April 25th 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 the Permanent Incinerator

Mr. Kharatyan,

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine 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 (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 planned 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 accommodation and kitchen facilities.

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 the Incinerator.

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

Meliadine Incinerator
Design Report and Drawings

30-Day Notice to Nunavut Water Board
In Accordance with Water License 2AM-MEL1631 (Part D, item 1)

Prepared by:
Agnico Eagle Mines Limited – Meliadine Division

April 2017

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1 INTRODUCTION

1.1 SITE LOCATION AND ACCESS

Agnico Eagle Mines Limited (Agnico Eagle) is developing the Meliadine 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 (63°1'23.8'' N, 92°13'6.42"W) 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 SITE FACILITIES

Current facilities at the Meliadine Project site include the exploration camp located on the shore of Meliadine Lake, approximately 3.5 km south-east of the future accommodations. The self-contained exploration camp consists of five wings of new 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 Mine include a mill, power plant, maintenance facilities, tank farm for fuel storage, water treatment plant, 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 Mines Limited (Agnico Eagle) for the Meliadine Gold Project site 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 the incinerator, as specified under Water License 2AM-MEL1631 Part D, Item 1.

1.3 LOCATION OF INCINERATOR

The incinerator will be located in its own building on the south end of the infrastructure pad, downwind of other mine infrastructures. Figure 1 shows the location of the future incinerator.

Figure 1 **–Location of Meliadine incinerator**

2 DESIGN

2.1 OVERALL WASTE MANAGEMENT STRATEGY

At the Project site, as specified in the Incinerator Management Plan, wastes will be safely managed from the time they are produced to their final disposal. All waste will be segregated at the mine site and will predominately be landfilled, incinerated, or recycled. Used oil burning will be maximized as much as possible using the secondary chamber of the incinerator. Remaining wastes, including hazardous waste, will be packaged for shipment to a certified waste management facility for treatment, recycling, and/or disposal.

Incineration is an essential part of waste management at the proposed mine site. The incineration of acceptable solid waste from the accommodation complex, kitchen, lunch rooms, shops, warehouses, and offices will divert waste from directly reporting to the on-site landfill. It will have the advantage of eliminating putrescible waste that could potentially attract wildlife to the landfill, thereby reducing possible dangerous interactions between humans and wildlife.

2.2 DESCRIPTION OF INCINERATOR

The ECO 1.75 TN 1PVC100L Incinerator system consists of a Primary Chamber and a Secondary Chamber. Both chambers are vessels constructed of steel with a special insulating liner known as refractory.

Incinerator components are presented at Appendix A, including the primary and secondary chambers, main control panel, diesel fuel (4,500L) and used oil (5,000L) tanks.

2.2.1 Primary Chamber

In the first stage, a diesel fired burner is used to elevate the temperature of the Primary Chamber to ignite the waste. Once the Primary Chamber reaches a temperature of approximately 650-850°C, the burn process becomes self-fueling and the burner will shut off. To save fuel and control temperatures, only when the energy contained within the waste is depleted, will the burner periodically turn on.

The Primary Chamber operates under controlled air conditions. The amount of heat released, from the burning of the waste, is controlled by limiting the air into the Primary Chamber to less than what is required to complete combustion. This is described as starved air conditions.

Controlling the gas velocity through the system is an important factor in limiting pollution. The gases flowing from the Primary Chamber are a result of the interaction of the air with the waste during the controlled burning process. Both the quantity and velocity of the gas product vary according to chamber temperature conditions and the type of waste being burned. The integrated controls for the Primary and Secondary Chambers act to minimize peaking activity thus controlling pollution automatically.

With controlled air and temperature, the waste is dried, heated and burned thereby releasing moisture and volatile components. The non-volatile, combustible portion of the waste is burned in the Primary Chamber to provide heat while the non-combustible portion accumulates as ash to the exception of metals and glass which remain intact. Preservation of metals and glass protects the refractory lining from damage caused by melted and fused metals and glass. At these operating temperatures, waste is reduced in volume by over 90% and is rendered sterile.

