Attachment 5

Photograph Logs

Big Bend Gold Mining Project, Mongolia
Photograph Log Inventory

Photograph Log No. 1 (July 2008 Site Visit and Field Study)					People in the photo (from left to right)
No.	**File Name**	**Author**	**Date**	**Description**	
Tuul River Valley					
1	9579	MS	14-Jul	View of sheep and goats on a hillslope in the Tuul River valley.	
2	9597	MS	14-Jul	View of dredges working in the Tuul River valley.	
3	9599	MS	14-Jul	Artisanal gold miner.	
4	9604	MS	14-Jul	Upstream view from the Tuul River bridge (sampling point S-110). A small Chinese dredge is working in a pit connected with the river.	
5		MS	15-Jul	Panorama of the Tuul River valley operating placer mines.	
6	9806	MS	17-Jul	Horses crossing the Tuul River at S-120.	
Big Bend Project Area					
7	9553	MS	13-Jul	Small pit lake in the Big Bend Project area.	
8	9554	MS	13-Jul	Panorama of the big pit lake in the Big Bend Project area.	
9	1368	JGA	14-Jul	View from hilltop of the Tuul River.	
10	1370	JGA	14-Jul	View from hilltop of the Tuul River.	
11	P7170050	HB	18-Jul	View of Tuul River and Big Bend Campsite from ridge on southeast side of the Tuul River.	
12	9838	MS	19-Jul	View of a ger being taken apart.	
Hydrology, Water Quality					
13	1350	JGA	13-Jul	Water quality sampling at point S-130.	BJ, PL, Nara
14	1355	JGS	13-Jul	Measuring stream flow 500 meters upstream of point S-130.	MS
15	9601	MS	14-Jul	Collecting water quality samples at point S-110 (Tuul River bridge).	JGA, HB, BJ, PL, GB
16	1475	JGA	14-Jul	Surface water sampling point S-150.	
Soils					
17	DSC_0140	HB	16-Jul	Soil Pit #1 – white arrows denote horizon boundaries.	
18	P7170053	HB	18-Jul	Collecting shallow soil sample.	

Photograph Log No. 1 (July 2008 Site Visit and Field Study)					People in the photo (from left to right)
No.	**File Name**	**Author**	**Date**	**Description**	
Aquatic Biology					
19		HB	13-Jul	Aquatic sampling station S-110, looking upstream	
20		HB	13-Jul	Aquatic sampling station S-110, looking downstream.	
21		HB	13-Jul	Aquatic sampling station S-112, looking upstream.	
22		MS	14-Jul	Aquatic sampling station S-112, looking downstream	
23		HB	13-Jul	Aquatic sampling station S-115, looking upstream.	
24		HB	13-Jul	Aquatic sampling station S-130, looking upstream.	
25		MS	14-Jul	Aquatic sampling station S-130, looking downstream.	
26		MS	14-Jul	Aquatic sampling station S-135, looking downstream.	
27		HB	13-Jul	Aquatic sampling station S-150, looking upstream.	
28		HB	13-Jul	Aquatic sampling station S-150, looking downstream.	
29		HB	13-Jul	Aquatic sampling station L-125, pit lake.	
30		MS	14-Jul	Aquatic sampling station L-105, ephemeral pond.	
31		HB	13-Jul	Sampling with large siene net.	MS, HB
32		HB	13-Jul	Sampling with small siene net.	MS
33		HB	13-Jul	Setting a gill net from a one-man inflatable boat at station S-130 (adjacent to the Big Bend Campsite)	MS
34	DSC_0054	HB	13-Jul	Amur catfish (*Parasilurus asotus*)	
35	DSC_0073	HB	13-Jul	A small stone loach (*Nemacheilus barbatulus*)	
36	9621	MS	14-Jul	Tadpole shrimp – the only animal present in catches at station S-105.	
37	9573	MS	14-Jul	Ide (*Leuciscus idus*)	
38	9649	MS	15-Jul	Northern pike (*Esox lucius*)	
39	9680	MS	15-Jul	Yellow perch (*Perca flavescens*)	
40	9682	MS	15-Jul	Prussian carp (*Carassius gibelio*)	
41	DCS_0121	HB	15-Jul	Dragonfly molt at Station L-125	
42	DSC_0110	HB	15-Jul	Submerged aquatic vegetation (SAV) at Station L-125 (mine pit).	

Photograph Log No. 1 (July 2008 Site Visit and Field Study)					People in the photo (from left to right)
No.	**File Name**	**Author**	**Date**	**Description**	
43	9695	MS	16-Jul	Common carp (*Cyprinus carpio*)	
44	9785	MS	16-Jul	Roach (*Rutilus rutilus)*	
45	DSC_0133	HB	16-Jul	Unidentified water lily collected at station S-135.	
46	9828	MS	18-Jul	AATA aquatic experts processing the catch.	MS, HB
Flora & Fauna					
47	DSC_0010	HB	12-Jul	A pair of Demoiselle cranes	
48	DSC_0100	HB	15-Jul	Siberian iris in vicinity of station 130.	
49	DSC_0125	HB	15-Jul	Recently transformed frog collected at Station L-125.	
50	9692	MS	16-Jul	Great Cormorans (*Phalacrocorax carbo*) on the Tuul River bank.	
51	9813	MS	17-Jul	Willows damaged by livestock.	
52	1491	JGA	18-Jul	Unidentified wildflower on ridge on southeast side of river.	
Archaeology					
53	5070	CW	16-Jul	Panorama of Archaeological site and Ger camp near Big Bend.	

Photograph Log No. 2 (August 2008 Site Visit and OPIC Inspection)					People in the photo (from left to right)
No.	**File Name**	**Author**	**Date**	**Description**	
Ulaanbaatar					
1	DSC01734	JGA	16-Aug	View of a new modern office building.	
2	DSC01741	JGA	16-Aug	Burning building in downtown Ulaanbaatar.	
3	DSC02005	JGA	19-Aug	Local architecture of training institute at Garden Temple.	
4	DSC02034	JGA	19-Aug	Rainbow taken looking southeast from Kempinski Hotel out JGA window.	
Tuul River Valley					
5	DSC01774	JGA	16-Aug	Large haul trucks (deep gold mining).	
6	DSC01779	JGA	16-Aug	Washing the dredged material.	
7	DSC01781	JGA	16-Aug	Unreclaimed dredge spoil area.	
8	DSC01784	JGA	16-Aug	Shijiir Alt Dredging activities.	
9	DSC01786	JGA	16-Aug	Tuul River Diversion at the Shijiir Alt Dredge area.	
10	DSC01824	JGA	17-Aug	Wetlands and reclamation north of Big Bend.	
11	DSC01828	JGA	17-Aug	Large dredge working near the Tuul River.	
12	DSC01830	JGA	17-Aug	Initial phases of topsoil use in reclamation.	
13	DSC01850	JGA	17-Aug	Dredging operations downstream of Big Bend Project area.	
14	DSC01941	JGA	18-Aug	Exemplary Reclamation of Erel Mining Company (forced effort) on the road to Zaamar Soum.	
15	DSC01945	JGA	18-Aug	Exemplary Reclamation of Erel Mining Company (forced effort) on the road to Zaamar Soum.	
Big Bend Project Area					
16	DSC01801	JGA	17-Aug	Big Bend Campsite at dawn.	
17	DSC01805	JGA	17-Aug	Previous exploration on the Big Bend Project area (looking north).	
18	DSC01806	JGA	17-Aug	Herd of goats and sheep setting out near the Tuul River.	
19	DSC01856	JGA	17-Aug	Major wash near southernmost end of Big Bend Project area.	
20	DSC01858	JGA	17-Aug	Gers on main Big Bend Project area.	
21	DSC01874	JGA	17-Aug	Locals cooking on wood stoves at the Big Bend Campsite.	
22	DSC01887	JGA	18-Aug	View of the Big Bend Campsite.	
23	DSC01909	JGA	18-Aug	Abandoned drill hole, not plugged.	
24	DSC01914	JGA	18-Aug	Wood for fires at drillers camp.	
25	DSC01924	JGA	18-Aug	Washing the drilling material.	WM, GB, DS, Doggie

Photograph Log No. 2 (August 2008 Site Visit and OPIC Inspection)					People in the photo (from left to right)
No.	**File Name**	**Author**	**Date**	**Description**	
26	DSC01926	JGA	18-Aug	Inspection of drilling contractor operations (safety).	
27	DSC01933	JGA	18-Aug	Drilling contractor operations.	
Socioeconomics					
28	DSC01948	JGA	18-Aug	Ninja miners in deep pit.	
29	DSC01949	JGA	18-Aug	Ninja miners in deep pit.	
30	DSC01962	JGA	18-Aug	Soviet era memorial in the Zaamar Soum.	JGA
31	DSC01969	JGA	18-Aug	Dung collection and stacking.	
32	DSC01972	JGA	18-Aug	Driver asking a local Mongolian directions (note Beijing 2008 shirt).	
Hydrology, Water Quality					
33	DSC01793	JGA	16-Aug	Filling water bucket from local well supply drum, G-100.	
34	DSC01810	JGA	17-Aug	Taking turbidity samples, S-130.	JGA
35	DSC01821	JGA	17-Aug	Tuul River Ford (upstream of Big Bend Project area).	
36	DSC01838	JGA	17-Aug	Low water level at Site S-150 compared to previous month.	
37	DSC01870	JGA	17-Aug	Looking upstream (south) on Tuul River from S-110.	
Flora and Fauna					
38	DSC01761	JGA	16-Aug	Typical steppe.	
39	DSC01857	JGA	17-Aug	Great Black Mongolian vultures.	
40	DSC01899	JGA	18-Aug	Interesting plants growing out of rock face.	
41	DSC01903	JGA	18-Aug	Forest remnants near base of cliffs on the western side of the Big Bend Project area.	
Archaeology					
42	DSC01835	JGA	17-Aug	Archaeological sites near S-150.	
43	DSC01852	JGA	17-Aug	Archaeological site on Big Bend Project area.	DS, GB
44	DSC01905	JGA	18-Aug	Archaeological grave site (looted).	
Air Quality					
45	DSC01767	JGA	16-Aug	Defender and fugitive dust (dry conditions).	
46	DSC01789	JGA	16-Aug	Fugitive dust due to high winds on dredge piles.	

Authors of the photos

- CW – Caleb Wall
- HB – Hal Brundage
- JGA – John Aronson
- MS – Mikhail Skopets

People in the photos

- BJ – Baigal Jambazav
- Doggie – Translator
- GB – Gerrit Bazuin
- Nara
- PL – Purevdulam Lkhagvasuren
- WM – Wallace Mays

Photograph Log No. 1
Big Bend Gold Mining Project, Mongolia
July 2008

Tuul River Valley

1. View of sheep and goats on the hillslope in the Tuul River Valley.

2. View of dredges working in the Tuul River Valley.

3. Artisanal gold miner in the Tuul River Valley.

4. View of the Tuul River upstream from the Tuul River bridge (sampling point S-110). A small Chinese dredge is working in a pit connected with the river.

5. Panarama of Tuul River Valley operating placer mines.

6. Horses crossing the Tuul River at point S-120.

Big Bend Project Area

7. Small pit lake at the Big Bend Project area.

8. Panorama of large pit lake at the Big Bend Project area.

9. View from hilltop of fog over the Tuul River and the Big Bend campsite.

10. View from hilltop of the Tuul River.

11. View of the Tuul River and Big Bend Campsite from a ridge on the southeast side of the river.

12. Taking a ger apart.

Hydrology, Water Quality

13. Water quality sampling at point S-130.

14. Measuring stream flow 500 meters upstream of point S-130.

15. Collecting water quality samples at sampling point S-110 (Tuul River Bridge).

16. Surface water sampling point S-150.

Soils

17. Soil pit #1 with white arrows denoting soil horizon boundaries.

18. Collecting a shallow soil sample.

Aquatic Biology

19. Aquatic sampling station S-110, looking upstream.

20. Aquatic sampling station S-110, looking downstream.

21. Aquatic sampling station S-112, looking upstream.

22. Aquatic sampling station S-112, looking downstream.

23. Aquatic sampling station S-115, looking downstream.

24. Aquatic sampling station S-130, looking upstream.

25. Aquatic sampling station S-130, looking downstream.

26. Aquatic sampling station S-135, looking downstream.

27. Aquatic sampling station S-150, looking upstream.

28. Aquatic sampling station S-150, looking downstream.

29. Aquatic sampling station L-105, pit lake.

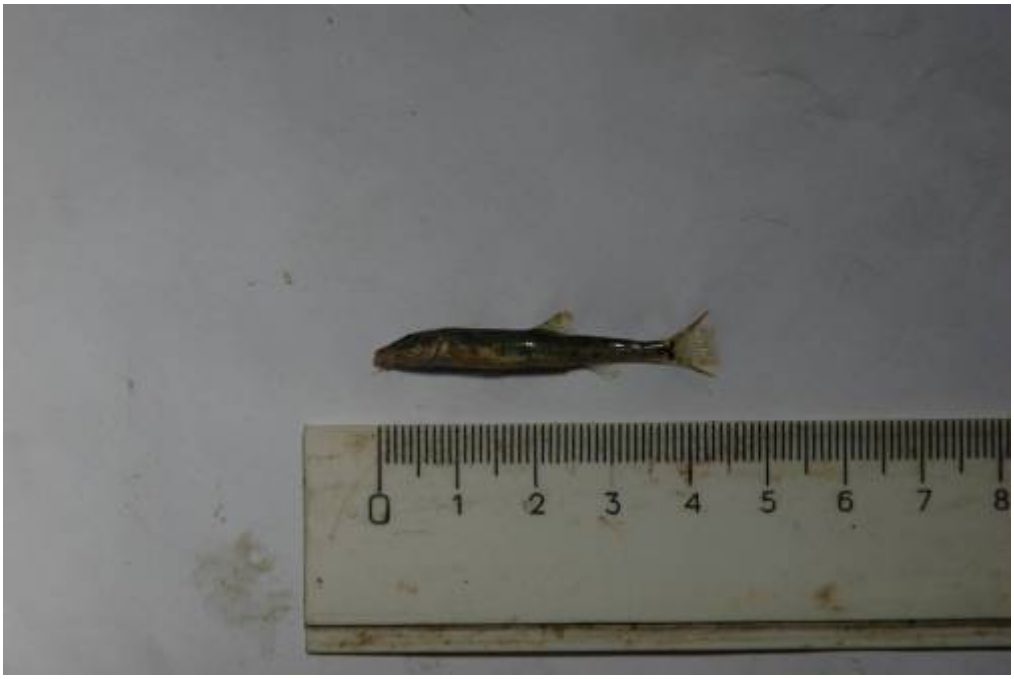
30. Aquatic sampling station L-125, ephemeral pond.

