



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

**Bid Receiving - PWGSC / Réception des soumissions -
TPSGC**
100
167 Lombard Ave
Winnipeg
Manitoba
R3B 0T6
Bid Fax: (204) 983-0338

**SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

Comments - Commentaires

**Vendor/Firm Name and Address
Raison sociale et adresse du
fournisseur/de l'entrepreneur**

Issuing Office - Bureau de distribution

Public Works and Government Services Canada/Travaux
publics et Services gouvernementaux Canada
Suite 1650
635 - 8th Ave. S.W.
Bureau 1650
635 - 8e avenue, SO
Calgary
Calgary
Alberta
T2P 3M3

Title - Sujet Ion Exchange Media	
Solicitation No. - N° de l'invitation ET959-182496/A	Amendment No. - N° modif. 002
Client Reference No. - N° de référence du client ET959-182496	Date 2018-01-19
GETS Reference No. - N° de référence de SEAG PW-\$GMP-008-6704	
File No. - N° de dossier GMP-7-40126 (008)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2018-01-26	
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Olson, Teresa	Buyer Id - Id de l'acheteur gmp008
Telephone No. - N° de téléphone (204) 230-4558 ()	FAX No. - N° de FAX (204) 983-7796
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction:	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

This Amendment 2 is raised to answer questions as well as amend the background documents:

1. Questions and Answers:

- Q1:** If selected for on-site testing, will the owner be paying the vendors for this effort? Or does the vendor (we) have to provide the on-site pilot and related services for free?
- A1:** Media required to perform the on-site testing will be purchased from the selected vendor(s). The testing program will be run by a third party and supervised by the Departmental Representative. Vendor(s) will not incur costs for the on-site testing program.
- Q2:** What is the expected flow rate (gallons per minute) and daily throughput (gallons per day) of the future full scale treatment system?
- A2:** The current estimates on plant requirements are a maximum throughput of 34.0 litres per second (539 US Gal/min) and a maximum yearly throughput of 822,000 cubic metres. The 34 litres per second rate includes an allowance of 30% for plant downtimes and contingencies. Unlike a municipal water supply system that must respond to varying daily demands, this effluent plant will operate for long periods at a consistent daily rate.
- Q3:** The second paragraph in Section 1.2 says that the Akaitcho Pump Station is sample point SNP 43-21 and the sampling point immediately upstream of the discharge is SNP 43-1. In Appendix A, these labels seem to be swapped because the raw water quality is showing to be better than the treated effluent discharge. Please confirm which is which.
- A3:** The headings describing the samples in Appendix A are incorrect. Sample point SNP 43-1 is the treated effluent discharge. Sample point SNP 43-21 is the Akaitcho Pump Station. Please see revised Appendices attached.
- Q4:** Please provide the units of measurement for water quality in Appendix A.
- A4:** The units are included in the attached and updated Table 1 as follows: conductivity is in $\mu\text{S/cm}$; temperature is in Celsius; dissolved oxygen and organic carbon is in mg/L ; hardness, carbonate, bicarbonate and alkalinity are in $\text{mg-CaCO}_3/\text{L}$; solids analysis are reported in mg/L ; major ions are reported in mg/L ; phosphorus nutrients are reported as mg-P/L ; nitrogen nutrients are reported in mg-N/L ; dissolved and total metals are reported in $\mu\text{g/L}$, cyanide is reported in mg/L , and radium-226 is reported in Bq/l . Please see revised Appendices attached.

Q5: Would they be interested with a media instead of resin to treat the compounds indicated?

A5: An ion exchange media or resin is required. A sportive media such as GAC (Granular Activated Carbon) will not be accepted.

2. The background document is amended as follows:

a) Under 4. Schedule:

DELETE:

- Manufacturers interested in participating in the off-site performance testing must express their interest by January 26, 2018 by submitting the form in **Appendix C**;

INSERT:

- Manufacturers interested in participating in the off-site performance testing must express their interest by January 26, 2018 by submitting the form in **Appendix B**;

b) **DELETE:** the Appendices in their entirety.