2.2.2 Secondary Chamber

As waste burns in the Primary Chamber, gases generated by the combustion enter the high temperature zone of the Secondary Chamber for cleansing. The Secondary Chamber is sized to retain the incoming gases for a minimum of two (2) seconds at 1000°C. This time of retention is considered to be ideal to destroy any organic hydrocarbons produced from the Primary Chamber.

The Secondary Chamber utilizes a packaged, high output, fully modulating dual (fuel and used oil) burner to maintain the required temperature (even in the absence of energy input from the first stage which is important when processing wet or low energy waste such as food). This stage employs a large blower (Secondary Chamber Blower), tightly controlled by the control system using a variable frequency drive on the motor. The blower creates the turbulence required to mix the gases and oxygenate them. This fosters the high efficiency combustion required to break hydrocarbon chains into carbon dioxide and water vapor.

The Secondary Chamber Blower also acts to cool the Primary Chamber and prevent temperature overruns.

2.2.3 Main Control Panel

There is one Main Control Panel that controls all of the interconnecting modules. The Operator has one simple Human Machine Interface (HMI) to start the equipment, view system status and change control settings if required. The system utilizes a PLC (programmable logic controller) to automate its functions. All critical process parameters such as temperature, combustion airflow and burner output are operated using Eco Wastes Solution patented system control program to maintain optimal combustion and air pollution abatement.

2.3 ASH MANAGEMENT

The ashes collected from the incinerator, in a metal container, will be disposed of as defined in the Incinerator Management Plan. Upon commissioning of the incinerator, an ash testing protocol will be implemented to ensure that the incinerator ash is suitable for disposal in the landfill. If the concentration of trace metals exceeds the Government of Nunavut's Environmental Guideline for Industrial Waste Discharges, ash will be either buried in the dry stack tailings or packaged and sent to an approved disposal facility.

2.4 AIR QUALITY MONITORING

The incinerator stack design includes two (2) sampling ports with caps, as well as an in-line opacity meter to allow for stack testing to be undertaken during incinerator operation.

Performance limits for the incinerator at the Project will be in accordance with the emission guidelines set out by the CCME: Canada-Wide Standard for Dioxins and Furans, and Canada-Wide Standards for Mercury Emissions.

3 DRAWINGS

Drawings of the new incinerator are available in Appendix A.

