April 7th 2017

Karen Kharatyan
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU
X0B 1J0

Re: Water License 2AM-MEL1631 Part D, Items 1&2 - Submission of Final Design and Construction Drawings for Fuel Storage and Containment Facilities

Mr. Kharatyan,

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Project (the Project), a goldmine located approximately 25 km north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. Situated on the western shore of Hudson Bay, the Project site is located on a peninsula between the east, south, and west basins of Meliadine Lake (63°1'23.8'' N, 92°13'6.42"W) on Inuit Owned Land. Agnico Eagle is developing the mine for production in late 2019.

Facilities that are scheduled to be constructed for the operation of the future Meliadine Mine include a mill, power plant, maintenance facilities, tank farm for fuel storage, water treatment plant, sewage treatment plant and accommodations and kitchen facilities for 520 people.

In accordance with Water License 2AM-MEL1631, Part D, Items 1 and 2, please find enclosed with this letter, a copy of the final design and construction drawings for Fuel Storage and Containment Facilities.

The facilities include two (2) main fuel storage tanks located at Rankin Inlet Itivia site and four (4) fuel storage tanks located at the Meliadine site.

Should you have any questions regarding this submission, please contact me.

Regards,

Agnico Eagle Mines Limited – Meliadine Division

Manon Turmel
manon.turmel@agnicoeagle.com
819-759-3555 x8025
Environmental Compliance Counselor

AGNICO EAGLE MINES LIMITED

MELIADINE PROJECT

DESIGN REPORT AND DRAWINGS FOR THE FUEL STORAGE AND CONTAINMENT FACILITIES

AGNICO EAGLE

DESIGN REPORT
6515-E-132-004-132-REP-003

APRIL 2017

WSP

MELIADINE PROJECT

DESIGN REPORT AND DRAWINGS FOR THE FUEL STORAGE AND CONTAINMENT FACILITIES

Agnico Eagle Mines Limited

AGNICO EAGLE

Design Report:	**6515-E-132-004-132-REP-003**
Revision:	**(R0)**
Tetra Tech Project Nº:	28920
WSP Project Nº:	151-06440-40
Date:	April 2017

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WSP

April 6th, 2017

Ms. Blandine Arseneault
Project Manager
Environment & Sustainable Development
Agnico Eagle Mines Limited
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Subject: Design Report and Drawings for the Fuel Storage and Containment Facilities
Project: Meliadine

Tetra Tech reference no.: 28920
WSP Canada Inc. reference no.: 151-06440-40

Dear Ms Arseneault,

In response to your request, Tetra Tech and WSP Canada Inc. are pleased to submit a Design Report regarding the Fuel Storage and Containment Facilities for the Meliadine project. You will find enclosed the Design Report and Drawings, including all the appendices.

Do not hesitate to contact us for any further information.

Hoping everything is to your satisfaction.

Yours sincerely,

Jean-Philippe Grenier, P. Eng.
Project Manager, Mining Infrastructures
WSP Canada Inc.

Josée Alarie, P. Eng.
Project Manager, Civil Work
Tetra Tech

c.c.: Mr. Daniel Séguin, P. Eng., Agnico Eagle Mines Limited
Mr. Normand Ménard, P. Eng., Agnico Eagle Mines Limited
Mr. Denis Thibodeau, P. Eng., WSP Canada Inc.

Attachment:
Design Report and Drawings

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REVISION HISTORY

VERSION	ISSUE DATE	DESCRIPTION
R0	2017-04-06	Initial release

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PERMIT TO PRACTICE
TETRA TECH INDUSTRIES, INC.
O/A TETRA TECH
Signature
Date 2017 . 04 . 06
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NT/NU Association of Professional Engineers and Geoscientists

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REFERENCE

Agnico Eagle and Golder, 2014. Volume 5.0 – Atmospheric Environment and Impact Assessment, Final Environmental Impact Statement (FEIS) – Meliadine Gold Project, Nunavut (Doc. 288-1314280007 Ver 0 submitted to NIRB).

Agnico Eagle, 2015. Meliadine Gold Project Water Management Plan. April 2015, Version 1, 6513-MPS-11. CDA, 2007 (with 2013 revision). Dam Safety Guidelines. Canadian Dam Association, 2007, p.82.

EBA, 2013. Meliadine Gold Project 2013 March Geotechnical Site Investigation Data Report. Submitted to Agnico Eagle Mines Limited by EBA, A Tetra Tech Company, EBA File: E14103023-01.003, May 2013.

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EXECUTIVE SUMMARY

GENERAL

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Mine project (the Project) which lies inside the Kivalliq District of Nunavut, near the western shore of Hudson Bay in Northern Canada. The nearest community is Rankin Inlet, an Inuit hamlet that is the regional centre and largest community of the Kivalliq Region. The Meliadine property is accessible through an all-weather road linking Rankin Inlet to the Meliadine site.

Agnico Eagle has retained Tetra Tech (TT) and WSP Canada Inc. (WSP) to design the surface infrastructures of the Project which include surface infrastructures for fuel storage and handling systems. This report includes the final design and construction drawings related to the Fuel Storage and Containment Facilities for the Project.

The facilities include two (2) main fuel storage tanks located at Rankin Inlet Itivia site and four (4) fuel storage tanks located at the Meliadine site.

Construction and installation of all tanks will begin in 2017 and commissioning of one (1) fuel storage tank at the Rankin Inlet Itivia site (13.5 M liter) and two (2) fuel storage tanks at the Meliadine site (3 M and 250 k liter) will be completed in 2017. Commissioning of the remaining tanks at both sites (20M, 6M and 250 k liter) will be completed in 2018.

This report presents the design basis and considerations, engineering design and drawings related to this work.

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65-103-210-200_R3	103 - COMBUSTIBLES / 210 - GENERAL ARRANGEMENT / FUEL DISTRIBUTION / PLAN VIEWS
65-103-210-201_R1	103 - COMBUSTIBLES / 210 - GENERAL ARRANGEMENT / FUEL DISTRIBUTION / SECTION
65-103-245-200_R2	103 - COMBUSTIBLES / 245 - STRUCTURAL STEEL / FUEL DISTRIBUTION / MODIFICATIONS & ADDITIONS AT THE CONTAINERS
65-103-245-201_R2	103 - COMBUSTIBLES / 245 - STRUCTURAL STEEL / FUEL DISTRIBUTION / DIKE, PIPE & CONTAINERS CATWALKS
65-103-260-200_R5	103 - COMBUSTIBLES / 260 - PLATEWORK / TANK #1 / 20,000,000 LITERS 43M DIA. X 14m H.
65-103-260-201_R5	103 - COMBUSTIBLES / 260 - PLATEWORK / TANK #2 / 13,500,000 LITERS 35,1M DIA. X 14m H.
65-103-260-202_R3	103 - COMBUSTIBLES / 260 - PLATEWORK / TANK #1 @ #6 / DETAILS
65-103-270-200_R1	103 - COMBUSTIBLES / 270 - PIPING / FUEL DISTRIBUTION / PLAN VIEW
65-103-270-201_R3	103 - COMBUSTIBLES / 270 - PIPING / FUEL DISTRIBUTION / DETAILS
65-103-275-200_R2	103 - COMBUSTIBLES / 275 - POWER ELECTRICAL / LEGEND, TABLES & DETAILS
65-103-275-201_R2	103 - COMBUSTIBLES / 275 - POWER ELECTRICAL / GROUNDING LAYOUT / PLAN VIEW
65-103-275-202_R2	103 - COMBUSTIBLES / 275 - POWER ELECTRICAL / EQUIPMENT LAYOUT, DETAILS & SERVICES PANEL / PLAN VIEW
65-103-275-203_R2	103 - COMBUSTIBLES / 275 - POWER ELECTRICAL / 600V DISTRIBUTION PANEL / SINGLE LINE DIAGRAM
65-103-275-204_R2	103 - COMBUSTIBLES / 275 - POWER ELECTRICAL / ELECTRICAL ROOM / MODIFICATIONS & ADDITIONS AT THE CONTAINERS
65-103-275-206_R1	103 - COMBUSTIBLES / 275 - POWER ELECTRICAL / AERIAL LINE CONNECTION / PLAN VIEW

