

**RETURN BIDS TO:**  
**RETOURNER LES SOUMISSIONS À:**  
**Public Works and Government Services Canada**  
**Telus Plaza North, 5th floor**  
**10025 Jasper Avenue**  
**Edmonton**  
**Alberta**  
**T5J 1S6**  
**Bid Fax: (780) 497-3510**

**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**  
**Northern Contaminated Site Program**  
**Telus Plaza North, 5th floor**  
**10025 Jasper Avenue**  
**Edmonton**  
**Alberta**  
**T5J 1S6**

|   |  |
|---|--|
| <b>Title - Sujet</b><br>Nottingham Remediation  |  |
| <b>Solicitation No. - N° de l'invitation</b><br>EW699-141714/A  | <b>Amendment No. - N° modif.</b><br>006                                    |
| <b>Client Reference No. - N° de référence du client</b><br>AANDC  | <b>Date</b><br>2014-02-27  |
| <b>GETS Reference No. - N° de référence de SEAG</b><br>PW-\$NCS-002-10099   |  |
| <b>File No. - N° de dossier</b><br>NCS-3-36260 (002)  | <b>CCC No./N° CCC - FMS No./N° VME</b>                                     |
| <b>Solicitation Closes - L'invitation prend fin</b><br><b>at - à 02:00 PM</b><br><b>on - le 2014-03-07</b>  | <b>Time Zone</b><br><b>Fuseau horaire</b><br>Mountain Standard Time<br>MST |
| <b>F.O.B. - F.A.B.</b><br><b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/> |  |
| <b>Address Enquiries to: - Adresser toutes questions à:</b><br>Poot (NCS), Marc   | <b>Buyer Id - Id de l'acheteur</b><br>ncs002                               |
| <b>Telephone No. - N° de téléphone</b><br>(780) 497-3520 ( )  | <b>FAX No. - N° de FAX</b><br>(780) 497-3510                               |
| <b>Destination - of Goods, Services, and Construction:</b><br><b>Destination - des biens, services et construction:</b>   |  |

**Instructions: See Herein**

**Instructions: Voir aux présentes**

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

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**This amendment has been raised to revised the closing date, answer questions from potential bidders and to amend the RFP**

**Part 1 - Revision to Closing Date:**

The solicitation closing date has been revised to 2:00 pm Mountain Standard Time, March 7, 2014.

**Part 2 - Questions and Answers:**

**Question 1**

In Contaminated Soil section 02 55 13, 1.9.1 of the specifications, it is indicated that excavation and containerization of PHC Contaminated Soil will be measured for payment by the cubic metre as determined from surveyed measurements of the excavation and/or as placed in the Contaminated Soil Container. There is a similar clause for Tier II Metal Contaminated Soil in paragraph 1.9.2. Since there is a bulking factor once soil is removed from the ground there will be a difference between measuring the soil volume in the ground and once it is placed in containers. Can PWGSC provide a clarification to the "and/or" variable in order to provide a more consistent means to measure and thus price the soil volume. Note, this issue also can affect the amount of time a surveyor is required.

**Answer 1**

Both section 02 55 13 1.9.1 and 02 55 13 1.9.2 have been revised whereby surveyed measurements of the excavation only apply. Note that the Contractor is expected to bid on the 3400 m<sup>3</sup> and 600m<sup>3</sup> quantities in the basis of payment section.

**Question 2**

We would like to request if a quicker laboratory turn-around-time can be provided for PWGSC samples, which is currently to be within 14 days (section 01 29 83, 1.5.3). An option is to shift this scope to the bidder/contractor and the contractor can do the needful to get the samples to the accredited lab and results back to PWGSC in a much faster turnaround time? This will ultimately save costs and time.

**Answer 2**

The specifications state that it's the contractor's responsibility to ship the samples to Iqaluit within 2 days from the time of sampling. At that point it is up to the lab to turnaround the results in a timely manner, which will most likely be well within the 14 days. The 14 days was stated as a buffer. The requirement will remain as stated.

**Question 3**

We note that in revised section specifications in Addendum 4 virtually all references to the section on Asbestos Abatement-Maximum Precautions (02 82 00.03) have been removed. Is this section on asbestos still relevant (are there any maximum precaution situations)?

**Answer 3**

02 82 00.03 was removed as part of the last amendment and will not be considered as part of this RFP.

**Question 4**

Would it be acceptable to have contractor field personnel, as well as PWGSC on-site representatives, flown to the site on a daily basis from a nearby community rather than setting up a full camp on-site. Under such a scenario we would still maintain office space on-site as well as some emergency accommodation, food and cooking supplies and other essentials in case personnel are delayed leaving the site due to weather.

**Answer 4**

Flights from a nearby community will not be considered as part of this RFP.

**Question 5**

There is a provisional cost sum for the off-site disposal of Hazardous Waste Material. Please confirm that PWGSC will pay for any additional disposal cost above the provisional sum of \$100,000 provided for in the RFP.

**Answer 5**

The \$100,000 is a provisional cost associated with this task. PWGSC will pay for actual work incurred based on the terms and conditions of the contract.

**Question 6**

As per the pricing sheet, bidders are to quote on certain quantities of various types of containers for the movement of waste (i.e. marine shipping containers, intermediate soil containers, and hazardous liquid waste containers). If the actual volume of a material needing containerization is less than the bid volume how is the contractor to be compensated given these quantities of containers will need to be mobilized to the site before the actual volume of waste are determined? Who will own any unused container?

**Answer 6**

Variations between volumes identified in the Specifications and actual volumes after remediation will be dealt with in accordance with the terms and conditions of the contract.

**Question 7**

In the pricing sheets has PWGSC allocated contingency quantities for each type of waste container? What is the cost and logistics strategy to be if the actual quantity of waste material exceeds the available volume of containers mobilized to the site?

**Answer 7**

Variations between volumes identified in the Specifications and actual volumes after remediation will be dealt with in accordance with the terms and conditions of the contract.

**Question 8**

In Hazardous Waste Materials section 02 61 33, 1.9.8, the provisional cost sum is indicated to be under cost item 02 61 33-7, however in the Unit Price Table and the Annex A–Cost Breakdown Table the cost item is listed under 02 61 33-6. Please clarify the correct numbering.

**Answer 8**

Please see revised Unit Price Table and Annex A, Cost Breakdown Table below.

**Question 9**

What is the schedule to award the project?

**Answer 9**

At this time, it is estimated to be early to mid April 2014.

**Question 10**

If the chosen bid is \$12 million dollars does PWGSC have the funds to move forward with the project?

**Answer 10**

The budget is not being disclosed for this requirement.

**Question 11**

I have finally finished a line by line comparison between the PDF file EBSU004 to both files EBSU000 and ATTA001 noting all of the changes in the spec. The biggest change that I noticed (aside from line item changes and modifications) was the Asbestos Abatement Precautions. Can you clarify the following: it appears in the new amendment that Sections 02 82 00.01 and 02 82 00.02 were revamped considerably and Section 02 82 00.03 had all previous mentions of it removed from the new document (except for ONE bullet – Section 02 61 33 Hazardous Waste Materials Part 2.2.8)... was section 02 82 00.03 Asbestos Abatement Maximum Precautions removed from the specification entirely? Or does it remain still in the documentation, just unreferenced and unchanged?

**Answer 11**

02 82 00.03 was removed as part of the last amendment and will not be considered as part of this RFP. The reference in 02 61 33 2.2.8 has been removed.

**Question 12**

There seems to be an error in the new price table in the RFP provided in addendum 4, page 40, line 12. Should this not read "Excavation and Containerization of Tier II metal contaminated soils"? The off-site transportation of this soil is covered on line 14.

**Answer 12**

Please see revised APPENDIX 1, UNIT PRICE TABLE below.

## 2. Revisions to the RFP

### Delete in its entirety:

Under APPENDIX 1 - COMBINED PRICE FORM:  
UNIT PRICE TABLE

### Insert in its place:

Under APPENDIX 1 - COMBINED PRICE FORM:  
UNIT PRICE TABLE

The Unit Price Table designates Work to which a Unit Price Arrangement applies.

- (a) Work included in each item is as described in the referenced specification section.
- (b) The Price per Unit shall not include any amounts for Work that is not included in that unit price Item.

| Item | Spec. Reference | Class of Labour, Plant or Material  | Unit of Measurement | Estimated Quantity (EQ) | Price per Unit applicable tax(s) extra (PU) | Extended amount (EQ x PU) applicable tax(s) extra |
|------|-----------------|---|---------------------|-------------------------|---|---|
| 1    | 01 31 19-3      | Seasonal Progress Meetings (Inter-Season Meeting)   | each                | 2                       | \$  | \$  |
| 2    | 01 31 19-4      | Monthly Progress Meeting  | each                | 6                       | \$  | \$  |
| 3    | 01 31 19-5      | Construction Meeting  | each                | 1                       | \$  | \$  |
| 4    | 01 31 19-6      | Community Meeting (Salluit, Ivujivik and Cape Dorset)   | each                | 18                      | \$  | \$  |
| 5    | 01 35 32-2      | Wildlife Monitor c/w ATV  | day                 | 200                     | \$  | \$  |
| 6    | 01 52 00-1      | Start-up of Facilities  | each                | 3                       | \$  | \$  |
| 7    | 01 52 00-2      | Winterizing of Facilities   | each                | 2                       | \$  | \$  |
| 8    | 01 54 00-2      | Departmental Representative and Departmental Representative Authorized Personnel Room and Board   | person-day          | 250                     | \$  | \$  |
| 9    | 01 54 00-3      | Casual meals for Departmental Representative Authorized Personnel   | each                | 150                     | \$  | \$  |
| 10   | 01 54 00-4      | Departmental Representative and Departmental Representative Authorized Personnel Return Transportation -Ivujivik or Cape Dorset to Site | person -return trip | 36                      | \$  | \$  |