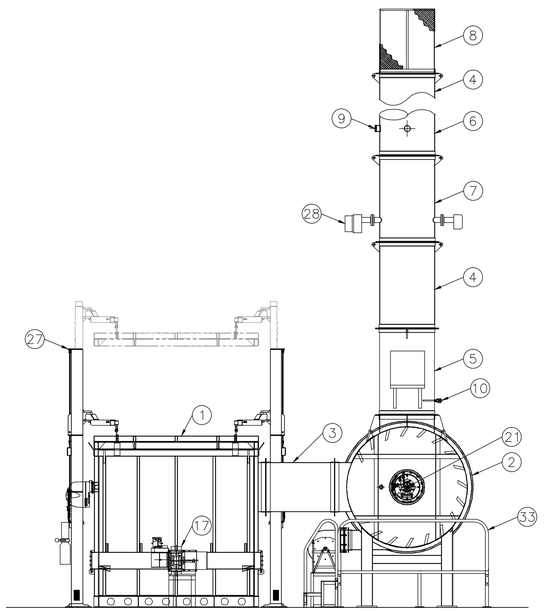
Appendix A: Incinerator Design Drawings

NO. DESSIN
DRAWING NO. 65-428-210-201_R0

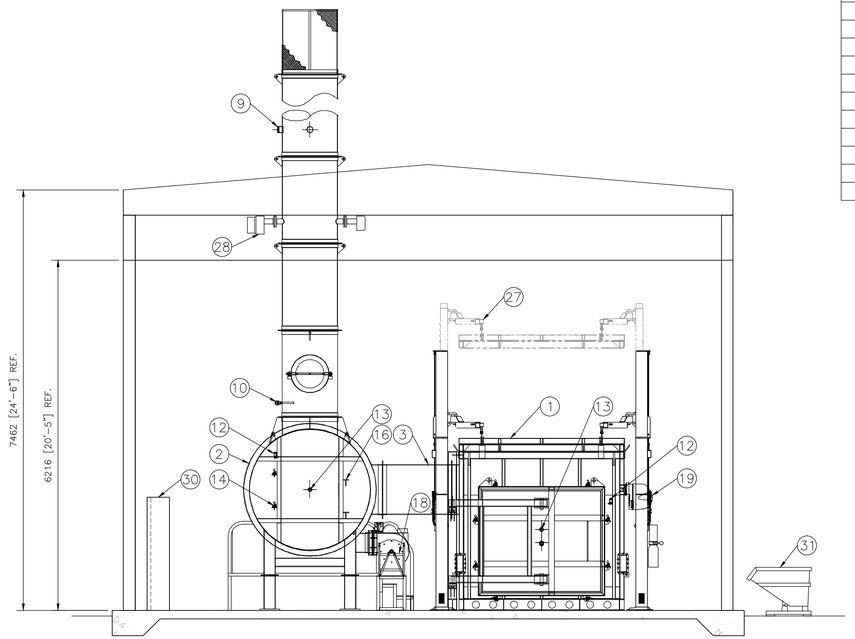
FORMAT ARCHD

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2017-04-21

ITEM	DESCRIPTION
1	PRIMARY CHAMBER
2	SECONDARY CHAMBER
3	BREECH
4	STACK SECTION
5	STACK SECTION WITH BAROMETRIC DAMPER
6	STACK SECTION WITH AIR EMISSION PORTS
7	STACK SECTION WITH OPACITY MONITOR
8	SPARK ARRESTOR
9	4" AIR EMISSION TEST PORT W/ CAP
10	THERMOCOUPLE (WITH PROTECTION TUBE)
11	PRIMARY CHAMBER DRAFT TRANSMITTER
12	PRIMARY/SECONDARY CHAMBER DOOR LIMIT SWITCH
13	2" VIEW PORT (2" NPT SIGHT GLASS)
14	TOGGLE CLAMP
15	PRIMARY CHAMBER DOOR BEARING
16	SECONDARY CHAMBER DOOR BEARING
17	PRIMARY CHAMBER BLOWER ASSEMBLY
18	SECONDARY CHAMBER BLOWER ASSEMBLY
19	PRIMARY CHAMBER BURNER ASSEMBLY
20	DIESEL TANK ASSEMBLY
21	SECONDARY CHAMBER BURNER ASSEMBLY
22	WASTE OIL SUPPLY PUMPING SKID
23	WASTE OIL DELIVERY PUMPING SKID
24	WASTE OIL TANK ASSEMBLY
25	275 GALLON WASTE OIL TOTE
26	95 GALLON UNIVERSIAL DRUM SPILL KIT
27	HYDRAULIC LID LIFTER
28	OPACIRY MONITOR
29	WEIGHT SCALE WITH DIGITAL INDICATOR (4'x4')
30	CONTROL PANEL
31	2.5 YARD METAL ASH BIN
32	ASH CLEAN OUT KIT
33	SECONDARY BURNER PLATFORM



SECTION B
SCL: 1:50



SECTION C
SCL: 1:50

PLAN CLÉ
KEY PLAN

WSP
1075, 3e AVENUE EST
VAL-D'OR (QUÉBEC) CANADA J9P 0J7
TÉL. : 819 825-4274 | TÉLÉC. : 819 824-1514 | WWW.WSPGROUP.COM

Ref. 151-06440-40

NOTES GÉNÉRALES / GENERAL NOTES

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
GENERAL ARRANGEMENT ECO 1.75TN1PVC100L (REV. 1)	6515-5-265-108-210-040-800?sa800_TR004
--	--
--	--
--	--
--	--
--	--

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
1	2017-04-21	ISSUED FOR CONSTRUCTION	T.G.	O.P.	
0	2016-12-13	ISSUED FOR TENDER	I.G.	O.P.	

