NPRI & GHG
2020 Reporting Year

NATT Tools Group Inc.
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Hamilton, Ontario L8L 8J6

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Project 217201.0077

Trinity Consultants

EXECUTIVE SUMMARY

NATT Tools Group Inc. (NATT) located at 460 Sherman Avenue North, Hamilton retained the services of Trinity Consultants Ontario Inc. (Trinity) to conduct an assessment based on the requirements of Environment Canada's National Pollutant Release Inventory (NPRI) and Environment Canada's Greenhouse Gas Reporting (GHG) for the 2020 reporting year. The assessment was prepared based on the information provided by NATT.

Environment Canada's 2020 NPRI reportable substances for NATT are presented in the following tables:

2020 NPRI Part 1A Reportable Substances

Substance	CAS RN	MPO Threshold (tonnes)	2020 MPO Quantity (kg)
Manganese (and its compounds)	N/A – 09	10	176.81

2020 NPRI Part 1B, 2 and 3 Reportable Substances

No reportable substances for Part 1B, 2 and 3.

2020 NPRI Part 4 Reportable Substances

Substance	CAS RN	Release Based Threshold (kg)	2020 Air Releases (kg)
Particulate matter (PM_{10})	N/A	500	8,231
Particulate matter ($PM_{2.5}$)	N/A	300	8,181

2020 NPRI Part 5 Reportable Substances

Part 5 Speciated VOCs are not required to be reported as NATT did not meet the released-based threshold for Part 4 VOCs.

A comparison table of substances reported in 2019 and 2020 is presented below. The differences in values reported were mainly attributed to changes in production levels and material usage as well as estimation methods used for calculating particulate matter.

Substance	CAS RN	2019 Reported Amounts (kg)	2020 Reported Amounts (kg)
Particulate matter (PM_{10})	N/A – M09	10,272	8,231
Particulate matter $PM_{2.5}$	N/A – M10	10,181	8,181
Manganese (and its compounds)	N/A – 09	81.03	88.35
Volatile organic compounds (VOCs)	NA-M16	5,161	7,476
Ethylene glycol butyl ether	111-76-2	4,039	4,326

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1. INTRODUCTION

NATT Tools Group Inc. (NATT) located at 460 Sherman Avenue North, Hamilton retained the services of Trinity Consultants Ontario Inc. (Trinity) to conduct an assessment based on the requirements of Environment Canada's National Pollutant Release Inventory (NPRI) and Environment Canada's Greenhouse Gas Reporting (GHG) for the 2020 reporting year. The assessment was prepared based on the information provided by NATT.

The facility was required to assess its releases of NPRI and GHG contaminants because the facility met the 20,000-hour employee threshold. This threshold reporting criteria states that if the combined work hours of all of the employees at the facility are in excess of 20,000 hours (the equivalent of 10-12 full time employees), then the facility must assess their releases of NPRI contaminants.

A substance's manufactured, processed or otherwise used (MPO) may be referred to in this report, which is defined by both Environment Canada and the Ministry of Environment, Conservation and Parks (MECP).

The releases to the atmosphere were estimated for the 2020 reporting year (January through December) for the NPRI and GHGs.

2. ASSESSMENT AND REPORTING REQUIREMENTS

2.1 National Pollutant Release Inventory (NPRI)

The NPRI was established in 1992 to provide information to the public on pollutants released to the environment in accordance with the Environmental Protection Act. The releases to be reported by facilities include air emissions, wastewater discharges (sanitary, storm sewer, direct discharge), land filling, recycling, disposal as hazardous waste as well as discharges to water bodies/surface waters.

Reporting is required if a facility meets the MPO threshold for any NPRI reportable substance.

Each year, Environment Canada publishes a list of the reportable NPRI substances in the Canada Gazette. This list, referred to as Schedule 1 is divided into five parts:

- Part 1A: One hundred and eighty-three (183) core substances with reporting thresholds based on an MPO quantity of ten (10) tonnes.
- Part 1B: Twenty-two (22) alternate threshold substances with reporting thresholds based on MPO quantities ranging from five (5) to 1,000 kilograms (kg).
- Part 2: Thirty-one (31) polycyclic aromatic hydrocarbons (PAHs) with a reporting threshold based on the total quantity of PAHs released.
- Part 3: Hexachlorobenzene and seventeen (17) speciated dioxins and furans with activity-based reporting thresholds.
- Part 4: Seven (7) criteria air contaminants (CACs) with reporting thresholds based on the quantity released to air.
- Part 5: Sixty-two (62) speciated volatile organic compounds (VOCs) with a reporting threshold based on the total quantity of VOCs released to air and the amount of each individual VOC released.

2.2 Greenhouse Gases Reporting

Environment Canada's GHG reporting system covers the following greenhouse gases:

- Carbon Dioxide (CO2)
- Methane (CH4)
- Nitrous Oxide (N2O)
- Hydrofluorocarbons (HFCs) (13 individual species)
- Perfluorocarbons (PFCs) (7 individual species)
- Sulphur Hexafluoride (SF6)

A facility is required to submit a report if the total GHG emissions meet or exceed the reporting threshold of 10,000 tonnes of equivalent CO_2 under the federal GHG and 10,000 tonnes of equivalent CO_2 under the Ontario GHG reporting regulations.

3. ASSESSMENT OF NPRI REPORTING REQUIREMENTS AND RELEASE ESTIMATES

3.1 NPRI – Part 1A & 1B Substances

A list of products and their usage quantities for 2020 was provided by NATT, and is included in Appendix A.

The complete listing of materials purchased was obtained from the facility and was filtered to remove all non-reportable substances.

NATT exceeded the reporting threshold for one (1) Part 1A substance.

Table 3-1: NPRI Part 1A Substances

Substance	CAS RN	MPO Threshold (tonnes)	2020 MPO (tonnes)	2020 Releases (kg)
Manganese (and its compounds)	N/A – 09	10	176.81	88.35

3.2 NPRI Part 2 - Polycyclic Aromatic Hydrocarbons (PAHs)

Based on the information provided, the facility is not required to report any of the polycyclic aromatic hydrocarbons listed in Part 2.

3.3 NPRI Part 3 - Dioxins/Furans and Hexachlorobenzene

Based on the information provided, the facility is not required to report any of the dioxins/furans and hexachlorobenzne listed in Part 3.

3.4 NPRI Part 4 – Criteria Air Contaminants

Fuel usage data for the facility was provided for 2020. The facility consumed 4,608,712 m^3 of natural gas.

The NPRI requires the reporting of two (2) CACs. As summarized in the following table, the annual estimated releases of PM_{10} and $PM_{2.5}$ were above their respective NPRI thresholds, and thus reporting was required.