31. Sampling with the large seine net.

32. Sampling with the small seine net.

33. Setting a gill net from a one-man inflatable boat at station S-130 (adjacent to camp).

34. Amur catfish (*Parasilurus asotus*).



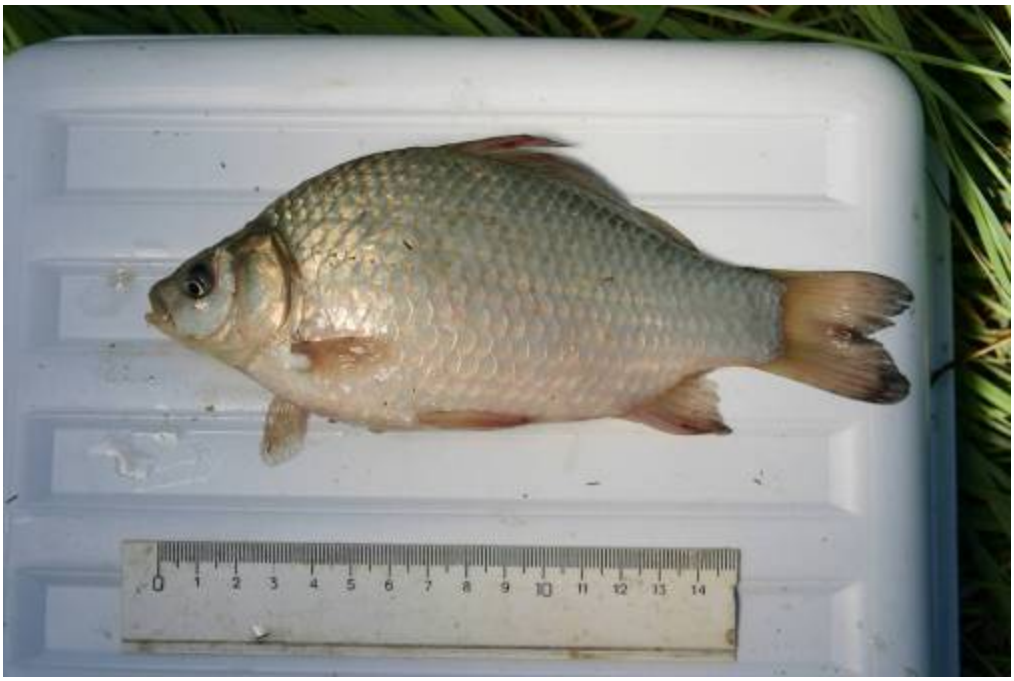
35. A small Stone loach (*Nemacheilus barbatulus*).

36. Tadpole shrimp (the only animal present in catches in the point S-105).

37. Ide (*Leuciscus idus*).

38. Northern pike (*Esox lucius*).

39. Yellow perch (*Perca flavescens*).



40. Prussian carp (*Carassius gibelio*).

41. Dragonfly molt at station L-125.

42. Submerged aquatic vegetation (SAV) at station L-125.

43. Common carp (*Cyprinus carpio*).

44. Roach (*Rutilus rutilus*).

45. Unidentified water lily collected at S-135.

46. AATA aquatic experts processing the catch.

Flora and Fauna

47. A pair of demoiselle cranes (*Anthropoides virgo*).

48. Siberian Iris in the vicinity of station S-130.

49. Recently transformed frog collected at station L-125.

50. Cormorans (*Phalacrocorax carbo*) on the bank of the Tuul River.

51. Willows along the Tuul River bank that have been damaged by livestock

52. Unidentified wildflower on ridge on southeast side of the Tuul River.

Archaeology

53. Panorama of archaeological site and Ger camp near Big Bend.

Photolog No. 2

Big Bend Gold Mining Project, Mongolia

August 2008

Ulaanbaatar

1. Downtown Ulaanbaatar: New modern office building.

2. Burning building in downtown Ulaanbaatar.

3. Local architecture of training institute at Garden Temple in Ulaanbaatar.

4. Rainbow taken from the Kempinski hotel outside of JGA's room in Ulaanbaatar.

Tuul River Valley

5. Large haul trucks in the Tuul River Valley (deep gold mining).

6. View of dredging activities at Shijiir Alt.

7. Unreclaimed dredge spoil area.

8. Washing the dredged material.

9. Tuul River diversion at Shijiir Alt Dredge area.

10. Wetlands and reclamation north of Big Bend.

11. Large dredge working near the Tuul River.

12. Initial phases of topsoil use in reclamation.

13. Dredging operations downstream of the Big Bend Project area.

14. Exemplary reclamation of Erel Mining Company (forced effort) on the road to Zaamar Soum.

15. Exemplary reclamation of Erel Mining Company (forced effort) on the road to Zaamar Soum.

Big Bend Project Area

16. Views of Big Bend Campsite at dawn.

17. Previous exploration on the Big Bend Project area (looking north).

18. Herd of sheep and goats setting out near the Tuul River.

19. Major wash near the southernmost end of the Big Bend Project area.

20. Gers on the main Big Bend Project area.

21. Locals cooking on wood stoves at Big Bend campsite.

22. View of the Big Bend Campsite.

23. Abandoned, unplugged drillhole at the Big Bend Project Area.

24. Wood for fire at the driller's camp.

25. Washing the drilling material.

26. Inspection of drilling contractor operations (safety).

27. Drilling contractor operations.

Socioecomics

28. Ninja miners working in a deep pit.

29. Ninja miners working in a deep pit.

30. Soviet era memorial in the Zaamar soum.

31. Dung collection and stacking for use of fuel in the winter.

32. Driver asking local Mongolian dor directions (note the Beijing 2008 shirt).

Hydrology, Water Quality

33. Filling water bucket from local well supply drum (at G-100).

34. Taking turbidity samples at sampling point S-130.

35. Tuul River ford (upstream of Big Bend Project area).

36. Low water level at S-150 compared to previous month (Photolog 1, #24).

37. Looking upstream (south) on the Tuul River from S-110.

Flora and Fauna

38. Typical Steppe.

39. Great Black Mongolian vultures.

40. Interesting plants growing out of rock face.

41. Forest remnants near base of cliffs on the western side of the Big Bend Project area.

Archaeology

42. Archaeological site near downstream of the Bog Bend Project area (near S-150).

43. Archaeological site on the Big Bend Project area.

44. Archaeological grave site that has been looted.

Air Quality

45. Fugitive dust from the vehicle under dry conditions.

46. Fugitive dust due to high winds on the dredge piles.

Attachment 6

Laboratory Results

ENERGY

Chain of Custody and Analytical Request Record

Page ____ of ____

PLEASE PRINT- Provide as much information as possible.

Company Name: AATA INTERNATIONAL INC	Project Name, PWS, Permit, Etc.: BIG BEND MONGOLIA	Sample Origin State: MONGOLIA	EPA/State Compliance: Yes ☒ No ☐
Report Mail Address: 2240 Blake St Denver CO USA 80205	Contact Name: JOHN ARONSON Phone/Fax: 1-970-223-1333 1-720-974-2550	Email: john.aronson@aata.com	Sampler: (Please Print) ARONSON
Invoice Address: Same	Invoice Contact & Phone: CAROL CALKINS 1-720-974-2550	Purchase Order: X343-00	Quote/Bottle Order: N/A

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

- ☐ DW
- ☐ GSA
- ☐ POTW/WWTP
- ☐ State: ____
- ☒ Other: MONGOLIA
- ☐ A2LA
- ☐ EDD/EDT (Electronic Data) Format: ____
- ☐ LEVEL IV
- ☐ NELAC

Contact ELI prior to RUSH sample submittal for charges and scheduling – See Instruction Page

Comments:

Shipped by: Hand Del 4/9

Cooler ID(s): 102/103/104

Receipt Temp ____ °C

On Ice: (Yes) No

Custody Seal Y N

Bottles/Coolers B C

Intact (Y) N

Signature Match Y N

#	SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX (Number of Containers; Sample Type: A W S V B O; Air Water Soils/Solids Vegetation Bioassay Other)	RAW1	RAW2	Nutrients (H2SO4)	TPH-DRO (H2SO4)	Total Metals HNO3	Dissolved Metals	Mercury CV			SEE ATTACHED	Normal Turnaround (TAT)	RUSH	
1	S110	07/14/08		H2O							✓					✓	
2	S120	07/14/08		"							✓					✓	
3	S130	07/14/08		"							✓					✓	
4	S140	07/14/08		"							✓					✓	
5	S150	07/15/08		"							✓					✓	
6	L125	07/15/08		"							✓					✓	
7	G100	07/15/08		6-H2O							✓					✓	
8											LOCAL						
9																	
10			1420														

LABORATORY USE ONLY

Custody Record MUST be Signed

Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
ARONSON JG	7/16/08 1420	[signature]	TERENTIEV	July 16, 1430	[signature]

Received by Laboratory: ____ Date/Time: ____ Signature: ____

Sample Disposal: Return to Client: ____ Lab Disposal: ____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.

Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.

ActLabs-Asia Co., Ltd.

Request for Analysis

BayanGol District · 36 Engels Street, UB · Tel: (976-11) 342688 · Fax: (976-11) 345063
E-mail: mongolia@actlabsint.com, edread@actlabsint.com, evgueniterentiev@actlabsint.com

MNAS

Date Received: 7/16/08	Work Order #	Invoice #:

Priority: ☐ Normal (2-3 weeks) ☒ RUSH (required by) ASAP (Note: subject to surcharge, method dependent)

Confirmation of Sample Receipt: ☒ Yes ☐ No
By: E-mail: john.avanson@aata.com or Fax:

Client Info:
Quote #, PO #, Proforma #:
Company: AATA International Inc
Attn: John Avanson
Address: 2240 Blake St
Denver CO USA 80205
Phone: 1-970-2251333 Fax: 1-9702239115
E-mail: john.avanson@aata.com

Project: BIG BEND - AATA
Additional Report to: PING WANG
Company: AATA International
Address: Same
Phone: 1-720-974-2550 Fax:
E-mail: ping.wang@aata.com

Method of Payment:
☐ Payment by cash
☒ By bank

Invoicing Instructions:
Mail invoice to: ☒ 1st Address ☐ 2nd Address | Fax invoice to: ☐ 1st Address ☐ 2nd Address | E-mail invoice to: carol.calkins@aata.com

Sample Storage:

	Return		Dispose
Rejects	☐ After Analysis	☐ After 6 months	☒ After 6 months
Pulps	☐ After Analysis	☐ After 6 months	☒ After 6 months

Return Samples To:
Company: DO NOT RETURN
Address:
Attn: Phone:

Method of Sample Return:
☒ At cost (client will be invoiced)
☐ Our Carrier Account:
Carrier Name:
Account #:
Phone:

Special Instructions/Comments: WILL SEND PARAMETER LIST
COLD VAPOR Hg from Total & Dissolved Metals bottles
WILL REPORT Prelim - very lowest detection.