INSERT: the Appendices attached. (Note: Appendix A has been updated to include units, and tables in Appendices B and C have replaced each other.)

APPENDIX A

EXISTING SITE WATER QUALITY

Table 1: Site Water Quality Data for 2011 to 2016

Parameters	Units	Treated Effluent Discharge		Akaitcho Pumping Station (Raw Water)	
		SNP 43-1		SNP 43-21	
		95 th Percentile	Median	95 th Percentile	Median
Conventional Parameters					
pH	-	8.1	7.9	8.1	7.9
Specific conductivity	µS/cm	3,455	2,910	3,310	2,775
Hardness, as CaCO ₃	mg/L	1,480	1,360	1,370	1,240
Total alkalinity, as CaCO ₃	mg/L	90	82	-	-
Total dissolved solids, measured	mg/L	2,756	2,410	2,590	2,180
Total suspended solids	mg/L	2.3	1.0	9.0	1.3
Total organic carbon	mg/L	6.1	5.7	-	-
Dissolved organic carbon	mg/L	6.2	5.3	-	-
Major Ions					
Bicarbonate, as CaCO ₃	mg/L	92	83	-	-
Bromide	mg/L	6.4	5.0	-	-
Calcium	mg/L	426	397	389	348
Carbonate, as CaCO ₃	mg/L	0.5	0.5	-	-
Chloride	mg/L	505	412	-	-
Fluoride	mg/L	0.54	0.2	-	-
Magnesium	mg/L	102	91	98	90
Potassium	mg/L	13	12	14	12
Sodium	mg/L	201	168	215	173
Sulphate	mg/L	1,214	1,140	-	-
Nutrients					
Nitrate	mg-N/L	4.3	2.0	2.5	2.5
Nitrite	mg-N/L	0.051	0.028	0.03	0.03
Nitrate + nitrite	mg-N/L	4.6	2.2	2.5	2.5
Total ammonia	mg-N/L	0.074	0.015	2.2	1.1
Total phosphorus	mg-P/L	0.15	0.15	0.15	0.15
Dissolved phosphorus	mg-P/L	0.15	0.15	0.15	0.15
Total Metals					
Total Aluminum	µg/L	19	8.4	298	18
Total Antimony	µg/L	460	403	1,671	738
Total Arsenic	µg/L	355	298	68,925	27,850
Total Barium	µg/L	19	16	54	43
Total Beryllium	µg/L	0.02	0.02	2.5	2.5
Total Bismuth	µg/L	0.05	0.05	0.25	0.13
Total Boron	µg/L	370	340	399	360
Total Cadmium	µg/L	0.07	0.024	0.66	0.31
Total Cesium	µg/L	0.25	0.2	-	-
Total Chromium	µg/L	0.72	0.33	5.0	5.0
Total Cobalt	µg/L	10	5.0	82	51
Total Copper	µg/L	17	13	9.5	4.8
Total Iron	µg/L	86	47	677	209
Total Lead	µg/L	0.24	0.05	3.6	0.97
Total Lithium	µg/L	39	32	48	35
Total Manganese	µg/L	41	12	768	596
Total Mercury	µg/L	0.0025	0.0025	0.005	0.005