Table 3-2: NPRI Part 4 Criteria Air Contaminants

Criteria Air Contaminant	CAS RN	Release-Based Threshold (tonnes)	2020 Air Releases (tonnes)	NPRI Reportable?
Carbon monoxide	630-08-0	20	6.20	NO
Oxides of nitrogen (NO_2)	11104-93-1	20	7.38	NO
Sulphur dioxide	7446-09-5	20	0.044	NO
VOCs	NA - M16	10	7.48	NO
Particulate matter (PM)	NA - M08	20	8.46	NO
Particulate matter (PM_{10})	**NA - M09**	**0.5**	**8.23**	**YES**
Particulate matter ($PM_{2.5}$)	**NA - M10**	**0.3**	**8.18**	**YES**

3.5 NPRI Part 5 – Volatile Organic Compounds

Reporting of Part 5 substances is mandatory if the overall release of VOCs has exceeded the Part 4 release-based threshold. Since the facility released less than this reporting threshold (refer to *Table 3-2: NPRI Part 4 Criteria Air Contaminants*), the facility was not required to report the releases of any Part 5 substances.

3.6 Greenhouse Gas Thresholds

The total equivalent carbon dioxide emissions were calculated to be 9,210 tonnes, which is below the reporting threshold of 10,000 tonnes for Ontario GHG reporting and 10,000 tonnes for federal GHG reporting regulations.

CONCLUSIONS

NATT was required to assess its releases of NPRI contaminants because the facility met the 20,000-hour employee threshold. The facility was reportable for a total of four (4) substances:

- One (1) Part 1A Substances: Manganese
- Two (2) Criteria Air Contaminants: PM_{10} and $PM_{2.5}$

The facility voluntarily reported for Greenhouse Gas in 2020, as their calculated total equivalent carbon dioxide emissions (9.21kt) were close to the 10kt reporting threshold.

APPENDIX A. INFORMATION PROVIDED BY NATT

Facility Operating Time	2019	2020
Annual Number of Days of Operation	278	338
Number of Full-Time Employees	106	108

Dust Collector

Operating Time (hr/yr)	2019	2020
All others	6,528	6,768
Plasma Cutting	36	68

Ovens & Furnaces

Operating Time (hr/yr)	Source ID	2019	2020
Natural gas-fired draw furnace	A-1	4,448	4,603
Natural gas-fired rotary furnace	A-17	4,448	4,603
Natural gas-fired furnace	A-32	3,336	3,459
Natural gas-fired furnace	A-38	6,672	6,918
	A-39	6,672	6,918
Natural gas-fired draw oven	A-74	6,672	6,918
	A-108	6,672	6,918
Natural gas-fired Guspro burn off oven	A-89	1,716	1,792
Natural gas-fired Curing Oven	A-125	4,448	4,603
Natural gas-fired HVAC servicing powder coating environmental room (*Note 1*)	A-133	4,448	4,603

Cooling Tower

Operating Time (hr/yr)	2019	2020
BAC Model VXT-75	7,824	8,112
BAC Model VXT-135	7,824	8,112

Recycled Material

Total Amount Recycled (kg/yr)	2018	2020
Steel Plate/Coils, Metal Scale + Metal turnings & Punchings	9745199	10,535,989
Shot Blast Pellets + Shot Blast Dust	151159	97,762

Paint Spray

Usage Rate (L/yr)	2018	2020
Black Enamel Water Reducible Paint		21,206
POWDURA TGIC-Free Polyester Powder		12,112
Egyptian Lacquer Enamel		5,000
Polyquench 15		2,704

Other Solvents

Usage Rate (L/yr)	2018	2020
Universal Way Lube		3,075
Rust Inhibitor XN		416

Natural Gas

Monthly Consumption Rate (m3)	2019	2020
January	541,588.7	445,628
February	492,425.2	430,837

March	523,078.4	429,513
April	430,808.5	376,714
May	477,126.5	369,981
June	306,138.4	369,530
July	57,249.5	170,734
August	333,439.1	296,278
September	290,839.9	380,405
October	306,533.0	430,424
November	386,152.7	463,378
December	413,735.0	445,290
Annual	**4,559,115**	**4,608,711.5**

NATT Tools Group Inc ECA#: 7272-AN3KAP (Issue Date: June 20, 2017)

2019 Production Rate	24,429,170	Million Kilograms of Steel Discs and Sweeps

Dates: Facility was shut down (ie. March 14,2019 - March 18, 2019)	July 1st to July 19th = 18 days December 23rd to Dec 31st = 9 days
Operating Schedule - Days of the week (ie. Mon, Tues…)	Sunday to Saturday

Modifications	**2020**
1. Were there any modifications to the facility, including but not limited to the following: • Stack modifications; • Change in materials (used/produced); • Change in operation; • Additional/removal of processes; • New/modified/replaced equipment;	**No modifications were made to the facility**
2. Date of implementation of all new modifications (i.e. month and year)	**No modifications were made to the facility**
3. Where required, details of all new modifications, including but not limited to the following: • Stack height; • Fan rating (CFM); • Material MSDS; • New shift hours; • Change in annual production; • Technical specifications on new/replaced equipment;	**No modifications were made to the facility**

Products Used

Month	Steel Purchases (lbs)	Steel Scrap (lbs)	Mill Scale (lbs)	Turnings (lbs)	Metal Dust (AIM) (lbs)	JAX Pyro-Kote 220 Applied (L)	Mergal 165 (Egyptian Coatings) (L)	KT 822 (KEM) (L)	KT 825 Biocide (KEM) (L)	HT Polymer #144 (KEM) (L)	KT 034 Slimecide (KEM) (L)	Glycol E-100 (KEM) (L)	KT2K7 (KEM) (L)	XN Rust Inhibitor .055 (Dubois) (gal)	SQW-L542 BWRQ (Egyptian Coatings) (L)	3000HL-MOD1 Chain Lube (Echo Distribution) (L)	AW32 (Crescent Oil) (L)	Waylube 220 (Crescent Oil) (L)	80w90 (Crescent Oil) (L)	Synduro 220 (Crescent Oil) (L)	S-110 (Asbury Wilkinson) (lbs)	SG-40 (Asbury Wilkinson) (lbs)	Polyquech 15XN/15 (Dubois) (gal)	BWRE (Korzite Paint) (Imp. gal)	Polyester Powder Paint (Sherwin-Williams) (kg)
Jan	2784000	521820	19840	46040	30380								16			80		410						1112	800
Feb	2306000	566900		42700		80		20	120			100	16			160	410				4000	3400		2065	1200
Mar	1896000	846620	38040	105220		80			140			140		208	1279	80					4000	6800		2100	800
Apr	2082000	761280	37240	47420			20		100			80	16	208		80		410			5062		208	1738	800
May	3060000	826660		104620		40			120			120					305	410			2000	6800		1520	1200
Jun	2948000	1172700		131120	35020	40											240	410	1435			6800		2046	1400
Jul	1230000	354540	24920	21040		40			160			120	32			1204	80	820			20		3400	2080	1200	800
Aug	2414000	446460		66800		40					210	40					160			205	20		8500		2400	800
Sep	4134000	1201300	27260	91020		60		20	140			140					80	1230			20	6000	13100	416	2021	400
Oct	2844000	911460		135860					40			120					100					13100			1500	1647
Nov	3772000	870460		104460	29160	80			120			100		16		1268	80	410							1724	1200
Dec	2222000	688700	31920	81160		80			200		210	60	20	16			240		410			14800			1800	1065
Total	31698000	9268900	179220	977460	94560	540	20	40	1140	420	1020	20	112	416	5000.52661	1380	3485	3075	205	60	48962	48800	2704	21206	12112