| Item  | Spec. Reference | Class of Labour, Plant or Material   | Unit of Measurement  | Estimated Quantity (EQ) | Price per Unit applicable taxe(s) extra (PU) | Extended amount (EQ x PU) applicable taxe(s) extra |
|---|-----------------|--|----------------------|-------------------------|--|--|
| 11  | 02 55 13-1      | Excavation and Containerization of PHC Contaminated Soil   | cubic metre          | 3,400                   | \$   | \$   |
| 12  | 02 55 13-2      | Excavation and Containerization of Tier II Metal Contaminated Soils  | cubic metre          | 600                     | \$   |  |
| 13  | 02 55 13-3      | Off-Site of Transportation of Containerized PHC Contaminated Soil  | cubic metre          | 3,400                   | \$   | \$   |
| 14  | 02 55 13-4      | Off-Site Transportation of Tier II Metal Contaminated Soils  | cubic metre          | 600                     | \$   | \$   |
| 15  | 02 55 13-5      | Off-Site Disposal of Containerized PHC Contaminated Soil   | cubic metre          | 3,400                   | \$   | \$   |
| 16  | 02 55 13-6      | Off-Site Disposal of Containerized of Tier II Metal Contaminated Soil  | cubic metre          | 600                     | \$   | \$   |
| 17  | 02 61 33-1      | Supply of Marine Shipping Containers – Hazardous Waste Materials   | each                 | 50                      | \$   | \$   |
| 18  | 02 61 33-2      | Supply of PHC Soil Containers – Contaminated Soil  | cubic metre          | 3,400                   | \$   | \$   |
| 19  | 02 6133-3       | Supply of Intermediate Tier II Metal Intermediate Soil Containers - Contaminated Soil                              | cubic metre          | 600                     | \$   | \$   |
| 20  | 02 61 33-4      | Supply of Hazardous Liquid Waste Containers  | cubic metre          | 2.1                     | \$   | \$   |
| 21  | 02 61 33-5      | Containerization of Hazardous Waste Materials  | cubic metre          | 760                     | \$   | \$   |
| 22  | 02 61 33-6      | Off-site Transport of Containerized Hazardous Waste to Contractor's Designated Hazardous Waste Disposal Facilities | cubic metre          | 760                     | \$   | \$   |
| 23  | 02 61 33-7      | Off-site Disposal of Containerized Hazardous Waste at Contractor's Designated Hazardous Waste Disposal Facilities  | Provisional Cost Sum | 1                       | \$100,000                                    | \$100,000  |
| 24  | 31 22 15-1      | Reshaping  | square metre         | 5,000                   | \$   | \$   |
| 25  | 31 22 15-2      | Granular Fill  | cubic metre          | 700                     | \$   | \$   |
| 26  | 31 22 15-3      | Unclassified Excavation  | cubic metre          | 1,000                   | \$   | \$   |
| <b>TOTAL ESTIMATED AMOUNT (TEA) Excluding applicable tax(s)</b> |                 |  |                      |                         |  | <b>\$</b>  |

**TOTAL BID AMOUNT**

|   |           |
|---|-----------|
| <b>TOTAL BID AMOUNT (LSA +TEA)Excluding applicable tax(s)</b> | <b>\$</b> |
|---|-----------|

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006

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NCS-3-36260

Buyer ID - Id de l'acheteur

ncs002

CCC No./N° CCC - FMS No/ N° VME

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**Delete in its entirety:**

**ANNEX A - COST BREAKDOWN TABLE**

**Insert in its place:**

**ANNEX A - COST BREAKDOWN TABLE (the table below is for information purposes only).**

Prior to contract award, the assessed best value bidder/contractor will be required to complete the following table. ***The total evaluated price must equal the bid submission per the bid price form (APPENDIX 1) total submitted at the time of solicitation closing.***

| Section    | Description  | Unit     | Estimated Quantity | Unit Price   | Total |
|------------|--|----------|--------------------|--|-------|
| BOPC-1     | Balance of Project Costs includes any variable indirect costs for all costs not directly attributable to the pay items including:<br>-Profit,<br>-Supervision,<br>-Overhead,<br>-Administration,<br>-CGL Insurance,<br>-WCB,<br>-Allowance for equipment repairs,<br>-Attendance at meetings,<br>-All indirect costs associated with specific unit price, etc. | Lump Sum | 1                  | \$<br>\$<br>\$<br>\$<br>\$<br>\$<br>\$<br>\$<br>\$<br>\$ | \$    |
| 01 11 00-1 | Worker Orientation Seminar   | Lump Sum | 1                  |  | \$    |
| 01 31 19-1 | Pre-Construction Meeting   | Lump Sum | 1                  |  | \$    |
| 01 31 19-2 | Pre-Mobilization Site Visit  | Lump Sum | 1                  |  | \$    |
| 01 31 19-3 | Seasonal Progress Meetings (Inter-Season Meeting)  | each     | 2                  | \$   | \$    |
| 01 31 19-4 | Monthly Progress Meeting   | each     | 6                  | \$   | \$    |
| 01 31 19-5 | Construction Meeting   | each     | 1                  | \$   | \$    |
| 01 31 19-6 | Community Meeting (Salluit, Ivujivik and Cape Dorset)  | each     | 18                 | \$   | \$    |
| 01 33 00-1 | Photographs  | Lump Sum | 1                  |  | \$    |
| 01 35 32-1 | Site Specific Health and Safety Plan   | Lump Sum | 1                  |  | \$    |
| 01 35 32-2 | Wildlife Monitor c/w ATV   | day      | 200                | \$   | \$    |
| 01 35 43-1 | Environmental Protection Supplies  | Lump Sum | 1                  |  | \$    |
| 01 52 00-1 | Start-up of Facilities   | each     | 3                  | \$   | \$    |
| 01 52 00-2 | Winterizing of Facilities  | each     | 2                  | \$   | \$    |
| 01 53 00-1 | Mobilization – includes all equipment and materials  | Lump Sum | 1                  |  | \$    |
| 01 53 00-2 | Demobilization – includes all equipment and materials  | Lump Sum | 1                  |  | \$    |
| 01 54 00-1 | Supply, Operation and Maintenance of Camp Facilities   | Lump Sum | 1                  |  | \$    |



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ncs002

CCC No./N° CCC - FMS No/ N° VME

| Section    | Description   | Unit                | Estimated Quantity | Unit Price | Total |
|------------|---|---------------------|--------------------|------------|-------|
| 01 54 00-2 | Departmental Representative and Departmental Representative Authorized Personnel Room and Board   | person -day         | 250                | \$         | \$    |
| 01 54 00-3 | Casual meals for Departmental Representative Authorized Personnel   | each                | 150                | \$         | \$    |
| 01 54 00-4 | Departmental Representative and Departmental Representative Authorized Personnel Return Transportation –Ivujivik or Cape Dorset to Site                     | person -return trip | 36                 | \$         | \$    |
| 01 54 00-5 | Supply, installation and operation of satellite and/or long distance communication links for Departmental Representative Authorized Personnel Communication | Lump Sum            | 1                  |            | \$    |
| 01 71 01-1 | Survey  | Lump Sum            | 1                  |            | \$    |
| 01 78 00-1 | Project Record Documents  | Lump Sum            | 1                  |            | \$    |
| 02 41 16-1 | Demolition: Storage Shed 01   | Lump Sum            | 1                  |            | \$    |
| 02 41 16-2 | Demolition: Old Kitchen   | Lump Sum            | 1                  |            | \$    |
| 02 41 16-3 | Demolition: New Radio Bldg & Small Shed   | Lump Sum            | 1                  |            | \$    |
| 02 41 16-4 | Demolition: Old Radio Building  | Lump Sum            | 1                  |            | \$    |
| 02 41 16-5 | Demolition: Outhouse  | Lump Sum            | 1                  |            | \$    |
| 02 41 16-6 | Demolition: Storage Shed 02   | Lump Sum            | 1                  |            | \$    |
| 02 41 16-7 | Demolition: Storage Building  | Lump Sum            | 1                  |            | \$    |
| 02 41 16-8 | Demolition: Chicken Coop, Caged Area  | Lump Sum            | 1                  |            | \$    |
| 02 41 16-9 | Demolition: Bunkhouse   | Lump Sum            | 1                  |            | \$    |

| Section     | Description  | Unit        | Estimated Quantity | Unit Price | Total |
|-------------|--|-------------|--------------------|------------|-------|
| 02 41 16-10 | Demolition: Generator Building   | Lump Sum    | 1                  |            | \$    |
| 02 41 16-11 | Demolition: House and Garage   | Lump Sum    | 1                  |            | \$    |
| 02 41 16-12 | Demolition: Shed   | Lump Sum    | 1                  |            | \$    |
| 02 41 16-13 | Demolition: House  | Lump Sum    | 1                  |            | \$    |
| 02 41 16-14 | Demolition: Building and 4 wood Poles  | Lump Sum    | 1                  |            | \$    |
| 02 41 16-15 | Demolition: 2 - 73,000 L ASTs  | Lump Sum    | 1                  |            | \$    |
| 02 41 16-16 | Supply of Containers for Non-Hazardous Waste Material  | Lump Sum    | 1                  |            | \$    |
| 02 41 16-17 | Off-Site Transportation and Disposal of Non-Hazardous Waste Material   | Lump Sum    | 1                  |            | \$    |
| 02 41 23-1  | Known Debris Removal   | Lump Sum    | 1                  |            | \$    |
| 02 41 23-2  | Burning of Untreated Wooden Debris   | Lump Sum    | 1                  |            | \$    |
| 02 55 13-1  | Excavation and Containerization of PHC Contaminated Soil   | cubic metre | 3,400              | \$         | \$    |
| 02 55 13-2  | Excavation and Containerization PHC Contaminated Soils   | cubic metre | 600                | \$         | \$    |
| 02 55 13-3  | Off-Site of Transportation of Containerized PHC Contaminated Soil  | cubic metre | 3,400              | \$         | \$    |
| 02 55 13-4  | Off-Site Transportation of Tier II Metal Contaminated Soils  | cubic metre | 600                | \$         | \$    |
| 02 55 13-5  | Off-Site Disposal of Containerized PHC Contaminated Soil   | cubic metre | 3,400              | \$         | \$    |
| 02 55 13-6  | Off-Site Disposal of Containerized of Tier II Metal Contaminated Soil  | cubic metre | 600                | \$         | \$    |
| 02 61 33-1  | Supply of Marine Shipping Containers – Hazardous Waste Materials   | each        | 50                 | \$         | \$    |
| 02 61 33-2  | Supply of PHC Soil Containers – Contaminated Soil  | cubic metre | 3,400              | \$         | \$    |
| 02 61 33-3  | Supply of Intermediate Tier II Metal Intermediate Soil Containers - Contaminated Soil                              | cubic metre | 600                | \$         | \$    |
| 02 61 33-4  | Supply of Hazardous Liquid Waste Containers  | cubic metre | 2.1                | \$         | \$    |
| 02 61 33-5  | Containerization of Hazardous Waste Materials  | cubic metre | 760                | \$         | \$    |
| 02 61 33-6  | Off-site Transport of Containerized Hazardous Waste to Contractor's Designated Hazardous Waste Disposal Facilities | cubic metre | 760                | \$         | \$    |