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65-403-205-201_R4 403 - COMBUSTIBLES / 205 - P&ID / FUEL DISTRIBUTION (INDUSTRIAL SITE) / FLOW DIAGRAM

65-403-210-200_R3 403 - COMBUSTIBLES / 210 - GENERAL ARRANGEMENT / FUEL FARM TANK (PORTAIL #1) / PLAN VIEWS

65-403-210-201_R3 403 - COMBUSTIBLES / 210 - GENERAL ARRANGEMENT / FUEL FARM TANK (INDUSTRIAL SITE) / PLAN VIEW

65-403-245-200_R2 403 - COMBUSTIBLES / 245 - STRUCTURAL STEEL / FUEL DISTRIBUTION / MODIFICATIONS & ADDITIONS AT THE CONTAINERS

65-403-245-201_R1 403 - COMBUSTIBLES / 245 - STRUCTURAL STEEL / FUEL DISTRIBUTION / DIKE, PIPE & CONTAINER CATWALKS

65-403-260-200_R3 403 - COMBUSTIBLES / 260 - PLATEWORK / FUEL FARM TANK (PORTAIL #1) / TANK #3 - 3 000 000 LITERS 18.6m DIA. X 11.2m H.

65-403-260-201_R3 403 - COMBUSTIBLES / 260 - PLATEWORK / FUEL FARM TANK (INDUSTRIAL SITE) / TANK #4 - 6 000 000 LITERS. 23.4m DIA. X 14m H

65-403-260-202_R3 403 - COMBUSTIBLES / 260 - PLATEWORK / FUEL FARM TANK (INDUSTRIAL SITE & PORTAIL #1) / TANKS #5 & #6 250,000 LITERS 8,2m DIA x 4,75m H.

65-403-270-200_R2 403 - COMBUSTIBLES / 270 - PIPING / FUEL DISTRIBUTION / DETAILS

65-403-270-201_R1 403 - COMBUSTIBLES / 270 - PIPING / FUEL DISTRIBUTION / DETAILS

65-403-275-200_R1 403 - COMBUSTIBLES / 275 - POWER ELECTRICAL / 600V DISTRIBUTION / PORTAIL #1 SINGLE LINE DIAGRAM

65-403-275-201_R1 403 - COMBUSTIBLES / 275 - POWER ELECTRICAL / 600V DISTRIBUTION / INDUSTRIAL SITE SINGLE LINE DIAGRAM

65-403-275-202_R1 403 - COMBUSTIBLES / 275 - POWER ELECTRICAL / EQUIPMENT LAYOUT & DETAIL / FUEL FARM - PORTAIL #1 PLAN VIEW

65-403-275-203_R1 403 - COMBUSTIBLES / 275 - POWER ELECTRICAL / EQUIPMENT LAYOUT & DETAIL / FUEL FARM - INDUSTRIAL SITE PLAN VIEW

65-403-275-204_R1 403 - COMBUSTIBLES / 275 - POWER ELECTRICAL / LEGEND, TABLES, PANELS & DETAILS /

65-403-275-205_R0 403 - COMBUSTIBLES / 275 - POWER ELECTRICAL / GROUNDING LAYOUT / FUEL FARM - PORTAIL #1 PLAN VIEW

65-403-275-206_R0 403 - COMBUSTIBLES / 275 - POWER ELECTRICAL / GROUNDING LAYOUT / FUEL FARM - INDUSTRIAL SITE PLAN VIEW

65-403-275-207_R1 403 - COMBUSTIBLES / 275 - POWER ELECTRICAL / ELECTRICAL ROOM / MODIFICATIONS & ADDITIONS AT CONTAINERS

65-403-285-200_R0 403 - COMBUSTIBLES / 285 - SERVICE ELECTRICAL - LIGHT & DISTRIBUTION / LIGHTING / LEGEND, TABLE & INSTALLATION DETAILS

65-403-285-201_R0 403 - COMBUSTIBLES / 285 - SERVICE ELECTRICAL - LIGHT & DISTRIBUTION / LIGHTING / FUEL FARM - PORTAIL #1 PLAN VIEW

65-403-285-202_R0 403 - COMBUSTIBLES / 285 - SERVICE ELECTRICAL - LIGHT & DISTRIBUTION / LIGHTING / FUEL FARM - INDUSTRIAL SITE PLAN VIEW

APPENDIX C – FUNCTIONAL DESCRIPTION – ITIVIA FUEL FARM (RANKIN INLET)

APPENDIX D – FUNCTIONAL DESCRIPTION – MINE SITE FUEL FARMS (MELIADINE SITE)

APPENDIX E – TETRA TECH DRAWINGS – ITIVIA FUEL FARM (RANKIN INLET)

65-131-230-200_R0 000 – SITE PREP / 230 – GENERAL EARTH WORKS / RANKIN FUEL TANK FARM AND LAYDOWN AREA / FINISHED GRADE ELEVATION

65-131-230-201_R0 000-SITE PREP / 230-GENERAL EARTH WORKS / RANKIN FUEL TANK FARM AND LAYDOWN AREA / CROSS SECTIONS AND DETAILS

65-131-230-202_R0 000-SITE PREP / 230-GENERAL EARTH WORKS / RANKIN FUEL TANK FARM AND LAYDOWN AREA / PROPOSED FILL DEPTH

65-131-230-203_R4 000-SITE PREP / 230-GENERAL EARTH WORKS / RANKIN FUEL TANK FARM AND LAYDOWN AREA / EXCAVATION PLAN

65-131-230-206_R0 000 - SITE PREP. / 230-GENERAL EARTH WORKS / RANKIN FUEL FARM AND LAYDOWN AREA / POINTS TABLE

APPENDIX F – TETRA TECH DRAWINGS – MINE SITE FUEL FARM

65-000-230-225_R0 000 – SITE PREP / 230 – GENERAL EARTH WORKS / PLAN VIEW / MINE SITE FUEL TANK FARM / FINISHED GRADE ELEVATION

65-000-230-226_R0 000-SITE PREP / 230-GENERAL EARTH WORKS / PLAN VIEW MINE SITE FUEL TANK FARM / PROPOSED FILL DEPTH

65-000-230-227_R0 000-SITE PREP / 230-GENERAL EARTH WORKS / MINE SITE FUEL TANK FARM / CROSS SECTIONS AND DETAILS

APPENDIX G – TETRA TECH DRAWINGS – INDUSTRIAL SITE FUEL FARM

65-000-230-215_R0	000 – SITE PREP / 230 – GENERAL EARTH WORKS / INDUSTRIAL SITE FUEL TANK FARM / CROSS SECTIONS AND DETAILS
65-000-230-223_R0	000-SITE PREP / 230-GENERAL EARTH WORKS / PLAN VIEW INDUSTRIAL SITE FUEL TANK FARM / GROUND LEVELING / FINISHED GRADE ELEVATION
65-000-230-224_R0	000-SITE PREP / 230-GENERAL EARTH WORKS / PLAN VIEW INDUSTRIAL SITE FUEL TANK FARM / GROUND LEVELING / PROPOSED FILL DEPTH

1 INTRODUCTION

1.1 PURPOSE OF THE REPORT

This report is intended to present the design basis and considerations, engineering design and drawings related to the fuel storage and containment facilities that will be installed for Agnico Eagle Mines Limited's Meliadine Gold Mine project.

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine Gold Mine project (the Project), a gold mine located approximately 25 km north from Rankin Inlet, and 80 km southwest from Chesterfield Inlet in the Kivalliq Region of Nunavut. Situated on the western shore of Hudson Bay, the Project site is located on a peninsula between the east, south, and west basins of Meliadine Lake on Inuit Owned Land.