Report: A08-5050 Rev, 6

Report Date: 29/08/2008

Final Report
Activation Laboratories

Analyte Symbol	Na	Li	Be	Mg	Al	Si	K
Package Code	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50
Detection Limit	5	1	0.1	1	2	200	30
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	33600	10	< 1	11000	7130	18000	4500
S120	30300	20	< 1	16800	> 20000	35000	6400
S130	26500	40	< 1	23400	> 20000	44000	8200
S140	28500	20	< 1	13200	13400	27000	5300
S150	34200	20	< 1	13500	11900	24000	5100
L125	81800	< 10	< 1	22000	230	< 2000	800
G100	37800	< 10	< 1	19600	300	7000	3300

Final Report
Activation Laboratories

Analyte Symbol	Ca	Sc	Ti	V	Cr	Mn	Fe
Package Code	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50
Detection Limit	700	1	0.1	0.1	0.5	0.1	10
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	31000	< 10	192	5	< 5	290	7300
S120	46000	< 10	403	26	< 5	725	21900
S130	71000	< 10	640	50	8	1080	35000
S140	35000	< 10	358	15	< 5	435	14300
S150	36000	< 10	302	13	< 5	419	12700
L125	11000	< 10	14	< 1	< 5	5	200
G100	54000	< 10	17	< 1	< 5	15	400

Final Report
Activation Laboratories

Analyte Symbol	Co	Ni	Cu	Zn	Ga	Ge	As
Package Code	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50
Detection Limit	0.005	0.3	0.2	0.5	0.01	0.01	0.03
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	3.65	12	9	79	1.9	< 0.1	7.4
S120	12.2	26	29	65	5.6	0.2	13.5
S130	20.3	44	47	105	8.8	0.3	16.5
S140	7.27	16	17	48	3.8	0.2	8.8
S150	6.58	16	17	45	3.2	0.2	9.1
L125	0.52	< 3	77	203	< 0.1	< 0.1	22.8
G100	0.58	< 3	2	7	< 0.1	< 0.1	15.5

Final Report
Activation Laboratories

Analyte Symbol	Se	Br	Rb	Sr	Y	Zr	Nb
Package Code	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50
Detection Limit	0.2	3	0.005	0.04	0.003	0.01	0.005
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	< 2	120	9	322	3.99	5	0.28
S120	< 2	120	21.9	397	11.1	6.8	0.49
S130	< 2	110	35.9	476	17.9	8.7	0.81
S140	< 2	110	16.8	351	7.15	5.1	0.59
S150	< 2	120	14.3	357	6.52	3.9	0.43
L125	< 2	270	0.4	281	0.12	3	< 0.05
G100	< 2	180	1.58	499	0.25	0.7	< 0.05

Final Report
Activation Laboratories

Analyte Symbol	Mo	Ru	Pd	Ag	Cd	In	Sn
Package Code	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50
Detection Limit	0.1	0.01	0.01	0.2	0.01	0.001	0.1
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	13	< 0.1	< 0.1	< 2	< 0.1	< 0.01	< 1
S120	12	< 0.1	< 0.1	< 2	0.2	0.02	< 1
S130	10	< 0.1	< 0.1	6	0.3	0.04	< 1
S140	12	< 0.1	< 0.1	< 2	0.1	0.01	< 1
S150	13	< 0.1	< 0.1	< 2	0.1	0.02	< 1
L125	22	< 0.1	< 0.1	< 2	< 0.1	< 0.01	< 1
G100	13	< 0.1	< 0.1	< 2	< 0.1	< 0.01	< 1

Final Report
Activation Laboratories

Analyte Symbol	Sb	Te	I	Cs	Ba	La	Ce
Package Code	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50
Detection Limit	0.01	0.1	1	0.001	0.1	0.001	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	0.3	< 1	20	0.84	79	7	13.3
S120	0.3	< 1	20	2.24	167	19.9	39.1
S130	0.4	< 1	20	3.97	235	31.2	62.4
S140	0.4	< 1	10	1.7	112	13.1	27
S150	0.3	< 1	20	1.47	110	12	24.1
L125	0.3	< 1	40	0.02	14	0.19	0.38
G100	< 0.1	< 1	20	0.06	24	0.27	0.54

Final Report
Activation Laboratories

Analyte Symbol	Pr	Nd	Sm	Eu	Gd	Tb	Dy
Package Code	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50
Detection Limit	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	1.68	6.37	1.21	0.21	1.13	0.15	0.75
S120	4.82	18.7	3.63	0.67	3.11	0.41	1.89
S130	7.58	29.1	5.77	1.06	5.21	0.72	3.26
S140	3.17	12.5	2.32	0.46	2.12	0.28	1.32
S150	2.84	11.5	2.14	0.39	2	0.25	1.26
L125	0.04	0.12	0.03	< 0.01	0.02	< 0.01	0.03
G100	0.07	0.24	0.06	0.01	0.05	< 0.01	0.04

Final Report

Activation Laboratories

Analyte Symbol	Ho	Er	Tm	Yb	Lu	Hf	Ta
Package Code	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50
Detection Limit	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	0.13	0.37	0.05	0.36	0.05	0.12	< 0.01
S120	0.37	0.99	0.13	0.96	0.14	0.21	0.02
S130	0.62	1.69	0.22	1.52	0.23	0.28	0.02
S140	0.26	0.74	0.1	0.63	0.09	0.13	0.02
S150	0.21	0.67	0.09	0.58	0.08	0.11	0.01
L125	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.06	< 0.01
G100	< 0.01	0.02	< 0.01	< 0.01	< 0.01	0.03	< 0.01

Final Report
Activation Laboratories

Analyte Symbol	W	Re	Os	Pt	Au	Hg	Tl
Package Code	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50
Detection Limit	0.02	0.001	0.002	0.3	0.002	0.2	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	0.3	0.01	< 0.02	< 3	< 0.02	< 2	0.05
S120	0.3	< 0.01	< 0.02	< 3	< 0.02	< 2	0.12
S130	0.4	< 0.01	< 0.02	< 3	< 0.02	< 2	0.19
S140	0.3	0.01	< 0.02	< 3	< 0.02	< 2	0.12
S150	0.3	< 0.01	< 0.02	< 3	< 0.02	< 2	0.1
L125	0.6	< 0.01	< 0.02	< 3	< 0.02	< 2	< 0.01
G100	< 0.2	< 0.01	< 0.02	< 3	< 0.02	< 2	0.01

Final Report

Activation Laboratories

Analyte Symbol	Pb	Bi	Th	U	B	Na	Li
Package Code	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50	6 Total Recoverable (1-50		6-Dissolved Natural (1-50	6-Dissolved Natural (1-50
Detection Limit	0.01	0.3	0.001	0.001	3	5	1
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	5.7	< 3	0.96	9.49	< 30	33600	8
S120	15.3	< 3	2.68	8.66	< 30	32300	8
S130	22.8	< 3	4.86	8.3	< 30	27200	8
S140	8.4	< 3	2.31	8.33	< 30	30700	8
S150	17.9	< 3	1.88	9.39	< 30	> 35000	9
L125	0.3	< 3	0.07	19.1	50	> 35000	10
G100	0.3	< 3	0.06	22.3	< 30	> 35000	10

Final Report
Activation Laboratories

Analyte Symbol	Be	Mg	Al	Si	K	Ca	Sc
Package Code	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50
Detection Limit	0.1	1	2	200	30	700	1
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	< 0.1	8780	93	6600	3160	> 20000	< 1
S120	< 0.1	8910	172	6400	3240	> 20000	< 1
S130	< 0.1	8310	171	6000	2960	> 20000	< 1
S140	< 0.1	9080	106	6500	2950	> 20000	< 1
S150	< 0.1	9620	184	7000	3170	> 20000	< 1
L125	< 0.1	> 20000	14	200	920	9700	< 1
G100	< 0.1	> 20000	3	7500	3210	> 20000	< 1

Final Report
Activation Laboratories

Analyte Symbol	Ti	V	Cr	Mn	Fe	Co	Ni
Package Code	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50
Detection Limit	0.1	0.1	0.5	0.1	10	0.005	0.3
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	3.1	4.3	< 0.5	41.3	120	0.96	1.6
S120	5.5	4.9	< 0.5	33.1	190	3.41	1.8
S130	6.5	5.1	< 0.5	18	180	1.61	1.3
S140	4	4.9	< 0.5	25.9	140	1.78	1.9
S150	5.8	5.6	0.5	413	240	3.76	2.1
L125	0.4	9.4	< 0.5	3.5	20	1.9	1.2
G100	0.5	1.2	0.9	10.5	10	1.1	0.4

Final Report
Activation Laboratories

Analyte Symbol	Cu	Zn	Ga	Ge	As	Se	Br
Package Code	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50
Detection Limit	0.2	0.5	0.01	0.01	0.03	0.2	3
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	1.7	2.1	0.04	0.03	5.62	0.8	105
S120	1.9	3.8	0.06	0.03	5.71	0.7	99
S130	1.8	2.2	0.06	0.02	5.26	0.7	81
S140	1.7	1.9	0.04	0.03	5.47	1	98
S150	2	4	0.07	0.03	6.17	0.9	114
L125	1.9	3.1	< 0.01	0.01	22.6	1.2	265
G100	0.3	3.4	< 0.01	< 0.01	15.2	1.5	189

Final Report
Activation Laboratories

Analyte Symbol	Rb	Sr	Y	Zr	Nb	Mo	Ru
Package Code	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50
Detection Limit	0.005	0.04	0.003	0.01	0.005	0.1	0.01
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	0.371	> 200	0.252	0.32	0.014	13.5	< 0.01
S120	0.453	> 200	0.254	0.44	0.018	12.6	< 0.01
S130	0.508	> 200	0.213	0.52	0.024	9.8	< 0.01
S140	0.348	> 200	0.238	0.37	0.016	11.5	< 0.01
S150	0.478	> 200	0.261	0.53	0.021	13.2	< 0.01
L125	0.12	> 200	0.013	0.06	< 0.005	20.7	< 0.01
G100	0.968	> 200	0.062	0.05	< 0.005	12.2	< 0.01

Final Report

Activation Laboratories

Analyte Symbol	Pd	Ag	Cd	In	Sn	Sb	Te
Package Code	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50
Detection Limit	0.01	0.2	0.01	0.001	0.1	0.01	0.1
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	< 0.01	< 0.2	0.03	< 0.001	< 0.1	0.46	< 0.1
S120	< 0.01	< 0.2	0.03	< 0.001	< 0.1	0.6	< 0.1
S130	< 0.01	< 0.2	0.02	< 0.001	< 0.1	0.45	< 0.1
S140	< 0.01	< 0.2	0.03	< 0.001	< 0.1	0.51	< 0.1
S150	< 0.01	< 0.2	0.02	< 0.001	< 0.1	0.63	< 0.1
L125	< 0.01	< 0.2	0.03	< 0.001	< 0.1	0.52	< 0.1
G100	< 0.01	< 0.2	0.03	< 0.001	< 0.1	0.17	< 0.1

Final Report

Activation Laboratories

Analyte Symbol	I	Cs	Ba	La	Ce	Pr	Nd
Package Code	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50
Detection Limit	1	0.001	0.1	0.001	0.001	0.001	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	30	0.008	26.5	0.291	0.497	0.072	0.288
S120	27	0.014	27.1	0.384	0.725	0.092	0.368
S130	21	0.018	21.8	0.306	0.554	0.069	0.279
S140	26	0.01	26.7	0.288	0.571	0.069	0.276
S150	31	0.017	32.1	0.39	0.746	0.097	0.361
L125	78	0.003	11.8	0.017	0.036	0.003	0.01
G100	34	0.005	19.6	0.005	0.012	0.001	0.005

Final Report

Activation Laboratories

Analyte Symbol	Sm	Eu	Gd	Tb	Dy	Ho	Er
Package Code	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50
Detection Limit	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	0.066	0.011	0.058	0.008	0.039	0.008	0.025
S120	0.077	0.014	0.066	0.009	0.044	0.009	0.029
S130	0.064	0.011	0.053	0.008	0.037	0.007	0.023
S140	0.056	0.011	0.06	0.008	0.038	0.008	0.032
S150	0.073	0.013	0.071	0.01	0.044	0.009	0.027
L125	0.005	< 0.001	0.004	< 0.001	0.002	< 0.001	< 0.001
G100	0.002	< 0.001	0.002	< 0.001	0.005	0.001	0.003

Final Report

Activation Laboratories

Analyte Symbol	Tm	Yb	Lu	Hf	Ta	W	Re
Package Code	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50
Detection Limit	0.001	0.001	0.001	0.001	0.001	0.02	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	0.004	0.026	0.004	0.005	0.002	0.23	0.008
S120	0.005	0.026	0.004	0.011	0.001	0.26	0.01
S130	0.003	0.024	0.005	0.009	0.002	0.24	0.008
S140	0.003	0.021	0.004	0.007	0.001	0.23	0.011
S150	0.004	0.029	0.005	0.012	0.001	0.28	0.011
L125	< 0.001	0.002	< 0.001	< 0.001	< 0.001	0.7	0.007
G100	< 0.001	0.004	0.001	< 0.001	< 0.001	0.06	0.006