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ncs002

CCC No./N° CCC - FMS No/ N° VME

| Section  | Description   | Unit                 | Estimated Quantity | Unit Price   | Total        |
|--|---|----------------------|--------------------|--------------|--------------|
| 02 61 33-7   | Off-site Disposal of Containerized Hazardous Waste at Contractor's Designated Hazardous Waste Disposal Facilities | Provisional Cost Sum | 1                  | \$100,000.00 | \$100,000.00 |
| 31 22 15-1   | Reshaping   | square metre         | 5,000              | \$           | \$           |
| 31 22 15-2   | Granular Fill   | cubic metre          | 700                | \$           | \$           |
| 31 22 15-3   | Unclassified Excavation   | cubic metre          | 1,000              | \$           | \$           |
| 31 22 15-4   | Road and Access Construction and Maintenance  | Lump Sum             | 1                  |              | \$           |
| <b>Total Cost Break Down - Excluding applicable tax(s)</b> |   |                      |                    |              | \$           |

All other terms and conditions remain the same.

PART 1  
1.1

GENERAL  
Related Requirements

- .1 Section 02 41 16 – Structure Demolition
- .2 Section 02 41 23 – Debris and Miscellaneous Removal
- .3 Section 02 61 33 – Hazardous Waste Material
- .4 Section 02 82 00.01 – Asbestos Abatement Minimum Precautions
- .5 Section 02 82 00.02 – Asbestos Abatement Intermediate Precautions
- .6 Section 31 22 15 – Grading

1.2

Description

- .1 This Section specifies the requirements for the excavation, on-site transport, containerization, off-site transport and off-site disposal of all contaminated soils from the site areas.
  - .1 Tier I, Tier II, Type A and Hazardous Contaminated Soils:
    - .1 Excavation and containerization of the contaminated soil.
    - .2 On-site transport of containerized contaminated soil to the Temporary Storage Area.
  - .2 Type B PHC Contaminated Soil:
    - .1 Excavation and on-site transport.

1.3

References

- .1 Definitions:
  - .1 Hazardous Contaminated Soil: Contaminated soil classified as hazardous in accordance with the Transportation of Dangerous Goods Act and Regulations (including CEPA and leachable soil).
  - .2 Petroleum Hydrocarbons (PHC): Hydrocarbon products described by laboratory analyses as lubricating oil and grease, fuel oil, diesel and/or gasoline.
  - .3 F1/F2 Hydrocarbon Contaminated Soil: Soil exceeding the concentration within hydrocarbon fractions F1, F2 and F3 as defined in the INAC 2009 Abandoned Military Site Remediation Protocol for PHC in Soil.
  - .4 F3/F4 Hydrocarbon Contaminated Soil: Soil exceeding the concentration within hydrocarbon fractions F3 and F4 as defined in the INAC 2009 Abandoned Military Site Remediation Protocol for PHC in Soil.
  - .5 Free Product: The presence of a layer of separated phase liquid petroleum hydrocarbon product.

- .6 Clean Soil: Soil that has been sampled, analyzed, and determined to have contaminant concentrations below those outlined in Clause 3.3 of this section.
- .7 Contaminated Soil Containers: Lined Intermediate Containers consisting of either collapsible wooden containers with an interior volume of 2.3 cubic metres or one (1) cubic metre contaminated soil plastic bags.
- .8 Contaminated Soil: includes the following contaminated soil which are defined further in this section:
  - .1 Tier I Contaminated Soil
  - .2 Tier II Contaminated Soil
  - .3 Type A PHC Contaminated Soil
  - .4 Type B PHC Contaminated Soil
  - .5 Hazardous Contaminated Soil
- .9 Tier I Contaminated Soil: Soils containing concentrations of any or all of the contaminants listed as follows:
  - Lead - >200 ppm; <500 ppm
  - PCBs - >1 ppm; <5 ppm
- .10 Tier II Contaminated Soil: Soils containing concentrations of any or all of the contaminants listed as follows:
  - Arsenic - > 30 ppm
  - Cadmium - > 5 ppm
  - Chromium - > 250 ppm
  - Cobalt - > 50 ppm
  - Copper - > 100 ppm
  - Lead - > 500 ppm
  - Mercury - > 2 ppm
  - Nickel - > 107 ppm (site specific criteria)
  - Zinc - > 500 ppm
  - PCBs - > 5 ppm; < 50 ppm
- .11 Type A PHC Contaminated Soil: Soil exceeding the concentration within PHC fractions F3 and F4 as defined in the INAC 2009 Abandoned Military Site Remediation Protocol for PHC in Soil.
- .12 Type B PHC Contaminated Soil: Soil exceeding the concentration within PHC fractions F1, F2 and F3 as defined in the INAC 2009 Abandoned Military Site Remediation Protocol for PHC in Soil.
  - Near Shore Criteria (<30 metres from a water body)
    - F1 Fraction - 1,290 ppm
    - F2 Fraction - 330 ppm
  - Far Shore Criteria (>30 metres from a water body)
    - TPH (F1+F2+F3 Fractions) - 2,500 ppm
- .13 Hazardous Contaminated Soil: Contaminated soil classified as hazardous in accordance with the Canadian Environmental Protection Act (CEPA), including CEPA PCB Contaminated Soil, and Leachable Soil.

- .14 CEPA PCB Contaminated Soil: Soil containing concentrations of PCBs equal to or in excess of 50 parts per million. Materials contaminated with PCBs at concentration levels equal to or in excess of 50 parts per million (mg/kg) are legislated as hazardous materials. Storage, handling, and disposal of PCBs are regulated under the Canadian Environmental Protection Act and the Federal Transportation of Dangerous Goods Act. Comply with all applicable regulations.
- .15 Leachable Soil: Soil containing contaminants that when subject to the Toxicity Characteristic Leaching Procedure (TCLP) analysis, leach contaminants at concentrations in excess of those specified in CEPA regulations EIHWHMR and IMHWR.

1.4

Qualifications

- .1 Be thoroughly familiar with and knowledgeable about existing site conditions, scope of work and requirements of the Specification.
- .2 Only Contractor's personnel capable of demonstrating a history of satisfactory experience in the area of hazardous waste management and who can satisfy Federal and Territorial requirements will be permitted to carry out the work of this Section. Contractor's Superintendent responsible for the work of this Section is to have appropriate level of experience in the area of hazardous waste management.
- .3 Follow at all times, guidelines such as those established in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No. 85-115, or Hazardous Waste Worker Training Manual: Canadian LIUNA Contractors Training Council, 1992.
- .4 All activities involving the handling of hazardous materials, are to be directly supervised by Contractor's personnel who have successfully completed a 40 hour training course for Hazardous Waste Activities in compliance with OSHA 29 CFR 1910.120 or other approved equivalent training courses such as the Canadian Hazardous Waste Workers Program.
- .5 Contractor's personnel trained as described in this Section are to instruct and direct all workers with respect to the waste management procedures and labour and safety practices to be followed in carrying out the work.
- .6 Provide workers, Department Representative and Department Representative's staff when required with protection appropriate to the potential type and level of exposure. Establish specific safety protocols in the Site Specific Health and Safety Plan.
- .7 Provide suitable safety clothing and equipment as required during the course of the work.
- .8 Trained and certified personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) and Interprovincial Movement of Hazardous Waste Regulation (IMHWR) documentation and recording requirements.

1.5

Site Conditions

- .1 Suspend operations whenever climatic conditions are unsatisfactory for excavating or backfilling to conform with this Specification.
- .2 After occurrence of heavy rains, do not operate equipment in designated areas until the material has dried sufficiently to prevent excessive rutting.
- .3 Contractor is advised that the ground in low-lying areas may often be saturated. Dewater saturated ground and ponded areas as required, complying with this Section.
- .4 Prior to the commencement of the work, remove debris, snow, ice and standing water from areas to be excavated and backfilled.
- .5 During excavation of contaminated soil, maintain a stable excavation and dewater as required or as directed by the Department Representative.

1.6

Protection

- .1 Environmental protection measures are to be in accordance with the requirements specified in Section 01 35 43 - Environmental Procedures.
- .2 The release of all water resulting from the dewatering of ponded contaminated soil areas and the decontamination of equipment is to conform to the Wastewater Discharge Criteria outlined in Section 01 35 43 - Environmental Procedures and Section 01 35 15 - Special Project Procedures for Contaminated Sites.

1.7

Personal Protection

- .1 Some areas designated for cleanup under this contract involve soils and hazardous materials which contain inorganic elements, hydrocarbons, and other contaminants which are considered hazardous to human health.
- .2 Materials containing polychlorinated biphenyls (PCBs) at concentrations equal to or in excess of 50 ppm are considered to be hazardous substances. Storage, handling and disposal of PCBs are regulated under the Canadian Environmental Protection Act and the Federal Transportation of Dangerous Goods Act. Comply with all applicable regulations.
- .3 When working with inorganic elements, PCB containing materials, hydrocarbons, and other contaminants, workers are to wear protective clothing and equipment acceptable to Labour Canada or Territorial Labour Department as suitable for exposure in the work area. Follow National Institute for Occupational Safety and Health (NIOSH) guidelines in providing protection for on-site personnel including contract employees and subcontractor, Department Representative and other authorized site personnel. Provide details of protective clothing and equipment required for each work area in the Site Specific Health and Safety Plan as required by Section 01 35 32 – Site Specific Health and Safety Plan.
- .4 Supply sufficient quantities of designated protection equipment to fit all site personnel including Department Representative and authorized visitors. Educate workers as to risks, and train in safe work practices.

