DEPARTMENT OF NATIONAL DEFENCE

ANNEXE A - STATEMENT OF WORK

ENVIRONMENTAL ANALYSIS SERVICES

CFB BAGOTVILLE

ALOUETTE, QUEBEC

MAI 1, 2019

PART 1 – GENERAL

1.1 Scope of work

.1 Provide all labour, materials, tools and equipment required to complete the work set out in this statement of work:

.1 Sample containers for microbiological and physicochemical analyses:

.a Sample containers shall be equipped with the necessary agents for the required analyses.

.b Sample containers shall bear the sample number as required in item 1.6.

.2 The necessary forms for sampling for the entire contract period (label, analysis request, etc.).

.3 Analysis request forms provided by the laboratory shall be pre-identified (see section 6.4.3 “Request for Standing Offer” WFE or Wing Safety Office, complete address) before being submitted to clients. Provide the forms template in electronic format for future use.

.2 Conduct microbiological and physicochemical analyses in accordance with the following analytical requirements:

.1 Conduct analyses according to guidelines from the CCME, Environment Canada, Environment and Climate Change Canada (ECCC), the Ministry of Sustainable Development, Environment and the Fight Against Climate Change Quebec (MDDELCC) and the Canadian Environmental Protection Act (CEPA).

.2 The analysis method used to determine phenolic compounds must respect the 0.002 mg/L detection limit.

.3 Always submit a written analysis report signed by a certified professional according to the type of studies and an analysis report in computer format (in a format such as MS Excel) for each group of tests submitted.

.1 The analysis report must clearly indicate, for each parameter requested, the current criteria to be respected according to the Canadian Council of Ministers of the Environment (CCME) and/or Environment Canada and/or the Quebec department of environment. Values exceeding criteria must be clearly indicated (colours, A-B-C-D, etc.).

.2 Quality control (QC) shall also be included in the electronic report.

.3 Transfer of all the results of analysis certificates to the Excel format must be compatible with HydroGeoAnalyst software (HGA).

.4 The Department of National Defence shall be responsible for collecting samples.

.5 The contractor shall make the necessary arrangements for the safe transport (provide appropriate packaging to prevent container breakage) of all sample containers between 3 Wing Bagotville and the contractor's laboratory.

.6 The contractor shall provide a sufficient number of sample containers of appropriate capacity according to the sampling method, size and quality. Container type is to be determined by the contractor according to analysis parameters and sample type (solid/liquid).

.7 The contractor shall prepare and clean all containers according to suggested analysis methods and to the temperature of the surrounding air in locations to which the containers are being sent, depending on need. The contractor shall provide preparation and handling instructions for the samples in each case.

.8 The contractor shall provide a sufficient number of refrigerated containers (portable coolers and cooling agents) appropriate to the analysis type.

.9 The contractor shall notify DND in writing of the sample retention period according to the parameters. Please note that the analysis must be conducted before the end of the retention period according to the standards in effect.

.10 **PRESERVATION**

Respect the following general conditions in the absence of standard methods:

1. all samples for chemical analysis must be kept at a temperature of approximately 4° C from when they are collected to when they are received at the laboratory (coolers and cooling agents);
2. all samples for microbiological analysis must be kept at a temperature below 10° C from when they are collected to when they are received at the laboratory (coolers and cooling agents). When the samples arrive at the laboratory, their temperature is measured using an infrared thermometer. Samples collected less than one hour before they arrive at the laboratory are exempt if they are kept in the required cooling conditions;
3. in microbiology, samples must not exceed 12° C (10° C plus 2° C). If a sample exceeds this temperature, the person responsible for the distribution system must be notified so that they are aware of potential problems;
4. in microbiology, organic chemistry and inorganic chemistry (turbidity), samples received frozen, partially thawed or containing traces of needle ice shall be rejected.