The area is accessible from the all-weather gravel road linking the existing exploration camp with Rankin Inlet.

1.2 EXISTING AND FUTURE FACILITIES

Current facilities at the Project site include the exploration camp located on the shore of Meliadine Lake, approximately 3.5 km southeast of the future accommodations. The self-contained exploration camp consists of five wings of trailers that can accommodate up to 250 people and includes kitchen facilities, complete with diesel generators. Power for the exploration camp is currently provided by diesel generators. Potable water for the exploration camp is pumped from Meliadine Lake.

Facilities that are planned to be constructed for the operation of the future Meliadine Gold Mine include a mill, power plant, maintenance facilities, tank farms for fuel storage, a water treatment plant, a sewage treatment plant, and accommodation and kitchen facilities for 520 people.

The Nunavut Water Board (NWB) has issued Type A Water License 2AM-MEL1631 to Agnico Eagle for the Project sites authorizing the use of water and the disposal of waste required by mining and milling and associated uses.

This report includes the final design and construction drawings for fuel storage facilities, as specified under Water License 2AM-MEL1631 Part D, Item 1.

1.3 SCOPE OF WORK

AGNICO EAGLE has retained Tetra Tech (TT) and WSP Canada Inc. (WSP) to design the surface infrastructures for the Project which includes the fuel storage and containment facilities at the Rankin Inlet Itivia site and Meliadine site. The report includes an overview of the Codes and Regulations, the design criteria and construction details as well as site specific considerations for the following facilities:

Rankin Inlet (Itivia site)

- One (1) fuel farm containing two (2) field erected fuel storage tanks (20 M and 13.5 M liter) complete with a pumping station and ancillaries;
- Secondary containment for the fuel farm.

Meliadine site (Industrial and Mine sites)

- One (1) fuel farm at the Industrial site containing two (2) field erected fuel storage tanks (6 M and 250 k liter) complete with a pumping station and ancillaries;
- One (1) fuel farm at the Mine site containing two (2) field erected fuel storage tanks (3 M and 250 k liter) complete with a pumping station and ancillaries;
- Secondary containment for both fuel farms.

1.4 SCHEDULE

The construction and installation of all tanks will begin in 2017 and commissioning of one fuel storage tank at the Rankin Inlet Itivia site (13.5 M liter) and two (2) fuel storage tanks at the Meliadine site (3 M and 250 k liter) will be completed in 2017. Commissioning of the remaining tanks at both sites (20 M, 6 M and 250 k liter) will be completed in 2018.

1.5 RESPONSIBILITY MATRIX

The matrix below identifies the area of responsibility in this design report for both engineering consulting firm.

Table 1 – Responsibility Matrix

RESPONSIBILITY MATRIX		
SECTIONS	**TETRA TECH (TT)**	**WSP CANADA INC. (WSP)**
SECTION 1 INTRODUCTION	**X**	**X**
SECTION 2 CODES AND STANDARDS	**X**	**X**
SECTION 3 DESIGN – FIELD ERECTED FUEL TANKS		**X**
SECTION 4 DESIGN OF FUEL STORAGE TANK FARMS	**X**	
SECTION 5 EARTH WORKS	**X**	

1.6 INCLUSIONS AND EXCLUSIONS

1.6.1 INCLUSIONS

The following items are included in the design report:

- Field erection of six (6) new vertical fuel storage tanks of 20 M, 13,5 M, 6 M, 3 M liter and two (2) of 250 k liter;
- Accessories such as couplings, nozzles, stairs, steps, railings, fixed suction, and piping;
- Pumping stations;
- Piping network;
- Testing, calibration and inspection requirements;
- Instrumentation and control;
- Earthwork;
- Tanks foundations;
- Fuel farm secondary containment with liner system.

1.6.2 EXCLUSIONS

Any elements not mentioned in the Inclusions are considered excluded from the design report.

1.7 ENGINEERING DOCUMENTS

Table 2 - Engineering documents list

Engineering documents	
Mechanical	General Arrangement (GA) drawings Process and Instrumentation Diagram (PID) drawings Platework drawings Piping drawings
Structure	Structural steel drawings
Electrical	Single Line Diagram (SLD) drawings Power distribution drawings Grounding drawings Lighting and services drawings
Civil / Concrete / Structural	General Earth Works drawings

2 CODES AND STANDARDS

2.1 COMPLIANCE FOR FIELD ERECTED FUEL TANKS

The system complies with the latest editions of the Codes and Standards relating to this project (Federal, Territorial, Municipal, NBCC, NFCC, CEC, CSA, NFPA, and API) as well as the directives of the authorities having jurisdiction over this project. Specific codes and standards as: R-125-95 NWT and Nunavut Mine Health and Safety Regulations (Mine Health and Safety Act) and RRNWT 1990, c F-12 Fire Prevention Regulations shall apply.

Additionally, the design and field erected vertical fuel storage tanks shall conform to API Std. 650 Twelfth Edition - Welded Tanks for Oil Storage, including Errata 1 (2013), Errata 2 (2014), and Addendum 1 (2014) and applicable Appendices.

NBCC	National Building Code of Canada
NFCC	National Fire Code of Canada
CEC	Canadian Electrical Code
CSA	Canadian Standards Association
NFPA	National Fire Protection Association
API	American Petroleum Institute
R-125-95 NWT	Consolidated Mine Health and Safety Act
CCME	Canadian Council of Ministers of the Environment

2.2 CODE ANALYSIS FOR FIELD ERECTED FUEL TANKS

The Field Erected Storage Tank System and pumping stations design are first based on the compliance with the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197). Article 14 (1) of this regulation mentions that for the installation of a fuel storage system, the system has to comply with the applicable requirements set out in the CCME Code of Practice (CCME PN1326).

Looking into the CCME, the main design criteria is defined in Part 3 that applies to the design and installation of a new aboveground storage tank system and Part 5 that applies to the design and installation of new piping systems.

The Field Erected Storage Tank System design shall comply with requirements of CCME 3.6.1(1) for aboveground storage tanks, more specifically API Std 650 for vertical single wall tanks.

In accordance with section 3.3 and 3.4 of the CCME, storage tanks shall be equipped with an overfill protection to prevent from spill.

In accordance with CCME section 5.4, all underground piping has to be double walled and installed such that leaks will be collected into an accessible sump.

Reviewing the NFCC latest edition, the main design criteria are defined in Part 4 regarding the flammable and combustible liquids. More specifically, Section 4.1 which provides general information and requirements for fire protection and spill control of flammable and combustible liquid storage systems, Section 4.3 which provides the tank design and construction minimum requirements, Section 4.5 for piping and transfer systems and Section 4.6 for fuel dispensing stations.

Basically, most of the NFCC requirements for tank and piping systems are covered by CCME requirements but give some additional ones. For example, Table 4.3.2.1 defining the minimum requirements for the location of aboveground storage tanks; Point 4.3.2.2 defining the minimum requirements for spacing between tanks; or point 4.3.6.4.2) requesting that connections for filling or emptying storage tanks shall be kept closed to prevent leakage when not in use.

2.3 COMPLIANCE FOR SECONDARY CONTAINMENT

The secondary containment for aboveground storage tanks shall conform to NFCC. The base and walls of a secondary containment shall be designed, constructed and maintained to withstand full hydrostatic head and provide a permeability of not more than 10-6 cm/s to the flammable liquids or combustible liquids contained in the storage tanks (art. 4.3.7.2). The tanks located in each one of the three (3) fuel farms are placed entirely within a dyke area, with an impermeable barrier in the floor of the containment area and in the dyke walls. A membrane is providing the level of impermeability required and will be covered with a non-combustible material so it will not fail if the secondary containment is exposed to fire. See also section 4.5 of this report for more details.

A secondary containment shall have the minimum volumetric capacity stated in art.4.3.7.3. Each one of the three (3) fuel farms secondary containment has a greater volumetric capacity than required (see more details in section 4.4 of this report).

