PREVALENCE AND ENUMERATION OF FOODBORNE MICROBIAL HAZARDS IN RETAIL FOOD PRODUCTS IN SENTINEL COMMUNITIES

STATEMENT OF WORK
1 August 2013

1. Scope

1.1. Title

Prevalence and enumeration of foodborne microbial hazards in retail food products in three (3) sentinel communities.

1.2. Introduction

C-EnterNet, the enteric surveillance program of the Public Health Agency of Canada (PHAC) requires the services of a laboratory with food microbiological expertise. The primary task is to provide weekly analysis of raw meat samples. Tests include primary isolation followed by enumeration. Once identified, the bacterial isolates are to be forwarded within a month to secondary labs for additional testing.

1.3. Objectives of the Requirement

The objectives of the requirement are to perform the following:

- perform presence/absence analysis weekly on submitted samples;
- perform confirmation in case of presence;
- perform enumeration on the positive samples;
- provide test results on a monthly basis; and
- forward *Salmonella* isolates to appropriate laboratories for subtyping within one month of recovery (or as a batch shipment, for *Listeria* and *Campylobacter*).

1.4. Background and Specific Scope of the Requirement

C-EnterNet is a surveillance program of the Public Health Agency of Canada. The primary objective of C-EnterNet is to provide information to integrate and strengthen the science, policy, intervention, prevention, and health promotion and protection activities related to both food and water safety in Canada. More precisely, it will deliver reliable annual estimates and trends over time for human cases, exposures, and source attribution, to inform future food and water safety policy development and provide capacity to local, provincial and federal public health authorities in the prevention of enteric diseases in Canada.

The Agri-food component of C-EnterNet has developed a retail food surveillance program that will provide baseline prevalence & enumeration data for foodborne enteric contamination (*Campylobacter*, *Salmonella* spp., generic *E. coli*, and *Listeria monocytogenes*,) on retail raw meat (chicken, pork and beef).

These results will then inform and support Canadian -specific risk assessment & policy development (through baseline data reports). These data will be integrated with water, on-farm and human data from the same geographic regions.

2. Requirements

2.1. Tasks, Activities, Deliverables and Milestones –

In consultation with representatives of C-EnterNet and other project collaborators, the Contractor shall:

1. Receive approximately 35 raw meat samples weekly for a yearly total of not to exceed 1680 samples. Upon arrival, the laboratory will apply sample acceptance/rejection criteria which will include the following:

   - appropriate sample type (matching submission form description)
   - no leakage of meat package
   - cooler temperature to be within a specified range

   Should any of these criteria not be met, then the laboratory will notify C-EnterNet immediately so replacement samples may be collected.

2. The Contractor will then analyse the raw meat samples for the specified bacterial organisms using the specified methods outlined, see table 1.

   Isolates from positive samples will be stored at the contracting lab as per PHAC requirements and then sent to a designated lab for further subtyping.

3. Sample results are to be entered into the database within 24 hours of completion of analysis. In addition testing results must be provided in a format specified by PHAC and compatible with PHAC database format.

   The information and test results are considered confidential to the end users and this agency, and is not to be shared without expressed permission of all parties involved.

Table 1- Scope of Retail Microbiological Testing

*Selective enrichment with Irgasan Ticarcillin Chlorate Broth. Differential plating with MacConkey agar and Cefsulodin-Irgasan-Novobiocin agar. Biochemical confirmation.