1.8 Submittals

None

1.9 Measurement for Payment

- .1 The excavation and containerization of PHC Contaminated Soil to be shipped off-site, excluding buried debris areas, will be measured for payment by the cubic metre of contaminated soil as determined from surveyed measurements of the excavation. Excavation and Containerization of PHC Contaminated Soil will be paid under Item 02 55 13-1 of the Basis of Payment Schedule.
- .2 The excavation and containerization of Tier II Metal Contaminated Soil to be shipped off-site, excluding buried debris areas, will be measured for payment by the cubic metre of contaminated soil as determined from surveyed measurements of the excavation. Excavation and Containerization of Tier II Metal Contaminated Soil will be paid under Item 02 55 13-2 of the Basis of Payment Schedule
- .3 The scope of work under Item 02 55 13-1, Excavation of PHC Contaminated Soil, includes the initial excavation of soil and backfilling (including supply and placement of fill).
- .4 The scope of work under Item 02 55 13-2, Excavation of Tier II Metal Contaminated Soil, includes the initial excavation of soil and backfilling (including supply and placement of fill).
- .5 The scope of work for Payment Item 02 55 13-1 Excavation and Containerization of PHC Contaminated Soils for off-site disposal is to include the containerization and on-site transport to the Temporary Storage Area (as defined in Section 02 61 33 – Hazardous Waste Material).
- .6 The scope of work for Payment Item 02 55 13-2 Excavation and Containerization of Tier II Metal Contaminated Soils for off-site disposal is to include the containerization and on-site transport to the Temporary Storage Area (as defined in Section 02 61 33 – Hazardous Waste Material).
- .7 The off-site transport of containerized PHC Contaminated Soils will be measured for payment by the cubic metre as placed in the PHC Contaminated Soil Container as described in this Specification, and paid under Item 02 55 13-3 - Off-Site Transportation of Containerized PHC Contaminated Soils from known PHC contaminated soil areas of the Basis of Payment Schedule.
- .8 The off-site transport of containerized Tier II Metal Contaminated Soils will be measured for payment by the cubic metre as placed in the Tier II Metal Contaminated Soil Container as described in this Specification, and paid under Item 02 55 13-4 - Off-Site Transportation of Containerized Tier II Metal Contaminated Soils from known Tier II contaminated soil areas of the Basis of Payment Schedule.
- .9 The scope of work for Payment Items 02 55 13-3 and 02 55 13-4 is to include handling and transport of containerized soil from the Nottingham Island site to Contractor's Designated Contaminated Soil Disposal Facilities. Items 02 55 13-3



and 02 55 13-4 also include, but is not limited to:

- .1 Preparation and submission to Departmental Representative of waste transport manifests to meet all requirements relative to the TDGA Regulations.
  - .2 Provision of transportation for the containerized soil to Contractor's Designated Contaminated Soil Disposal Facilities.
  - .3 Preparation and management of temporary storage area as required during transportation activities.
  - .4 Permitting, transport and off-loading of the containerized hazardous waste at the Contractor's Designated Contaminated Soil Disposal Facility.
- .9 The supply and transport to the containers for PHC contaminated soil will be considered for payment under Item 02 61 33-2 Supply of PHC Soil Containers - Contaminated Soils.
- .10 The supply and transport to the site of intermediate containers for Tier II Metal Contaminated Soil will be considered for payment under Item 02 61 33-3 Supply of Tier II Metal Intermediate Soil Containers - Contaminated Soils.
- .11 The off-site disposal of containerized PHC Contaminated Soils will be paid for by the cubic metre as placed in the PHC Contaminated Soil Container as described in this Specification under Item 02 55 13-5 in the Basis of Payment Schedule.
- .12 The off-site disposal of containerized Tier II Metal Contaminated Soils will be paid for by the cubic metre as placed in the Tier II Metal Contaminated Soil Container as described in this Specification under Item 02 55 13-6 in the Basis of Payment Schedule
- .13 The scope of work for Payment Items 02 55 13-5 and 02 55 13-6 are to include all costs of Disposal of soil at Contractor's Designated Contaminated Soil Facility.
- .14 No extra payment will be made for soil removed from beyond the specified limits of excavation, unless such removal has been specifically directed by Departmental Representative. The volume of contaminated soil excavation beyond the specified limits that have been approved by Departmental Representative will be determined by survey.
- .15 All costs associated with the cleanup or treatment of contamination of areas within or surrounding the contaminated soil handling areas due to the migration of contaminants from those areas as a result of Contractor's actions or inactions are to become the responsibility of Contractor. These costs are to include all costs of investigation to determine the extent of contamination migration, as well as soil excavation and treatment costs.
- .16 Grading of the Temporary Storage Area at Nottingham Island, including the supply, placement, and compaction of granular fill, as required, will be measured for payment as described in Section 31 22 15 - Grading.
- .17 The following activities are considered incidental to the work identified by Items 02 55 13-1 through 02 55 13-6 in the Basis of Payment and will not be measured separately:
- .1 Preparation of container inventory summarizing the contents of the Assembly of Contaminated Soil Containers.
  - .2 Installation of monitoring equipment as required to confirm and/or

- calibrate process requirements, as applicable
- .3 Testing for the disposal and disposal of wastewater or other process effluents, as applicable
- .4 Provision of signage at the Contaminated Soil Handling Area
- .5 Provision of all necessary safety equipment and clothing.
- .6 Any necessary excavation to facilitate testing of contaminated soils
- .7 Equipment decontamination including preparation and operation of the equipment decontamination area.
- .8 Provision of all necessary safety equipment and clothing, as specified in Section 01 35 32-Site Specific Health and Safety Plan.
- .9 On-site transport of containerized soil to the transport staging area.
- .10 Any requirements of permits.
- .11 Grading of backfilled excavations to prevent ponding and blend in with the surrounding terrain, as directed by Departmental Representative.
- .12 Excavation of contaminated soils within permafrost-affected zones.
- .18 Costs for the dewatering of excavations will not be measured for payment. Include all costs for collection of wastewater from contaminated soil areas and associated storage, treatment and discharge in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule.
- .19 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

## PART 2      PRODUCTS

### 2.1      Environmental Protection Supplies

- .1 Environmental Protection Supplies: as per Section 01 35 43 - Environmental Procedures.

### 2.2      Contaminated Soil Containers

- .1 Contaminated Soil Containers as per Section 02 61 33 - Hazardous Waste Material.
- .2 Typical interior volume of Contaminated Soil Containers will be determined by Departmental Representative by averaging a minimum of three (3) measurements of the interior length, height and width for each type of Contaminated Soil Container.

## PART 3      EXECUTION

### 3.1      Excavation of Contaminated Soil and Backfilling

- .1 Lay out and excavate areas of contaminated soil to the limits as indicated. All layouts are to be field verified by Department Representative prior to excavation.
- .2 Remove all surface debris prior to excavation. Remove all debris from excavated soil, sort, and containerize appropriately.

- .3 Suppress dust generated during excavation operations with a water spray. Prevent surface water from entering the excavated area.
- .4 Dewater ponded contaminated soil areas, as required. Manage and treat Wastewater as indicated in Section 01 35 43 - Environmental Procedures and Section 01 35 15 – Special Project Procedure to Contaminated Sites.
- .5 When excavating in the vicinity of a drainage course or a body of water, erect silt fences, floating silt curtains and/or containment berms to prevent the release of sediment and deleterious materials into the water.
- .6 Clean the excavating equipment including the bucket, tracks, etc., of soil lumps and particles prior to mobilizing to the next contaminated soil area. Collect and dispose of the removed material in accordance with the contaminated soil designation. Take special precautions to mitigate the tracking of contaminated soil over the site area.
- .7 The Department Representative will collect confirmatory soil samples after reaching the contaminated soil excavation depths indicated on Drawings. No further excavation of the soil will proceed until the results of confirmatory samples are assessed by the Departmental Representative.
- .8 Do not operate equipment in contaminated soil areas that have been excavated until Department Representative has confirmed, based on the results of confirmatory testing, that no further excavation of contaminated soil in the area is required.
- .9 As directed by the Department Representative, supply Granular Fill to backfill excavation areas as specified in Section 31 22 15 – Grading.

3.2

Erosion, Sediment and Drainage Controls

- .1 Conduct Excavation and backfilling operations in accordance with Section 01 35 43 Environmental Protection.
- .2 Erosion, sediment and drainage controls are to be maintained during all stages of work.
- .3 At the completion of contaminated soil excavation, remove the erosion, sediment and drainage controls, as directed by Departmental Representative. Dispose of all nongranular erosion, sediment and drainage control materials off-site.

3.3

Equipment Decontamination

- .1 Decontaminate equipment which comes into direct contact with the contaminated soils by steam cleaning or other means acceptable to Department Representative in a secure area capable of containing the waste water generated by the washing operation.
- .2 Collect and dispose of any contaminated soil that leaks, spills or otherwise leaves the piece of equipment during transport from the area of work to the decontamination area.
- .3 Filter liquid waste resulting from the decontamination operation through an oil-absorbent material. The disposal requirements for the oil-absorbent material are dependent on the results of testing to be carried out by Contractor. If test results

indicate:

- PCBs < 2 ppm;
- Chlorine < 1,000 ppm;
- Cadmium < 2 ppm;
- Chromium < 10 ppm; and
- Lead < 100 ppm,

Then incinerate the oil-absorbent material on-site. Package oil-absorbent material containing contaminants in excess of the above criteria in accordance with TDGA and dispose off-site at a licensed disposal facility.

- .4 Dispose of liquid waste in accordance with the Wastewater Discharge Criteria outlined in Section 01 35 43 – Environmental Procedures.
- .5 Treat any waste soil resulting from the decontamination procedure as contaminated or hydrocarbon contaminated soil, depending on the source of the material, and handle accordingly.