Utilities

Month	Water (Alectra) (m3)	Electricity (Alectra) (kWh)	Natural Gas (Union Gas) (m3)
Jan	1420	553288	445,628.00
Feb	695	545938	430,836.65
Mar	814	598892	429,512.51
Apr	866	555764	376,714.42
May	1120	560428	369,980.86
Jun	1035	580683	369,530.05
Jul	820	391882	170,734.38
Aug	805	475166	296,277.69
Sep	920	547296	380,405.20
Oct	750	628833	430,424.20
Nov	725	585378	463,377.60
Dec	550	574792	445,289.90
Total	10520	6598340	4,608,711.46

Waste to GFL

Month	Paint Solids (145L) (L)	Oily Absorbents (251L) (L)	Oily Water (251L) (L)	Used Oil (251L) (L)
Jan				
Feb				
Mar	590	600		500
Apr				
May				
Jun				
Jul	782	800	1000	1000
Aug				
Sep				
Oct	1600	600	2100	1200
Nov				
Dec				
Total	2972	2000	3100	2700

APPENDIX B. SUMMARY OF RELEASE ESTIMATES

Emission Rate Calculations
NATT Tools Group Inc.

National Pollutant Release Inventory (NPRI)

NPRI Part 1A Substances

Substance	CAS RN	NPRI MPO Threshold (tonnes)	2020 MPO Quantity (tonnes)	Reportable?
Aluminum (fume or dust only)	7429-90-5	10	7.91	No
Benzene	71-43-2	10	1.55E-04	No
2-Butoxyethanol	111-76-2	10	4.33	No
sec-Butyl alcohol	78-92-2	10	0.65	No
Chromium (and its compounds)[1]	NA - 04	10	29.25	No
Copper (and its compounds)	NA - 06	10	4.57	No
o-Dichlorobenzene	95-50-1	10	8.86E-05	No
p-Dichlorobenzene	106-46-7	10	8.86E-05	No
Ethylene glycol	107-21-1	10	1.04E-02	No
Formaldehyde	50-00-0	10	5.54E-03	No
n-Hexane	110-54-3	10	0.13	No
Isopropyl alcohol	67-63-0	10	1.08	No
Manganese (and its compounds)	**NA - 09**	**10**	**176.81**	**Yes**
Naphthalene	91-20-3	10	4.50E-05	No
Nickel (and its compounds)	NA - 11	10	2.46	No
Phosphorus (total)	NA - 22	10	6.55E-04	No
Toluene	108-88-3	10	2.51E-04	No
Total reduced sulphur (expressed as hydrogen sulphide)	NA - M14	10	4.59E-04	No
Vanadium (and its compounds)	NA - 40	10	1.70E-04	No
Zinc (and its compounds)	NA - 14	10	2.14E-03	No

[1] *Chromium is not reportable as the contaminant is present at concentrations below the 1% threshold.*

NPRI Part 1B Substances

Substance	CAS RN	NPRI MPO Threshold (kg)	2020 MPO Quantity (kg)	Reportable?
Arsenic (and its compounds)	NA - 02	50	1.48E-02	No
Cadmium (and its compounds)	NA - 03	5	8.12E-02	No
Cobalt (and its compounds)	NA - 05	50	6.20E-03	No
Hexavalent chromium (and its compounds)	NA - 19	50	1.12	No
Lead (and its compounds)	NA - 08	50	3.69E-02	No
Mercury (and its compounds)	NA - 10	5	1.92E-02	No
Selenium (and its compounds)	NA - 12	100	1.77E-03	No

NPRI Part 2 Substances

Substance	CAS RN	2020 Release Quantity (kg)	Reportable?
Acenaphthene	83-32-9	1.33E-04	No
Acenaphthylene	208-96-8	1.33E-04	No
Anthracene	120-12-7	1.77E-04	No
Benz[a]anthracene	56-55-3	1.33E-04	No
Benzo[a]pyrene	50-32-8	8.86E-05	No
Benzo[b]fluoranthene	205-99-2	1.33E-04	No
Benzo[ghi]perylene	191-24-2	8.86E-05	No
Benzo[k]fluoranthene	207-08-9	1.33E-04	No
Chrysene	218-01-9	1.33E-04	No
Dibenz[a,h]anthracene	53-70-3	8.86E-05	No
7,12-Dimethylbenz[a]anthracene	57-97-6	1.18E-03	No
Fluoranthene	206-44-0	2.21E-04	No
Fluorene	86-73-7	2.07E-04	No
Indeno[1,2,3-cd]pyrene	193-39-5	1.33E-04	No
3-Methylcholanthrene	56-49-5	1.33E-04	No
Phenanthrene	85-01-8	1.26E-03	No
Pyrene	129-00-0	3.69E-04	No
Total Released Quantity (kg)		**4.74E-03**	

NPRI Part 4 Substances

Substance	CAS RN	NPRI Threshold (tonnes)	2020 Quantity (tonnes)	Reportable?
Carbon monoxide	630-08-0	20	6.20	No
Nitrogen oxides (expressed as nitrogen dioxide)	11104-93-1	20	7.38	No
Sulphur dioxide	7446-09-5	20	4.43E-02	No
Total particulate matter	NA - M08	20	8.46	No
PM10	**NA - M09**	**0.5**	**8.23**	**Yes**
PM2.5	**NA - M10**	**0.3**	**8.18**	**Yes**
Volatile organic compounds	NA - M16	10	7.48	No

Emission Rate Calculations
NATT Tools Group Inc.

Comparison Table - NPRI Reportable Substances in 2019 and 2020

				Difference	
Substance	**CAS RN**	**2019 Amount (kg)**	**2020 Amount (kg)**	**(kg)**	**(%)**
Particulate Matter PM_{10}	NA - M09	10,272	8,231	-2,041	-19.9%
Particulate Matter $PM_{2.5}$	NA - M10	10,181	8,181	-2,000	-19.6%
Manganese (and its compounds)	NA-09	81	88	7	9.0%
Volatile Organic Compounds (VOCs)	NA-M16	5,161	7,476	2,315	44.9%
Ethylene Glycol Butyl Ether	111-76-2	4,039	4,326	287	7.1%

Emission Rate Calculations
NATT Tools Group Inc.