3 DESIGN – FIELD ERECTED FUEL TANKS

3.1 GENERAL

This section describes the criteria used to design the field erected fuel storage tanks, to prepare general arrangements and to select equipment and/or materials.

3.1.1 FIELD ERECTED FUEL STORAGE TANKS - RANKIN INLET ITIVIA FUEL FARM

Two (2) fuel storage tanks will be installed at Rankin Inlet Itivia fuel farm. The site location of the 20 M and 13.5 M liter tanks (tank #1 and #2 respectively) is shown on Figure 1 below.

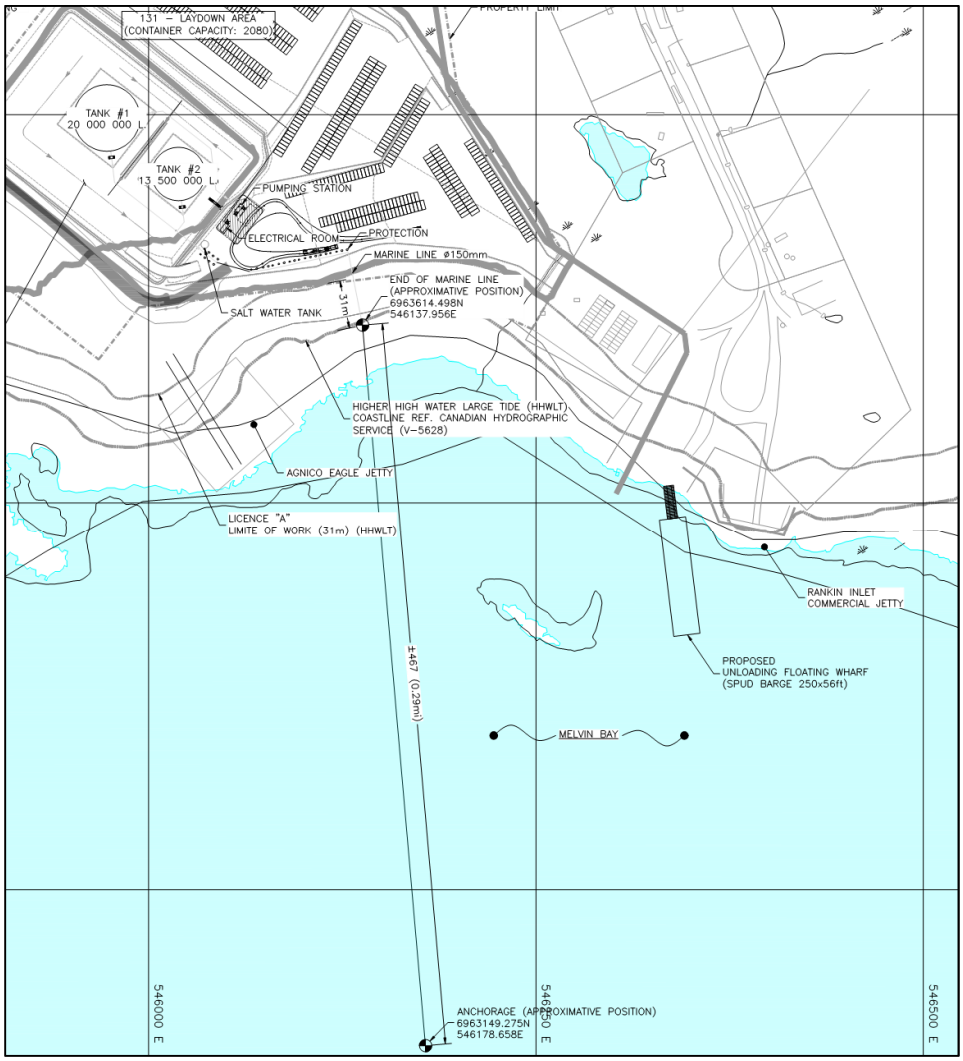

Figure 1 : Rankin Inlet Itivia Fuel Farm Site Overview (extract from drawing 65-000-210-200 revision R – Sheet 6 of 7)

The Rankin Inlet Itivia fuel farm will be refuelled from a common marine line. This line allows for the connection of a fuel tanker ship from shore. A manual valve operation is required to select tank #1 or #2 for refuelling. The tanks are connected to a pumping station located outside the dike. This pumping station allows for tanker truck refueling that will continuously supply the Meliadine site fuel farms (see section 3.1.2).

Construction drawings for the Rankin Inlet Itivia fuel farm are included in Appendix A.

Construction of the secondary containment will begin in May 2017 followed closely by the erection of tank #2 (13,5 M liter) and the installation of the pumping station as well as the piping network. The commissioning of this system must be completed ahead of the first fill scheduled for October 2017. Erection of tank #1 (20 M liter) will also start in 2017 and will be completed and commissioned in 2018.

3.1.2 FIELD ERECTED FUEL STORAGE TANKS - MELIADINE SITE FUEL FARMS

A total of four (4) fuel storage tanks will be installed at the Meliadine site in two (2) separate fuel farms. The Mine site fuel farm will include two (2) fuel storage tanks (tank #3 at 3 M liter and tank #6 at 250 k liter) and the Industrial site fuel farm will also include two (2) fuel storage tanks (tank #4 at 6 M liter and tank #5 at 250 k liter).

The location of both fuel farms is indicated on Figure 2 below.

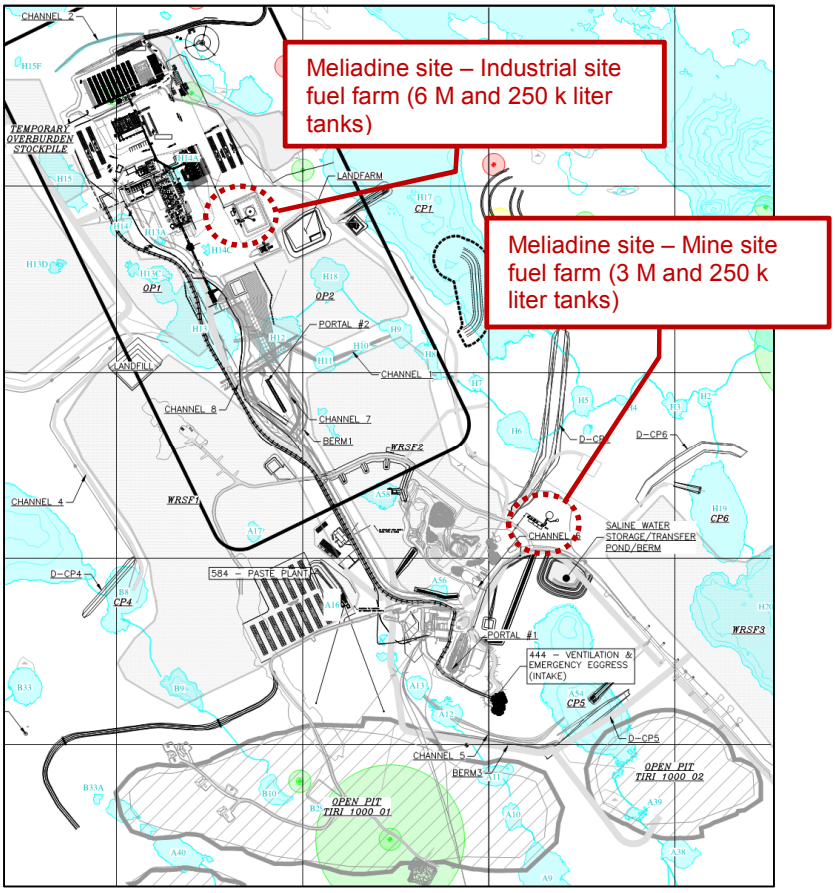

Figure 2 : Meliadine Gold Project – Site Overview (extract from drawing 65-000-210-200 revision R – Sheet 2 of 7)

The general arrangement of the Mine site fuel farm is shown on Figure 3 below.