REVISIONS

TITRE / TITLE
AGNICO EAGLE – MEL IADINE DIVISION
428 – INCINERATOR
210 – GENERAL ARRANGEMENT
SECTION

DESSINÉ PAR / DRAWN BY	CAROLINE GAGNON	DATE 2016-07-11
VÉRIFIÉ PAR / CHECKED BY	JEAN-PHILIPPE GRENIER, ing.	2016-07-11
APPROUVÉ PAR / APPROVED BY	OLIVIER PERREAULT, P. Eng.	2016-12-13
ÉCHELLE / SCALE	INDICATED	DATE 2016-07-11

NO. DESSIN / DRAWING NO. 65-428-210-201

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	1	1 / 1

AE-CART-ARCH D

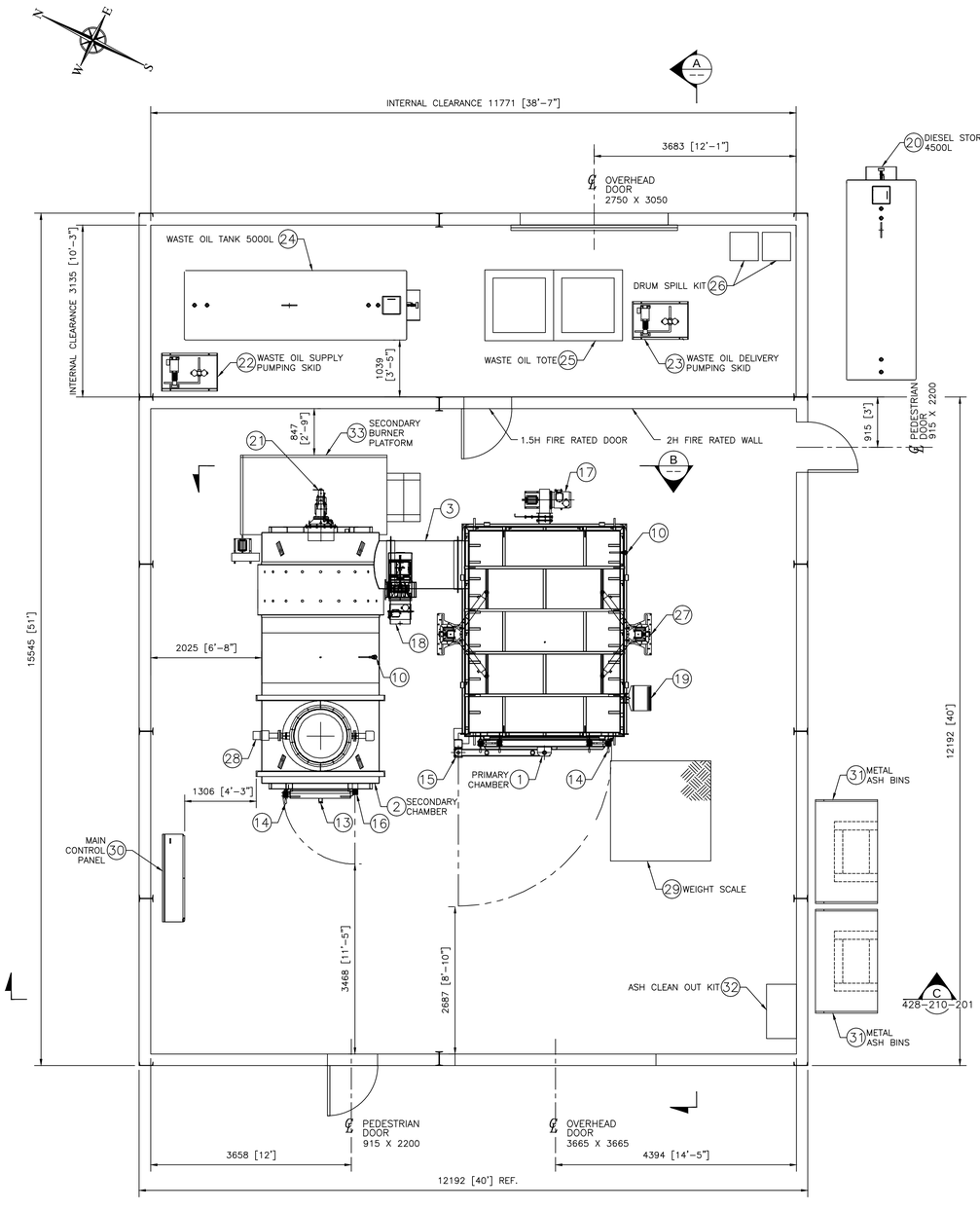
P:_15X-XXXX-XX\151-06440-40\01-COMM\Envoyé_AEM\WSP-AEM-151-06440-40-524 (Incinerator for Construction)\65-428-210-201_R1.dwg-2017-04-21 11:01:50