#### 3.4 Containerization and Off-Site Disposal Of Contaminated Soil

- .1 Assemble, load and secure Contaminated Soil Containers according to manufacturers recommendations. Do not exceed containers specified load limit.

- .2 Do not transport off-site loaded containers that have suffered structural damage during handling or on-site transport. Repair or replace damaged containers prior to off-site shipment.
- .3 Provide a numbering system and maintain an inventory of all contaminated soil containers with contaminated soil to be transported and disposed of off-site.
- .4 Label all containers, using spray paint or other means, with the container number and contents (e.g. Tier I Soil, Type A Soil, Tier II Soil, Haz Soil, etc.)
- .5 Submit to Departmental Representative a copy of the inventory of the contents of each container.
- .6 Supply the Departmental Representative with acceptance and disposal manifests for all Contaminated Soil delivered to the Contractor's Designated Waste Disposal Facility.

**END OF SECTION**

PART 1

GENERAL

1.1 Related Requirements

- .1 Section 02 41 16 – Structure Demolition
- .2 Section 02 41 23 – Debris and Miscellaneous Removal
- .3 Section 02 55 13 – Contaminated Soil
- .4 Section 02 82 00.01 – Asbestos Abatement Minimum Precautions
- .5 Section 02 82 00.02 – Asbestos Abatement Intermediate Precautions
- .6 Section 31 22 15 – Grading

1.2

Scope:

- .1 This section specifies the requirements for the collection, containerization, transport and disposal of hazardous waste.
- .2 An inventory of known Hazardous Waste Materials is provided in the Demolition Inventory and Debris Inventory tables in Appendix D and E.

1.3

References

- .1 Definitions:
- .2 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, include but not limited to: poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or materials that endanger human health or environment if handled improperly. Hazardous Wastes are those that are designated as “hazardous” under Territorial or Federal legislation or guidelines; or as “dangerous goods” under the TDGA. The following items, typical of remote arctic sites, have been specifically identified as Hazardous Waste at the project site:
  - .1 Asbestos Waste
  - .2 Organic Liquid Wastes in Above-Ground Storage Tanks (AST's)
  - .3 Aqueous Liquid Wastes in Drums
  - .4 Total Lead and Leachable Lead Paint on Waste
  - .5 Total Lead Paint on Above-Ground Storage Tanks (AST's)
  - .6 Total Lead and Leachable Lead Paint on Asbestos Panels
  - .7 Compressed Gas Cylinders
  - .8 Fire Extinguishers
  - .9 Creosote Treated Wood
  - .10 Contaminated (Petroleum Hydrocarbon-Impacted) Soils
  - .11 Mercury switches and thermostats
  - .12 Petroleum, Oil, or Lubricating (POL) materials not meeting incineration criteria, as defined in clause 3.6.6 of this Section.
  - .13 Tank Sludge.
  - .14 Hazardous PCB-Amended Painted Material, as defined in Section 02 41 16 - Structure Demolition.
  - .15 Leachable Lead painted material.
  - .16 Soils and paint chips containing PCBs at concentrations in excess of 50 ppm (mg/kg) and/or leachable lead in excess of 5 mg/L.
  - .17 Materials, including wastewater, groundwater and surface water, identified to be hazardous as the result of testing.
  - .18 Other Hazardous Waste:
    - .1 Batteries (acids and lead)
    - .2 Fluorescent Lights (mercury vapour)
    - .3 Light Ballasts (PCB's)

- .4 Electrical Parts (including but not limited to items like capacitors, transformers, etc that may contain PCB's, Tantalum, lead and mercury solder, etc)
- .5 Liquids (Anti-freeze, oils, fuels and other vehicle fluids)
- .3 Waste Reduction Workplan (WRW): written report which addresses opportunities for reduction, reuse, or recycling of materials. WRW is based on information acquired from the Waste Audit (WA).
- .4 Processing: The sampling, testing, packaging and containerization of Hazardous and suspected Hazardous Wastes Materials
- .5 Hazardous Liquid Waste Containers: The intermediate container necessary to contain liquid from Hazardous Waste Material, as required by the TDGA.
- .6 Contaminated Soil Containers: The intermediate container necessary to contain the hazardous soil placed in it as required by the TDGA.
- .7 Marine Shipping Container: The container into which the intermediates containers are placed for purposes of shipping to a disposal facility.
- .8 Temporary Storage Area: The designated area, approved by the Departmental Representative, for the storage of packaging and/or shipping containers prior to transport off-site. Requirements for the Temporary Storage Area are outlined in this Section.
- .9 Contaminated Groundwater: The groundwater encountered during contaminated soil, debris or landfill excavation that contains free product or does not conform to the Wastewater Discharge Criteria outlined in Section 01 35 15 - Special Project Procedures for Contaminated Soils.
- .10 Contractor's Designated Hazardous Waste Disposal Facilities: The Licensed Hazardous Waste Disposal Facilities designated by Contractor and pre-approved by Departmental Representative, for the disposal of all hazardous waste specified under the provisions of this contract. Contractor must be able to provide documentation from the Designated Hazardous Waste Disposal Facilities indicating full responsibility for all hazardous waste accepted from Nottingham Island.

1.4 Action and Informational Submittals

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 The Contractor is responsible for fulfilment of reporting requirements.
- .3 Submit copies of certified weigh bills, bills of lading, receipts, etc from authorized disposal sites and reuse and recycling facilities for material removed from site upon the request of the Departmental Representative.
  - .1 Written authorization from the Departmental Representative is required to deviate from haulers, facilities and/or receiving organizations listed in the Waste Reduction Workplan.
- .4 Sustainable Design Submittals:
  - .1 Erosion and Sedimentation Control: submit erosion and sedimentation control plan. Construction Waste Management:
    - .1 Submit project Waste Management Plan highlighting recycling and salvage requirements.

- .2 Submit calculations on end-of-project recycling rates, salvage rates, and landfill rates demonstrating the percentage of construction wastes that were recycled or salvaged.
- .3 Reporting requirements:
  - .1 Submit waste transport manifests, chain of custody documentation and transport documentation to the Departmental Representative and to other AHJ, prior to shipment off-site, in accordance with applicable regulations.
  - .2 In the event of an environmental incident or damage to waste containers, notify the Departmental Representative and applicable AHJ.

1.5 Quality Assurance

- .1 Regulatory Requirements: Ensure Work is performed in compliance with applicable Provincial/Territorial and Municipal regulations.

1.6 Environmental Protection

- .1 Ensure Work is done in accordance with Section 01 35 43 - Environmental Procedures.
- .2 Ensure Work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.
- .3 Fires and burning of waste or materials is not permitted on site except for controlled burning of untreated wood materials as described in Section 02 41 23.
- .4 Do not bury rubbish waste materials.
- .5 Do not dispose of waste or volatile materials including but not limited to: mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses, storm or sanitary sewers.
  - .1 Ensure proper disposal procedures are maintained throughout project.
- .6 Do not pump water containing suspended materials into watercourses, storm or sanitary sewers, or onto adjacent properties.
- .7 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with authorities having jurisdiction as directed by the Departmental Representative.
- .8 Protect trees, plants and foliage on site and adjacent properties where indicated.
- .9 Prevent extraneous materials from contaminating air beyond application area, by providing temporary enclosures during demolition work.
- .10 Cover or wet down dry materials and waste to prevent blowing dust and debris. Control dust on all temporary roads.

1.7 Existing Conditions

- .1 If material resembling spray or trowel applied asbestos or other designated substance listed as hazardous are encountered in course of demolition, stop work, take preventative measures, and notify the Departmental Representative immediately. Proceed only after receipt of written instructions have been received from the Departmental Representative.



- .2 Structures to be demolished are based on their condition at time of examination prior to tendering.
- .3 Remove, protect and store salvaged items as directed by the Departmental Representative.

1.8 Qualifications and Personal Protection

- .1 Be thoroughly familiar with and knowledgeable about existing site conditions, scope of work and requirements of the Specification.
- .2 Only Contractor's personnel capable of demonstrating a history of satisfactory experience in the area of hazardous waste management and can satisfy Federal and Territorial requirements will be permitted to supervise and direct the work of this Section. Contractor's Superintendent responsible for the work of this Section is to have appropriate level of experience in the area of hazardous waste management.
- .3 Follow at all times, guidelines such as those established in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No. 85-115, or Hazardous Waste Worker Training Manual: Canadian LIUNA - Contractors Training Council, 1992.
- .4 All activities involving the handling of hazardous materials are to be directly supervised by Contractor's personnel who have successfully completed a 40 hour training course for Hazardous Waste Activities in compliance with OSHA 29 CFR 1910.120 or other approved equivalent training courses such as the Canadian Hazardous Waste Workers Program. Contractor's key personnel responsible for the removal of leachable lead coatings are to demonstrate appropriate level of experience in the lead control, removal and abatement industry.
- .5 Contractor's personnel trained as described in this Section are to instruct and direct all workers with respect to the waste management procedures and labour and safety practices to be followed in carrying out the work.
- .6 Provide workers with protection appropriate to the potential type and level of exposure. Establish specific safety protocols prior to commencing cleanup activities.
- .7 Provide suitable safety clothing and equipment as required during the course of the work. Supply sufficient quantities of protection equipment to fit all site personnel including Departmental Representative, Departmental Representative's staff, and site visitors.
- .8 Trained and certified personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) documentation and recording requirements.
- .9 Transformers are to be handled, and general safety precautions followed, as stated below:
  - .1 Transformers may be present as Unknown Hazardous Debris in Dumps or Buried Debris Areas.
  - .2 Appropriate health and safety precautions should be taken as per Contractor's SSHSP while handling.