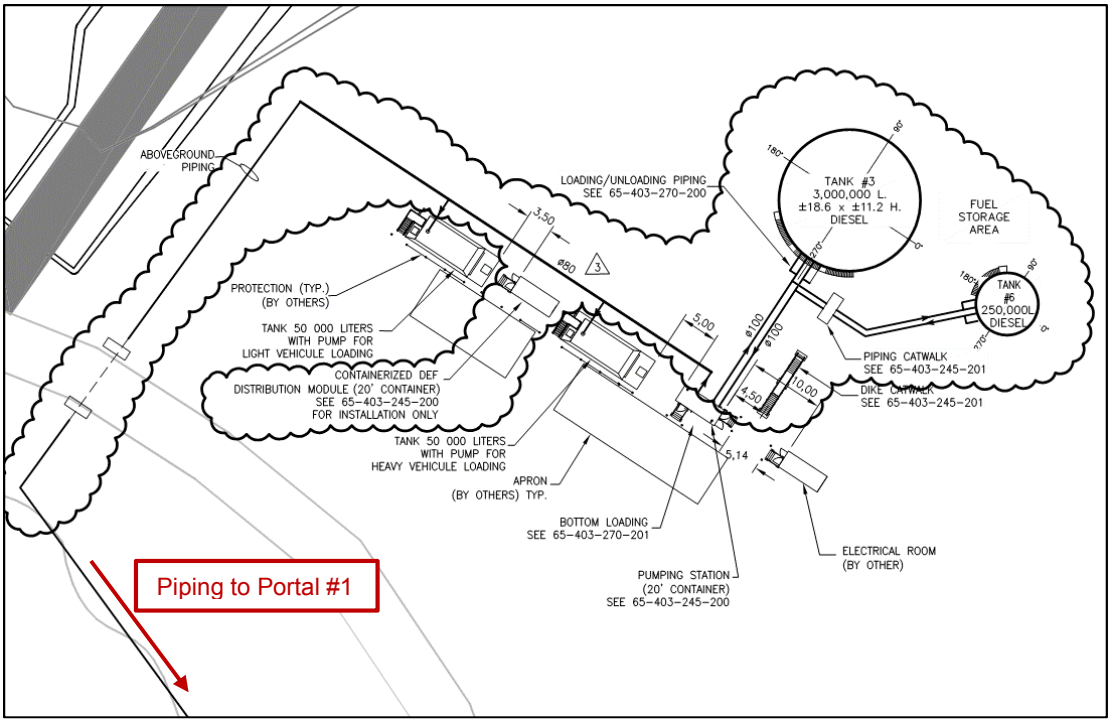

Figure 3 – Meliadine site – Mine site fuel farm – 3 M and 250 k liter tanks (extract from drawing 65-403-210-200 revision 3)

Tank #3 (3 M liter) and Tank #6 (250 k liter) are connected to a pumping station. This pumping station will be used to fill both tanks from tanker trucks travelling between the Rankin Inlet Itivia fuel farm and the Meliadine site. The pumping station will also fill two (2) transfer tanks (50 k liter) used for equipment refuelling and fill the transfer tank at Portal #1.

Construction drawings for the Mine site fuel farm are included in Appendix B.

The general arrangement of the Industrial site fuel farm is shown on Figure 4 below.

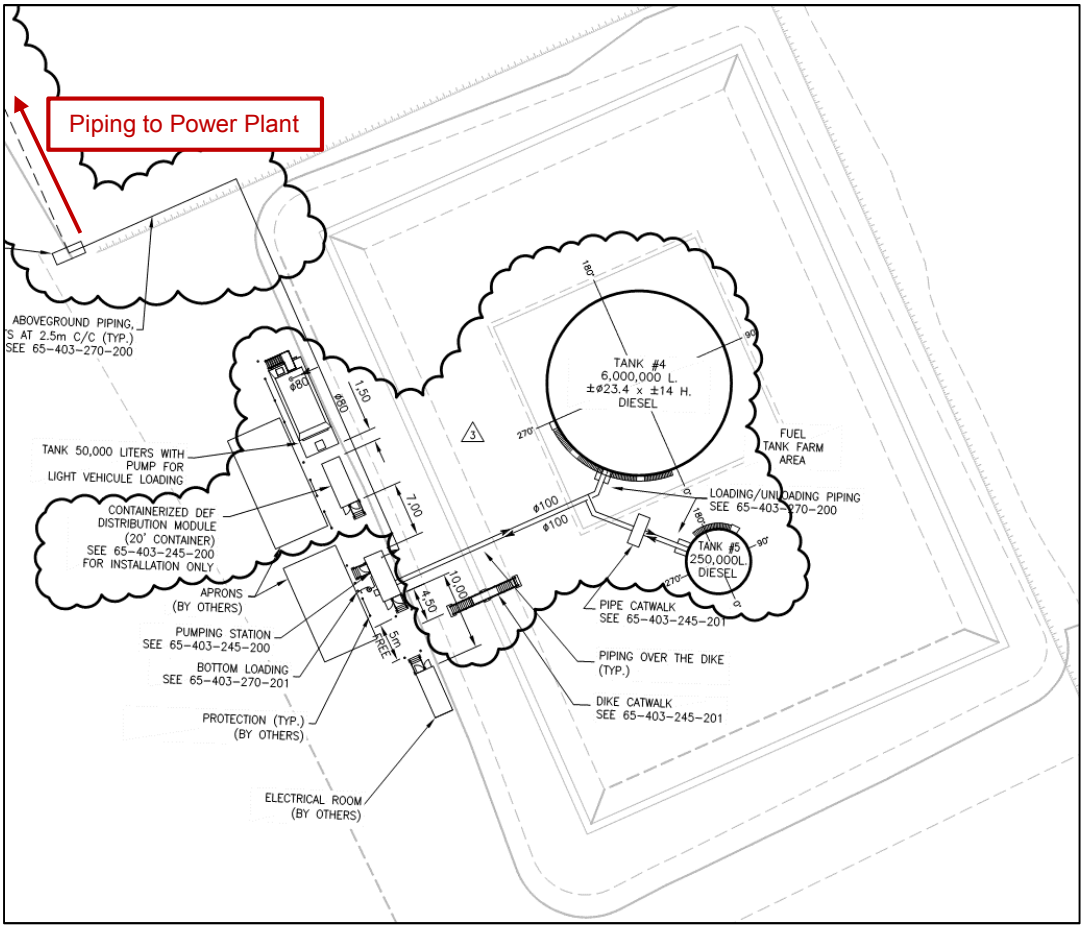

Figure 4 – Meliadine site – Industrial site fuel farm 6 M and 250 k liter tanks (extract from drawing 65-403-210-201 revision 3)

Tank #4 (6 M liter) and Tank #5 (250 k liter) are connected to a pumping station. This pumping station will be used to fill both tanks from tanker trucks travelling between the Rankin Inlet Itivia fuel farm and the Meliadine site. The pumping station will also fill a transfer tank (50 k liter) used for equipment refuelling as well as supply the power generator transfer tank located near the power plant.

Construction drawings for the Industrial site fuel farm are included in Appendix B.

3.2 COMMISSIONNING

The fabrication, erection, inspection, testing, welding and labelling of vertical tanks will be to the latest edition of API Standard 650. Prior to putting a fuel storage tank in service the tank will pass quality control checks as per API 650 requirements; finally, the tank will be cleaned, dried, strapped and closed to be ready for service.

3.3 SYSTEM OPERATION

System operation for the fuel farms consists of loading and unloading of tanks and fuel distribution. The following sections describe the operations for each fuel farm (Rankin Inlet Itivia site and Meliadine site).

3.3.1 RANKIN INLET – ITIVIA FUEL FARM

For the loading operation, the fuel will be transferred from a fuel tanker ship to the tanks via a marine line. This manual operation will be executed one (1) or two (2) times per year. Tanks will be equipped with an overflow protection to notify the operator of a high level condition.