TRA Accounting

TRA Substance	CAS Number	Use (kg)	Creation (kg)	Air Releases (kg)	Recycled (kg)	CiP (kg)
Manganese (and its compounds)	NA - 09	176,720	0	88	135,176	41,456
Ethylene Glycol Butyl Ether	111-76-2	4,326	0	4,326	0	0
Particulate Matter (PM10)	NA - M09	0	8,231	8,231	0	0
Particulate Matter (PM2.5)	NA - M10	0	8,181	8,181	0	0
VOCs	NA - M16	7,476	0	7,476	0	0

NATT Tools Group Inc.
Hamilton, Ontario

Greenhouse Gas Emission Assessment

	Greenhouse Gas	CAS RN	Global Warming Potential*	Total Facility Emissions (tonnes)	CO_2 Equivalent Emissions (tonnes)
1	Carbon Dioxide	124-38-9	1	9,160.89	9,160.89
2	Methane	74-82-8	25	0.17	4.26
3	Nitrous Oxide	10024-97-2	298	0.15	45.32
4	Sulphur Hexafluoride	2551-62-4	22,800	-	-
5	HFC-23	75-46-7	14,800	-	-
6	HFC-32	75-10-5	675	-	-
7	HFC-41	593-53-3	92	-	-
8	HFC-43-10mee	138495-42-8	1,640	-	-
9	HFC-125	354-33-6	3,500	-	-
10	HFC-134	359-35-3	1,100	-	-
11	HFC-134a	811-97-2	1,430	-	-
12	HFC-143	430-66-0	353	-	-
13	HFC-143a	420-46-2	4,470	-	-
14	HFC-152a	75-37-6	124	-	-
15	HFC-227ea	431-89-0	3,220	-	-
16	HFC-236fa	690-39-1	9,810	-	-
17	HFC-245ca	679-86-7	693	-	-
18	Perfluoromethane	75-73-0	7,390	-	-
19	Perfluoroethane	76-16-4	12,200	-	-
20	Perfluoropropane	76-19-7	8,830	-	-
21	Perfluorobutane	355-25-9	8,860	-	-
22	Perfluorocyclobutane	115-25-3	10,300	-	-
23	Perfluoropentane	678-26-2	9,160	-	-
24	Perfluorohexane	355-42-0	9,300	-	-
* Global Warming Potential				**Total CO_2 Equivalent (tonnes)**	**9,210.47**

APPENDIX C. CALCULATIONS

Emission Rate Calculations
NATT Tools Group Inc.

Particulate Matter Emissions
Guspro Burn Off Oven (Source A-89)

		Manufacturer Emission Factor					
Source ID	**Source Description**	**(gr/scf)**	**(g/m^3)**	**Exhaust Flow Rate (m^3/s)**	**PM Emission Rate (g/s)**	**Annual Operating Hours**	**Emissions (kg)**
A-89	Guspro Burn Off Oven	0.10	0.228835	0.71	0.162	1,792	1,048.14
						Total PM Emissions	**1,048.14**
						Total PM10 Emissions	**1,048.14**
						Total PM2.5 Emissions	**1,048.14**

Emission Rate Calculations
NATT Tools Group Inc.

Cooling Tower Emissions (Source A-121, A-122)

Model Name	Capacity (US gpm)	Operating Hours
BAC Model VXT-75	225	8,112
BAC Model VXT-135	405	8,112
Total Capacity	**630**	

Induced Draft Cooling Tower PM Emissions

The purpose of this spreadsheet is to determine the annual TPM emissions, as well as the PM10 and PM2.5 fractions of TPM from the pertinent drift data tables (see Tables 1, 2, and 3 below).

Substance	Circulating Water (m3/hr)	Drift (%)	TDS (ppmw)	Emission Rate (g/hr)	Annual Operating Hours	TPM Emissions (kg)
BAC Model VXT-75	51.10	0.02%	1,200	12.26	8,112	99.49
BAC Model VXT-135	91.99	0.02%	1,200	22.08	8,112	179.08
					Total PM Emissions	**278.576**
					Total PM10 Emissions	**52.166**
					Total PM2.5 Emissions	**1.899**

Drift, % of water flow	**0.02**	**0.02%**	AP-42, > 20 year old towers
		0.001%	standard new tower (source: www.ctdepotinc.com)
		0.0005%	new tower, best demister (source:www.ctdepotinc.com)
TDS, ppmw:	**1,200**	**33,000**	sea water
		12,000	AP-42, high dissolved solids
		3,000	Great Lakes water * concentration factor ~10
DS Sp. Gr. :	**2.2**		Specific gravity of NaCl

Table 1 - Drift Data From Old Wood Herringbone Mist Eliminators (0.01% WF)

CTI 0.01% drift data				Particulate emissions	
Droplet Ø (µm)	**Fraction % smaller**	**Calculated residue Ø (µm)**	**TPM mg/m^{3}H$_2$O**	**PM-10 mg/m^{3}H$_2$O**	**PM2.5 mg/m^{3}H$_2$O**
15	0.15	1.2	36.00		
25	0.29	2.0	69.60		163.64
35	0.99	2.9	237.60		
45	2.2	3.7	532.80		
55	3.8	4.5	909.60		
65	5.5	5.3	1329.60		
80	9.3	6.5	2220.00		
100	14	8.2	3244.80		
120	18	9.8	4356.00	4494.24	
140	23	11.4	5512.80		
165	32	13.5	7696.80		
195	43	15.9	10214.40		
225	53	18.4	12823.20		
255	63	20.8	15177.60		
285	71	23.3	17131.20		
325	81	26.6	19411.20		
375	87	30.6	20966.40		
425	91	34.7	21813.60		
475	94	38.8	22569.60		
550	98	44.9	23409.60		
650	100	53.1	23884.80		
750	100	61.3	23884.80		
850	100	69.5	23884.80		
950	100	77.6	24000.00		
mg/m^{3}H$_2$O			**24000.00**	**4494.24**	**163.64**
%			**100.0%**	**18.7%**	**0.7%**

source: J. Missimer, D. Wheeler, and K. Hennon, The relationship between SP and HGBIK Drift Measurement Results, CTI paper TP98-16, 1998

Emission Rate Calculations
NATT Tools Group Inc.

Particulate Matter and Metal Emissions from Dust Collectors

Note: Since emissions are for actual emissions and conservatively based on worst-case scenarios, the emission factor used in the ECA application was 20 mg/m^3 and 10 mg/m^3 lowered to 10 mg/m^3 an 5 mg/m^3.