FILE NO. 65-428-210-201_R1.dwg

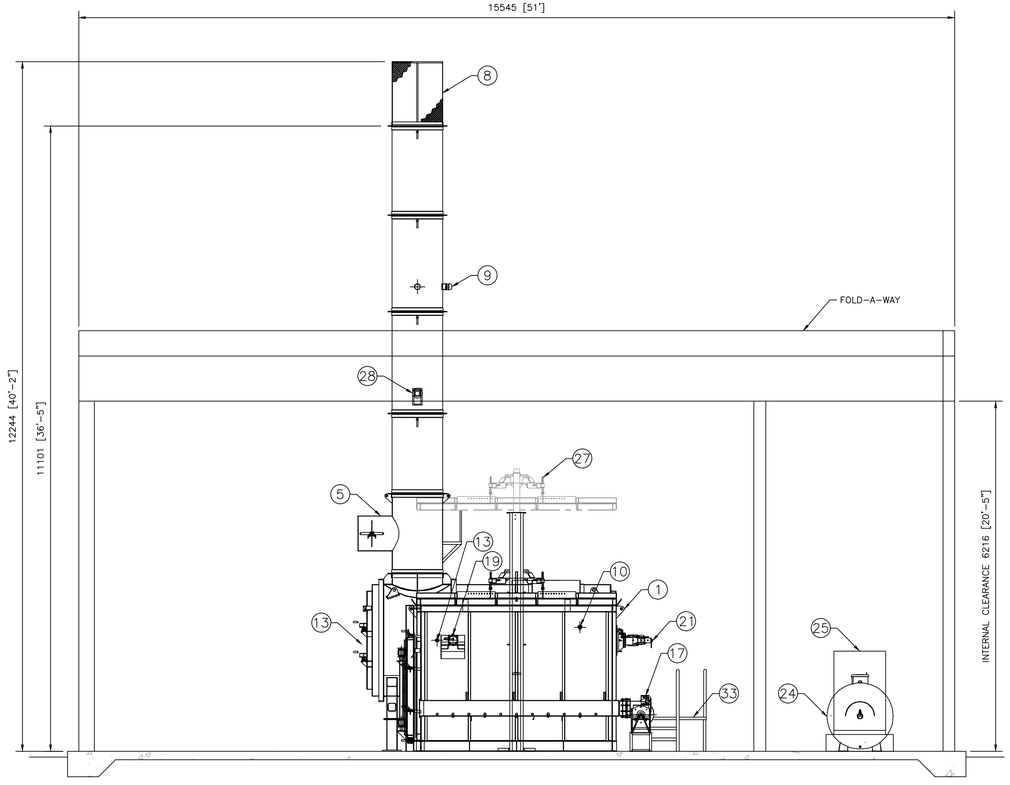
NO. DESSIN
DRAWING NO. 65-428-210-200_R0