Fuel will be transferred daily from the Rankin Inlet Itivia site to the Meliadine site via tanker trucks. The tanker trucks will be connected to a bottom loading arm and the pumping station will allow the operator to transfer fuel from a selected tank. Tanker trucks will be equipped with an overflow protection which is able to automatically stop the loading operation when the tank is filled.

For more details, refer to the complete functional description in Appendix C.

3.3.2 MELIADINE SITE – FUEL FARMS

For the loading operation, a pumping station will transfer fuel from the tanker trucks to a selected storage tank. The storage tanks will be equipped with an overfill alarm system to notify the operator and to automatically stop the pumping operation.

For the distribution operation, the pumping stations located at the Meliadine site will be connected to several transfer fuel tanks. The transfer tanks will be used to refuel equipment.

For more details, refer to the complete functional description in Appendix D.

3.4 MAINTENANCE / INSPECTION

A qualified maintenance team will inspect the system (mechanical equipment and piping) on a regular basis as per regulations and codes. Part of the distribution piping will be installed above ground which means any leaks can be detected during the periodic visual inspection. The underground piping are comprised of double walled pipe and transition sumps will allow for periodic visual inspection.

Field erected storage tanks shall be inspected externally and internally as per CCME section 8.4 and API 653 standard.

4 DESIGN OF FUEL STORAGE TANK FARMS

4.1 DESCRIPTION OF THE FUEL STORAGE TANK FARMS

The Project includes the development of three (3) fuel storage tank farms:

- Rankin Inlet Itivia fuel farm
- Mine site fuel farm
- Industrial site fuel farm

The table below presents the tanks enclosed in each fuel storage tank farm and their main dimensions.

Table 3 – Description of the fuel farms

Fuel farm Description	Rankin Inlet Itivia fuel farm		Mine site fuel farm		Industrial site fuel farm	
Enclosed Tanks	TK #1	TK #2	TK #3	TK #6	TK #4	TK #5
Product	Diesel	Diesel	Diesel	Diesel	Diesel	Diesel
Volume (liter)	20 M	13.5 M	3 M	250 k	6 M	250 k
Diameter (m)	43.00	35.10	18.60	8.20	23.40	8.20
Height (m)	14	14	11.20	4.75	14	4.75

The detailed design of the Fuel farms is presented in drawings in Appendices EAppendix E, F and G.

4.2 TANK FOUNDATIONS DESIGN

The tank foundation pad will be 400 mm higher than the surrounding ground with a minimum total thickness of 900 mm of compacted material which includes the liner system. A 1.2 m shoulder will surround the tank with a slope of 1V:120H away from the tank. The embankments of the foundation pad will be no steeper than 1V:2H.

The table below presents the design parameters for the tank foundations.

Table 4 – Design parameters for the tank foundations

Tank Foundation Pad	Rankin Inlet Itivia site		Mine site		Industrial site	
Enclosed Tanks	TK #1	TK #2	TK #3	TK #6	TK #4	TK #5
Tank Diameter (m)	43.00	35.10	18.60	8.20	23.40	8.20
Tank foundation pad top width (m)	45.40	37.5	21.0	10.6	25.8	10.6
Tank foundation pad thickness, above surrounding ground (m)	0.4	0.4	0.4	0.4	0.4	0.4
Slope on shoulder	1V:120H	1V:120H	1V:120H	1V:120H	1V:120H	1V:120H
Embankment slope	1V:2H	1V:2H	1V:2H	1V:2H	1V:2H	1V:2H

4.3 DIKES DESIGN

Each group of storage tanks is enclosed inside dikes in order to contain accidental spillage of fuel product. The dikes are made of granular material and are made impervious with a geomembrane.

The design parameters for the dikes surrounding the fuel tanks are presented in the table below.

Table 5 - Design parameters for fuel farms dikes

Tank Farm Dikes	Rankin Inlet Itivia site		Mine site		Industrial site	
Enclosed Tanks	TK #1	TK #2	TK #3	TK #6	TK #4	TK #5
Dike length (CL to CL) (m)	154		64.5		82.5	
Dike width (CL to CL) (m)	104.3		46.0		57.5	
Dike height (m)	1.8		1.8		1.8	
Containment height (m)	1.65		1.65		1.65	
Dike flat top width (m)	1.0		0.6		0.6	
Dike embankment slope	1V:2H		1V:2H		1V:2H	
Impervious area (m²)	16 050		2 868		4 619	

4.4 SECONDARY CONTAINMENT CAPACITY

The required capacity of the fuel farms is calculated based on the following codes and regulations:

- National Fire Code of Canada (NFCC);
- National Fire Protection Association (NFPA); and
- Design Rationale for Fuel Storage and Distribution Facility (DRFS).

As per the latest edition of NFCC, art. 4.3.7.3, the required capacity of secondary containment for a fuel farm with more than one storage tank shall have a volumetric capacity of not less than the sum of:

a) The capacity of the largest storage tank located in the contained space, and;

b) 10% of the greater of:

i. The capacity specified in Clause (a), or;

ii. The aggregate capacity of all other storage tanks located in the contained space.

The volume occupied by the access ramps and the tanks foundation is taken into account in the total secondary containment capacity.

The height of the secondary containment capacity is 150 mm lower than the dike's maximum elevation. This corresponds to the area covered by the geomembrane.

Based on the above mentioned, the secondary containment capacity requirements and the available capacity for the fuel farms are summarised in the following table.

Table 6 – Fuel farms containment capacity

Fuel farm	Rankin Inlet Itivia site		Mine site		Industrial site	
Enclosed Tanks	TK #1	TK #2	TK #3	TK #6	TK #4	TK #5
Volume (liter)	20M	13.5M	3M	250k	6M	250k
Required Containment Capacity (liter)	22.0 M		3.3 M		6.6 M	
Available Containment Capacity* (liter)	23.7 M		4.1 M		6.8 M	
Is Available containment > Required containment	YES		YES		YES	

**The total available volume was estimated with AutoCAD Civil 3D*

4.5 SECONDARY CONTAINMENT IMPERVIOUSNESS

As per NFCC art. 4.3.7.2, the base and walls of the fuel farms secondary containment are designed, and will be constructed and maintained to withstand full hydrostatic head and provide a permeability of not more than 10-6 cm/s to the flammable liquids or combustible liquids contained in the storage tanks The diked area will be impervious in order to avoid any seepage into the environment. A 60 mil. HDPE geomembrane installed between two layers of non-woven geotextile, to protect its integrity, will provide adequate imperviousness. Since the membrane providing the level of impermeability is combustible, it will also be covered with a non-combustible material (a layer of granular material) for adequate protection if exposed to fire. Technical specifications for both geomembrane and geotextile are provided in section 5 of this report.

4.6 SECONDARY CONTAINMENT DRAINAGE

The finished grade of the secondary containment is sloped away from the tanks in order to drain the runoff water. A ditch located between tanks will limit the area in case of an accidental spill. It will also carry the surface runoff water within the diked area and towards a drainage sump located inside the tank farm.

The ditch will be 1.0 m wide with a minimum depth of 0.5 m and the cut slope will be 2V:1H. The ditch has a similar length as that the largest tank foundation pad. A typical detail of the ditch is shown on construction drawings in Appendix E for the Itivia fuel farm in Rankin Inlet, in Appendix F for the Meliadine Mine site fuel farm and in Appendix G for the Meliadine industrial site fuel farm.

As defined in Agnico Eagle Hazardous Materials Management Plan (April 2015), due to melting snow that accumulates over the winter and precipitations, contact water will be collected inside the secondary containment dike. During visual inspections, the quantity of contact water collected inside the secondary containment dike will be evaluated. If there is a visible sheen on the contact water or if water withdrawal is deemed necessary, water samples will be collected and analyzed. Accumulated water will only be released into the receiving environment if it meets discharge criteria.