Final Report
Activation Laboratories

Analyte Symbol	Os	Pt	Au	Hg	Tl	Pb	Bi
Package Code	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50
Detection Limit	0.002	0.3	0.002	0.2	0.001	0.01	0.3
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
S110	< 0.002	< 0.3	< 0.002	< 0.2	0.005	0.27	< 0.3
S120	< 0.002	< 0.3	< 0.002	< 0.2	0.006	0.39	< 0.3
S130	< 0.002	< 0.3	0.002	< 0.2	0.006	0.27	< 0.3
S140	< 0.002	< 0.3	< 0.002	< 0.2	0.006	0.37	< 0.3
S150	< 0.002	< 0.3	0.003	< 0.2	0.007	0.4	< 0.3
L125	< 0.002	< 0.3	< 0.002	< 0.2	0.004	0.04	< 0.3
G100	< 0.002	< 0.3	< 0.002	< 0.2	0.007	0.02	< 0.3

Final Report

Activation Laboratories

Analyte Symbol	Th	U	B	F	Cl	NO2 (as N)	Br	NO3 (as N)	PO4 (as P)	SO4	Acidity	Alk.	CO3(2-)	HCO3(-)
Package Code	6-Dissolved Natural (1-50	6-Dissolved Natural (1-50		6B	6B	6B	6B	6B	6B	6B	6C-Acidity	6C-Alkalinity	6C-Alkalinity	6C-Alkalinity
Detection Limit	0.001	0.001	3	0.01	0.03	0.01	0.03	0.01	0.02	0.03		2	1	1
Unit Symbol	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L CaCO3	mg/L CaCO3	mg/L	mg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	IC	IC	IC	IC	IC	IC	IC	ISE	TITR	TITR	TITR
S110	0.051	9.3	81	0.46	15.9	< 0.01	0.09	0.58	0.06	39.4	-56	109	< 1	109
S120	0.062	7.7	81	0.48	15.4	< 0.01	< 0.03	0.74	0.06	39.3	-87.5	131	< 1	131
S130	0.085	6.08	69	0.48	14.2	< 0.01	< 0.03	0.76	0.06	35.8	-65	120	< 1	120
S140	0.049	7.78	80	0.47	15.6	< 0.01	< 0.03	0.56	< 0.02	38.8	-77.5	114	< 1	114
S150	0.058	9.25	90	0.51	16.8	< 0.01	0.09	0.51	< 0.02	42.5	-98.5	125	< 1	125
L125	0.004	19.8	152	1.91	20.8	< 0.01	0.23	< 0.01	< 0.02	79.2	-119	165	80	84
G100	< 0.001	22.7	113	1	13.3	< 0.01	0.18	1.36	< 0.02	42.2	-183	214	< 1	214

Final Report
Activation Laboratories

Analyte Symbol	Ammonia	Conductivity	Hardness	Oil & Grease Total	pH	TDS	NPOC	TSS	Turbidity	SO3	Mg	Ca
Package Code	6C-ammonia	6C-Conductivity	6C-Hardness	6C-Oil & Grease Total	6C-pH	6C-TDS	6C-TOC	6C-TSS	6C-Turbidity		6 (Dissolved) ICP-OES Ove	6 (Dissolved) ICP-OES Ove
Detection Limit	0.02	0.01	0.2	5	0.1		0.01	4	0.1	0.4	0.1	0.1
Unit Symbol	mg/L	µS/cm	mg/L CaCO3	mg/L	pH	mg/L	mg/L	mg/L	NTU	mg/L	mg/L	mg/L
Analysis Method	ISE	ISE	ICP-OES	GRAV	pH	GRAV	Analyzer	GRAV	Turbidimetric	IC	ICP-OES	ICP-OES
S110	0.21	346	98.5	< 5	7.7	230	89.2	208	101	< 0.4		25.3
S120	0.26	370	103	< 5	7.7	246	53.1	620	355	< 0.4		26.8
S130	0.02	351	98	< 5	7.8	234	69.1	1130	730	< 0.4		25.8
S140	0.02	352	91.4	< 5	7.6	234	69.1	363	210	< 0.4		25.7
S150	0.02	380	105	< 5	7.6	253	64.1	330	206	< 0.4		28.3
L125	0.03	524	104	< 5	9.5	349	51.1	< 4	5.6	< 0.4	19.6	
G100	0.02	530	198	< 5	8	353	53.2	< 4	1.2	< 0.4	18	48.9

Final Report
Activation Laboratories

Analyte Symbol	Na	Sr	Al	Hg
Package Code	6 (Dissolved) ICP-OES Ove	6 (Dissolved) ICP-OES Ove	6 (Tota)ICP-OES Overrange	6-Hg
Detection Limit	0.1	10	0.1	6
Unit Symbol	mg/L	µg/L	mg/L	ng/L
Analysis Method	ICP-OES	ICP-OES	ICP-OES	FIMS
S110		260		44
S120		260	15.8	51
S130		250	24.4	37
S140		270		49
S150	35.8	280		64
L125	83.3	240		64
G100	39.7	430		48

Final Report
Activation Laboratories

Analyte Symbol	Na	Li	Be	Mg	Al	Si
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	5	1	0.1	1	2	200
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas	2280		< 0.1	1650	57	
SLRS-4 (ICPMS) Cert	2400		0.007	1600	54	
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas	20400	17	12.6	7960	147	
NIST 1643e (ICP/MS) Cert	20740	17.4	13.98	8037	141.8	
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 50	< 10	< 1	< 10	< 20	< 2000
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	K	Ca	Sc	Ti	V	Cr
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	30	700	1	0.1	0.1	0.5
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas	700	6000			0.1	< 0.5
SLRS-4 (ICPMS) Cert	680	6200			0.32	0.33
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas	2060	> 20000			37.5	18.7
NIST 1643e (ICP/MS) Cert	2034	32300			37.86	20.4
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 300	< 7000	< 10	2	< 1	< 5
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Mn	Fe	Co	Ni	Cu	Zn
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	0.1	10	0.005	0.3	0.2	0.5
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas	3.4	100	0.032	0.7	1.8	1
SLRS-4 (ICPMS) Cert	3.37	103	0.033	0.67	1.81	0.93
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas	38.7	100	26.6	58.2	21.2	70.2
NIST 1643e (ICP/MS) Cert	38.97	98.1	27.06	62.41	22.76	78.5
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 1	< 100	< 0.05	< 3	< 2	23
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Ga	Ge	As	Se	Br	Rb
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	0.01	0.01	0.03	0.2	3	0.005
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas			0.65			
SLRS-4 (ICPMS) Cert			0.68			
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas			56.6	10.8		13.8
NIST 1643e (ICP/MS) Cert			60.45	11.97		14.14
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.1	< 0.1	< 0.3	< 2	< 30	< 0.05
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Sr	Y	Zr	Nb	Mo	Ru
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	0.04	0.003	0.01	0.005	0.1	0.01
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas	27.4				0.2	
SLRS-4 (ICPMS) Cert	26.3				0.21	
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas	> 200				121	
NIST 1643e (ICP/MS) Cert	323.1				121.4	
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.4	< 0.03	0.9	< 0.05	< 1	< 0.1
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Pd	Ag	Cd	In	Sn	Sb
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	0.01	0.2	0.01	0.001	0.1	0.01
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas			0.01			0.26
SLRS-4 (ICPMS) Cert			0.012			0.23
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas		1.6	6.38			56.2
NIST 1643e (ICP/MS) Cert		1.062	6.568			58.3
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.1	< 2	< 0.1	< 0.01	< 1	< 0.1
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Te	I	Cs	Ba	La	Ce
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	0.1	1	0.001	0.1	0.001	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas				12.5		
SLRS-4 (ICPMS) Cert				12.2		
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas	1.4			> 400		
NIST 1643e (ICP/MS) Cert	1.09			544.2		
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 1	< 10	< 0.01	< 1	< 0.01	< 0.01
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Pr	Nd	Sm	Eu	Gd	Tb
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	0.001	0.001	0.001	0.001	0.001	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas						
SLRS-4 (ICPMS) Cert						
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas						
NIST 1643e (ICP/MS) Cert						
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Dy	Ho	Er	Tm	Yb	Lu
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	0.001	0.001	0.001	0.001	0.001	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas						
SLRS-4 (ICPMS) Cert						
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas						
NIST 1643e (ICP/MS) Cert						
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Hf	Ta	W	Re	Os	Pt
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	0.001	0.001	0.02	0.001	0.002	0.3
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas						
SLRS-4 (ICPMS) Cert						
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas						
NIST 1643e (ICP/MS) Cert						
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	0.02	< 0.01	< 0.2	< 0.01	< 0.02	< 3
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Au	Hg	Tl	Pb	Bi	Th
Package Code	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)	6 Total Recoverable (1-50)
Detection Limit	0.002	0.2	0.001	0.01	0.3	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas				0.08		
SLRS-4 (ICPMS) Cert				0.086		
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas			7.1	18.1	11.7	
NIST 1643e (ICP/MS) Cert			7.445	19.63	14.09	
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.02	< 2	< 0.01	0.1	< 3	< 0.01
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	U	B	Na	Li	Be	Mg
Package Code	6 Total Recoverable (1-50)		6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	0.001	3	5	1	0.1	1
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas	0.043		2240		< 0.1	1600
SLRS-4 (ICPMS) Cert	0.05		2400		0.007	1600
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas		145	20500	20	13.8	8020
NIST 1643e (ICP/MS) Cert		157.9	20740	17.4	13.98	8037
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank			< 5	< 1	< 0.1	< 1
Method Blank Method Blank	< 0.01	< 30				
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Al	Si	K	Ca	Sc	Ti
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	2	200	30	700	1	0.1
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas	56		670	5900		
SLRS-4 (ICPMS) Cert	54		680	6200		
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas	149		2110	> 20000		
NIST 1643e (ICP/MS) Cert	141.8		2034	32300		
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 2	< 200	< 30	< 700	< 1	< 0.1
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	V	Cr	Mn	Fe	Co	Ni
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	0.1	0.5	0.1	10	0.005	0.3
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas	0.3	< 0.5	3.5	100	0.035	0.7
SLRS-4 (ICPMS) Cert	0.32	0.33	3.37	103	0.033	0.67
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas	39.1	20.9	41.1	100	27.6	60.6
NIST 1643e (ICP/MS) Cert	37.86	20.4	38.97	98.1	27.06	62.41
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.1	< 0.5	< 0.1	< 10	< 0.005	< 0.3
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Cu	Zn	Ga	Ge	As	Se
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	0.2	0.5	0.01	0.01	0.03	0.2
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas	1.7	1.2			0.73	
SLRS-4 (ICPMS) Cert	1.81	0.93			0.68	
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas	22.8	75.4			59	12.4
NIST 1643e (ICP/MS) Cert	22.76	78.5			60.45	11.97
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.2	< 0.5	< 0.01	< 0.01	< 0.03	< 0.2
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Br	Rb	Sr	Y	Zr	Nb
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	3	0.005	0.04	0.003	0.01	0.005
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas			28.6			
SLRS-4 (ICPMS) Cert			26.3			
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas		15.1	> 200			
NIST 1643e (ICP/MS) Cert		14.14	323.1			
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 3	< 0.005	< 0.04	< 0.003	< 0.01	< 0.005
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Mo	Ru	Pd	Ag	Cd	In
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	0.1	0.01	0.01	0.2	0.01	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas	0.2				0.01	
SLRS-4 (ICPMS) Cert	0.21				0.012	
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas	129			1.6	6.62	
NIST 1643e (ICP/MS) Cert	121.4			1.062	6.568	
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.1	< 0.01	< 0.01	< 0.2	< 0.01	< 0.001
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Sn	Sb	Te	I	Cs	Ba
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	0.1	0.01	0.1	1	0.001	0.1
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas		0.27				13
SLRS-4 (ICPMS) Cert		0.23				12.2
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas		59.2	1.4			> 400
NIST 1643e (ICP/MS) Cert		58.3	1.09			544.2
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.1	< 0.01	< 0.1	< 1	< 0.001	< 0.1
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	La	Ce	Pr	Nd	Sm	Eu
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	0.001	0.001	0.001	0.001	0.001	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas						
SLRS-4 (ICPMS) Cert						
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas						
NIST 1643e (ICP/MS) Cert						
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Gd	Tb	Dy	Ho	Er	Tm
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	0.001	0.001	0.001	0.001	0.001	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas						
SLRS-4 (ICPMS) Cert						
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas						
NIST 1643e (ICP/MS) Cert						
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Yb	Lu	Hf	Ta	W	Re
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	0.001	0.001	0.001	0.001	0.02	0.001
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas						
SLRS-4 (ICPMS) Cert						
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas						
NIST 1643e (ICP/MS) Cert						
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.001	< 0.001	< 0.001	< 0.001	< 0.02	< 0.001
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Os	Pt	Au	Hg	Tl	Pb
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)
Detection Limit	0.002	0.3	0.002	0.2	0.001	0.01
Unit Symbol	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS	ICP-MS
SLRS-4 (ICPMS) Meas						0.08
SLRS-4 (ICPMS) Cert						0.086
IC Ref Std Meas						
IC Ref Std Cert						
SLRS-4 (ICP) Meas						
SLRS-4 (ICP) Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
TOC (2.00) Control Check Meas						
TOC (2.00) Control Check Cert						
APG Minerals 4052 std#4803 Meas						
APG Minerals 4052 std#4803 Cert						
APG Minerals 5082 std#4804 Meas						
APG Minerals 5082 std#4804 Cert						
NIST 1643e (ICP) Meas						
NIST 1643e (ICP) Cert						
NIST 1643e (ICP/MS) Meas					7.4	19.7
NIST 1643e (ICP/MS) Cert					7.445	19.63
APG Turbidity Std cat#4892 Std# 5048 Meas						
APG Turbidity Std cat#4892 Std# 5048 Cert						
S130 Orig						
S130 Dup						
G100 Orig						
G100 Dup						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank	< 0.002	< 0.3	< 0.002	< 0.2	< 0.001	< 0.01
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						
Method Blank Method Blank						