FORMAT ARCHD

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2017-04-21



PLAN VIEW
SCL: 1:50



SECTION
SCL: 1:50
A

ITEM	DESCRIPTION
1	PRIMARY CHAMBER
2	SECONDARY CHAMBER
3	BREECH
4	STACK SECTION
5	STACK SECTION WITH BAROMETRIC DAMPER
6	STACK SECTION WITH AIR EMISSION PORTS
7	STACK SECTION WITH OPACITY MONITOR
8	SPARK ARRESTOR
9	4" AIR EMISSION TEST PORT W/ CAP
10	THERMOCOUPLE (WITH PROTECTION TUBE)
11	PRIMARY CHAMBER DRAFT TRANSMITTER
12	PRIMARY/SECONDARY CHAMBER DOOR LIMIT SWITCH
13	2" VIEW PORT (2" NPT SIGHT GLASS)
14	TOGGLE CLAMP
15	PRIMARY CHAMBER DOOR BEARING
16	SECONDARY CHAMBER DOOR BEARING
17	PRIMARY CHAMBER BLOWER ASSEMBLY
18	SECONDARY CHAMBER BLOWER ASSEMBLY
19	PRIMARY CHAMBER BURNER ASSEMBLY
20	DIESEL TANK ASSEMBLY
21	SECONDARY CHAMBER BURNER ASSEMBLY
22	WASTE OIL SUPPLY PUMPING SKID
23	WASTE OIL DELIVERY PUMPING SKID
24	WASTE OIL TANK ASSEMBLY
25	275 GALLON WASTE OIL TOTE
26	95 GALLON UNIVERSIAL DRUM SPILL KIT
27	HYDRAULIC LID LIFTER
28	OPACIRY MONITOR
29	WEIGHT SCALE WITH DIGITAL INDICATOR (4'x4')
30	CONTROL PANEL
31	2.5 YARD METAL ASH BIN
32	ASH CLEAN OUT KIT
33	SECONDARY BURNER PLATFORM

PLAN CLÉ
KEY PLAN

WSP
1075, 3e AVENUE EST
VAL-D'OR (QUÉBEC) CANADA J9P 0J7
TÉL. : 819 825-4274 | TÉLÉC. : 819 824-1514 | WWW.WSPGROUP.COM
Ref. 151-06440-40

NOTES GÉNÉRALES / GENERAL NOTES

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
GENERAL ARRANGEMENT ECO 1.75TN1PVC100L (REV. 1)	8015-5-265-008-210-GAD-0001aa002_R004
--	--
--	--
--	--
--	--
--	--

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
1	2017-04-21	ISSUED FOR CONSTRUCTION	T.G.	O.P.	
0	2016-12-13	ISSUED FOR TENDER	I.G.	O.P.	

REVISIONS

TITRE / TITLE
AGNICO EAGLE – MEL IADINE DIVISION
428 – INCINERATOR
210 – GENERAL ARRANGEMENT
PLAN VIEW & SECTIONS

DESSINÉ PAR / DRAWN BY	CAROLINE GAGNON	DATE 2016-07-11
VERIFIÉ PAR / CHECKED BY	JEAN-PHILIPPE GRENIER, ing.	2016-07-11
APPROUVÉ PAR / APPROVED BY	OLIVIER PERREAULT, P. Eng.	2016-12-13
ÉCHELLE / SCALE	INDICATED	DATE 2016-07-11

NO. DESSIN / DRAWING NO. 65-428-210-200

NO. PROJET / PROJECT NO.	REVISION	FEUILLE / SHT
6515	1	1 / 1

AE-CART-ARCH D

P:_15X-XXXX-XX\151-06440-40\01-COMM\Envoyé_AEM\WSP-AEM-151-06440-40-524 (Incinerator for Construction)\65-428-210-200_R1.dwg-2017-04-21 10:22:13

FILE NO. 65-428-210-200_R1.dwg

NO. DESSIN
DRAWING NO. 65-428-200-200_R0

FORMAT ARCHD

POUR CONSTRUCTION
FOR CONSTRUCTION
AGNICO EAGLE
DATE : 2017-04-21

VENDOR PACKAGE

STREAM NAME AND NUMBER PROPERTY OR COMPONENT	UNITS	①
		SOLID WASTE
FEED RATE	KG/Batch (LB/Batch)	1750 (3858)
ESTIMATED BULK DENSITY	KG/M3 (LB/CF)	192 (12)
ESTIMATED HIGHER HEAT VALUE	MJ/KG (BTU/LB)	11.5 (4950)
MOISTURE CONTENT	%W	43
COMBUSTBLE	%W	49.5
NON-COMBUSTBLE	%W	7.5