1.9

Measurement for Payment

- .1 The supply and transport to the site of Marine Shipping Containers for the containerization of Hazardous Waste Materials will be measured for payment by the number of containers supplied and transported to the site. Supply of Marine Shipping Containers - Hazardous Waste Materials will be paid under Item 02 61 33-1, as indicated in the Basis of Payment Schedule. Payment of this Item includes identification labels, signage and materials to be placed within the base of the barge containers to serve as a means for containing materials within the container (drip trays), and all bracing, locks, dunnage and strapping.
- .2 The supply and transport to the site of containers for the containerization of PHC Contaminated Soils will be measured for payment by the cubic meters of containers supplied and transported to the site and will be paid under Item 02 61 33-2, as indicated in the Basis of Payment Schedule.
- .3 The supply and transport to the site of intermediate containers for the containerization of Tier II Metal Contaminated Soils will be measured for payment by the cubic meters of containers supplied and transported to the site and will be paid under Item 02 61 33-3, as indicated in the Basis of Payment Schedule.
- .4 The supply and transport to the site of containers for hazardous liquid waste will be measured for payment by the cubic metre based on the volume of Hazardous Waste Material liquid placed in the container. Supply of Hazardous Liquid Waste Containers to site will be paid under Item 02 61 33-4 in the Basis of Payment Schedule.
- .5 The containerization of Hazardous Waste Materials, from the Nottingham Island site, will be measured for payment by cubic metre, as placed in the container. Containerization of Hazardous Waste Materials includes the placement of hazardous materials in containers and the on-site transport of containers to the temporary storage area. Containerization of Hazardous Waste Materials will be paid under Item 02 61 33-5 as indicated in the Basis of Payment Schedule.
- .6 The off-site transport of containerized Hazardous Waste Materials to the Contractor's Designated Hazardous Waste Disposal Facilities will be measured for payment by cubic metre, as placed in the container and will be paid under Item 02 61 33-6 in the Basis of Payment Schedule.
- .7 The scope of work for payment item 02 61 33-6 (Off-site Transport of Containerized Hazardous Waste Material to Contractor's Designated Hazardous Waste Disposal Facilities) is to include, but is not limited to:
  - .1 Preparation and submission to Departmental Representative of waste transport manifests to meet all requirements of the TDG Regulations.
  - .2 Provision of transportation for the containerized Hazardous Waste Materials to Contractor's Designated Hazardous Waste Disposal Facility.
  - .3 Preparation and management of temporary hazardous materials storage area as required during transportation activities.
  - .4 Permitting, transport, off-loading and disposal of the containerized Hazardous Waste Material at Contractor's Designated Hazardous Waste Disposal Facilities.
- .8 The off-site disposal of containerized Hazardous Waste Material to the Contractors designated hazardous waste disposal facility will be paid as a provisional cost sum under Item 02 61 33-7 as indicated in the Basis of Payment Schedule.

- .9 Be responsible for all costs associated with any repackaging of container contents resulting from the failure by Contractor to properly pack and secure the container and/or contents.
- .10 The development of the Temporary Storage Area, including signs and barricades, will not be measured for payment. Include all costs for signs and barricades in Item BOPC-1, Balance of Project Costs.
- .11 The development of the Hazardous Materials Processing Area, including signs and barricades, will not be measured for payment. Include all costs for the Hazardous Materials Processing Areas, including signs and barricades in Item BOPC-1, Balance of Project Costs.
- .12 Costs for the collection and containerization of Unknown Hazardous Waste Material will be negotiated with Departmental Representative using Contractor's Labour and Equipment Rates provided in the Potential Additional Work Schedule. The scope of work for the Collection and Containerization of Unknown Hazardous Waste Material includes, but is not limited to the following:
  - .1 Supply and transport of containers to the site for Unknown Hazardous Waste Materials.
  - .2 Equipment and labour for the containerization and on-site transportation of Unknown Hazardous Waste Materials to the Temporary Storage Area.
  - .3 Collection, sorting, and classification of Unknown Hazardous Waste Materials for disposal requirements.
  - .4 Supply and transport to the site of detergents and solvent, required for barrel processing.
  - .5 On-site transport of Unknown Hazardous Waste Materials following their confirmation as Hazardous Waste Material by Departmental Representative.
  - .6 Containerization and transport of Unknown Hazardous Waste Materials to the on-site Temporary Storage Area.
  - .7 Processing of barrel contents from Unknown Hazardous Waste Materials.
  - .8 Disposal of empty barrels resulting from the collection and consolidation of Unknown Hazardous Waste Materials.
  - .9 Off-site Transport and disposal of Unknown Hazardous Waste Material to Contractor's Designated Hazardous Waste Disposal Facility.
- .13 Costs for the collection and on-site incineration of POL fluids meeting the incineration criteria will be based on the unit rate provided in the Contract Documents.
- .14 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2  
2.1

PRODUCTS  
Equipment

- .1 Equipment and heavy machinery:
  - .1 Off-road vehicles to: EPA CFR 86.098-10
- .2 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

## 2.2 Hazardous Waste Material Containers

- .1 Hazardous Waste Containers:
  - .1 Containers are to satisfy the requirements of the latest edition of the Transportation of Dangerous Goods (TDG) Act and Regulations, and in particular, the requirements for Intermediate Bulk Containers for marine transport of hazardous materials.
  - .2 Submit details of the containers to Departmental Representative for review prior to commencement of the work. These details are to include written confirmation from Transport Canada that Contractor's proposed containers satisfy TDGA regulatory requirements for marine transport.
  - .3 Containers are to include all necessary liners to satisfy the TDGA requirements for marine transport.
- .2 For packaging and containerization requirements of Hazardous Waste Materials, all requirements of the TDG Act and Regulations must be met.
- .3 Polyethylene sheeting:
  - .1 6 mil (0.15 millimetre) minimum thickness for containing PAP material, paint particles, and wrapping of creosote timbers.
- .4 Intermediate Containers for the storage of Hazardous Waste Materials and Containers for the storage of Contaminated Soils:
  - .1 New wooden TDG-approved containers, with dimensions of 1.2 metres (4 feet) by 1.2 metres (4 feet) by 1.83 metres (6 feet).
  - .2 Provide approval from Transport Canada for the use of containers for the transportation of Leachable-Lead Painted Materials.
- .5 Marine Shipping containers for the Storage of hazardous waste materials must conform to the following:
  - .1 Containers are to be of steel plate construction, with sufficient support to withstand the vertical and lateral pressures exerted by the materials placed in them. The containers are to be leakproof, of sufficient durability to prevent the contents from being affected by the weather and suitable for transport by sea barge, ship, semi-trailer roadway vehicles, and rail, and for international shipment requirements.
  - .2 Containers are to be in new condition, with dimensions of 8 feet by 8 feet by 20 feet (2.44 metres by 2.44 metres by 6.10 metres).
  - .3 Containers are to include sufficient lashing fittings, attached to the frame members or panels, in order to secure cargo.
  - .4 Containers are to have drip trays composed of metal or polyethylene with plywood protection as described previously in this section.
  - .5 Submit documented approval from Transport Canada for the use of marine shipping containers for the transportation of hazardous materials forty-five (45) days prior to mobilization
  - .6 Containers are to be designed to support full gross weight for bottom lift by forklift or equivalent.
  - .7 Containers are to be end-loading type. Seal opening to prevent the escape of paint chips, flakes, and/or dust upon opening of the container.

- .8 Submit details of the containers to Departmental Representative for review, including all required approvals, as well as a description of the type, volume and number of containers, prior to commencement of the work.
  - .9 The containers are to maintain a current Transport Canada inspection certification.
  - .10 Securely affix to the entrance of the container, a black and white weatherproof label measuring 150 millimetres by 150 millimetres in accordance with TDGA requirements (specific to the type of material containerized).
  - .11 Securely affix to a visible side of the container, a black and white weatherproof label measuring 76 millimetres by 76 millimetres bearing the unique Environment Canada Registration number. Do not obstruct the view of the barge container number or Environment Canada Registration number. Environment Canada PCB labels to be provided by Departmental Representative.
  - .12 These containers remain the property of Contractor.
- 
- .6 Provide drip tray material for all on-site Marine Shipping containers consisting of 60 mil high-density polyethylene (HDPE) or 6 mil (0.15 millimetre) polyethylene with minimum 12.5 millimetres thick plywood for protection.
  - .7 Provide dunnage, locks, and bracing material for securing material placed in Marine Shipping containers.
  - .8 Contain asbestos in accordance with Sections 02 82 00.01 Asbestos Abatement-Minimum Precautions, Section 02 82 00.02 Asbestos Abatement-Intermediate Precautions.
  - .9 For transport by cargo vehicle or vessel, package liquids containing PCBs at concentrations greater than 50 ppm in accordance with TDG Act and Regulations in a combination packaging where the inner package is made of earthenware, plastic or metal, and is leak-proof, and the outer packaging is a drum or box made of steel, aluminium, plywood, fibre or plastic. Provide sufficient absorbent material between the inner and outer packaging to prevent any liquid from escaping the outer packaging. There is no quantity limit per package for cargo vehicle or vessel transport.
  - .10 Provide access for Departmental Representative to inspect all Hazardous Waste Material Packaging as directed by Departmental Representative.
  - .11 Rigid Intermediate Bulk Containers: for the containerization of PCB-Amended Painted Materials (>50 ppm PCBs) and Leachable Lead Painted Materials (>5.0 mg/L in TCLP test). Submit documented approval from Transport Canada for the use of Rigid Intermediate Bulk Containers for the transportation of PCB-Amended Painted Materials and/or Leachable Lead Painted Materials forty-five (45) days prior to mobilization.

### 2.3

#### Solvent (Barrel Rinse)

- .1 Minimum flash point: 60 degrees Celsius. Prior to shipment to the site, submit to Departmental Representative Material Safety Data Sheets (MSDS). The solvent shipped to the site is to remain the property of Contractor.

PART 3 EXECUTION

3.1 General Requirements

- .1 Conduct all work in accordance with all appropriate Federal, Territorial and Provincial legislation, and international conventions.
- .2 Individuals shipping and receiving hazardous waste materials are to be licensed under the TDGA and Regulations, and appropriate territorial environmental Acts and regulations.
- .3 Only trained individuals or individuals working under the direct supervision of trained persons are to handle or transport dangerous goods.
- .4 Establish a Hazardous Material Processing Area for the placement of potentially hazardous waste materials for inspection, testing, classification and packaging, as well as for the consolidation and packaging of barrel liquids and sediments, and for the cleaning of barrels. Provide measures to mitigate release of contaminants to the environment including, but not limited to liners, silt fences, sorbent materials, ditching and grading, etc.
- .5 Establish a Temporary Storage Area, subject to approval by Departmental Representative, to provide a secure area for Hazardous Waste Material prior to shipment for disposal as described in this Section.
- .6 Develop a Construction Waste Management Plan related to Work of this Section.