Final Report
Activation Laboratories

Analyte Symbol	Bi	Th	U	B	F	Cl	NO2 (as N)	Br	NO3 (as N)	PO4 (as P)	SO4
Package Code	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)	6-Dissolved Natural (1-50)		6B	6B	6B	6B	6B	6B	6B
Detection Limit	0.3	0.001	0.001	3	0.01	0.03	0.01	0.03	0.01	0.02	0.03
Unit Symbol	µg/L	µg/L	µg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Analysis Method	ICP-MS	ICP-MS	ICP-MS	ICP-MS	IC	IC	IC	IC	IC	IC	IC
SLRS-4 (ICPMS) Meas			0.048								
SLRS-4 (ICPMS) Cert			0.05								
IC Ref Std Meas					1.94	15	2.97	10	2.99	5.06	15
IC Ref Std Cert					2	15	3	10	3	5	15
SLRS-4 (ICP) Meas											
SLRS-4 (ICP) Cert											
TOC (2.00) Control Check Meas											
TOC (2.00) Control Check Cert											
TOC (2.00) Control Check Meas											
TOC (2.00) Control Check Cert											
APG Minerals 4052 std#4803 Meas											
APG Minerals 4052 std#4803 Cert											
APG Minerals 5082 std#4804 Meas											
APG Minerals 5082 std#4804 Cert											
NIST 1643e (ICP) Meas											
NIST 1643e (ICP) Cert											
NIST 1643e (ICP/MS) Meas	12.5			166							
NIST 1643e (ICP/MS) Cert	14.09			157.9							
APG Turbidity Std cat#4892 Std# 5048 Meas											
APG Turbidity Std cat#4892 Std# 5048 Cert											
S130 Orig											
S130 Dup											
G100 Orig					1	13.3	< 0.01	0.18	1.37	< 0.02	42.2
G100 Dup					0.99	13.3	< 0.01	0.17	1.35	< 0.02	42.2
Method Blank Method Blank					< 0.01	< 0.03	< 0.01	< 0.03	< 0.01	< 0.02	< 0.03
Method Blank Method Blank											
Method Blank Method Blank	< 0.3	< 0.001	< 0.001	< 3							
Method Blank Method Blank											
Method Blank Method Blank											
Method Blank Method Blank											
Method Blank Method Blank											
Method Blank Method Blank											
Method Blank Method Blank											

Final Report
Activation Laboratories

Analyte Symbol	Acidity	Alk.	CO3(2-)	HCO3(-)	Conductivity	Hardness	pH	TDS	NPOC	Turbidity	SO3
Package Code	6C-Acidity	6C-Alkalinity	6C-Alkalinity	6C-Alkalinity	6C-Conductivity	6C-Hardness	6C-pH	6C-TDS	6C-TOC	6C-Turbidity	
Detection Limit		2	1	1	0.01	0.2	0.1		0.01	0.1	0.4
Unit Symbol	mg/L CaCO3	mg/L CaCO3	mg/L	mg/L	µS/cm	mg/L CaCO3	pH	mg/L	mg/L	NTU	mg/L
Analysis Method	ISE	TITR	TITR	TITR	ISE	ICP-OES	pH	GRAV	Analyzer	Turbidimetric	IC
SLRS-4 (ICPMS) Meas											
SLRS-4 (ICPMS) Cert											
IC Ref Std Meas											
IC Ref Std Cert											
SLRS-4 (ICP) Meas											
SLRS-4 (ICP) Cert											
TOC (2.00) Control Check Meas									2.03		
TOC (2.00) Control Check Cert									2		
TOC (2.00) Control Check Meas									2.07		
TOC (2.00) Control Check Cert									2		
APG Minerals 4052 std#4803 Meas						61.5					
APG Minerals 4052 std#4803 Cert						42.1					
APG Minerals 5082 std#4804 Meas						87.1					
APG Minerals 5082 std#4804 Cert						78.4					
NIST 1643e (ICP) Meas											
NIST 1643e (ICP) Cert											
NIST 1643e (ICP/MS) Meas											
NIST 1643e (ICP/MS) Cert											
APG Turbidity Std cat#4892 Std# 5048 Meas										9.3	
APG Turbidity Std cat#4892 Std# 5048 Cert										9.15	
S130 Orig						100					
S130 Dup						95.8					
G100 Orig	-183	217	< 1	217	529		8	352			< 0.4
G100 Dup	-184	211	< 1	211	530		8	353			< 0.4
Method Blank Method Blank											
Method Blank Method Blank						< 0.2					
Method Blank Method Blank											
Method Blank Method Blank											
Method Blank Method Blank									0.05		
Method Blank Method Blank											< 0.4
Method Blank Method Blank											
Method Blank Method Blank											
Method Blank Method Blank											

Final Report
Activation Laboratories

Analyte Symbol	Mg	Ca	Na	Sr
Package Code	6 (Dissolved) ICP-OES Overrange	6 (Dissolved) ICP-OES Overrange	6 (Dissolved) ICP-OES Overrange	6 (Dissolved) ICP-OES Overrange
Detection Limit	0.1	0.1	0.1	10
Unit Symbol	mg/L	mg/L	mg/L	µg/L
Analysis Method	ICP-OES	ICP-OES	ICP-OES	ICP-OES
SLRS-4 (ICPMS) Meas				
SLRS-4 (ICPMS) Cert				
IC Ref Std Meas				
IC Ref Std Cert				
SLRS-4 (ICP) Meas	1.7	6	2.2	30
SLRS-4 (ICP) Cert	1.6	6.2	2.4	26.3
TOC (2.00) Control Check Meas				
TOC (2.00) Control Check Cert				
TOC (2.00) Control Check Meas				
TOC (2.00) Control Check Cert				
APG Minerals 4052 std#4803 Meas				
APG Minerals 4052 std#4803 Cert				
APG Minerals 5082 std#4804 Meas				
APG Minerals 5082 std#4804 Cert				
NIST 1643e (ICP) Meas	7.9	29.9	20.7	300
NIST 1643e (ICP) Cert	8.037	32.3	20.74	323.1
NIST 1643e (ICP/MS) Meas				
NIST 1643e (ICP/MS) Cert				
APG Turbidity Std cat#4892 Std# 5048 Meas				
APG Turbidity Std cat#4892 Std# 5048 Cert				
S130 Orig		25.8		250
S130 Dup		25.9		250
G100 Orig				
G100 Dup				
Method Blank Method Blank				
Method Blank Method Blank				
Method Blank Method Blank				
Method Blank Method Blank				
Method Blank Method Blank				
Method Blank Method Blank				
Method Blank Method Blank	< 0.1	< 0.1	0.2	< 10
Method Blank Method Blank				
Method Blank Method Blank				

Final Report
Activation Laboratories

Analyte Symbol	Al	Hg
Package Code	6 (Tota)ICP-OES Overrange	6-Hg
Detection Limit	0.1	6
Unit Symbol	mg/L	ng/L
Analysis Method	ICP-OES	FIMS
SLRS-4 (ICPMS) Meas		
SLRS-4 (ICPMS) Cert		
IC Ref Std Meas		
IC Ref Std Cert		
SLRS-4 (ICP) Meas	< 0.1	
SLRS-4 (ICP) Cert	0.054	
TOC (2.00) Control Check Meas		
TOC (2.00) Control Check Cert		
TOC (2.00) Control Check Meas		
TOC (2.00) Control Check Cert		
APG Minerals 4052 std#4803 Meas		
APG Minerals 4052 std#4803 Cert		
APG Minerals 5082 std#4804 Meas		
APG Minerals 5082 std#4804 Cert		
NIST 1643e (ICP) Meas	0.1	
NIST 1643e (ICP) Cert	0.1418	
NIST 1643e (ICP/MS) Meas		
NIST 1643e (ICP/MS) Cert		
APG Turbidity Std cat#4892 Std# 5048 Meas		
APG Turbidity Std cat#4892 Std# 5048 Cert		
S130 Orig		
S130 Dup		
G100 Orig		
G100 Dup		
Method Blank Method Blank		
Method Blank Method Blank		
Method Blank Method Blank		
Method Blank Method Blank		
Method Blank Method Blank		
Method Blank Method Blank		
Method Blank Method Blank		
Method Blank Method Blank		< 6
Method Blank Method Blank	< 0.1	

Lab Code	Client ID	Concentration
A08-5050-1	S110	< 0.5
A08-5050-2	S120	< 0.5
A08-5050-3	S130	< 0.5
A08-5050-4	S140	< 0.5
A08-5050-5	S150	< 0.5
A08-5050-6	L125	< 0.5
A08-5050-7	G100	< 0.5

Units: Parts-per-Million (ppm or mg/L)
Matrix: Water
Instrumentation: GC/MS (Gas Chromotography / Mass Spectrometry)

Aclabs nor it's employees shall be liable for any claims or damages as a result of this report, any omissions in preparation, or in the test conducted.

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Report: A08-5050 (i) rev 2 Rev, 3
Report Date: 27/08/2008

Preliminary Report
Activation Laboratories

Analyte Symbol	Hg
Unit Symbol	ng/L
Detection Limit	6
Analysis Method	FIMS
S110	44
S120	51
S130	37
S140	49
S150	64
L125	64
G100	48

Preliminary Report
Activation Laboratories

Analyte Symbol	Hg
Unit Symbol	ng/L
Detection Limit	6
Analysis Method	FIMS
Method Blank Method Blank	< 6

ActLabs-Asia Co., Ltd.

Request for Analysis

BayanGol District · 36 Engels Street, UB · Tel: (976-11) 342688 · Fax: (976-11) 345063
E-mail: mongolia@actlabsint.com, edread@actlabsint.com, evgueniterentiev@actlabsint.com

MNAS

Date Received: 20 JULY 2008 | Work Order # U08-1369 | Invoice #:

Priority: ☒ Normal (2-3 weeks)
☐ RUSH (required by) _____
(Note: subject to surcharge, method dependent)

Confirmation of Sample Receipt: ☒ Yes ☐ No
By: E-mail: johnaaronson@aata.com or Fax: _____

Client Info:

Quote #, PO #, Proforma #: _____ Project: BIG BEND

Company: AATA INTERNATIONAL
Attn: JOHN ARONSON
Address: 2240 BLAKE ST., SUITE 210
DENVER, COLORADO USA 80205

Phone: 1-720-974-2550 Fax: 1-970-223-9115
E-mail: john.aronson@AATA.com

Additional Report to: _____
Company: _____
Address: _____
Phone: _____ Fax: _____
E-mail: _____

Method of Payment:

☐ Payment by cash
☒ By bank

Invoicing Instructions:

Mail invoice to: ☒ 1st Address ☐ 2nd Address | Fax invoice to: ☐ 1st Address ☐ 2nd Address | E-mail invoice to: john.aronson@aata.com

Sample Storage:

	Return		Dispose
Rejects	☐ After Analysis	☐ After 6 months	☒ After 6 months
Pulps	☐ After Analysis	☐ After 6 months	☒ After 6 months

Return Samples To:
Company: _____
Address: _____
Attn: _____ Phone: _____

Method of Sample Return:
☐ At cost (client will be invoiced)
☐ Our Carrier Account:
Carrier Name: _____
Account #: _____
Phone: _____

Special Instructions/Comments: KEEP REFRIGERATED / COOL

15 soil samples

From: John Aronson <john.aronson@aata.com>
To: hbrund1124@aol.com
Cc: Ping Wang <ping.wang@aata.com>
Subject: Soil Samples
Date: Wed, 16 Jul 2008 7:13 pm

Hal:
The soil samples should go to ACT Labs. Gail knows where the lab is located. These will likely go out to Canada too. But maybe they know how to do soil here. Gail is at 99848710. Lab is at 36 Engels St. but it is not marked. Gail and her brother Enky took me to the lab to deliver the water to Evgueni Terentiev, Lab Mgr. He is at 976-11-342-688. The parameter list is included here.

pH

Conductivity (mmhos/cm)

Nitrate+Nitrite as N (mg/kg)

K (mg/kg)

P (%)

Cl (mg/kg)

Na (mg/kg)

Ca (mg/kg)

Mg (mg/kg)

Sodium Absorption Ratio (calculated)

Al (mg/kg)

As (mg/kg)

Bo (mg/kg)

Cd (mg/kg)

Cr (mg/kg)

Cu (mg/kg)

Fe (mg/kg)

Pb (mg/kg)

Mn (mg/kg)

Hg (mg/kg)

Ni (mg/kg)

SAMPLE ID	DATE	TIME
PIT 1 - A HORIZON	7/17/08	1530
PIT 1 - B HORIZON	"	1531
PIT 1 - C HORIZON	"	1532
S-1	7/18/08	1025
S-2	"	1041
S-3	7/17/08	1600
S-4	"	1634
S-5	"	1644
S-6	"	1707
S-7	"	1715
S-8	"	1730
S-9	"	1742
S-10	7/18/08	1600
S-11	"	1550
S-12	"	1536

Se (mg/kg)

Zn (mg/kg)

Sand (%)

Silt (%)

Clay (%)

Organic Matter (%)

Mr. John G. Aronson, President

AATA International, Inc. - Denver Headquarters
2240 Blake Street, Suite 210
Denver, Colorado, USA 80205

AATA Corporate Technical Center
300 Boardwalk Drive
The Landings Office Park 4A
Fort Collins, Colorado, USA 80525

AATA New York, Woodmere, New York
AATA Montana, Missoula, Montana
AATA Sarasota, Sarasota, Florida
AATA Khabarovsk, Khabarovsk, Russia

1-720-974-2550 DEN
1-970-223-1333 FTC
1-970-223-9115 fax
1-970-214-7897 GSM cell
www.aata.com website
john.aronson@aata.com email
Skype: AATA-Aronson

SAMPLES RELINQUISHED BY.