Dust Collector Parameters

Source ID	Source Description	Emission Factor (mg/m^3)	Flow Rate (m^3/hr)	Annual Operating Hours
A-70	Shot Blast Dust Collector	10	65,880	6,768
A-130	Shot Blast Dust Collector	5	6,456	6,768
A-120	Lathe Area Dust Collector	5	54,720	6,768
A-123	Plasma Cutting Dust Collector	5	65,880	68

Substance	CAS RN	NPRI ID	Shot Blast Dust Collectors Weight Fraction	Other Dust Collectors Weight Fraction	Total Emissions (kg)
Total Particulate Matter (PM)	NA - M08	NA - M08	100%	100%	6,551.36
Iron	7439-89-6	Not Listed	98%	98%	6,420.33
Carbon	7440-44-0	Not Listed	1.30%	0.30%	66.43
Silicon	7440-21-3	Not Listed	1.20%	0.23%	60.47
Manganese (and its compounds)	7439-96-5	NA - 09	1.40%	1.22%	88.35
Phosphorus (total)	7723-14-0	NA - 22	0.010%	0.010%	0.66
Sulphur	7704-34-9	NA - M14	0.007%	0.007%	0.46
Aluminum (fume or dust only)	7429-90-5	7429-90-5	0.040%	0.040%	2.62
Boron	7440-42-8	Not Listed	0.002%	0.002%	0.16
Chromium (and its compounds)	7440-47-3	NA - 04	0.190%	0.190%	12.45
Nitrogen	7727-37-9	Not Listed	0.004%	0.004%	0.26
Titanium	7440-32-6	Not Listed	0.034%	0.034%	2.23

Emission Rate Calculations
NATT Tools Group Inc.

Natural Gas Combustion Emissions

Table 1: 2020 Natural Gas Consumption Data

	Consumption	
Month	**(m^3)**	**(ft^3)**
January	445,628	15,737,204
February	430,837	15,214,853
March	429,513	15,168,091
April	376,714	13,303,544
May	369,981	13,065,751
June	369,530	13,049,831
July	170,734	6,029,428
August	296,278	10,462,948
September	380,405	13,433,883
October	430,424	15,200,287
November	463,378	16,364,026
December	445,290	15,725,264
Annual	**4,608,711**	**162,755,109**

Table 2: Part 1A Substance Emissions

Contaminant	CAS RN	Emission Factor (lb/MMscf)	Emissions (kg)
Benzene	71-43-2	2.10E-03	1.55E-01
Chromium (and its compounds)	NA - 04	1.40E-03	1.03E-01
Copper (and its compounds)	NA - 06	8.50E-04	6.28E-02
Formaldehyde	50-00-0	7.50E-02	5.54
Manganese (and its compounds)	NA - 09	3.80E-04	2.81E-02
Naphthalene	91-20-3	6.10E-04	4.50E-02
n-Hexane	110-54-3	1.80	132.88
Nickel (and its compounds)	NA - 11	2.10E-03	1.55E-01
o-Dichlorobenzene	95-50-1	1.20E-03	8.86E-02
p-Dichlorobenzene	106-46-7	1.20E-03	8.86E-02
Toluene	108-88-3	3.40E-03	2.51E-01
Vanadium (and its compounds)	NA - 40	2.30E-03	1.70E-01
Zinc (and its compounds)	NA - 14	2.90E-02	2.14

Table 3: Part 1B Substance Emissions

Contaminant	CAS RN	Emission Factor (lb/MMscf)	Emissions (kg)
Lead (and its compounds)	NA - 08	5.00E-04	3.69E-02
Arsenic (and its compounds)	NA - 02	2.00E-04	1.48E-02
Cadmium (and its compounds)	NA - 03	1.10E-03	8.12E-02
Cobalt (and its compounds)	NA - 05	8.40E-05	6.20E-03
Mercury (and its compounds)	NA - 10	2.60E-04	1.92E-02
Selenium (and its compounds)	NA - 12	2.40E-05	1.77E-03

Table 4: Part 2 Substance Emissions

Contaminant	CAS RN	Emission Factor (lb/MMscf)	Emissions (kg)
3-Methylcholanthrene	56-49-5	1.80E-06	1.33E-04
7,12-Dimethylbenz[a]anthracene	57-97-6	1.60E-05	1.18E-03
Acenaphthene	83-32-9	1.80E-06	1.33E-04
Acenaphthylene	208-96-8	1.80E-06	1.33E-04
Anthracene	120-12-7	2.40E-06	1.77E-04
Benz[a]anthracene	56-55-3	1.80E-06	1.33E-04
Benzo[a]pyrene	50-32-8	1.20E-06	8.86E-05
Benzo[b]fluoranthene	205-99-2	1.80E-06	1.33E-04
Benzo[ghi]perylene	191-24-2	1.20E-06	8.86E-05
Benzo[k]fluoranthene	207-08-9	1.80E-06	1.33E-04
Chrysene	218-01-9	1.80E-06	1.33E-04
Dibenz[a,h]anthracene	53-70-3	1.20E-06	8.86E-05
Fluoranthene	206-44-0	3.00E-06	2.21E-04
Fluorene	86-73-7	2.80E-06	2.07E-04
Indeno[1,2,3-cd]pyrene	193-39-5	1.80E-06	1.33E-04
Phenanthrene	85-01-8	1.70E-05	1.26E-03
Pyrene	129-00-0	5.00E-06	3.69E-04

Table 5: Part 4 Substance Emissions

Contaminant	CAS RN	Emission Factor (lb/MMscf)	Emissions (kg)
Carbon monoxide	630-08-0	84.00	6,201.26
Nitrogen oxides (expressed as nitrogen dioxide)	11104-93-1	100.00	7,382.45
PM10	NA - M09	7.60	561.07
PM2.5	NA - M10	7.60	561.07
Sulphur dioxide	7446-09-5	0.60	44.29
Total particulate matter	NA - M08	7.60	561.07
Volatile organic compounds	NA - M16	5.50	406.03

Table 6: Part 5 Substance Emissions

Contaminant	CAS RN	Emission Factor (lb/MMscf)	Emissions (kg)
Benzene	71-43-2	2.10E-03	1.55E-01
Butane (all isomers)	NA - 24	2.10	155.03
Formaldehyde	50-00-0	7.50E-02	5.54
n-Hexane	110-54-3	1.80	132.88
p-Dichlorobenzene	106-46-7	1.20E-03	8.86E-02
Pentane (all isomers)	NA - 35	2.60	191.94
Propane	74-98-6	1.60	118.12
Toluene	108-88-3	3.40E-03	2.51E-01

NATT Tools Group Inc.
Hamilton, Ontario

Greenhouse Gas Emissions from Natural Gas Combustion

From 'Canada's Greenhouse Gas Quantification Requirements (GGQR)', December 2019. The methodologies in the GGQR are also listed for use in Section ON.20 of Ontario's 'Guideline for Quantification, Reporting and Verification of Greenhouse Gas Emissions', February 2020.