The laboratory shall be responsible for notifying us when preservation conditions are not respected. **Samples that are not within the conditions when their temperature is measured by infrared thermometer upon arrival at the laboratory shall not be analyzed.**

1.2 Quality of work

.1 Please note that we reserve the right to submit known, duplicate or "spike" samples without warning for quality control purposes.

.2 The analysis laboratory must be certified DR-12-LLA-01, DR-12-LLA-03 and compliant with standard ISO/CEI 17025.

1.3 Transport

.1 Sample transport service must be adapted according to the type of samples, and must be available from Monday to Friday, 8:00 a.m. to 4:00 p.m.:

.1 Samples shall be collected on the same day a request is made, or according to DND needs at the time of the request. Requests will usually be made before noon.

.2 Two (2) sample collection points are planned (BFC Bagotville). Collection services for each point shall be determined individually based on needs.

.2 All changes in the sample transport service must be approved in writing by DND officials before any changes are made.

.3 Provide all vehicles necessary to transport equipment, personnel and materials required to perform the work at no additional cost to DND.

1.4 Scientific expertise

.1 The contractor must provide an hourly rate for the services of a consultant to interpret results (minimum five years' experience in the field) in chemistry, microbiology, biology and toxicology when and as required by DND.

1.5 Analytical requirements for petroleum hydrocarbon fractions

.1 Analysis of soil samples for petroleum hydrocarbons (PHC) must be performed in compliance with the CWS for PHC reference method (CCME, 2001e). Analysis of PHC in soil must also be performed by a laboratory certified by the Standards Council of Canada (SCC) and the Canadian Association for Environmental Analytical Laboratories (CAEAL).

.2 Generally, the components below must be included in the analysis report from the laboratory (CCME, 2001e):

- Hydrocarbon analysis expressed in mg/kg dry weight for:
  - F1- $_{BTEX}$ = hydrocarbons C6 to C10 – BTEX.
  - F2 = hydrocarbons C10 to C16 or F2-naphth, if naphthalene has been found and excluded.
  - F3 = hydrocarbons C16 to C34 or F3-$_{PAH}$, hydrocarbons C16 to C34 – PAH (if analyzed).
  - F4 = hydrocarbons C34 to C50.
  - F4G = heavy hydrocarbons analyzed via gravimetry (if the chromatogram does not reach the baseline at C50). Note: F4G and F4 fractions found through chromatography in the gaseous phase must be flagged, and a note must be added stating that the highest result must be used for the first part of CWS for PHC.
  - F4G-gs, if the F4G extract was cleaned with silica gel.
- Percent of soil moisture.
- Upon request, a professional opinion on the nature of the product (gasoline, diesel, crude oil, etc. based on product retention periods and profiles, as well as the analyst's experience).
- When opinions and interpretations are added to the report, they must be clearly separate from the analysis results. The laboratory must be able to document the rationale for opinions and interpretations set forth.
- A statement that data regarding QC (Quality Control) samples can be obtained upon request.
- Confirmation of respect of all QC criteria for the reference method.
- If required, a statement setting out all changes to the sample analysis method. All relevant details must be provided.
- If required, a statement regarding an analysis of total organic carbon. Results must be expressed in mg/kg of carbon.

1.6 Numbering of samples

.1 The numbering of samples provided by DND in the analysis request must be respected at all times, and must appear in analysis reports, on containers and on invoices.

PART 2 – PERFORMANCE

2.1 Information

.1 Analyze the parameters in the table of parameters in the standing offer according to the standards in effect, recognized by the Quebec department of environment and/or the CCME (Canadian Council of Ministers of the Environment).

.2 Microbiological and physicochemical analyses shall be performed at the request of the Engineer. If required, submit analysis samples.

.1 Swimming water analysis must be performed in compliance with standard c. Q-2, r.18.1.02, *Regulation respecting water quality in swimming pools and other artificial pools*. The laboratory must

make sure to use a method appropriate to the detection limit to be reached.