HAROLD BRUNDAGE 20 JULY 2008 1110 AM

SAMPLES RECEIVED BY:

20 JULY 2008 1110 AM

Evgueni Terentiev

Report: A08-5110 (i) rev 2 Rev, 2

Report Date: 03/10/2008

Final Report

Activation Laboratories

Analyte Symbol	SAR	Soluble B	Soluble Ca	Soluble Mg	Soluble Na	NO2 (as N)	NO3 (as N)	Total N
Package Code	13-SAR					6B	6B	13-Total N
Detection Limit	1	0.5	0.1	0.1	0.1	0.01	0.01	0.01
Unit Symbol	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	%
Analysis Method	ICP-OES	ICP-OES	ICP-OES	ICP-OES	ICP-OES	IC	IC	Analyzer
S-5	17	< 0.5	169	21.8	119	50.8	23.8	1.23

Final Report
Activation Laboratories

Analyte Symbol	SAR	Soluble B	Soluble Ca	Soluble Mg	Soluble Na	NO2 (as N)	NO3 (as N)	Total N
Package Code	13-SAR					6B	6B	13-Total N
Detection Limit	1	0.5	0.1	0.1	0.1	0.01	0.01	0.01
Unit Symbol	-	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	%
Analysis Method	ICP-OES	ICP-OES	ICP-OES	ICP-OES	ICP-OES	IC	IC	Analyzer
IC Ref Std Meas						3.02	3.04	
IC Ref Std Cert						3	3	
NIST 2684b Meas								1.43
NIST 2684b Cert								1.5
S-5 Orig	17	< 0.5	167	21.9	120			1.23
S-5 Dup	17	< 0.5	170	21.8	118			1.23
Method Blank Method Blank		< 0.5	< 0.1	< 0.1	< 0.1			
Method Blank Method Blank								< 0.01
Method Blank Method Blank						< 0.01	< 0.01	

Report: A08-5110 rev 1 Rev, 1

Report Date: 02/09/2008

Final Report

Activation Laboratories

Analyte Symbol	Soluble B	Conductivity	Paste pH	SAR	Soluble Ca	Soluble Mg	Soluble Na	Total N	NO2 (as N)	NO3 (as N)	Li	Be	B	Na	Mg	Al
Package Code		13-Conductivity	13-Paste pH	13-SAR				13-Total N	6B	6B	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g
Detection Limit	0.5	0.01	0.01	1	0.1	0.1	0.1	0.01	0.01	0.01	0.1	0.1	1	0.001	0.01	0.01
Unit Symbol	mg/L	µS/cm	-	-	mg/L	mg/L	mg/L	%	mg/L	mg/L	ppm	ppm	ppm	%	%	%
Analysis Method	ICP-OES	ISE	pH Meter	ICP-OES	ICP-OES	ICP-OES	ICP-OES	Analyzer	IC	IC	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
PIT1-A	2.4	107	7.86	44	36.1	17.6	159	0.1	0.1	3.75	21.6	0.8	6	0.088	0.9	2.45
PIT1-B	2.6	2830	8.95	239	22.9	141	1530	< 0.01	< 0.2	< 0.2	23.5	0.6	20	0.256	1.35	2.1
PIT1-C	5.3	653	9.25	229	6.6	10	466	< 0.01	0.18	0.09	24.9	0.5	27	0.164	1.47	2.05
S-1	10.3	1080	9.21	83	154	122	686	0.13	2.71	2.09	32	0.9	50	0.316	3.28	2.61
S-2	2.3	105	7.64	12	26.6	7	34.7	0.12	0.07	4.39	27.5	1.1	10	0.056	0.93	3.34
S-3	7.7	1000	9.23	87	161	58	644	0.04	0.23	15.3	22.3	0.7	22	0.251	1.39	2.37
S-4	9.4	735	8.67	115	66.2	56.8	635	0.09	0.24	10.6	24.4	0.9	14	0.236	0.87	2.83
S-5		< 0.01	8.05					1.09			7.4	0.2	33	0.071	0.78	0.68
S-6	5.4	1880	9.03	174	136	18.6	1090	0.05	4.11	290	22.3	0.7	19	0.319	0.99	2.2
S-7	4.6	697	9.07	42	206	113	371	0.11	0.4	0.13	26.2	0.8	34	0.186	2.21	2.28
S-8	1.6	2870	8.23	102	332	278	1260	0.49	0.82	0.5	16.1	0.4	39	0.25	1.42	1.22
S-9	15.7	1990	9.35	142	233	29.9	1150	0.05	0.59	12.6	25.3	0.9	36	0.524	1.25	2.83
S-10	9.1	1810	9.06	129	175	25.5	914	0.09	< 0.2	0.23	28.8	1.1	11	0.134	1.17	3.49
S-11	3	652	7.57	99	27.9	23.7	356	0.15	< 0.06	3.74	27.7	1.1	11	0.132	1.14	3.49
S-12	1.4	233	7.96	4	116	9	24.5	0.14	0.3	4.29	25.6	0.9	10	0.042	1.01	3.03

Final Report

Activation Laboratories

Analyte Symbol	P	S	K	Ca	V	Cr	Ti	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se
Package Code	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g
Detection Limit	0.001	0.001	0.01	0.01	1	0.5	0.01	1	0.01	0.1	0.1	0.01	0.1	0.02	0.1	0.1	0.1
Unit Symbol	%	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Analysis Method	AR-ICP	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
PIT1-A	0.046	0.036	0.36	0.52	57	51.5	0.16	601	2.9	13.9	28.7	22.1	59.7	6.85	0.1	13.9	0.7
PIT1-B	0.045	0.23	0.22	9.18	58	32.4	0.11	295	2.21	11.1	27.1	25.4	41.1	5.66	< 0.1	12	0.8
PIT1-C	0.047	0.155	0.24	13	56	38.9	0.11	284	2.12	10.2	24.6	22.1	40.2	5.36	< 0.1	10.7	0.8
S-1	0.051	0.115	0.62	6.15	49	30.6	0.09	565	2.59	10.3	54.4	32.1	57.9	6.35	0.1	8.5	1.3
S-2	0.052	0.031	0.51	0.72	62	46.2	0.16	786	3.5	13.5	36.4	26.4	77	8.46	0.1	7.7	0.6
S-3	0.047	0.079	0.37	4.17	52	34.6	0.13	443	2.81	10.3	46.5	25	49.9	6.17	< 0.1	6.8	0.6
S-4	0.045	0.028	0.47	0.47	52	40.1	0.14	569	3.06	12.1	31.6	23.3	65.5	7.5	< 0.1	7	0.5
S-5	0.057	0.412	0.07	18.5	13	11.4	0.02	1330	0.93	3.9	9.3	7.3	19.1	1.4	< 0.1	3.9	0.5
S-6	0.062	0.107	0.31	3.25	46	30.7	0.13	430	2.4	9.5	25.1	21.4	52.9	5.7	< 0.1	6	0.6
S-7	0.05	0.065	0.52	4.7	39	36.8	0.1	467	2.28	8.7	21	20	56.4	6	< 0.1	5.9	1
S-8	0.055	0.416	0.19	17.9	25	15.3	0.03	407	1.27	6	14.6	10.5	31.1	3.05	0.1	3.6	1.7
S-9	0.07	0.255	0.57	4.14	49	37.8	0.11	594	3.08	15.4	177	80	63.2	6.99	< 0.1	5.6	1.4
S-10	0.067	0.067	0.61	0.56	70	50.8	0.16	848	3.81	16	57.3	36.6	83.2	9.43	< 0.1	7.6	0.6
S-11	0.068	0.068	0.6	0.55	68	49.5	0.16	824	3.78	15.7	58	37	83.7	9.11	< 0.1	7.5	0.7
S-12	0.079	0.056	0.51	3.14	69	43.7	0.13	686	3.49	13.9	37.2	27.7	72.8	8.26	< 0.1	7.8	0.6

Final Report

Activation Laboratories

Analyte Symbol	Rb	Sr	Y	Zr	Sc	Pr	Gd	Dy	Ho	Er	Tm	Nb	Mo	Ag	Cd	In	Sn
Package Code	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g
Detection Limit	0.1	0.5	0.01	0.1	0.1	0.1	0.1	0.001	0.1	0.1	0.1	0.1	0.01	0.002	0.01	0.02	0.05
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
PIT1-A	24.9	44.2	12.4	5.4	5.7	6.2	3.8	2.8	0.5	1.3	0.2	1.9	0.82	0.066	0.08	0.03	1.03
PIT1-B	15.8	466	10.2	4.6	4.7	4.4	2.8	2.2	0.4	1.2	0.2	1.9	1.55	0.022	0.07	0.03	0.97
PIT1-C	16.6	791	9.51	8.5	4.7	3.9	2.6	2	0.4	1	0.2	1.9	1.05	0.026	0.09	0.03	0.94
S-1	30.8	639	11.1	2.1	4.2	4.9	3	2.3	0.4	1.1	0.2	1.7	0.72	0.053	0.15	0.03	0.89
S-2	34.1	65.5	14.7	6	7	6.8	4.2	3.2	0.6	1.5	0.2	1.7	0.64	0.061	0.12	0.04	1.2
S-3	23.3	300	11.2	4.5	5.2	5.2	3.2	2.4	0.5	1.2	0.2	2	0.79	0.04	0.08	0.03	1.03
S-4	30	57.4	11.8	4.2	6	5.6	3.5	2.6	0.5	1.3	0.2	1.7	1.04	0.118	0.08	0.03	1.12
S-5	3.8	833	2.72	1.1	0.5	1.2	0.7	0.6	0.1	0.3	< 0.1	0.5	2.43	0.026	0.16	< 0.02	0.29
S-6	22.6	161	11.2	4.3	4.8	5.2	3.3	2.4	0.5	1.2	0.2	1.9	1.77	0.044	0.09	0.03	1
S-7	36.2	427	10.1	2.3	4.3	4.8	3	2.2	0.4	1.1	0.2	1.8	0.95	0.04	0.16	0.03	0.93
S-8	11.9	> 1000	5.92	1.2	1.3	2.4	1.5	1.2	0.2	0.6	0.1	0.9	1.47	0.025	0.1	0.02	0.49
S-9	32.3	250	11.3	4.8	5.7	5	3.3	2.5	0.5	1.3	0.2	1.5	0.89	0.068	0.13	0.03	1.01
S-10	36.8	59.7	14.7	6.1	7.6	6.7	4.3	3.25	0.6	1.7	0.2	1.8	0.81	0.105	0.11	0.04	1.08
S-11	35.9	59.1	14.6	5.8	7.4	6.8	4.2	3.2	0.6	1.6	0.2	1.8	0.78	0.102	0.13	0.04	1.05
S-12	28.9	81.9	13.2	2.7	6.6	6	3.8	2.8	0.5	1.4	0.2	1.8	0.67	0.073	0.14	0.03	0.92