Table 1: Site Water Quality Data for 2011 to 2016

Parameters	Units	Treated Effluent Discharge		Akaitcho Pumping Station (Raw Water)	
		SNP 43-1		SNP 43-21	
		95 th Percentile	Median	95 th Percentile	Median
Total Molybdenum	µg/L	26	22	24	21
Total Nickel	µg/L	46	35	75	44
Total Rubidium	µg/L	12	9.7	-	-
Total Selenium	µg/L	1.0	0.78	0.5	0.25
Total Silicon	µg/L	2,024	1,630	5,999	5,460
Total Silver	µg/L	0.079	0.047	5.0	5.0
Total Strontium	µg/L	4,220	3,330	4,979	4,145
Total Sulphur	µg/L	409,600	360,000	-	-
Total Tellurium	µg/L	0.5	0.5	-	-
Total Thallium	µg/L	0.051	0.035	100	100
Total Thorium	µg/L	0.1	0.1	-	-
Total Tin	µg/L	0.1	0.1	15	15
Total Titanium	µg/L	22	5.0	28	11
Total Tungsten	µg/L	0.22	0.22	-	-
Total Uranium	µg/L	4.5	3.8	9.0	7.3
Total Vanadium	µg/L	2.8	1.3	15	15
Total Zinc	µg/L	9.3	6.2	136	63
Total Zirconium	µg/L	0.3	0.3	-	-
Dissolved Metals					
Dissolved Aluminum	µg/L	7.5	3.0	15	5.0
Dissolved Antimony	µg/L	449	393	1,605	721
Dissolved Arsenic	µg/L	341	274	68,510	27,000
Dissolved Barium	µg/L	18	15	52	42
Dissolved Beryllium	µg/L	0.02	0.02	2.5	2.5
Dissolved Bismuth	µg/L	0.05	0.05	0.25	0.13
Dissolved Boron	µg/L	370	330	380	350
Dissolved Cadmium	µg/L	0.056	0.05	0.66	0.29
Dissolved Cesium	µg/L	-	-	-	-
Dissolved Chromium	µg/L	0.52	0.26	5.0	5.0
Dissolved Cobalt	µg/L	8.9	5.0	82	50
Dissolved Copper	µg/L	14	9.4	6.9	3.7
Dissolved Iron	µg/L	5.0	5.0	150	79
Dissolved Lead	µg/L	0.05	0.05	2.1	0.67
Dissolved Lithium	µg/L	39	30	45	33
Dissolved Manganese	µg/L	29	2.5	766	583
Dissolved Mercury	µg/L	0.0025	0.0025	0.0025	0.0025
Dissolved Molybdenum	µg/L	25	22	23	21
Dissolved Nickel	µg/L	44	34	74	42
Dissolved Rubidium	µg/L	-	-	-	-
Dissolved Selenium	µg/L	0.99	0.74	0.5	0.25
Dissolved Silicon	µg/L	1,964	1,590	5,797	5,310
Dissolved Silver	µg/L	0.038	0.01	5.0	5.0
Dissolved Strontium	µg/L	4,221	3,285	4,899	4,110
Dissolved Sulphur	µg/L	390,050	362,000	-	-
Dissolved Thallium	µg/L	0.039	0.03	100	100
Dissolved Tin	µg/L	0.1	0.1	15	15
Dissolved Titanium	µg/L	20	5.0	25	11
Dissolved Uranium	µg/L	4.5	3.7	8.9	7.2
Dissolved Vanadium	µg/L	1.3	1.0	15	15
Dissolved Zinc	µg/L	8.7	5.0	128	55
Dissolved Zirconium	µg/L	0.3	0.3	-	-
Other					
Radium-226	Bq/l	0.005	0.005	-	-
Cyanide	mg/L	0.0027	0.0025	0.025	0.014