4.7 DISTANCE RESTRICTIONS

4.7.1 MINIMUM CLEARANCES FOR TANK FARM DESIGN

The minimum clearances that were taken into account in the design of the Tank Farms are:

- The distance between multiple tanks must be the greatest of ¼ of the sum of the tanks diameters or 1 m (NFCC, art. 4.3.2.2);
- The distance between the tank and the toe of the dike shall not be less than 1.5 m (NFCC, art. 4.3.7.4);
- The distance between the tank and the centerline of the dike shall not be less than ½ the height of the tank (DRFS art. 4.5);
- The distance between the property limit and the tank shall not be less than twice the diameter of the tank (NFPA 30, table 22.4.1.1);

- The distance between the property limit and the exterior toe of the dike shall not be less than 3 m (NFPA 30, art. 2.3.4.3);

- The tanks must be located 60 ft (18.3 m) away from the public roads and buildings (NFPA 30, table 22.4.1.1); and

- The Rankin Inlet Itivia fuel farm is located at a distance of at least 31 m from the high water line of Melvin's Bay.

4.7.2 RANKIN INLET AIRPORT RESTRICTIONS

Since the Itivia fuel farm is located within the Rankin Inlet Airport boundary, the regulations specified in Transport Canada's Aerodromes Standards and Recommended Practices (TP312, 4th & 5th Edition) were applied. The airport is currently certified to TP312 4th Edition but in order to protect the airport to be certified to TP312 5th Edition in the future, our design has considered both editions of the standard.

It was assumed that:

- The current approved Airport Operations Manual (AOM) lists Runway 13T-31T as Code 3C – Non-Precision facility, under TP312 4th Edition;

- Should the airport wish to be certified to TP 312 5th Edition, the airport will certify the main runway as an Aircraft Group Number (AGN) IIIB Non-Precision facility;

- There is no electronic Instrument Landing System (ILS) at the site;

- There are no plans to improve the airport operational limits from Non-Precision to Precision with a corresponding change in operational levels and all planned Instrument Approach Procedures (IAP) are GPS based;

- There are approved Obstruction Charts and detailed Airport Zoning Regulations (AZR) in place for the site;

- The Operators will want to maintain a 300 m long clearway extending from both Runway Ends when they move to the TP312 5th Edition Standards; and

- The plans provided show the runway 31T threshold elevation as 34.08 m. The Nav Canada publication Canada Air Pilot (CAP), Effective 02 March 2017 to 27 April 2017, lists the 31T threshold elevation as 96 ft or 29.26 m. The elevation of 29.26 m was used in this design as it is more conservative.

The restrictions with respect to the clearway area and the obstacle limitation surface elevation were considered in the design of the Rankin Inlet Itivia site fuel farm and there are no anticipated penetrations to the clearance surfaces specified in both TP312 4th and 5th Edition Standards.

4.8 INSPECTION AND COMMISSIONING

The manufacture and supply of the liner system for the fuel farms will comply with ASTM standard. The manufacturer will provide a certification stating that the material proposed has physical properties that meet the required values. The rolls of liner will be labelled, packaged, shipped, off-loaded, stored and handled by appropriate means to prevent damage to the material.

The subgrade surface will be inspected by the Engineer to verify suitability prior to installation of the liner system. A minimum thickness of fill covering the liner will be maintained for operating equipment over the liner to prevent any damage. The installation of the liner system will be performed by a qualified installer. All seaming, patching, welding operations, and testing will be performed by a qualified technician. Joints/seams between liners panels will be field welded using the manufacturer's recommended procedures and equipment. Seaming will be normally performed using double wedge automatic fusion welding equipment and techniques. Extrusion welding will be used where double wedge fusion welding is not possible such as for patches, repairs, and short runs of seams. Any welds that have been rejected will be remedied to satisfactory requirements. All the field seams will be non-destructively tested using vacuum box, air pressure, or spark testing equipment. The backfill material will be placed in accordance with the drawings and specifications for the maximum lift thickness, compaction requirements and final grade levels. The fuel farm including its liner system installation and testing documentation will be accepted by the Engineer prior to the filling of the storage tank.

5 EARTH WORKS

5.1 CONSTRUCTION MATERIAL QUANTITIES

The table below presents the estimated in-place material quantities for the construction of the Fuel farms.

Table 7 - Material estimated in-place quantities for the construction of the Fuel farms

Item	Rankin Inlet Itivia fuel farm	Mine site fuel farm	Industrial site fuel farm	TOTAL
Sand (m^3)	180	50	50	**280**
Granular fill 0-30 (m^3)	10 590	2 150	3 350	**16 090**
Granular fill 0-50 (m^3)	0	50	50	**100**
Granular fill 0-200 (m^3)	7 670	2 620	3 560	**13 850**
Rip-rap (50-300 mm) (m^3)	30	50	70	**150**
Borrow pit Class A, ROM or Granular Fill 0-600 (m^3)	7160	10 835	18 900	**36 895**
540 g/m^2 Non-woven geotextile (m^2)	33 600	6 300	10 000	**49 900**
HDPE Geomembrane (m^2)	16 800	3 150	5 000	**24 950**
Total Fill Material Volume (m^3)	**25 630**	**15 755**	**25 980**	**67 365**
Total Excavation of Overburden Volume (m^3)	18 480	-	-	18 480
Total Drill and Blast Excavation Volume (m^3)	68 400	-	-	68 400

5.2 CONSTRUCTION MATERIAL SPECIFICATIONS

The general requirements for the materials are specified below. The requirements for each of the materials can vary slightly for a specific earth structure to meet specific design intents.

5.2.1 SAND

Granular sand shall consist of hard durable particles, be free of roots, topsoil and other deleterious materials and have a particle size distribution as presented in the table below. Processing may be required to achieve the specified gradation if not naturally meeting the requirements.

Table 8 - Sand – Particle size distribution limits

Particle size (mm)	% Passing
10	100
5	95 – 100
0.08	0 - 10

5.2.2 GRANULAR FILL (0-30 MM)

Granular Fill (0-30 mm) shall consist of hard durable particles, be free of roots, topsoil and other organic material and have a particle size distribution as presented in the table below. Processing will be required to achieve the specified gradation.

Table 9 - Granular fill (0-30 mm) – Particle size distribution limits

Particle size (mm)	% Passing
30	100
14	65 – 100
5	45 – 70
0.63	15 – 35
0.08	4 – 10

5.2.3 GRANULAR FILL (0-50 MM)

50 mm Minus Granular Fill shall consist of hard durable particles, be free of roots, topsoil and other organic material and have a particle size distribution as presented in the table below. Processing will be required to achieve the specified gradation.

Table 10 - Granular fill (0-50 mm) – Particle size distribution limits

Particle size (mm)	% Passing
50	100
38	87-100
19	60-95
12.5	46-80
5	35-60
2	25-45
0.315	10-25
0.08	4-10

5.2.4 GRANULAR FILL (0-200 MM)

Granular Fill (0-200 mm) shall consist of hard durable particles, be free of roots, topsoil and other deleterious material and have a particle size distribution as presented in the table below. Processing will be required to achieve the specified gradation.

Table 11 - Granular fill (0-200 mm) – Particle size distribution limits

Particle size (mm)	% Passing
200	100
100	50 - 100
50	25 – 65
25	10 – 40
5	0 - 15

5.2.5 BORROW PIT CLASS A AND GRANULAR FILL (0-600 MM)

The borrow pit material Class A and Granular Fill (0-600 mm) can have a wide variation of gradation, with maximum particle size 500 mm. Rock fill particles shall be angular and shall be derived from hard, durable rock. Any oversized boulders should be removed before the rock fill is placed into the earth structures.

5.2.6 RUN OF MINE

The run of mine material on-site consists mainly of 200 mm Minus particles shall be sourced from Non-Acid Generating (NAG) and Non Metal Leaching (NML) run-of-mine waste (mine) rock but can also can have a few boulders or oversize rocks with a maximum particle size of 600 mm and fines (<0.075 mm) of less than 10%. Any oversized boulders should be removed before the rock fill is placed into the earth structures. Rock fill particles shall be angular and shall be derived from hard, durable rock.