.2 Free chlorine, hardness, metals ICP 16 water elements (Aluminum, Antimony, Silver, Arsenic, Barium, Cadmium, Cobalt, Chromium, Copper, Manganese, Molybdenum, Nickel, Lead, Selenium, Calcium, Zinc), Antimony, Cobalt, Molybdenum, beryllium, Boron, Calcium, Magnesium, Thallium, Sulfites, glycols, PFOS (perfluorooctane sulfonate), bromine, lithium, phosphate, thiosulfate, anionic surfactants, nonionic surfactants, methyl ethyl ketone (MEK), phthalates, explosives (EPA 8330);

.3 Get a bundled price for the following 22 metals: Aluminum, Antimony, Silver, Barium, Boron, Calcium, Chromium, Copper, Iron, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Total Phosphorus, Lead, Potassium, Selenium, Sodium, Thallium , Vanadium, Zinc.

Because **microbiological analysis** results are required as quickly as possible, a maximum timeframe of **48 hours and/or 72 hours** shall be required for reception of results.

PART 3 – EMERGENCY

3.1 BACTERIOLOGICAL EMERGENCY

If the standard for bacteriological analyses is exceeded, the laboratory must immediately notify the WFE section. Results must be sent only to the personnel included in the following procedure:

Working days

1. The laboratory must fax a copy of the preliminary report to 418-677-4496; and ECE@forces.gc.ca.

2. The laboratory must ensure that WFE section personnel received the information by calling 418-677-4000, extension 7502 or 7138. Follow these steps:
   - Leave a message if there is no answer, and
   - Follow the procedure for evenings, weekends and holidays.

Evenings, weekends, holidays

1. The laboratory must fax a copy of the preliminary report to 418-677-4496; and ECE@forces.gc.ca

2. Contact the technician on duty at 418-693-5962 (pager). Wait for the technician to call and provide the information directly over the phone (person to person).

3.2 Contractor's report

.1 Provide analysis reports in written and electronic formats (MS Excel), including the list of parameters, detection limits, objectives, analysis results, QC and descriptive comments. Values exceeding objectives must be clearly indicated (colours, bold, A-B-C-D, etc.).

3.3 Deadlines

.1 ***Deadline for submission of preliminary analysis report:***
The contractor must be able to respect the normal deadlines set out in the table of parameters in the standing offer, column “C” or “D” as the case may be.

.1 Rigorous quality control must be enforced by the laboratory to ensure that, when analysis reports are submitted, the results do not contain any errors that could lead DND to make decisions not compliant with regulations.

If a sample analysis deadline cannot be respected, notify DND in writing within **24 hours** of receiving the samples; otherwise, the penalty set out in the standing offer shall be applied.

.2 ***Retention period:***
The retention periods to be respected are set out in the Quebec environment department’s sampling guides for environmental analyses, books 3 and 5.

.3 ***Deadline in case of emergency:***
Analysis deadlines of less than 12 or 24 hours may be requested if required by DND. In the bid, provide the additional charge for each parameter in the event of an emergency.

3.4 Results

.1 In all cases, the contractor must always provide a final analysis report (impartial and objective analytical data) with professional seal required.

PART 4 – ADMINISTRATION

4.1 Authorization for performance of the work

.1 Before commencing work, except in the case of an emergency determined by the Engineer, the Contractor will receive a subsequent request and the engineer's instructions, in writing, by telephone or by fax, in respect of the work required.

4.2 Schedule

.1 The work schedule shall be set out so as to cause minimal disruption in the daily activities of location occupants.

.2 Unless notice is given to the contrary, regular working hours are from Monday to Friday, 8:00 to 16:00, exception (urgent situation).

4.3 Billing

.1 A separate invoice per test group must be submitted. The project number will be provided during the analysis request and must be indicated on the invoice and the following reference number: 1580002742.

.2 The number of samples provided by DND with the analysis request must be specified in billing.

.3 The contractor shall be responsible for allocating and distributing invoices and analysis reports to the various requestors (see section 6.5.2.1 “Request for Standing Offer”).