APPENDIX B

NOTIFICATION OF INTEREST FORM

		Adsorptive Media			 Indigenous and Northern Affairs Canada		Revision
DATA SHEET							
Client Doc. No.	60561021-ME-DSH-0001						
Doc. No.	60561021-ME-DSH-0001	Rev.	Date	By	Chkd	App.	B
Location	Northwest Territories	A	12/18/2017	MD			
Project	Giant Mine Restortion						
1	General Requirements			Comments			
2	Description		Units	Value			
3	Sample water is collected from the Giant Mine Polishing Pond and distributed to vendor factories for testing. The water quality constituents listed in the Water constituent tab will be reported to each vendor. At the vendor's testing facility, sample water pH is adjusted to the vendor's optimal condition for media performance and placed in a 1 L container with 2.0 g of the vendor's adsorptive media for 15 minutes. Water samples are taken after the elapsed time and analyzed for arsenic and antimony. Testing shall be completed twice to demonstrate reproducible results.						
4	Operating Data						
5	Experimental Conditions						
6	Temperature		°C	17			
7	pH		-		Vendor to Determine		
8	Media Mass		g	2.0			
9	Sample Volume		L	1.00			
10	Adsorption Time		Minutes	15			
11	Raw Water Quality		-		Given, see Water Constituent Tab		
12	Experiment Replication		Count	2			
13	Container		Desc	Serum Bottle	100 mL		
14	Mixing		Desc	Yes			
15	Sealed from Atmosphere		Desc	Yes			
16	Performance (Provided by Vendor)						
17	Output Data						
18	Characterization of Arsenic		µg/L		Complete test to EPA SW-846 3005A/6020A, ICP OES & ICP MS in Water (Total Metals).		
19	Characterization of Antimony		µg/L		Complete test to EPA SW-846 3005A/6020A, ICP OES & ICP MS in Water (Total Metals).		
20	Media Data						
21	Product ID		Desc				
22	Functional Group		Desc		Iron Oxide, Titanium Dioxide, Etc.		
23	Bulk Density		kg/L				
24	Empty Bed Contact Time (Typical Maximum)		Minutes				
25	Empty Bed Contact Time (Typical Minimum)		Minutes				
26	Maximum Service Temperature		°C				
27	Minimum Service Temperature		°C				
28	Maximum Service Pressure		kPa		If Applicable		
29	Budgetary Media Cost		CAD/kg				
30	Vendor Contact						
31	Company		Desc				
32	Technical Representative		Desc				
33	Email Contact		Desc				
34	Phone Contact		Desc				
35	Vendor Credentials						
36	Volume of Proposed Media Sold Annually		m ³				
37	Reference List (Treatment Plants Using Proposed Media with 1+ Years of Operation)						
38	Reference 1						
39	Facility ID		Desc				
40	Facility Contact Name		Desc				
41	Facility Contact Phone Number		Desc				
42	Facility Size		ML/d				
43	Facility Process Description (Brief)		Desc				
44	Reference 2						
45	Facility ID		Desc				
46	Facility Contact Name		Desc				
47	Facility Contact Phone Number		Desc				
48	Facility Size		ML/d				
49	Facility Process Description (Brief)		Desc				
50	Reference 3						
51	Facility ID		Desc				
52	Facility Contact Name		Desc				
53	Facility Contact Phone Number		Desc				
54	Facility Size		ML/d				
55	Facility Process Description (Brief)		Desc				
56	Disclaimer						
Vendor signing authority certifies that the information provided is true and correct.							
Name: _____				Signature: _____			

APPENDIX C

OFF-SITE TESTING FORM



Adsorptive Media

DATA SHEET



Indigenous and Northern Affairs Canada

Revision

B

Client Doc. No. 60561021-ME-DSH-0001

Doc. No. 60561021-ME-DSH-0001

Location Northwest Territories

Project Giant Mine Restortion

Rev. A

Date 12/18/2017

By MD

Chkd

App.

Reference List

Description

Units

Value

Operating Data

Experimental Conditions

Temperature

°C

17

pH

-

Vendor to Determine

Media Mass

g

2.0

Sample Volume

L

1.00

Adsorption Time

Minutes

15

Raw Water Quality

-

Given, see Water Constituent Tab

Experiment Replication

Count

2

Container

Desc

Vendor to Determine

Mixing

Desc

Yes

Sealed from Atmosphere

Desc

Yes

Performance (Provided by Vendor)

Output Data

Characterization of Arsenic

µg/L

Provide Method of Analysis

Characterization of Antimony

µg/L

Provide Method of Analysis

Media Data

Product ID

Desc