Pathogen	**Test Type**	**Laboratory Method to be utilized**	Raw ground **beef**	Raw **chicken** breast, skin off	Raw **pork** chop
Listeria	Presence/ Absence	MFHPB-30	Yes	Yes	Yes

	Enumeration	Most Probable Number Technique (3 tube)	Yes	Yes	Yes
Generic *E. coli*	Presence/ Absence	MFHPB-34	Yes	Yes	Yes
	Enumeration	MFHPB-34	Yes	Yes	Yes
Campylobacter	Presence/ Absence	Bolton broth rinse/mCCDA plating	Yes	Yes	Yes
	Enumeration	Most Probable Number Technique (3 tube)	Yes	Yes	Yes
Salmonella	Presence/ Absence	MFLP-75	Yes	Yes	Yes
	Enumeration	Most Probable Number Technique (3 tube)	Yes	Yes	Yes

Note: Positive results on any of the meat and bacteria combinations tested are not considered reportable, and therefore no regulatory recall actions are anticipated in this project.

Deliverable: The Contractor shall produce a monthly report describing the type and quantity of isolates forwarded to additional labs. This report will be emailed to the PHAC Departmental Representative at the beginning of each month.

2.2. Specifications and Standards

1. The Contractor must have current accreditation by the Standards Council of Canada (SCC) and conform with the requirements of CAN-P-1587 and CAN-P-4D(ISO/IEC 17025).

2. The Contractor must have **SCC accreditation** for the following specific **detection** tests as these methods will be implemented in this surveillance program:
   - *Listeria*: HPB-30
   - generic *E. coli* MFHPB-34

3. The Contractor must have **SCC accreditation** for at least one method for the detection of the following organisms:
   - *Campylobacter*
   - *Salmonella*

4. The Contractor must demonstrate the ability and proficiency in performing *Yersinia* detection in foods by providing method validation and quality assurance records. *Yersinia* methods are under review by HPB.

5. The Contractor must have **SCC accreditation** for MPN (Most Probable Number) enumeration in food for any **two** of the following three organisms. For the remaining one, the Contractor must demonstrate the ability and proficiency in performing MPN enumeration in foods or environmental samples by providing method validation and quality assurance records.
   - *Salmonella*

- *Listeria*
- *Campylobacter*

It is essential that the laboratory be proficient and accredited for MPN methodology since quantification of **viable** bacterial load is a primary objective of this program. Molecular quantification techniques may not be suitable as an alternative since they are unable to distinguish between viable and non-viable bacteria.

6. The time of shipment from the primary sampling site (Waterloo, Ontario) to the laboratory is not to exceed a 1.5 hour travel time, at normal speeds for the following reasons:
   - to reduce overall shipping costs of samples and isolates.
   - allow for the evaluation of how shipping time may impact on bacterial recovery rates.

   This criteria is critical in order for shipping costs to be minimized for the program and to allow for troubleshooting when evaluating how shipment from multiple sites will impact on bacterial recovery rates.

2.3. Technical, Operational and Organizational Environment

The Contractor must at all times of the contract be in possession of the accreditations noted in section 2.2 from the SCC. If the successful bidder receives an order or direction to correct a deficiency from any of their regulating bodies, they must inform the Public Health Agency of Canada Representative by email within 24 hours of the notification. This will lead to assurances by Public Health Agency of Canada that test results are held in the highest regard.

2.4. Method and Source of Acceptance

The requirement of this contract will be considered acceptable under the following conditions;

- When the deliverable outlined in section 2.1 meet the requirements as outlined in section 2.1 by the Departmental Representative.
- The deliverable should be emailed at the beginning of each month to the Departmental Representative.
- The deliverable should be completed in English.

2.5 Reporting Requirements

The Contractor shall report on a monthly basis in the form of an excel spreadsheet in a PHAC specified format the following:

- Results from the laboratory testing.
- Report describing the type and quantity of isolates forwarded to additional labs.

In addition, a monthly hard-copy will be generated and kept on file at the laboratory. Contact names, addresses, phone numbers, and electronic mail addresses will be supplied at the commencement of the contract or shortly thereafter.

2.5. Project Management Control Procedures

- The PHAC Departmental Representative shall review all test results to ensure that all parameters tested for have been completed.
- The payment schedule will be based on samples received, analyzed and forwarded to secondary labs.
- The Departmental Representative will coordinate face-to-face quarterly meetings with the Contractor to review performance and discuss progress of the project.