Final Report

Activation Laboratories

Analyte Symbol	Sb	Te	Cs	Ba	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Hf	Ta	W	Re	Au
Package Code	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g
Detection Limit	0.02	0.02	0.02	0.5	0.5	0.01	0.02	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.1	0.001	0.5
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
PIT1-A	0.49	0.03	2.4	124	25.5	53.3	23.3	4.4	0.8	0.5	1.1	0.2	0.1	< 0.05	0.3	< 0.001	4.8
PIT1-B	0.48	0.05	1.6	96.9	17.4	35.6	16.9	3.2	0.6	0.4	1	0.1	0.1	< 0.05	0.7	0.001	2.9
PIT1-C	0.42	0.09	1.5	85.9	15.9	32.2	15.2	2.9	0.6	0.4	0.9	0.1	0.1	< 0.05	0.4	< 0.001	6.6
S-1	0.44	0.07	2.4	148	20.2	40.3	18.6	3.4	0.6	0.4	1	0.1	< 0.1	< 0.05	0.3	< 0.001	4.3
S-2	0.43	0.04	3	180	28.9	57.7	25.9	4.8	0.9	0.6	1.3	0.2	0.1	< 0.05	0.3	< 0.001	6.6
S-3	0.39	0.05	2.1	132	21	42	19.9	3.7	0.7	0.4	1	0.1	0.1	< 0.05	0.3	< 0.001	4.3
S-4	0.37	0.06	2.6	156	23.6	47	21.8	4.2	0.7	0.5	1.1	0.2	0.1	< 0.05	0.3	< 0.001	2.8
S-5	0.13	0.05	0.5	201	4.9	10.3	4.49	0.9	0.2	0.1	0.2	< 0.1	< 0.1	< 0.05	0.1	0.003	2.5
S-6	0.38	< 0.02	2	118	22.1	42.4	20.2	3.8	0.7	0.4	1	0.1	0.1	< 0.05	0.4	< 0.001	0.5
S-7	0.34	0.02	2.2	133	20.1	40.6	18.6	3.4	0.6	0.4	1	0.1	< 0.1	< 0.05	0.3	0.001	5.1
S-8	0.46	0.03	1	118	10.2	20	9.23	1.7	0.3	0.2	0.5	0.1	< 0.1	< 0.05	0.1	0.001	3.8
S-9	0.32	0.02	2.8	181	21.1	41.8	19	3.7	0.7	0.5	1.1	0.2	0.1	< 0.05	0.3	0.001	3.7
S-10	0.45	0.06	3.15	170	28.5	58.3	26.3	4.9	0.9	0.6	1.4	0.2	0.1	< 0.05	0.3	< 0.001	7.7
S-11	0.46	0.06	3.1	172	28.6	57.1	26.3	4.9	0.9	0.6	1.3	0.2	0.1	< 0.05	0.3	< 0.001	7.7
S-12	0.47	0.03	2.6	147	25.7	52	23.5	4.5	0.8	0.5	1.2	0.2	< 0.1	< 0.05	0.3	< 0.001	5.2

Final Report
Activation Laboratories

Analyte Symbol	Tl	Pb	Bi	Th	U	LOI	Hg	Cl	Mass	% Clay -10mesh	% Sand -10mesh	% Silt -10mesh	+ 10 mesh
Package Code	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	4F-LOI		4F-Cl	4F-Cl				
Detection Limit	0.02	0.01	0.02	0.1	0.1		5	0.01					
Unit Symbol	ppm	ppm	ppm	ppm	ppm	%	ppb	%	g	%	%	%	%
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	GRAV	FIMS	INAA	INAA	Prep	Prep	Prep	Prep
PIT1-A	0.14	10.2	0.03	2.5	1	4.17	8	< 0.01	1.01	5.36	31.2	63.4	16.1
PIT1-B	0.1	8.03	0.03	2.2	9.6	2.56	< 5	0.06	1.08	5.7	47.4	46.9	23.1
PIT1-C	0.1	6.54	0.02	2.1	7.9	2.03	11	0.01	1.04	11	59.4	29.6	25.9
S-1	0.13	8.04	0.02	1.1	4.2	6.63	15	0.02	1.02	7.02	63.2	29.8	28.9
S-2	0.17	17	0.04	3.2	1.5	5.71	14	0.01	1.06	4.72	21	74.3	24.7
S-3	0.11	8.73	0.03	2.5	1.4	3.73	13	0.03	1.02	7.72	36.4	55.9	38.2
S-4	0.14	11.1	0.04	2.5	1.2	4.65	16	< 0.01	1.09	5.98	43.2	50.8	60.4
S-5	0.04	3	< 0.02	0.3	2	27.01	17	0.03	1.02	37.9	10.2	51.9	24.8
S-6	0.11	8.27	0.02	2.4	5.2	3.47	12	0.03	1.06	9.78	40.6	49.6	36.5
S-7	0.1	7.84	0.02	1.5	2.6	6.41	21	0.02	1.07	3.64	61.6	34.8	21.8
S-8	0.06	4.83	0.02	0.3	12	11.33	14	0.06	1.08	5.56	41.8	52.6	14.8
S-9	0.17	9.73	0.02	2.5	1.5	4.05	16	0.02	1.03	4.34	74.8	20.9	40.8
S-10	0.17	13.9	0.04	3.2	1.1	6.81	17	0.03	1.02	7.74	70.8	21.5	41.9
S-11	0.17	13.7	0.04	3.3	1.1	6.28	17	0.02	1.04	2.02	67	31	35.8
S-12	0.14	12.2	0.03	2.5	0.9	6.16	23	0.02	1.08	2.84	45.6	51.6	16.6

Final Report
Activation Laboratories

Analyte Symbol	Soluble B	Conductivity	SAR	Soluble Ca	Soluble Mg	Soluble Na	Total N	NO2 (as N)	NO3 (as N)	Li	Be	B	Na	Mg	Al
Package Code		13-Conductivity	13-SAR				13-Total N	6B	6B	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g
Detection Limit	0.5	0.01	1	0.1	0.1	0.1	0.01	0.01	0.01	0.1	0.1	1	0.001	0.01	0.01
Unit Symbol	mg/L	µS/cm	-	mg/L	mg/L	mg/L	%	mg/L	mg/L	ppm	ppm	ppm	%	%	%
Analysis Method	ICP-OES	ISE	ICP-OES	ICP-OES	ICP-OES	ICP-OES	Analyzer	IC	IC	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas										5.9	0.9	13	0.049	0.11	0.49
GXR-1 Cert										8.2	1.22	15	0.052	0.217	3.52
GXR-4 Meas										9.6	1.5	4	0.131	1.59	3.47
GXR-4 Cert										11.1	1.9	4.5	0.564	1.66	7.2
GXR-2 Meas										48.1	1.1	20	0.146	0.47	4.16
GXR-2 Cert										54	1.7	42	0.556	0.85	16.5
GXR-6 Meas										26.5	0.9	5	0.072	0.33	9.25
GXR-6 Cert										32	1.4	9.8	0.104	0.609	17.7
MAG-1 (Depleted) Meas															
MAG-1 (Depleted) Cert															
IC Ref Std Meas								2.99	3						
IC Ref Std Cert								3	3						
NIST 1632c Meas															
NIST 1632c Cert															
NIST 2684b Meas							1.5								
NIST 2684b Cert							1.5								
S-1 Orig								2.56	2.06						
S-1 Dup								2.86	2.13						
S-7 Orig	4.5						0.11								
S-7 Dup	4.7						0.11								
S-10 Orig										28.6	1.1	10	0.133	1.19	3.5
S-10 Dup										28.9	1.1	11	0.135	1.15	3.49
S-11 Orig								< 0.06	4.02						
S-11 Dup								< 0.06	3.46						
S-12 Orig		230	5	104	8.9	24.7		0.32	4.29						
S-12 Dup		235	4	129	9	24.4		0.28	4.3						
Method Blank Method Blank							< 0.01								
Method Blank Method Blank															
Method Blank Method Blank															
Method Blank Method Blank										< 0.1	< 0.1	< 1	< 0.001	< 0.01	< 0.01
Method Blank Method Blank								< 0.01	< 0.01						

Final Report
Activation Laboratories

Analyte Symbol	P	S	K	Ca	V	Cr	Ti	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As
Package Code	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g
Detection Limit	0.001	0.001	0.01	0.01	1	0.5	0.01	1	0.01	0.1	0.1	0.01	0.1	0.02	0.1	0.1
Unit Symbol	%	%	%	%	ppm	ppm	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Analysis Method	AR-ICP	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-ICP	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	0.034	0.199	0.03	0.82	77	6.8		850	23.1	7.4	36	932	723	4.5		307
GXR-1 Cert	0.065	0.257	0.05	0.96	80	12		852	23.6	8.2	41	1110	760	13.8		427
GXR-4 Meas	0.118	1.882	1.72	0.84	86	56.3		110	3.03	14	38.4	6600	66.9	11.3		78.6
GXR-4 Cert	0.12	1.77	4.01	1.01	87	64		155	3.09	14.6	42	6520	73	20		98
GXR-2 Meas	0.052	0.035	0.62	0.68	45	22.7		967	1.79	8.2	17	65.2	535	7.15		10
GXR-2 Cert	0.105	0.0313	1.37	0.93	52	36		1010	1.86	8.6	21	76	530	37		25
GXR-6 Meas	0.029	0.013	1.14	0.15	183	81.2		1020	5.7	13.6	23.7	57.9	118	16.8		185
GXR-6 Cert	0.035	0.016	1.87	0.18	186	96		1010	5.58	13.8	27	66	118	35		330
MAG-1 (Depleted) Meas																
MAG-1 (Depleted) Cert																
IC Ref Std Meas																
IC Ref Std Cert																
NIST 1632c Meas																
NIST 1632c Cert																
NIST 2684b Meas																
NIST 2684b Cert																
S-1 Orig																
S-1 Dup																
S-7 Orig																
S-7 Dup																
S-10 Orig	0.067	0.067	0.61	0.57	69	50.6	0.15	849	3.8	16.1	57	36.8	83.5	9.34	< 0.1	7.4
S-10 Dup	0.067	0.066	0.61	0.55	71	51.1	0.16	846	3.82	15.8	57.6	36.4	82.8	9.52	0.1	7.7
S-11 Orig																
S-11 Dup																
S-12 Orig																
S-12 Dup																
Method Blank Method Blank																
Method Blank Method Blank																
Method Blank Method Blank	< 0.001	< 0.001					< 0.01									
Method Blank Method Blank			< 0.01	< 0.01	< 1	< 0.5		< 1	< 0.01	< 0.1	< 0.1	< 0.01	< 0.1	< 0.02	< 0.1	< 0.1
Method Blank Method Blank																

Final Report
Activation Laboratories

Analyte Symbol	Se	Rb	Sr	Y	Zr	Sc	Pr	Gd	Dy	Ho	Er	Tm	Nb	Mo	Ag	Cd
Package Code	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g
Detection Limit	0.1	0.1	0.5	0.01	0.1	0.1	0.1	0.1	0.001	0.1	0.1	0.1	0.1	0.01	0.002	0.01
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	16.4	2.3	167	25.2	9	1.2		3.4	4.5			0.3	0.1	18	29.9	2.44
GXR-1 Cert	16.6	14	275	32	38	1.58		4.2	4.3			0.43	0.8	18	31	3.3
GXR-4 Meas	6.6	96.3	69.3	10.9	7	7.1		4.2	2.6			0.1	0.2	333	3.61	0.1
GXR-4 Cert	5.6	160	221	14	186	7.7		5.25	2.6			0.21	10	310	4	0.86
GXR-2 Meas	0.4	49.8	82.4	10.1	9.2	4.5		2.8	2.1			0.1	1.8	0.84	17.7	3.7
GXR-2 Cert	0.61	78	160	17	269	6.88		3.3	3.3			0.3	11	2.1	17	4.1
GXR-6 Meas	0.5	66.5	30.7	6.22	8.6	24.5		2	1.6			0.1	0.1	1.25	0.313	0.11
GXR-6 Cert	0.94	90	35	14	110	27.6		2.97	2.8			0.032	7.5	2.4	1.3	1
MAG-1 (Depleted) Meas																
MAG-1 (Depleted) Cert																
IC Ref Std Meas																
IC Ref Std Cert																
NIST 1632c Meas																
NIST 1632c Cert																
NIST 2684b Meas																
NIST 2684b Cert																
S-1 Orig																
S-1 Dup																
S-7 Orig																
S-7 Dup																
S-10 Orig	0.6	36.5	59.7	14.6	6	7.5	6.7	4.3	3.3	0.6	1.7	0.2	1.8	0.83	0.105	0.12
S-10 Dup	0.6	37	59.7	14.8	6.2	7.6	6.7	4.3	3.2	0.6	1.6	0.2	1.9	0.79	0.105	0.11
S-11 Orig																
S-11 Dup																
S-12 Orig																
S-12 Dup																
Method Blank Method Blank																
Method Blank Method Blank																
Method Blank Method Blank																
Method Blank Method Blank	< 0.1	< 0.1	< 0.5	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.001	< 0.1	< 0.1	< 0.1	< 0.1	< 0.01	< 0.002	< 0.01
Method Blank Method Blank																

