

Summary of test results, treated hydraulic fracturing wastewater, AIS in Debert (January 30, 2014)

	Date			Feb/Nov 2012	04-Sep-13	04-Sep-13
ND = Non-Detect Bq/L = Becquerels/litre (measure of radiation) mg/L = Milligrams per litre µg/L = micrograms per litre µS/cm = Micro-Siemens/litre (measure of conductivity)						
ANALYTE	UNITS	HC URDL	Nova Scotia Environment APPROVAL LIMITS	Kennetcook PONDS SAMPLES- Highest Concentrations	NORM Filtered Water Sample # 25850	RO Treated Water Sample #25848
Uranium	Bq/L	1	1	<0.03	0.002	<0.001
Lead-210	Bq/L	1	1	<0.2	<0.01	<0.01
Radium-226	Bq/L	5	5	12.8	1.4	<0.05
Radium-228	Bq/L	5	5	0.7	<0.7	<0.7
Thorium-228	Bq/L	1	1	0.16	<0.1	<0.1
Thorium-230	Bq/L	5	5	0.037	<0.1	<0.1
Thorium-232	Bq/L	1	1	<0.1	<0.1	<0.1
General chemistry & metals						
Sample ID					Sample # PL3440 / EX7546 Oct 31, 2012	
PARAMETER	UNITS	CCME FWAL GUIDELINE (Short Term)	Nova Scotia Environment APPROVAL LIMITS	Kennetcook PONDS SAMPLES Highest Concentrations	NORM Filtered Water	RO Treated Water Sample# 25848
Nitrate	mg/L	13	13	0.21	ND	ND
Carbonaceous BOD	mg/L				ND	ND
Total Chemical Oxygen Demand	mg/L				210	5.8

Dissolved Chloride	mg/L	640	110	72000	5400	50
Strong Acid Dissoc, Cyanide	mg/L				ND	ND
Dissolved Fluoride	mg/L		120 µg/L		ND	ND
Nitrate + Nitrite	mg/L			0.48	ND	ND
Nitrite	µg/L		60	0.27	ND	ND
Nitrogen	mg/L			15	ND	ND
pH	pH		6.5-8.5	8.13	7.42	6.56
Phenols-4AAP	mg/L				0.059	0.0013
Total Phosphorus	mg/L			ND	0.029	ND
Total Suspended Solids	mg/L	*			ND	ND
Dissolved Sulphate	mg/L	500		210	15	ND
Sulphide	mg/L				ND	ND
Total Kjeldahl Nitrogen	mg/L				0.21	0.21
Conductivity	µS/cm			>110000	15000	150
Mineral Oil & Grease	mg/L				ND	ND
Total Oil & Grease	mg/L				ND	ND
Total Mercury	µg/L	0.026	0.004		ND	ND
Total Aluminum	µg/L		100	358	113	5.9
Total Antimony	µg/L		6	ND	1.1	ND
Total Arsenic	µg/L		5	ND	12.4	ND
Total Barium	µg/L		1000	6300	1330	5.8
Total Beryllium	µg/L		4	ND	ND	ND
Total Bismuth	µg/L			ND	ND	ND
Total Boron	µg/L	29000	5000	1300	ND	ND
Total Cadmium	µg/L	1	0.12	0.023	ND	ND
Total Calcium	µg/L			1400	133000	590
Total Chromium	µg/L			ND	ND	ND
Total Cobalt	µg/L			0.49	ND	ND
Total Copper	µg/L		4	ND	ND	ND
Total Iron	µg/L		300	65000	ND	ND
Total Lead	µg/L		10	ND	0.68	ND
Total Lithium	µg/L				196	2
Total Magnesium	µg/L			660	47700	200
Total Manganese	µg/L		0.05	7800	11.2	ND

Total Molybdenum	µg/L		73	ND	8.7	ND
Total Nickel	µg/L		25		2.9	ND
Total Potassium	µg/L				150	8400
Total Selenium	µg/L		1	ND		ND
Total Silver	µg/L			ND		ND
Total Sodium	µg/L				44000	3240000
Total Strontium	µg/L				18000	5010
Total Thallium	µg/L			ND		ND
Total Tin	µg/L		0.008	ND		ND
Total Titanium	µg/L			ND		ND
Total Uranium	µg/L	33	15	ND		0.24
Total Vanadium	µg/L		1	ND		ND
Total Zinc	µg/L				119	17.4
Chromium VI	µg/L		1			0.0031 mg/L
Sample ID						PL3440 / EX7546 Oct 31, 2012
SEMI- VOLATILE ORGANICS				NORM Filtered Water		RO Treated Water Sample# 25848
Hexachlorobenzene	µg/L					ND
VOLATILE ORGANICS						
1,2-Dichlorobenzene	µg/L			ND		ND
1,4-Dichlorobenzene	µg/L			ND		ND
1,1,1-Trichloroethane	µg/L			ND		ND
1,1,2,2-Tetrachloroethane	µg/L			ND		ND
1,1,2-Trichloroethane	µg/L			ND		ND
Benzene	µg/L	370	5	ND		ND
Chloroform	µg/L			ND		ND
Ethylbenzene	µg/L		25	ND		ND
Methylene Chloride	µg/L			ND		ND
Toluene	µg/L		2	ND		ND

SAMPLE ID		RO Water Dec 1/2013				
ADDITIONAL PARAMETERS		Final Concentration (detection limits)				
Methanol	mg/L	<10				
Isopropanol	mg/L	<10				
Ethoxylated Alcohol	mg/L	<10				
Trisodium Nitrilotriacetate Monohydrate	mg/L	<1.0				
Sodium Persulphate	mg/L	<1.0				
Diethylene Glycol Monomethyl Ether	mg/L	<10				
Methylene (Bis) Thocyanate	mg/L	<10				
2-(Thiocyanomethylthio) Benzothiazole	mg/L	<10				
Acrylamide Copolymer	mg/L	<10				
Terpene	mg/L	<10				
Alkyl Alkoxlate	mg/L	<10				