-120	6	29	
Fluoranthene	ug/kg	ND	1980	1980	1720	1700	87	86	36-120	1	33	
Fluorene	ug/kg	ND	1980	1980	1740	1610	88	82	35-123	8	32	
Hexachloro-1,3-butadiene	ug/kg	ND	1980	1980	1520	1480	77	75	43-120	3	28	
Hexachlorobenzene	ug/kg	ND	1980	1980	1590	1550	80	79	46-120	2	27	
Hexachlorocyclopentadiene	ug/kg	ND	3950	3940	1840	1620	46	41	10-120	12	46	
Hexachloroethane	ug/kg	ND	1980	1980	1540	1560	78	79	21-120	1	36	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	1980	1980	1690	1590	86	81	37-120	6	32	
Isophorone	ug/kg	ND	1980	1980	1610	1580	81	80	37-120	2	34	
N-Nitroso-di-n-propylamine	ug/kg	ND	1980	1980	1590	1620	81	82	36-120	2	34	
N-Nitrosodiphenylamine	ug/kg	ND	1980	1980	1570	1460	79	74	22-132	7	32	
Naphthalene	ug/kg	ND	1980	1980	1640	1590	83	81	39-120	3	30	
Nitrobenzene	ug/kg	ND	1980	1980	1610	1570	81	80	38-120	3	27	
Pentachlorophenol	ug/kg	ND	1980	1980	1690J	1680J	85	85	13-125		30	
Phenanthrene	ug/kg	ND	1980	1980	1660	1610	84	82	35-121	3	33	
Phenol	ug/kg	ND	1980	1980	1400	1420	71	72	38-120	1	31	
Pyrene	ug/kg	ND	1980	1980	1780	1640	90	83	36-130	8	34	
Pyridine	ug/kg	ND	1980	1980	1010	1020	51	52	10-120	1	29	
2,4,6-Tribromophenol (S)	%						75	68	36-120			
2-Fluorobiphenyl (S)	%						84	78	20-159			
2-Fluorophenol (S)	%						69	69	38-120			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1456402 1456403

Parameter	Units	60179657002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrobenzene-d5 (S)	%						82	81	15-155			
Phenol-d6 (S)	%						75	76	44-120			
Terphenyl-d14 (S)	%						87	79	18-160			

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QUALITY CONTROL DATA

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

QC Batch: PMST/10095 Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 60179657001, 60179657002, 60179657003, 60179657004

METHOD BLANK: 1456102 Matrix: Solid
Associated Lab Samples: 60179657001, 60179657002, 60179657003, 60179657004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Percent Moisture	%	ND	0.50	10/08/14 00:00	

SAMPLE DUPLICATE: 1456103

Parameter	Units	60179547001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	17.7	17.5	1	20	

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QUALIFIERS

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-D	Pace Analytical Services - Dallas
PASI-K	Pace Analytical Services - Kansas City

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: RFQ Big River Mine Tailings
Pace Project No.: 60179657

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
60179657002	**JARVIS FIELD 3 (0-12)**	EPA 3546	OEXT/4792	EPA 8081	GCSV/3047
60179657003	**JARVIS FIELD 3 (12-30)**	EPA 3546	OEXT/4792	EPA 8081	GCSV/3047
60179657004	**JARVIS FIELD 3 (30-48)**	EPA 3546	OEXT/4792	EPA 8081	GCSV/3047
60179657002	**JARVIS FIELD 3 (0-12)**	EPA 8151	OEXT/4789	EPA 8151	GCSV/3052
60179657003	**JARVIS FIELD 3 (12-30)**	EPA 8151	OEXT/4789	EPA 8151	GCSV/3052
60179657004	**JARVIS FIELD 3 (30-48)**	EPA 8151	OEXT/4789	EPA 8151	GCSV/3052
60179657002	**JARVIS FIELD 3 (0-12)**	EPA 3050	MPRP/29212	EPA 6010	ICP/21978
60179657003	**JARVIS FIELD 3 (12-30)**	EPA 3050	MPRP/29212	EPA 6010	ICP/21978
60179657004	**JARVIS FIELD 3 (30-48)**	EPA 3050	MPRP/29212	EPA 6010	ICP/21978
60179657002	**JARVIS FIELD 3 (0-12)**	EPA 3546	OEXT/46563	EPA 8270	MSSV/14970
60179657003	**JARVIS FIELD 3 (12-30)**	EPA 3546	OEXT/46563	EPA 8270	MSSV/14970
60179657004	**JARVIS FIELD 3 (30-48)**	EPA 3546	OEXT/46563	EPA 8270	MSSV/14970
60179657001	**JARVIS FIELD 3**	EPA 8260	MSV/64917		
60179657001	**JARVIS FIELD 3**	ASTM D2974	PMST/10095		
60179657002	**JARVIS FIELD 3 (0-12)**	ASTM D2974	PMST/10095		
60179657003	**JARVIS FIELD 3 (12-30)**	ASTM D2974	PMST/10095		
60179657004	**JARVIS FIELD 3 (30-48)**	ASTM D2974	PMST/10095		

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Sample Condition Upon Receipt

WO#: 60179657

60179657

Client Name: Tetra Tech

Optional
Proj Due Date:
Proj Name:

Courier: Fed Ex ☒ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ☐

Tracking #: 7713 8929 1108 Pace Shipping Label Used? Yes ☐ No ☐

Custody Seal on Cooler/Box Present: Yes ☒ No ☐ Seals intact: Yes ☒ No ☐

Packing Material: Bubble Wrap ☐ Bubble Bags ☒ Foam ☒ None ☐ Other ☐

Thermometer Used: T-239 / T-194 **Type of Ice:** Wet Blue None ☐ Samples received on ice, cooling process has begun.
(circle one)

Cooler Temperature: 3.8

Temperature should be above freezing to 6°C

Date and initials of person examining contents: JB 10/7

Chain of Custody present:	☒Yes	☐No	☐N/A	1.
Chain of Custody filled out:	☒Yes	☐No	☐N/A	2.
Chain of Custody relinquished:	☒Yes	☐No	☐N/A	3.
Sampler name & signature on COC:	☒Yes	☐No	☐N/A	4.
Samples arrived within holding time:	☒Yes	☐No	☐N/A	5.
Short Hold Time analyses (<72hr):	☐Yes	☒No	☐N/A	6.
Rush Turn Around Time requested:	☐Yes	☒No	☐N/A	7.
Sufficient volume:	☒Yes	☐No	☐N/A	8.
Correct containers used:	☒Yes	☐No	☐N/A	
Pace containers used:	☒Yes	☐No	☐N/A	9.
Containers intact:	☒Yes	☐No	☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes	☒No	☐N/A	11.
Filtered volume received for dissolved tests?	☐Yes	☐No	☒N/A	12.
Sample labels match COC: Includes date/time/ID/analyses Matrix: SL	☒Yes	☐No	☐N/A	13.
All containers needing preservation have been checked.	☐Yes	☐No	☒N/A	
All containers needing preservation are found to be in compliance with EPA recommendation	☐Yes	☐No	☒N/A	14.
Exceptions: VOA coliform, TOC, O&G, WI-DRO (water), Phenolics	☒Yes	☐No		Initial when completed / Lot # of added preservative
Trip Blank present: Pace Trip Blank lot # (if purchased): 111813-3	☒Yes	☐No	☐N/A	15.
Headspace in VOA vials (>6mm):	☐Yes	☐No	☒N/A	16.
Project sampled in USDA Regulated Area:	☐Yes	☒No	☐N/A	17. List State: MD

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review: Date: 10.7.14

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

CC: david.L.gray@tetratech.com

Page: 1 of 1

Section A Required Client Information:		Section B Required Project Information		Section C Invoice Information:	
Company:	Tetra Tech EMI	Report To:	Emily Fisher	Attention:	
Address:	415 Oak	Copy To:		Company Name:	
	Kansas City, MO 64106			Address:	
Email To:	Emily.Fisher@tetratech.com	Purchase Order No.:		Pace Quote Reference:	
Phone:	(816) 412-1755 Fax:	Project Name:	RFQ Big River Mine Tailings	Pace Project Manager:	Sherri Rosenstangle
Requested Due Date/TAT:	10-13-14 am	Project Number:		Pace Profile #:	970.6

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: MO

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT
WASTE WATER	WW
PRODUCT	P
SOIL/SOLID	SL
OIL	OL
WIPE	WP
AIR	AR
OTHER	OT
TISSUE	TS

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	VOC's	SVOC's	Pests/Herbs	As, Ba, Cd, Cr, Mn, Pb, Zn		Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	JARVIS FIELD 3	SL				10-3-14	1200		4	2						1			X				DG9M (2)UG9U BP8U		001
2	JARVIS FIELD 3 (0-12)	SL				10-3-14	1420		2	2										X	X	X	(2)UG9U		002
3	JARVIS FIELD 3 (12-30)	SL				10-3-14	1425		2	2										X	X	X			003
4	JARVIS FIELD 3 (30-48)	SL				10-3-14	1430		2	2										X	X	X			004
5																							(2)UG9U		005
6																									
7																									
8																									
9																									
10																									
11																									
12																									

6017965 7

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	D. Gray / TE	10-6-14	1400	[signature] Pace	10/7	0830	3.8	Y	Y	Y

FedEx # 7713 8929 1108

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: D. Gray

SIGNATURE of SAMPLER: D. Gray

DATE Signed (MM/DD/YY): 10-6-14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.08, 12-Oct-2007

Analytical Data Summary for Proposed Borrow Area
Big River Mine Tailings - OU1 Site, St Francois County, MO

Jarvis Field

Analytical Method	Result from lab data	EPA Regional Screening Level for Residential Soil
Volatile Organic Compounds (µg/kg)		
1,1-Dichloroethylene	2.6 J	240
2-Butanone	65	28,000
Semivolatile Organic Compounds (µg/kg)	No analytes detected	
Organochlorine Herbicides (µg/kg)	No analytes detected	
Organochlorine Pesticides (µg/kg)	No analytes detected	
Total Metals (mg/kg)		
Arsenic	9.8	22
Barium	300	15,000
Cadmium	0.46 J	70
Chromium	18	not established
Lead	87	100
Manganese	1500	1800
Zinc	80	not established

NOTES: J The analyte was detected during analysis. However, the result shown is an estimated value.