3.2 Protection

- .1 Perform work in an environmentally acceptable manner. Comply with requirements of Section 01 35 43 - Environmental Procedures.
- .2 Avoid releasing any Hazardous Waste Materials into the environment during handling.
- .3 In the event of a spill, invoke the emergency response plan and take appropriate action.
- .4 Provide a full range of cleanup and protective equipment at the site to contain and cleanup spills, and protect personnel, as required. The cleanup equipment is to include booms (sorbent and containment), sorbents for cleanup, fire extinguishers for A-B-C fires, overpacks for contaminated soils, pumps, hand shovels, picks and containment barriers, such as plastic sheeting. Personnel protective equipment is to include clothing, protective suits, respirators, etc. to comply with potential emergency conditions and in accordance with NIOSH guidelines.
- .5 When working with PCB-containing materials, leachable lead-based paints, asbestos, and other contaminants, workers are to wear protective clothing and equipment acceptable to Labour Canada or Territorial Labour Department as suitable for exposure in the work area. Follow National Institute for Occupational Safety and Health (NIOSH) guidelines in providing protection for on-site personnel including contract employees, subcontractors, Departmental Representative, Departmental Representative's staff, and other authorized personnel.



- .6 Handle materials containing asbestos in accordance with Section 02 82 00.01 Asbestos Abatement-Minimum Precautions and Section 02 82 00.02 Asbestos Abatement-Intermediate Precautions.
- .7 The release of all water resulting from the cleaning of fuel tanks, pipelines and barrels is to conform to the Wastewater Discharge Criteria outlined in Section 01 35 43 - Environmental Procedures. Treat wash water to conform to the Wastewater Discharge Criteria, outlined in Section 01 35 15 Special Project Procedures, or dispose of any liquid effluent not conforming to the guidelines or Water License as Hazardous Waste Material at Contractor's own cost, in accordance with the requirements of this Section.
- .8 Departmental Representative is to carry out baseline soil sampling and analyses of the Temporary Storage Area and Hazardous Materials Processing Area prior to commencing work, and confirmatory sampling following the decommission of this area. The Contractor is responsible for any soil contamination resulting from the improper storage and handling of hazardous materials, including removal storage, handling and disposal, over the duration of site remediation activities. In the event of such contamination, the Contractor is to submit to Departmental Representative a plan for site remediation in accordance with all Federal and Territorial Regulations to be enacted upon immediately following approval by Departmental Representative. All cleanup costs, including but not limited to excavation and disposal, will be borne by Contractor.
- .9 Have available, a full range of cleanup and protective equipment at the site of debris removal to contain and cleanup spills, and protect personnel as required. The cleanup is to include booms (sorber and containment), sorbents for cleanup, overpacks for barrels and contaminated soils, pumps, hand shovels, and picks.
- .10 Personnel protective equipment, as per Section 01 35 32, Site Specific Health and Safety Plan, is to include clothing, protective suits, respirators, etc. in accordance with NIOSH Guidelines and to comply with anticipated and potential emergency conditions.
- .11 Site personnel in the vicinity of the debris removal operations or handling Hazardous Waste Material are required to wear environmental protection equipment in accordance with NIOSH guidelines.

### 3.3 Hazardous Waste Material Processing Area

- .1 Establish a Hazardous Waste Material Processing Area for the purpose of:
  - .1 Sorting, packaging, sampling, and processing Hazardous Waste Materials;
  - .2 Processing of barrels and barrel contents, including consolidation of compatible liquids and sediments, packaging for shipment, and cleaning of barrels.
- .2 Establish the Hazardous Waste Material Processing Area to:
  - .1 Be of sufficient size and capacity to accommodate the volume of material and number of barrels to be processed at any one time.

- .2 Provide for the sampling, testing, and packaging of Hazardous Waste Materials, barrel contents and wash water:
  - .3 Minimize the handling of Hazardous Waste Materials:
  - .4 Isolate hazardous materials, barrel contents and wash water from other work operations:
  - .5 Provide access for consolidation, packaging, cleaning of barrels, and transporting containers to the Temporary Storage Area:
  - .6 Be leak-proof and to contain all runoff water, spills, and leaks so as not to contaminate the environment.
  - .7 Provide safe working conditions for personnel working in and around these areas.
  - .8 Meet requirements of AHJ's.
- .3 Immediately clean up any spills, leaks, or other releases of liquid or sediment from this area using appropriate techniques.
  - .4 Submit details of the Hazardous Waste Material Processing Area to Departmental Representative for review and approval prior to commencing remediation activities.
  - .5 The Hazardous Waste Material Processing Areas are to be located as follows:
    - .1 More than 30 metres away from any water body or drainage course.
    - .2 On stable ground not subject to flooding or seasonal saturation.
    - .3 In a previously disturbed area if possible.
    - .4 In a location that will not impede other work required.
  - .6 Do not use the Hazardous Waste Material Processing Areas until baseline sampling has been completed by the Departmental Representative.

### 3.4 Removal and Sorting of Suspected Hazardous Waste Materials

- .1 Continually monitor the remediation operation to identify potentially hazardous material.
- .2 Immediately suspend the work component of operation if suspected hazardous material or debris is identified and allow visual confirmation of the nature of the material or debris to be established.
- .3 Store suspicious material in a secured area or secured containers, if the nature of the material or debris can not be confirmed. Advise Departmental Representative about the findings. Material needs to be seized until the nature of the material is confirmed by Departmental Representative. Testing for classification will be carried out and paid for by Departmental Representative.
- .4 Submit details of the containers for handling and disposal of hazardous waste materials to Departmental Representative for review prior to commencement of site remediation activities. Include all required approvals, as well as a description of the type, volume and weight of containers.

### 3.5 Containerization of Hazardous PCB – Amended and Leachable-Lead Painted Materials

- .1 Place dismantled Hazardous PCB-Amended Painted and Leachable Lead Painted Materials in the containers described in this section, in a manner to minimize voids within the container. Sort and provide separate containers for the various components coated with PCB amended paint and/or Leachable-Lead painted materials as follows:



- .1 Segregation and placement Leachable- Lead painted materials into Intermediate containers:
  - .1 Segregate and place materials into separate intermediate containers designated for that type of waste
  - .2 Place into intermediate containers all material that is sized or that can be easily sized to fit within the lined intermediate containers
  - .3 Place the material in the intermediate container such that no movement of the material will occur during normal conditions of transport
  - .4 Place loaded and closed intermediate containers into Marine Shipping Container.
- .2 Placement of Leachable-Lead Painted Materials into Marine Shipping Containers:
  - .1 Prior to loading materials into barge containers, place a drip tray into the bottom of the container to serve as a drip tray. The drip tray is to extend a distance of at least 400 millimetres up the sides of the container.
  - .2 Place neatly into the barge containers, all filled Intermediate containers and larger demolition materials that cannot fit within the intermediate containers.
  - .3 Construct a wooden frame at the rear and front of the container to prevent the movement of materials within the container and to prevent pressure on the door. Anchor the bracing material to the structural frame of the container
  - .4 Distribute the weight of the material evenly over the floor of the container. Where cargo items of a varying weight are to be packaged into a container or where a container will not be full, arrange the material so that the centre of gravity of the cargo is close to the mid-length of the container. Do not concentrate heavy loads on small areas of the container floor.
  - .5 Position materials within the container so that the centre of gravity is below the half-height of the container.
  - .6 Position materials within the container such that lateral bracing for the load is NOT provided by the sidewalls of the container. Provide and use wood bracing material or strapping to ensure that the material does not move during transport. Anchor the strapping material to the fastening loops built into the frame of the containers. Anchor the bracing material to the structural frame of the container
  - .7 Do not leave any gaps between Intermediate containers, larger materials and front or side walls of the barge containers that would allow cargo shifting
- .2 Provide a photographic record of the interior of all completed Marine Shipping containers prior to closing. Submit the photographic record to Departmental Representative together with the corresponding inventory of each container upon completion of work. Trained and certified Contractor personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) and Regulations documentation and recording requirements. Departmental Representative will represent the generator of the waste and will sign all documentation as required.
- .3 Clearly mark on all containers the contents in accordance with the requirements of the Canadian Environmental Protection Act for the Storage of PCB Materials (SOR/92-507), and with the Transportation of Dangerous Goods Regulations.

- .4 Securely affix to the entrance of the Marine Shipping container, a black and white weatherproof label measuring 150 millimetres by 150 millimetres (Specific to the type of material containerized).
- .5 Securely affix to a visible side of the Marine Shipping container with hazardous waste material, a black and white weatherproof label measuring 76 millimetres by 76 millimetres bearing the unique Environment Canada Registration number. Environment Canada PCB Registration labels to be provided by Departmental Representative.
- .6 Lock or place Marine Shipping containers within the Temporary Storage Area in a manner that prevents access to the contents by unauthorized personnel.
- .7 Remove contamination from clothing before leaving work areas containing PCB-amended or leachable lead painted materials before leaving work area, and place in polyethylene bags. Remove outer clothing before leaving work area and place in doubled polyethylene bags. Place bags in Hazardous Waste Material Containers specified in this Section.
- .8 Decontaminate all equipment that comes into direct contact with PCB-amended and leachable lead based paint. Place all rags or cloths used during the equipment decontamination in polyethylene bags. Place bags in the Hazardous Waste Material Containers specified in this Section.
- .9 Prior to their removal from the facility, spray or dampen with water all drop cloths placed to collect paint particles that become removed during dismantling operations. Place the drop cloths in polyethylene bags, and place the bags in the Hazardous Waste Material Containers specified in this Section.