3. Other Terms and Conditions of the SOW

3.1. Authorities

To be indicated upon contract award.

3.2. Public Health Agency of Canada Obligations

The Public Health Agency of Canada shall:
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- Be responsible for the purchase, shipment and delivery of samples to the laboratory;.
- Provide a schedule of sampling;
- Provide phone numbers, fax numbers, cell phone numbers and email addresses of project authorities; and
- Provide shipping specifications and cover the cost for the shipment of batch samples to additional laboratories for subtyping.

3.3. Contractor's Obligations

- Unless otherwise specified, the contractor shall use its own equipment and software for the performance of this Statement of Work.
- Title to the equipment/furnishings charged against this Contract shall vest in Canada upon payment of invoiced amounts and shall remain so vested at all times.
- For each item of equipment/furnishings that is purchased, the Contractor is to record the name, manufacturer, model number, serial number, optional equipment, supplier and price and forward this information to the Project Authority.
- The Contractor shall label all equipment/furnishings as being the property of Canada.
- Notwithstanding the fact that the equipment/furnishings under this Contract become vested in Canada, the equipment/furnishings shall remain within the custody and control of the Contractor until such time as the Project Authority provides instructions for its delivery. During this period of time, the Contractor shall take reasonable and proper care of the equipment/furnishings.
- The Contractor shall keep adequate records of:
    - The procedures used to execute the scope of tasks outlined in section 2.1.
    - The number of samples received and analysed.
    - The type and quantity of isolates forwarded to additional labs.
    - Maintain the sample results and analysis in an excel spreadsheet.

3.4. Location of Work, Work site and Delivery Point

All work will be completed at the Contractor's Laboratory where accreditation has been designated in the province of Ontario.

3.5. Language of Work

All work and deliverables will be completed in English.

3.6. Special Requirements

Data collection is required, however only for the Public Health Agency of Canada purposes. This information is for the Public Health Agency of Canada usage only and may not be given to other agencies or used for other purposes without expressed authorization of the Departmental Representative.

3.7. Security Requirements

Not required. Services provided will be conducted off-site and not on PHAC premises, nor making use of the PHAC network. None of the work will necessitate access to any Classified/Protected information or assets.

3.8. Insurance Requirements

GC16 INSURANCE

It shall be the sole responsibility of the Contractor to decide whether or not any insurance coverage is necessary for its own protection or to fulfill its obligations under the Contract and to ensure compliance with required federal, provincial or municipal law. Any such insurance shall be provided and maintained by the Contractor at their expense.

3.9. Travel and Living

Travel and living expenses are not applicable to this contract.

4. Project Schedule

4.1. Expected Start and Completion Dates

The services of the Contractor will be required from contract award to March 31st, 2014 with two (2) additional one (1) year option periods.

4.2. Schedule and Estimated Level of Effort (Work Breakdown Structure)

Scheduling of weekly sample delivery will be determined in consultation with the Contractor during an initial meeting. PHAC will advise the field workers who collect samples of the laboratory requirements, time guidelines and locations for submission of samples. This should be completed within one week of the contract being signed.

4.3. Options

The Contractor shall grant irrevocable, unrestricted and unconditional options to PHAC to allow the extension of the contract for up to two (2) additional periods of one (1) year each.

5. Required Resources or Types of Roles to be Performed

The Contractor is expected to show expertise in this field and the continued accreditation status of the laboratory. Any problem with the accreditation must be rectified with in 24 hours. If this is not done then the Contractor must notify the Departmental Representative of this with in 24 hours. If the laboratory loses their accreditation, the contract will be terminated.

6. Applicable Documents and Glossary

6.1. Applicable Documents

None

6.2. Relevant Terms, Acronyms and Glossaries

PHAC= Public Health Agency of Canada
SCC= Standards Council of Canada