



October 27, 2011

Michael De Carlo
Project Manager
Fortune Minerals Limited
140 Fullarton Street, Suite 1902
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By email: mdecarlo@fortuneminerals.com

Re: Nico Project Camp Waste Incinerator

Dear Mr. De Carlo

As per your request, this letter is in regards to the incinerator to be installed at the Nico Project site in NWT.

The incinerator planned for the camp is an Eco Waste Solutions Model ECO 1TN 1P. This unit is a diesel-fired, two-stage, dual-chambered controlled air batch incinerator. It has a primary chamber that operates at 650 to 800°C using an auxiliary burner sized to maintain adequate temperatures even when burning low heat value materials. The secondary chamber operates above 1000°C with a retention time of 2 seconds. The incinerator has a computerized process controller to automate its operation and the system allows for monitoring of all process parameters recommended in the *Technical Document for Batch Waste Incineration*.

The ECO 1TN, based on typical mixed camp waste including dewatered sewage sludge, is designed to process up to 1000 kg per batch. Sewage sludge must be mechanically dewatered to the maximum extent possible bringing the solids content up to 30-35%.

The ECO 1TN capacity is slightly larger than the waste generation rate of 938 kg per day estimated for the construction phase of the project. During the operations phase that will follow, when workforce sizes are lower, the added capacity will provide contingency for fluctuations in material flow.

The incinerator is designed to accommodate a range of waste materials with differing characteristics (heat value, moisture content, etc). We recommend that materials with different characteristics are layered for maximum efficiency. Extremely wet materials such as dewatered sludge should be layered among drier higher heat value materials such as cardboard, paper and plastics. The sludge proportion within the waste load should not exceed 20-25% of the batch by weight.

Proper on-site waste management procedures, correct operation of this equipment by trained operators, and a rigorous preventative maintenance program will ensure that this system will be in compliance with the Canada Wide Standards for Dioxins and Furans.

If you require anything further please don't hesitate to contact us.

Respectfully submitted,

Jean Lucas
Eco Waste Solutions
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TECHNICAL DATA SHEET

Technical Data

Supply all technical data for each item applicable, in the format shown on the following pages. Include drawings necessary for a technical evaluation of each item.

Equipment Number	TBD
Equipment Description	Camp Waste Incinerator
Manufacturer	Eco Waste Solutions
Model Number	ECO 1TN 1P
Total Installed Weight, kg	17140

1 Waste Incinerator

Waste classification: (TYPES)	1. Camp Waste
	2. Sewage Sludge
	3. Waste Oil

Mixed waste charge classification: Break-down of each type of waste (%)	1. Camp Waste - 75%
	2. Sewage Sludge - 25%
	3. Waste Oil - Use specialized burner

**Emissions:

SO ₂ (mg/m ³)	50 mg/m ³
CO (mg/m ³)	7 mg/m ³
NOx (ppm)	< 50 ppm
VOCs µg/m ³	50 - 2000 µg/m ³
Particulate (mg/m ³)	20 mg/m ³
PM ₁₀ (g/s)	N/A
Dioxins/Furan (pg I-TEQ/m ³)	< 80
Mercury (µg/Rm ³)	N/A - Materials containing Mercury to be excluded from incinerator waste stream

Flue Gas Temperature (°C)	1000°C
Flue Gas Flow Rate (kg/s)	0.71 kg/s (max)
Incineration capacity: (kg/h)	100 kg/h (10 hour burn)
Charge per cycle: (kg)	Maximum 1000kg
Burning rate: (kg/h)	100 kg/hr average
Off-time per cycle: (h)	6 hr cool down
Heat value: (kJ/kg or BTU/lb)	5125 BTU/lbs (Solid and Sewage sludge mixed waste)

**The emission estimates provided are given as volumetric concentrations or pollutants; as per test reporting standards. Estimates are based on previous air emission tests.

Applicable auxiliary burner. Incinerator to bear CSA label?	Waste Oil Burner + Diesel main burners All electrical components CSA or UL approved. Approval of complete incinerator package at additional cost..
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Temperature: Primary chamber (°C):	650—800°C
Temperature: Secondary chamber (°C):	1000°C
Burner Efficiency:	High
Internal Volume of Primary Chamber:	2.3(l) x 2.1(w) x 2.3(h) m
Internal Volume of Secondary Chamber:	Ø1.52(dia) x 3.7(l) m
Destruction efficiency	99.99% DRE
Tested Emission results (rates)	- See Section 1 (Emissions)
Stack internal diameter (mm)	Ø660mm
Height of Stack (m)	11m (From Grade)
Stack materials of construction	Refractory Lined - Mild Steel (44W HSLA)
Spark Arrester length (mm)	787mm
Spark Arrester open area (m ²)	0.53m ²
Burner System	Primary Burner - Riello RL28/2 Secondary Burner - Riello RL100/M
Valve Train	N/A - Integrated in Burners
Charging System	N/A - Batch System

Charging opening size	1.56m (w) x 1.75m(h)
Charging Chute size	N/A - no chute
Ash Removal System	N/A - Manual
Expected ash production per cycle (kg)	100kg (estimated)
Maximum Capacity of ash removal system	N/A
2. Materials of Construction	
External Casing	Mild Steel (44W HSLA)
Spark Arrester	Stainless Steel (SS 316)
Insulation in Primary Chamber	Walls - Ceramic Fibre Blocks (152mm (6") Thick)
	Floor, Door Sills & Breech entrance - Castble (101 - 152mm (4-6") Thick)
Insulation in Secondary Chamber	Walls - Ceramic Fibre Blocks (152mm (6") Thick)
	Breech exit & Stack Entrance - Castable - (76 -152mm (3-6") Thick)
Insulation in Stack (materials and thickness)	Insulating Castable (76mm (3") Thick)
Charging Chute	N/A
Paint System Used	Carboline - Silicon Zinc Primer, Silicon Finish
Dry Film Thickness of Paint	Primer - 2 mils (50 micron)
	Final Coat - 2 mils (50 micron)
Primary Chamber Burner Rating	(663 - 1266)x10 ³ KJ/hr
Secondary Chamber Burner Rating	(1582 - 6119)x10 ³ KJ/hr
3. BLOWERS	
Blower Manufacturer	New York Blower
Primary Chamber Blower Capacity (m ³ /hr)	2700
Primary Blower Pressure (kPag)	0.25
HP/ RPM	1hp @ 1750rpm
Secondary Chamber Blow Capacity (m ³ /hr)	2200
Secondary Blower Pressure (kPag)	1
HP/ RPM	1.5hp @ 2900 RPM
4. CONTROL SYSTEM	
Please list all instrumentation and details including CSA approval and labelling:	

5. INCINERATOR BUILDING (if applicable)	(By Others)
Overall Length (mm)	
Overall Width (mm)	
Overall Height (mm)	
Shipping Dimensions (mm)	
6. DIMENSIONS	
Overall Length (mm)	5900 mm
Overall Width (mm)	6980 mm
Overall Height (mm)	11 790 mm
Shipping Dimensions (mm)	Largest Pieces (L x W x H) mm
	Primary Chamber - 3385 x 2882 x 2900
	Secondary Chamber - 4483 x 2152 x 2644
	Shipping Container - 12 000 x 2438 x 2591
7. WEIGHTS (KG)	
Incinerator	13550 kg
Stack	2610 kg
Blowers & Burners	400 kg (Blowers) 580 kg (Burners)
Total Weight	17140kg