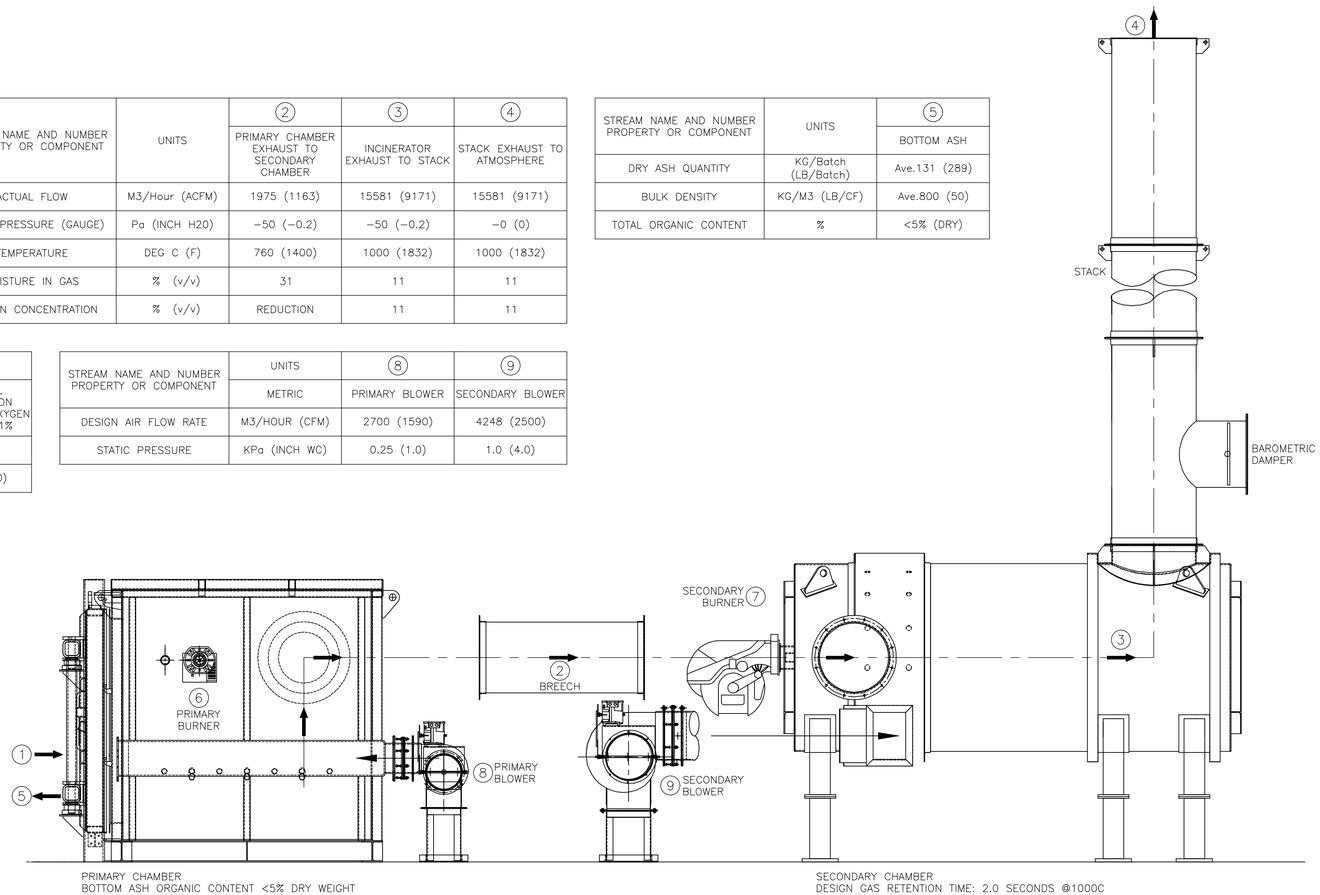
STREAM NAME AND NUMBER PROPERTY OR COMPONENT	UNITS	②	③	④
		PRIMARY CHAMBER EXHAUST TO SECONDARY CHAMBER	INCINERATOR EXHAUST TO STACK	STACK EXHAUST TO ATMOSPHERE
ACTUAL FLOW	M3/Hour (ACFM)	1975 (1163)	15581 (9171)	15581 (9171)
STATIC PRESSURE (GAUGE)	Pa (INCH H20)	-50 (-0.2)	-50 (-0.2)	-0 (0)
TEMPERATURE	DEG C (F)	760 (1400)	1000 (1832)	1000 (1832)
MOISTURE IN GAS	% (v/v)	31	11	11
OXYGEN CONCENTRATION	% (v/v)	REDUCTION	11	11