For CO_2, **GGQR Equation 2.9**: CO_2 = Fuel x (60.554 x HHV -404.15) x 10^{-6}
where,

CO_2 = Annual mass of CO_2 emissions from combustion of natural gas expressed in tonnes
Fuel = Volume of natural gas fuel combusted during measurement period (cubic meters at 15°C and 101.325 kPa)
HHV = Higher heating value of natural gas for the measurement period "p" (MJ/cubic meter, at 15°C and 101.325 kPa)
(60.554 × HHV p – 404.15) = Empirical equation (g of CO_2/cubic meter of natural gas) representing a very close relationship between carbon dioxide and volume of natural gas determined through higher heating value with a discreet set of available data where, 60.554 is the slope and 404.15 the intercept.
10^{-6} = Conversion factor from grams to tonnes

Total Amount of Natural Gas used =	4,608,711	m^3
HHV = High Heating Value (Enbridge) =	39.5	MJ/m^3

Substance	NG Releases (tonnes)
Carbon dioxide (CO_2)	9.16E+03

For N_2O and CH_4, **GGQR Equation 2.12**: N_2O or CH_4 = Fuel x EF x k
where,

N_2O or CH_4 = Annual mass of CH4 or N2O emissions, tonnes CH_4 or N_2O per year
Fuel = Volume of fuel type "e" combusted in measurement or delivery period "p" (in m^3) ie. m^3 of natural gas
EF = CH_4 or N_2O emission factor by fuel type provided in Table 2-4 through Table 2-11
k = 10^{-6}, the appropriate conversion factor to tonnes CH_4 or N_2O

Substance	EF = Emission Factor (Table 2-4) (g/m^3)	NG Releases (tonnes)
Nitrous oxide (N_2O)	0.0330	1.52E-01
Methane (CH_4)	0.0370	1.71E-01

Emission Rate Calculations
NATT Tools Group Inc.

Hexavalent Chromium Emissions from Plasma Dust Collector

Source	Particulate Emission Factor (mg/m^3)	Flow Rate (m^3/hr)	NPRI Substance	CAS RN	Particulate Emission Rate (kg/hr)	Annual Operating Hours	Cr(VI) Fraction of Particulate	Throughput (kg)
Plasma Cutting Dust Collector	5	65,880	Hexavalent chromium	NA - 19	0.33	68	5%	1.12

Emission Rate Calculations
NATT Tools Group Inc.

Paint Emissions

Source ID	Source Description	Product	Annual Use (L/yr)	Specific Gravity	Substance	CAS RN	NPRI CAS	Weight %	Emissions (kg)
A-79	Dip Paint	Black Enamel Water Reducible Paint	21,206	1.02	Butoxyethanol	111-76-2	111-76-2	20.0%	4,326.02
A-79	Dip Paint	Black Enamel Water Reducible Paint	21,206	1.02	dimethylethanolamine	108-01-0	Not Listed	5.0%	1,081.51
A-79	Dip Paint	Black Enamel Water Reducible Paint	21,206	1.02	Isopropyl alcohol	67-63-0	67-63-0	5.0%	1,081.51
A-79	Dip Paint	Black Enamel Water Reducible Paint	21,206	1.02	Butyl alcohol	78-92-2	78-92-2	3.0%	648.90
A-131	Powder Booth[1]	POWDURA TGIC-Free Polyester Powder	12,112	1.52	Total Particulate Matter (PM)	NA - M08	NA - M08	100.0%	18.41
A-131	Powder Booth[1]	POWDURA TGIC-Free Polyester Powder	12,112	1.52	Calcium Carbonate	1317-65-3	Not Listed	20.0%	3.68
A-131	Powder Booth[1]	POWDURA TGIC-Free Polyester Powder	12,112	1.52	Barium Sulfate	7727-43-7	Not Listed	14.0%	2.58
A-131	Powder Booth[1]	POWDURA TGIC-Free Polyester Powder	12,112	1.52	Carbon Black	1333-86-4	Not Listed	1.0%	0.18

[1] *The Powder Booth uses a 2-stage filter to capture emissions from the powder application. The filter has a 99.9% efficiency.*

Emission Rate Calculations
NATT Tools Group Inc.

Particulate Matter Emissions

	Emissions (kg)		
Source	**Total PM**	**PM10**	**PM2.5**
Fuel Combustion	561.07	561.07	561.07
Cooling Tower	278.58	52.17	1.90
Dust Collectors	6,551.36	6,551.36	6,551.36
Burn Off Oven	1,048.14	1,048.14	1,048.14
Product Use	18.41	18.41	18.41
Total Emissions (kg)	**8,457.56**	**8,231.15**	**8,180.88**

Emission Rate Calculations
NATT Tools Group Inc.

Contaminant Throughput from Product Use

Product	Product Use (kg/yr)	Contaminant	CAS RN	Mass Fraction (%)	Throughput (kg)
KEM KT 822	41.60	Ethylene glycol	107-21-1	25%	10.40
Chain Lube 3000 HL	1,128.43	Stoddard solvent	8052-41-3	83%	936.59
Jax Pyro-Kote 220	475.20	Butane	NA - 24	10%	47.52
Jax Pyro-Kote 220	475.20	Propane	74-98-6	4%	19.01

Emission Rate Calculations
NATT Tools Group Inc.

Recycled Material Accounting

Recycled Material Information

Material Recycled	Total Amount Recycled (kg)
Steel Plate/Coils, Metal Scale + Metal turnings & Punchings	10,535,989
Shot Blast Pellets + Shot Blast Dust	97,762

Total Amount of Material Recycled

Metal Recycled	NPRI CAS	Steel Composition (%)	Pellets/Dust Composition (%)	Total Amount Recycled (kg)
Manganese	NA - 09	1.27%	1.40%	135,175.7
Phosphorus (total)	NA - 22	0.00%	0.010%	9.8
Sulphur	NA - M14	0.00%	0.007%	6.8
Aluminum (fume or dust only)	7429-90-5	2.00%	0.040%	210,758.9
Nickel (and its compounds)	NA - 11	5.00%	0.20%	526,995.0
Copper (and its compounds)	NA - 06	2.50%	0.25%	263,644.1
Chromium (and its compounds)	NA - 04	5.00%	0.25%	527,043.9

Note: Composition based on SDS information from 2013 ECA (Hot or Cold Rolled Steel Sheet/Strip and Hot Rolled Skelp and AMASTEEL SHOT

Emission Rate Calculations
NATT Tools Group Inc.