### 3.6

#### Barrel Processing

- .1 A flow diagram for the methodology for the processing, cleanup and disposal of barrels is shown on the figure at the end of this Section.
- .2 Inspection:
  - .1 All barrels are to be inspected by Departmental Representative and Contractor. The purpose of the inspection is to identify the process for opening, sampling, testing and handling of the barrels. The inspection is to address the following items as a minimum:
    - .1 Symbols, words, or other marks on the barrel that identify its contents, and/or that its contents are hazardous; e.g. radioactive, explosive, corrosive, toxic, flammable.
    - .2 Symbols, words, or other marks on the barrel that indicate that it contains discarded laboratory chemicals, reagents, or other potentially dangerous materials in small-volume containers.
    - .3 Signs of deterioration such as corrosion, rust, or leaks at seams, rims, and V grooves.
    - .4 Evidence of spills or other contamination on the top and sides of the barrel.
    - .5 Signs that the barrel is under pressure such as bulging and swelling.

- .3 Test areas around barrels that show evidence of holes, rust points, or openings using a Volatile Organic Compound (VOC) instrument prior to movement. If levels exceed 20 percent Lower Explosive Limit (LEL) as measured by the VOC, conduct all handling, storage, and transportation operations in accordance with the appropriate sections of the National Institute for Occupational Safety and Health (NIOSH) guidelines, National Fire Code of Canada, and the TDGA for flammable and combustible materials.
- .4 Barrel opening:
  - .1 Pressurized barrels are extremely hazardous. Open with extreme caution. Use only non-sparking equipment to open barrels. Provide all personnel responsible for opening barrels with appropriate safety equipment and clothing. Open barrels in accordance with the procedures outlined in the Occupational Safety and Health Administration (OSHA) Code of Federal Regulations Title 29, Part 1910, Section 120 (29 CFR 1910.120) Hazardous Waste Operations and Emergency Response (HAZWOPER)
  - .2 If the bungs of a barrel can be readily moved, then open the barrel slowly, allowing time for any pressure in the barrel to be released before the bungs are fully removed.
  - .3 If the bungs of a barrel cannot be readily moved, or if barrel inspection suggests that opening of the barrel may present a special hazard, vent the barrels remotely to relieve any internal pressure that may be present prior to opening. Conduct remote barrel venting using a suitable device such as a sharp weighted spear dropped from an appropriate height or released from a tube housing a spring to penetrate the barrel. Drive the spear into the barrel such that the barrel pressure is vented.
  - .4 Conduct the remote venting operation at a safe distance from other site operations, and from behind suitable walls or barricades.
  - .5 All barrels are to be clearly numbered and cross-referenced to sample numbers.
  - .6 Do not transport barrels until it has been displayed that they are not pressurized, do not leak, and are sufficiently sound for transport.
- .5 Sampling and testing of barrel contents:
  - .1 Samples of the contents of barrels are to be extracted by Departmental Representative.
  - .2 Combine barrel contents as directed by Departmental Representative.
  - .3 Consolidate barrel contents in the Hazardous Waste Material Processing Area.
  - .4 Do not consolidate barrel contents consisting of black oil.
  - .5 Liquid samples are to be inspected and classified by Departmental Representative as containing water or organic materials.
  - .6 Based on the results of the analysis by Departmental Representative, treat barrel contents in accordance with the requirements detailed in Figure 02090-1.

- .6 Disposal of barrel contents:
- .1 Dispose of barrels containing rust and sediment as empty barrels as described below.
  - .2 For small volumes, agitation with oil-absorbent material to remove any organic material, is acceptable.
  - .3 Collect wastewater for treatment and discharge in accordance with wastewater discharge criteria, Section 01 35 43 - Environmental Procedures.
  - .4 Test used oil-absorbent material to determine treatment and disposal requirements. Incinerate oil-absorbent material meeting the following criteria on-site (in accordance with site permit requirements) or package for disposal off-site at a licensed disposal facility:
    - .1 PCBs < 2 ppm
    - .2 Chlorine < 1000 ppm
    - .3 Cadmium < 2 ppm
    - .4 Chromium < 10 ppm
    - .5 Lead < 100 ppm

Package oil-absorbent material containing contaminants in excess of the above criteria in accordance with TDGA regulations, as required, and package for disposal off-site at a licensed disposal facility.

- .5 Incinerate the contents of barrels containing water with <2% glycol and/or alcohol and meeting the criteria indicated above, on-site.
- .6 Package the contents of barrels containing >2% glycol and/or alcohol or materials in excess of the concentrations indicated above, in accordance with TDGA regulations, as required, for disposal at an off-site licensed disposal facility. Contents may be combined with compatible materials for shipping purposes in accordance with TDGA regulations, as required.
- .7 A leachate extraction test is to be carried out by Departmental Representative on the solid residual material resulting from the incineration process. The leachate toxicity of the material will be determined in accordance with Appendix 4 of Part 2 of the TDGA. Dispose of materials found not to be leachate toxic as Tier II contaminated soil as described in Section 02 55 13 - Contaminated Soil. Package leachate toxic material in accordance with TDGA regulations, as required.

.7 Cleaning and disposal of barrels:

- .1 Steam clean empty barrels resulting from the consolidation of barrel contents. Clean to remove oil, sludge, wax, tar and other fuel residue adhering to the surface.
- .2 If residue remains, apply a manual cleaning method. For heavily oil-soaked surfaces, a second application may be required. Steam clean barrels after detergent application.
- .3 Only in the event that two-time detergent application proves ineffective, utilize an appropriate solvent rinse for residue removal. Solvent rinsate material is to be tested by Departmental Representative to determine disposal requirements. If the solvent rinsate meets the criteria indicated above, incinerate the material on site. If the solvent rinsate is in excess of the criteria, package the material in accordance with TDGA regulations, as required, for disposal off-site at a licensed disposal facility.

- .4 Recycling of steam cleaning rinsate is permitted. Direct steam cleaning rinsate to an oil-water separator. Removal of oily waste residue by agitation with oil-absorbent material to remove any organic material is permitted.
- .5 The resulting rinsate is to be tested by Departmental Representative for the Wastewater Discharge Criteria - Section 01 35 15 - Special Project Procedures for Contaminated Soils. If the concentrations of these elements are greater than the indicated levels, then package the rinsate in accordance with TDGA regulations, as required, for disposal off-site at a licensed disposal facility.
- .6 Dispose of the used oil-absorbent material and/or oily liquid waste in excess of the concentrations indicated in this section.
- .7 Crush all empty barrels prior to containerization. Crush the barrels in a manner to reduce the total original barrel volume by a minimum of 75 percent. Containerize empty barrels as non-hazardous waste in accordance with Section 02 41 23 – Debris and Miscellaneous Removals.

### 3.7 Cleaning of Fuel Tanks and Pipelines

- .1 The Contractor is advised that debris to be containerized at this site may consist of fuel tanks and pipelines which may contain fuel.
- .2 Prior to the demolition and removal of fuel tanks and pipelines:
  - .1 Drain and flush all products in connected piping in a manner as to prevent spillage.
  - .2 After initial draining, remove all residual fuel by passing a "Teflon Ring Pig" through the line.
  - .3 Isolate the line to prevent the passage of vapours using a standard plumber's plug on the end of a tee handle.
  - .4 Cut the pipe for eventual disposal in a container.
  - .5 Incinerate all liquids contained in the tank. Incinerate in a container to prevent ground or water contamination, in an oxygen-rich environment to promote complete combustion, and in accordance with Section 01 35 32 – Site Specific Health and Safety Plan.
  - .6 Rinse tanks with water to remove any residual product. Filter the wash water through an oil-absorbent material.
  - .7 Test the used oil-absorbent material to determine disposal requirements. Incinerate oil-absorbent material meeting the following criteria on-site or package for disposal off-site at a licensed disposal facility:
    - .1 PCBs < 2 ppm
    - .2 Chlorine < 1000 ppm
    - .3 Cadmium < 2 ppm
    - .4 Chromium < 10 ppm
    - .5 Lead < 100 ppmTreat and Discharge remaining waste wash water in accordance with the Wastewater Discharge Criteria outlined in Section 01 35 15 - Special Project Procedures for Contaminated Sites.
  - .8 Package oil-absorbent material containing contaminants in excess of the above criteria in accordance with TDGA regulations, as required, for disposal off-site at a licensed disposal facility.

- .9 Degas all tanks in accordance with the requirements of Report 88-5 (December 1988) of the Petroleum Association for Conservation of the Canadian Environment (PACE). Use nitrogen for degassing, as required, if ventilation and purging methods fail. Monitor area surrounding tanks and pipelines for vapour build up during degassing.
- .10 Following degassing, interior explosive vapour concentrations are to be less than 20 percent LEL prior to demolition.

### 3.8 Inventory of Containers

- .1 Provide a numbering system and maintain an inventory of all containers to be transported and disposed of off-site.
- .2 Label all containers, using spray paint or other means, with the Container number and contents (e.g. Haz Soil, Haz Debris, etc.).
- .3 Submit to Departmental Representative, a copy of the inventory of the contents of each container.

### 3.9 Packaging, Labelling and Inventory

- .1 Provide a numbering system and maintain an inventory of all containers with Hazardous Waste Materials to be transported and disposed of off-site.
- .2 Package and label each "hazardous material" in accordance with the "Class" and "Packaging Group" as per the TDGA.
- .3 Submit to Departmental Representative, a copy of the inventory of the contents of each container

### 3.10 Temporary Storage Area

- .1 Establish the location and size of the Temporary Storage Area to minimize the handling of materials, isolate materials from other work operations and to provide for the collection and removal of these materials from the site.
- .2 Segregate materials within the Temporary Storage Area as follows:
  - .1 Hydrocarbon Contaminated Soil (refer to Section 02 55 13 – Contaminated Soil)
  - .2 Metal Contaminated Soil (refer to Section 02 55 13 – Contaminated Soil)
  - .3 Containerized Barrel Contents
  - .4 Other Containerized Hazardous Waste Materials.
- .3 For storage of Hazardous Waste Material, no stacking of Marine Shipping containers will be allowed.
- .4 In accordance with Section 01 78 00 - Closeout Submittals, submit to Departmental Representative a detailed inventory of the Temporary Storage Area indicating the location and contents of each container and assigned Environment Canada Registration numbers (as required) and packaging configuration.

**END OF SECTION**