STREAM NAME AND NUMBER PROPERTY OR COMPONENT	UNITS	⑤
		BOTTOM ASH
DRY ASH QUANTITY	KG/Batch (LB/Batch)	Ave.131 (289)
BULK DENSITY	KG/M3 (LB/CF)	Ave.800 (50)
TOTAL ORGANIC CONTENT	%	<5% (DRY)

STREAM NAME AND NUMBER PROPERTY OR COMPONENT	UNITS	⑥	⑦
		DIESEL CONSUMPTION @FLUE GAS OXYGEN CONTENT 11%	WASTE OIL CONSUMPTION @FLUE GAS OXYGEN CONTENT 11%
FLOW RATE	LITER/HOUR (GPH)	Ave.10 (2.64)	98 (26)
DIESEL HIGHER HEAT VALUE	MJ/KG (BTU/LB)	42 (18000)	40 (17000)

STREAM NAME AND NUMBER PROPERTY OR COMPONENT	UNITS	⑧	⑨
	METRIC	PRIMARY BLOWER	SECONDARY BLOWER
DESIGN AIR FLOW RATE	M3/HOUR (CFM)	2700 (1590)	4248 (2500)
STATIC PRESSURE	KPa (INCH WC)	0.25 (1.0)	1.0 (4.0)

NOTE:
IN-LINE LAYOUT OF PROCESS DIAGRAM IS NOT THE ACTUAL EQUIPMENT LAYOUT.



PLAN CLÉ
KEY PLAN

WSP
1075, 3e AVENUE EST
VAL-D'OR (QUÉBEC) CANADA J9P 0J7
TÉL. : 819 825-4274 | TÉLÉC. : 819 824-1514 | WWW.WSPGROUP.COM

Ref. 151-06440-XX

NOTES GÉNÉRALES / GENERAL NOTES

REF. TO DRAWING
ECO 1.75TN-1PVC100L-00C REV. 0

DESSINS EN RÉFÉRENCE / REFERENCE DRAWINGS

TITRE / TITLE	# DWG
-	-
-	-
-	-
-	-
-	-
-	-

AGNICO EAGLE

REV.	DATE	DESCRIPTION	PAR/BY	APP.	CLIENT
0	2017-04-21	ISSUED FOR CONSTRUCTION	T.G.	B.F.	

REVISIONS

TITRE / TITLE
AGNICO EAGLE - MELIADINE DIVISION
428 - INCINERATOR
200 - PROCESS
FLOWSHEET

DESSINÉ PAR DRAWN BY	THIERRY GEMME	DATE 2017-04-20
VERIFIÉ PAR CHECKED BY	BERTRAND FORTIN, P. Eng.	2017-04-21
APPROUVÉ PAR APPROVED BY	BERTRAND FORTIN, P. Eng.	2017-04-21
ÉCHELLE SCALE	INDICATED	DATE 2017-04-21
NO. DESSIN DRAWING NO.	65-428-200-200	
NO. PROJET PROJECT NO.	6515	REVISION 0 / FEUILLE / SHT. 1 / 1

AE-CART-ARCH D

P:_15X-XXXX-XX\151-06440-40\01-COMM\Envoyé_AEM\WSP-AEM-151-06440-40-524 (Incinerator for Construction)\65-428-200-200_R0.dwg-2017-04-21 14:37:11

FILE NO. 65-428-200-200_R0.dwg