Steel and Shot Blast Use

Steel Use (kg/yr)	14,377,971
Shot Blast Use (kg/yr)	44,344

NPRI Substance	CAS RN	Steel Composition (%)	Shot Blast Composition (%)	Throughput (kg)
Manganese (and its compounds)	NA - 09	1.23%	1.20%	176,719.79
Aluminum (fume or dust)	7429-90-5	0.06%	0.00%	7,907.88
Copper (and its compounds)	NA - 06	0.03%	0.25%	4,568.03
Chromium (and its compounds)	NA - 04	0.20%	0.25%	29,240.63
Nickel (and its compounds)	NA - 11	0.02%	0.20%	2,461.05

Emission Rate Calculations
NATT Tools Group Inc.

VOC Emissions

Substance	CAS RN	2020 MPO (kg)	2020 Releases (kg)
Butane	NA - 24	47.52	47.52
Butoxyethanol	111-76-2	4,326.02	4,326.02
Ethylene glycol	107-21-1	10.40	10.40
Isopropyl alcohol	67-63-0	1,081.51	1,081.51
Propane	74-98-6	19.01	19.01
sec-Butyl alcohol	78-92-2	648.90	648.90
Stoddard solvent	8052-41-3	936.59	936.59
VOCs from Fuel Combustion	-	406.03	406.03
	Total VOC Emissions (kg)		**7,475.99**

APPENDIX D. SINGLE WINDOW REPORT & CONFIRMATION OF SUBMISSION

Report Preview

Report Details

Report Year	2020
Report Type:	NPRI,ON MECP TRA
Report Status:	Ready to Submit
Modified Date/Time:	2021-08-18 10:52 AM

Company and Facility Details

Company Name:	NATT Tools Group Inc.
Business Number:	866040942
Mailing Address:	Address Line 1: 460 Sherman Avenue North City: Hamilton Province/Territory: Ontario Postal Code: L8L 8J6 Country: Canada
Facility Name:	NATT
NAICS Code:	331221
NPRI ID:	7134
Portable:	No
Physical Address:	Address Line 1: 460 Sherman Avenue City: Hamilton Province/Territory: Ontario Postal Code: L8L 8J6 Country: Canada Latitude: 43.2663 Longitude: -79.829 UTM Zone: 17 UTM Easting: 595033 UTM Northing: 4791053

Contacts Details

Contact Type	Technical Contact
Name:	John Tennant
Position:	Plant Manager
Telephone:	2894423113
Email:	jtennant@agrisolutionscorp.com
Contact Type	Certifying Official, Highest Ranking Employee

Name:	Miguel Dominguez
Position:	Plant Manager
Telephone:	9056676548
Email:	mdominguez@agrisolutionscorp.com
Contact Type	Person who prepared the report
Name:	Trinity Consultants
Position:	consultant
Telephone:	4163912527
Email:	Trinityswim@trinityconsultants.com
Mailing Address:	Address Line 1: 106 - 885 Don Mills City: Toronto Province/Territory: Ontario Postal Code: M3C 1v9 Country: Canada
Contact Type	Person who coordinated the preparation of the Toxics Reduction Plan
Name:	Ana-Lyn Daquiz
Position:	Environmental Health and Safety Specialist
Telephone:	9056676530
Email:	adaquiz@agrisolutionscorp.com
Mailing Address:	Address Line 1: 460 Sherman Avenue City: Hamilton Province/Territory: Ontario Postal Code: L8L 8J6 Country: Canada

General Information

Number of employees:	108
Activities for Which the 20,000-Hour Employee Threshold Does Not Apply:	None of the above
Activities Relevant to Reporting Dioxins, Furans and Hexacholorobenzene:	None of the above
Activities Relevant to Reporting of Polycyclic Aromatic Hydrocarbons (PAHs):	Wood preservation using creosote: No
Does this facility release less than the reporting threshold for each Part 4 substance AND have one or more light or medium crude oil batteries with a total oil throughput for the battery components of the facility of ≥1,900 m3 per year?	No
Did the facility operate one or more electricity generation units that had a capacity of 25 MW or more and that distributed or sold to the grid 33% or more of its potential electrical output in the calendar year?	No
Is this the first time the facility is reporting to the NPRI (under current or past ownership):	No
Is the facility controlled by another Canadian company or companies:	No
Did the facility report under other environmental regulations or permits?	No
Does this facility solely consist of compression equipment in the oil and gas extraction sector?	No
Is the facility required to report one or more NPRI Part 4 substances (Criteria Air	Yes

Contaminants):

Was the facility shut down for more than one week during the year:	Yes
Operating Schedule - Days of the Week:	Mon, Tue, Wed, Thu, Fri, Sat, Sun
Usual Number of Operating Hours per day:	24
Usual Daily Start Time (24h) (hh:mm):	00:00

Shutdown Periods:

From 2020-12-23 To 2020-12-31

Will the shutdown period occur at or around the same time in future years?	Yes
Was the shutdown period a partial or complete shutdown?	Complete

From 2020-07-01 To 2020-07-19

Will the shutdown period occur at or around the same time in future years?	Yes
Was the shutdown period a partial or complete shutdown?	Complete

Substance List

CAS RN	Substance Name	Releases	Releases (Speciated VOCs)	Disposals	Recycling	Unit
NA - 09	Manganese (and its compounds)	0.088000	N/A	N/A	135.175728	tonnes
NA - M09	PM10 - Particulate Matter <= 10 Microns	8.230000	N/A	N/A	N/A	tonnes
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	8.180000	N/A	N/A	N/A	tonnes

Applicable Programs

CAS RN	Substance Name	NPRI	ON MECP TRA	First report for this substance to the ON MECP TRA
NA - 09	Manganese (and its compounds)	Yes	Yes	No
NA - M09	PM10 - Particulate Matter <= 10 Microns	Yes	Yes	No
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	Yes	Yes	No

General Information about the Substance - Releases and Transfers of the Substance

CAS RN	Substance Name	Was the substance released on-site	The substance will be reported as the sum of releases to all media (total of 1 tonne or less)	1 tonne or more of a Part 5 Substance (Speciated VOC) was released to air
NA - 09	Manganese (and its compounds)	Yes	No	No

General Information about the Substance - Disposals and Off-site Transfers for Recycling

CAS RN	Substance Name	Was the substance disposed of (on-site or off-site), or transferred for treatment prior to final disposal	Is the facility required to report on disposals of tailings and waste rock for the selected reporting period	Was the substance transferred off-site for recycling
NA - 09	Manganese (and its compounds)	No	No	Yes

General Information about the Substance - Nature of Activities

CAS RN	Substance Name	Manufacture the Substance	Process the Substance	Otherwise Use of the Substance
NA - 09	Manganese (and its compounds)		As a formulation component	