5.2.7 RIP-RAP

Rip-rap shall be used as erosion protection materials for the ditches within the fuel farms perimeter. The particle size specifications for the graded rip-rap materials are presented in the table below. The material shall be free of roots, organics, and other deleterious material. Processing may be required to achieve the specified gradation. The material can be processed from hard, durable, NAG/NML rock. Rocks used for rip-rap should generally be blocky and angular or sub angular, with sharp clean edges and relatively flat faces. It is generally recommended that rocks should be close to equi-dimensional rather than elongate, although this is not always possible. Typically, the average ratio of the long axis to the thickness should be less than 2.

Table 12 - Particle size specifications for rip-rap material

Minimum particle size (mm)	Median particle size (mm)	Maximum particle size (mm)
50	150	300

5.2.8 GEOTEXTILE

A non-woven geotextile will be placed between the granular material and the geomembrane. It will be comprised of needle punch polypropylene fabric made of 100% polypropylene staple fibers conforming to the properties in the table below. The geotextile will be at minimum weight of 540 g/mm^2.

Table 13 - Geotextile specifications

Earth structure	Fuel farms	ASTM test method (or approved equal)
Grab Tensile (N / lbs)	1,690 / 380	D4632
Elongation (%)	50	D4632
Tear (N / lbs)	644 / 145	D4533
Puncture (N / lbs)	4,560 / 1,025	D4833
Weight (g/m^2 / oz/yd^2)	542 / 16.0	D5261
UV Resistance	70	D4355

5.2.9 GEOMEMBRANE

An impervious geomembrane will be placed underneath the granular material at a depth of 0.15 m in order to contain the area in case of a spill. The liner will be a continuous membrane to ensure its imperviousness. The liner material will be a high density polyethylene (HDPE) and will have the minimum property values indicated in the table below.

Table 14 - Geomembrane specifications

Test parameter	Required specifications	ASTM test method (or approved equal)
Minimum average thickness (mm/mil)	1.5/60	D5994
Density	0.94	D792
Tensile properties:		D638 Modified type UV Die 50 mm/minute
Stress @ Yield (kN/m/ppi)	16/90	
Stress @ Break (kN/m/ppi)	22/126	
Strain @ Yield (%)	12	
Strain @ Break (%)	100	
Tear resistance (N/lbs)	187/42	D1004
Low temperature (C/F)	-60/-76	D746 Procedure B
Dimensional stability (%)	+/-2.0	D1204
Puncture resistance (N/lbs)	400/90	FTMS N. 1O1B Method 2065
Carbon black (min.)	2	D1603
Carbon black dispersion	Category 1 or 2	D5596

Appendix A

WSP DRAWINGS- RANKIN INLET ITIVIA FUEL FARM

Appendix B

WSP DRAWINGS – MELIADINE SITE FUEL FARMS

Appendix C

FUNCTIONAL DESCRIPTION – RANKIN INLET ITIVIA FUEL FARM

FUNCTIONAL DESCRIPTION – RANKIN INLET ITIVIA FUEL FARM

a. The truck grounding energizes the system;
b. One of the tanks is selected and the pump motor starters are energized;
c. The pump start command is activated and the motorized valve of the selected tank opens. The pump starts after an adjustable time lag;
d. If one pump does not start, an indicator lights and the other pump starts. If none of the pumps start, the motorized valve closes, the tank selector returns to the neutral position and a system fail signal appears on the control panel;
e. Pumps run alternatively. Red lights for each pump are located on the control panel and indicate which pump is running;
f. Tanks will be selected automatically and manually from the control panel. Provision for this function has to be anticipated until the tank#1 is erected;
g. A Microload allows the transaction (ID and volume are required) before pumping starts;
h. Pumping stops at selected volume or when tanker is full or after an adjustable operation time between 30-60 minutes;
i. Stopping the pump closes of the motorized valve at the selected tank after an adjustable time lag;
j. Position (OPEN/CLOSED) of both motorized valves (includes future tank valve) are indicated on the control panel;
k. Pumping stops when the minimum level of diesel is reached (550mm) inside the tank. In case of emergency (lack of fuel), a manual bypass of these level switches will allow pump to restart. ;
l. A flow control valve automatically controls fuel flow rate during dispensing;
m. Pump emergency button stops everything but lighting cannot be bypassed;
n. Pump interlocks:
    a. Starting condition that cannot be by passed:
        i. Truck must be grounded.
    b. Starting conditions that can be by passed:
        i. Minimum level of diesel in the selected storage tank.
    c. Running conditions that can be by-passed:
        i. Microload; and
        ii. Minimum level of diesel in the selected storage tank.
    d. Safety trip conditions (cannot be by passed):
        i. Emergency stop button.
o. Overfill protection of tanks:
    a. Overfill alarm is composed of one strobe light on each tank and one common horn installed near the electrical container (operating area);
    b. When 90% of a tank capacity is reached (high level from radar), an overfill alarm is activated. Tank strobe light and the horn are activated;
    c. One red indicator light for each tank is located on the control panel and indicates which tank is full;
    d. The horn can be manually by passed (once the storage tanks is full); and

e. Alarms transmission:
    i. At least, 4 different alarms must be transmitted to client's remote monitoring system including but not limited to: Overfill alarm, Emergency stop activated, Temperature alarm, Pumps and valves malfunction alarm; and
    ii. Use Fire alarm system to transmit alarm signals.

Appendix D

FUNCTIONAL DESCRIPTION – MELIADINE FUEL FARMS (MINE AND INDUSTRIAL SITES)

FUNCTIONAL DESCRIPTION – MELIADINE FUEL FARMS (MINE & INDUSTRIAL SITES)

a. The truck static grounding confirmation energizes the system;
b. Connect the fill pipe and truck level control;
c. One of the tanks is selected and the pump motor starters are energized;
d. The pump start command is activated and the motorized valve of the selected tank opens. The pump starts after an adjustable time lag;
e. If one pump does not start, an indicator lights and the other pump starts. If none of the pumps start, the motorized valve closes, the tank selector returns to the neutral position and a system fail signal appears on the control panel;
f. Pumps run alternatively. Red lights for each pump are located on the control panel and indicate which pump is running;
g. Tanks will be selected automatically and manually from the control panel;
h. Pumping stops at selected volume or when tank is full or after an adjustable operation time between 30-60 minutes;
i. Stopping the pump closes the motorized valve at the selected tank after an adjustable time lag;
j. Position (OPEN/CLOSED) of motorized valves are indicated on the control panel;
k. A flow control valve automatically controls fuel flow rate during dispensing;
l. Pump emergency button stops everything but lighting and cannot be by passed;
m. Pump interlocks:
    a. Starting condition that cannot be by passed:
        i. Truck must be grounded; and
        ii. Maximum level of diesel in the selected storage tank.
    b. Running conditions that can be by-passed:
        i. Microload; and
        ii. Maximum level of diesel in the selected storage tank.
    c. Safety trip conditions (cannot be by passed):
        i. Emergency stop button.
n. Overfill protection of tanks:
    a. Overfill alarm is composed of one strobe light on each tank and one common horn installed near the electrical container (operating area);
    b. When 90% of a tank capacity is reached (high level from radar), an overfill alarm is activated. Tank strobe light and the horn are activated;
    c. One red indicator light for each tank is located on the control panel and indicates which tank is full; and
    d. The horn can be manually by passed.
o. Alarms transmission:
    a. At least, 4 different alarms must be transmitted to client's remote monitoring system including but not limited to: Overfill alarm, Emergency stop activated, Temperature alarm, Pumps and valves malfunction alarm; and
    b. Use Fire alarm system to transmit alarm signals. Refer to Fire alarm system components' section for details.

Appendix E

TETRA TECH DRAWINGS – RANKIN INLET ITIVIA FUEL FARM

Appendix F

TETRA TECH DRAWINGS – MINE SITE FUEL FARM

Appendix G

TETRA TECH DRAWINGS – INDUSTRIAL SITE FUEL FARM