Final Report
Activation Laboratories

Analyte Symbol	In	Sn	Sb	Te	Cs	Ba	La	Ce	Nd	Sm	Eu	Tb	Yb	Lu	Hf	Ta
Package Code	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g
Detection Limit	0.02	0.05	0.02	0.02	0.02	0.5	0.5	0.01	0.02	0.1	0.1	0.1	0.1	0.1	0.1	0.05
Unit Symbol	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS
GXR-1 Meas	0.72	22.6	75.4	12.8	3.2	216	5.1	10.6	6.09	2.2	0.5	0.7	2	0.2	0.2	< 0.05
GXR-1 Cert	0.77	54	122	13	3	750	7.5	17	18	2.7	0.69	0.83	1.9	0.28	0.96	0.175
GXR-4 Meas	0.2	5.24	2.41	0.82	2.5	26.4	46.4	91.4	35.2	5.6	1.3	0.5	0.8	0.1	0.2	< 0.05
GXR-4 Cert	0.27	5.6	4.8	0.97	2.8	1640	64.5	102	45	6.6	1.63	0.36	1.6	0.17	6.3	0.79
GXR-2 Meas	0.05	1.26	21.4	0.34	4	1210	20.8	43	17.7	3.2	0.6	0.4	0.4	< 0.1	0.1	< 0.05
GXR-2 Cert	0.252	1.7	49	0.69	5.2	2240	25.6	51.4	19	3.5	0.81	0.48	2.04	0.27	8.3	0.9
GXR-6 Meas	0.06	1.41	1.1	0.04	3.5	956	11.1	32.7	11.5	2.3	0.6	0.3	0.5	< 0.1	0.1	< 0.05
GXR-6 Cert	0.26	1.7	3.6	0.018	4.2	1300	13.9	36	13	2.67	0.76	0.415	2.4	0.33	4.3	0.485
MAG-1 (Depleted) Meas																
MAG-1 (Depleted) Cert																
IC Ref Std Meas																
IC Ref Std Cert																
NIST 1632c Meas																
NIST 1632c Cert																
NIST 2684b Meas																
NIST 2684b Cert																
S-1 Orig																
S-1 Dup																
S-7 Orig																
S-7 Dup																
S-10 Orig	0.04	1.07	0.44	0.05	3.1	169	28.5	58.2	26.1	4.9	0.9	0.6	1.4	0.2	0.1	< 0.05
S-10 Dup	0.04	1.08	0.47	0.07	3.2	171	28.6	58.3	26.5	5	0.9	0.6	1.4	0.2	0.1	< 0.05
S-11 Orig																
S-11 Dup																
S-12 Orig																
S-12 Dup																
Method Blank Method Blank																
Method Blank Method Blank																
Method Blank Method Blank																
Method Blank Method Blank	< 0.02	< 0.05	< 0.02	< 0.02	< 0.02	< 0.5	< 0.5	< 0.01	< 0.02	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05
Method Blank Method Blank																

Final Report
Activation Laboratories

Analyte Symbol	W	Re	Au	Tl	Pb	Bi	Th	U	Hg	Cl
Package Code	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g	UT-2-0.5g		4F-Cl
Detection Limit	0.1	0.001	0.5	0.02	0.01	0.02	0.1	0.1	5	0.01
Unit Symbol	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppb	%
Analysis Method	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	AR-MS	FIMS	INAA
GXR-1 Meas	170		3300	0.34	765	289	0.8	40.4	3980	
GXR-1 Cert	164		3300	0.39	730	1380	2.44	34.9	3900	
GXR-4 Meas	12.1		462	2.63	40.1	2.88	8.6	6.2	110	
GXR-4 Cert	30.8		470	3.2	52	19	22.5	6.2	110	
GXR-2 Meas	0.2		27	0.54	750	0.06	1.9	2	2990	
GXR-2 Cert	1.9		36	1.03	690	0.69	8.8	2.9	2900	
GXR-6 Meas	0.1		41.3	1.67	88.8	0.07	1.6	1	70	
GXR-6 Cert	1.9		95	2.2	101	0.29	5.3	1.54	68	
MAG-1 (Depleted) Meas										3.05
MAG-1 (Depleted) Cert										3.1
IC Ref Std Meas										
IC Ref Std Cert										
NIST 1632c Meas										0.11
NIST 1632c Cert										0.11
NIST 2684b Meas										
NIST 2684b Cert										
S-1 Orig										
S-1 Dup										
S-7 Orig										
S-7 Dup										
S-10 Orig	0.3	< 0.001	5.2	0.17	14.1	0.04	3.2	1.1	17	
S-10 Dup	0.3	0.001	10.1	0.17	13.8	0.04	3.2	1.1	17	
S-11 Orig										
S-11 Dup										
S-12 Orig										
S-12 Dup										
Method Blank Method Blank										
Method Blank Method Blank									< 5	
Method Blank Method Blank										
Method Blank Method Blank	< 0.1	< 0.001	< 0.5	< 0.02	< 0.01	< 0.02	< 0.1	< 0.1		
Method Blank Method Blank										

Attachment 7

Air Quality Modeling Results

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                                                                    10/02/08
                                                                    20:50:35
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Big Bend Cutter Suction Dredge Emission Modeling– CO 1-hour Max Concentrations

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE            =        POINT
   EMISSION RATE (G/S)    =      .775600
   STACK HEIGHT (M)       =       5.0000
   STK INSIDE DIAM (M)    =        .6000
   STK EXIT VELOCITY (M/S)=      20.0000
   STK GAS EXIT TEMP (K)  =     450.0000
   AMBIENT AIR TEMP (K)   =     293.0000
   RECEPTOR HEIGHT (M)    =       1.8000
   URBAN/RURAL OPTION     =        RURAL
   BUILDING HEIGHT (M)    =        .0000
   MIN HORIZ BLDG DIM (M) =        .0000
   MAX HORIZ BLDG DIM (M) =        .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =    6.158 M**4/S**3;  MOM. FLUX =   23.440 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    1. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   100.   97.05        4    20.0   20.0  6400.0    7.59    8.25    4.74    NO
   150.   81.73        4    20.0   20.0  6400.0    7.59   11.99    6.72    NO
   200.   67.80        4    10.0   10.0  3200.0   12.38   15.75    8.83    NO

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    2. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   500.   40.39        4     5.0    5.0  1600.0   20.25   36.46   18.91    NO

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    2. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
  1000.   23.67        4     2.5    2.5   800.0   36.50   68.80   33.49    NO
```

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**********************************
 *** SCREEN DISCRETE DISTANCES ***
 **********************************

 *** TERRAIN HEIGHT OF    5. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

   DIST     CONC             U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
    (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
 -------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   5000.   21.51        6     1.0    1.0 10000.0   45.21  146.24   36.56    NO

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  *******************************************
  *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
  *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
  *******************************************

       TERRAIN        DISTANCE RANGE (M)
        HT (M)       MINIMUM     MAXIMUM
       -------      --------    --------
            1.          100.         --
            1.          150.         --
            1.          200.         --
            2.          500.         --
            2.         1000.         --
            5.         5000.         --

      ***************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ***************************************

  CALCULATION        MAX CONC    DIST TO   TERRAIN
   PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
 --------------    -----------   -------   -------
 SIMPLE TERRAIN      97.05          100.        1.


 ****************************************************
 ** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
 ****************************************************
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                                                                    10/02/08
                                                                    22:02:24
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Big Bend Cutter Suction Dredge Emission Modeling– NO2 1-hour Max Concentrations

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE            =        POINT
   EMISSION RATE (G/S)    =      2.18990
   STACK HEIGHT (M)       =       5.0000
   STK INSIDE DIAM (M)    =        .6000
   STK EXIT VELOCITY (M/S)=      20.0000
   STK GAS EXIT TEMP (K)  =     450.0000
   AMBIENT AIR TEMP (K)   =     293.0000
   RECEPTOR HEIGHT (M)    =       1.8000
   URBAN/RURAL OPTION     =        RURAL
   BUILDING HEIGHT (M)    =        .0000
   MIN HORIZ BLDG DIM (M) =        .0000
   MAX HORIZ BLDG DIM (M) =        .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =    6.158 M**4/S**3;  MOM. FLUX =   23.440 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    1. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   100.   274.0        4    20.0   20.0  6400.0    7.59    8.25    4.74    NO
   200.   191.4        4    10.0   10.0  3200.0   12.38   15.75    8.83    NO

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    2. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   500.   114.0        4     5.0    5.0  1600.0   20.25   36.46   18.91    NO

   800.   78.76        4     3.0    3.0   960.0   31.42   56.14   27.95    NO

  1000.   66.84        4     2.5    2.5   800.0   36.50   68.80   33.49    NO

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    5. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
  5000.   60.74        6     1.0    1.0 10000.0   45.21  146.24   36.56    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
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DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

*******************************************
*  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
*    SIMPLE ELEVATED TERRAIN PROCEDURE     *
*******************************************

     TERRAIN        DISTANCE RANGE (M)
      HT (M)       MINIMUM     MAXIMUM
     -------      --------    --------
          1.          100.         --
          1.          200.         --
          2.          500.         --
          2.          800.         --
          2.         1000.         --
          5.         5000.         --

    ***************************************
    *** SUMMARY OF SCREEN MODEL RESULTS ***
    ***************************************

 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN      274.0          100.        1.


****************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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                                                                    10/02/08
                                                                    22:31:41
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Big Bend Cutter Suction Dredge Emission Modeling– PM 1-hour Max Concentrations

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE            =        POINT
   EMISSION RATE (G/S)    =      .912000E-01
   STACK HEIGHT (M)       =       5.0000
   STK INSIDE DIAM (M)    =        .6000
   STK EXIT VELOCITY (M/S)=      20.0000
   STK GAS EXIT TEMP (K)  =     450.0000
   AMBIENT AIR TEMP (K)   =     293.0000
   RECEPTOR HEIGHT (M)    =       1.8000
   URBAN/RURAL OPTION     =        RURAL
   BUILDING HEIGHT (M)    =        .0000
   MIN HORIZ BLDG DIM (M) =        .0000
   MAX HORIZ BLDG DIM (M) =        .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =    6.158 M**4/S**3;  MOM. FLUX =   23.440 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    1. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   100.   11.41        4    20.0   20.0  6400.0    7.59    8.25    4.74    NO
   200.   7.973        4    10.0   10.0  3200.0   12.38   15.75    8.83    NO

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    2. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   500.   4.749        4     5.0    5.0  1600.0   20.25   36.46   18.91    NO

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    2. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
  1000.   2.783        4     2.5    2.5   800.0   36.50   68.80   33.49    NO
```

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**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    5. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
  5000.   2.529        6     1.0    1.0 10000.0   45.21  146.24   36.56    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

 *******************************************
 *  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
 *    SIMPLE ELEVATED TERRAIN PROCEDURE     *
 *******************************************

      TERRAIN        DISTANCE RANGE (M)
       HT (M)       MINIMUM     MAXIMUM
      -------      --------    --------
           1.          100.         --
           1.          200.         --
           2.          500.         --
           2.         1000.         --
           5.         5000.         --

     ***************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ***************************************

 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN      11.41          100.        1.


***************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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                                                                    10/02/08
                                                                    22:37:04
 ***  SCREEN3 MODEL RUN  ***
 *** VERSION DATED 96043 ***

Big Bend Cutter Suction Dredge Emission Modeling– SOx 1-hour Max Concentrations

SIMPLE TERRAIN INPUTS:
   SOURCE TYPE            =        POINT
   EMISSION RATE (G/S)    =      .461000E-01
   STACK HEIGHT (M)       =       5.0000
   STK INSIDE DIAM (M)    =        .6000
   STK EXIT VELOCITY (M/S)=      20.0000
   STK GAS EXIT TEMP (K)  =     450.0000
   AMBIENT AIR TEMP (K)   =     293.0000
   RECEPTOR HEIGHT (M)    =       1.8000
   URBAN/RURAL OPTION     =        RURAL
   BUILDING HEIGHT (M)    =        .0000
   MIN HORIZ BLDG DIM (M) =        .0000
   MAX HORIZ BLDG DIM (M) =        .0000

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.


BUOY. FLUX =    6.158 M**4/S**3;  MOM. FLUX =   23.440 M**4/S**2.

*** FULL METEOROLOGY ***

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    1. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   100.   5.768        4    20.0   20.0  6400.0    7.59    8.25    4.74    NO
   200.   4.030        4    10.0   10.0  3200.0   12.38   15.75    8.83    NO

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    2. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
   500.   2.401        4     5.0    5.0  1600.0   20.25   36.46   18.91    NO
  1000.   1.384        4     2.5    2.5   800.0   37.00   68.80   33.49    NO

**********************************
*** SCREEN DISCRETE DISTANCES ***
**********************************

*** TERRAIN HEIGHT OF    5. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

  DIST     CONC            U10M   USTK  MIX HT   PLUME   SIGMA   SIGMA
   (M)   (UG/M**3)   STAB  (M/S)  (M/S)    (M)   HT (M)   Y (M)   Z (M)  DWASH
-------  ----------  ----  -----  -----  ------  ------  ------  ------  -----
  5000.   1.279        6     1.0    1.0 10000.0   45.21  146.24   36.56    NO

 DWASH=   MEANS NO CALC MADE (CONC = 0.0)
 DWASH=NO MEANS NO BUILDING DOWNWASH USED
 DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
 DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
 DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB
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*******************************************
*  SUMMARY OF TERRAIN HEIGHTS ENTERED FOR  *
*    SIMPLE ELEVATED TERRAIN PROCEDURE     *
*******************************************

     TERRAIN        DISTANCE RANGE (M)
      HT (M)       MINIMUM     MAXIMUM
     -------      --------    --------
          1.          100.         --
          1.          200.         --
          2.          500.         --
          2.         1000.         --
          5.         5000.         --

    ***************************************
    *** SUMMARY OF SCREEN MODEL RESULTS ***
    ***************************************

 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN      5.768          100.        1.


****************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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