Substances added to/removed from the report

CAS RN	Substance Name	Added/Removed	Reason
111-76-2	2-Butoxyethanol	Removed	Decrease in production levels
NA - M16	Volatile Organic Compounds (VOCs)	Removed	Decrease in production levels

TRA Quantifications

CAS RN	Substance Name	Use, Creation, Contained in Product	Quantity	Use ranges for public reporting
NA - 09	Manganese (and its compounds)	Use	176.719785 tonnes	Yes
NA - 09	Manganese (and its compounds)	Creation	0 tonnes	Yes
NA - 09	Manganese (and its compounds)	Contained in Product	41.455711 tonnes	Yes
NA - M09	PM10 - Particulate Matter <= 10 Microns	Use	0 tonnes	Yes
NA - M09	PM10 - Particulate Matter <= 10 Microns	Creation	8.23 tonnes	Yes
NA - M09	PM10 - Particulate Matter <= 10 Microns	Contained in Product		
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	Use	0 tonnes	Yes
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	Creation	8.18 tonnes	Yes
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	Contained in Product		

TRA Quantifications - Others

CAS RN	Substance Name	Change in Method of Quantification	Reasons for Change	Description of how the change impact tracking and quantification of the substance	Description of how an incident(s) affected quantifications	Significant Process Change	Reason for the significant process change
NA - 09	Manganese (and its compounds)					No	
NA - M09	PM10 - Particulate Matter <= 10 Microns					No	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns					No	

On-site Releases - Releases to air

CAS RN	Substance Name	Category	Basis of Estimate	Detail Code	Quantity
NA - 09	Manganese (and its compounds)	Stack or Point Releases	E2 - Published Emission Factors		0.088 tonnes
NA - M09	PM10 - Particulate Matter <= 10 Microns	Stack or Point Releases	O - Engineering Estimates		8.23 tonnes
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	Stack or Point Releases	O - Engineering Estimates		8.18 tonnes

On-site Releases - Releases to air - Total

CAS RN	Substance Name	Total - Releases to Air
NA - 09	Manganese (and its compounds)	0.088 tonnes
NA - M09	PM10 - Particulate Matter <= 10 Microns	8.23 tonnes
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	8.18 tonnes

On-site Releases - Total

CAS RN	Substance Name	Total releases
NA - 09	Manganese (and its compounds)	0.088 tonnes

On-site Releases - Quarterly Breakdown of Annual Releases

CAS RN	Substance Name	Quarter 1	Quarter 2	Quarter 3	Quarter 4
NA - 09	Manganese (and its compounds)	25	25	25	25

On-site Releases - Monthly Breakdown of Annual Releases

CAS RN	Substance Name	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
NA - M09	PM10 - Particulate Matter <= 10 Microns	8.33	8.33	8.34	8.33	8.33	8.34	8.33	8.33	8.34	8.33	8.33	8.34
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	8.33	8.33	8.34	8.33	8.33	8.34	8.33	8.33	8.34	8.33	8.33	8.34

On-site Releases - Reasons for Changes in Quantities Released from Previous Year

CAS RN	Substance Name	Reasons for Changes in Quantities from Previous Year	Comments
NA - 09	Manganese (and its compounds)	No significant change (i.e. <10% or no change)	
NA - M09	PM10 - Particulate Matter <= 10 Microns	Decrease in production levels	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	Decrease in production levels	

Disposals - Reasons and Comments

CAS RN	Substance Name	Reasons Why Substance Was Disposed	Reasons for Changes in Quantities from Previous Year	Comments
NA - 09	Manganese (and its compounds)		No significant change (i.e. <10% or no change)	

Recycling - Off-site Transfers for Recycling

CAS RN	Substance Name	Category	Basis of Estimate	Detail Code	Quantity
NA - 09	Manganese (and its compounds)	Recovery of Metals and Metal Compounds	O - Engineering Estimates		135.175728 tonnes

Recycling - Off-site Transfers for Recycling - Total

CAS RN	Substance Name	Total - Off-site Transfers for Recycling
NA - 09	Manganese (and its compounds)	135.1757 tonnes

Recycling - Off-site Transfers for Recycling - By Facility

CAS RN	Substance Name	Category	Off-site Name	Off-site Address	Quantity
NA - 09	Manganese (and its compounds)	Recovery of Metals and Metal Compounds	Synergy Metals	242 Fitzgerald Crescent, Milton, ON, Canada	
NA - 09	Manganese (and its compounds)	Recovery of Metals and Metal Compounds	AIM Ontario	75 Steel City Court, Hamilton, ON, Canada	135.175728 tonnes

Recycling - Reasons and Comments

CAS RN	Substance Name	Reasons Why Substance Was Recycled	Reasons for Changes in Quantities Recycled from Previous Year	Comments
NA - 09	Manganese (and its compounds)	Production Residues Unusable parts or discards	No significant change (i.e. <10% or no change)	

Comparison Report - Enters, Creation, Contained in Product

CAS RN	Substance Name	Is Breakdown	Category	Quantity	Last Reported Quantity	Reporting Period of Last Reported Quantity	Change	% Change
NA - 09	Manganese (and its compounds)	No	Enters the facility (Use)	176.7198 tonnes	197.387 tonnes	2019	-20.6672	-10.47
NA - 09	Manganese (and its compounds)	No	Creation	0 tonnes	0 tonnes	2019	0	
NA - 09	Manganese (and its compounds)	No	Contained in Product	41.4557 tonnes	71.484 tonnes	2019	-30.0283	-42.01
NA - M09	PM10 - Particulate Matter <= 10 Microns	No	Enters the facility (Use)	0 tonnes	0 tonnes	2019	0	
NA - M09	PM10 - Particulate Matter <= 10 Microns	No	Creation	8.23 tonnes	10.272 tonnes	2019	-2.042	-19.88
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	No	Enters the facility (Use)	0 tonnes	0 tonnes	2019	0	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	No	Creation	8.18 tonnes	10.181 tonnes	2019	-2.001	-19.65

Comparison Report - Enters, Creation, Contained in Product : Reason(s) for Change

CAS RN	Substance Name	Reason(s) for Change	Other Reason
NA - 09	Manganese (and its compounds)	Decrease in production levels	
NA - M09	PM10 - Particulate Matter <= 10 Microns	Decrease in production levels	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	Decrease in production levels	

Comparison Report - On-site Releases

CAS RN	Substance Name	Is Breakdown	Category	Quantity	Last Reported Quantity	Reporting Period of Last Reported Quantity	Change	% Change

CAS RN	Substance Name	Is Breakdown	Category	Quantity	Last Reported Quantity	Reporting Period of Last Reported Quantity	Change	% Change
NA - 09	Manganese (and its compounds)	No	Total Releases to Air	0.088 tonnes	0.022 tonnes	2019	0.066	300
NA - 09	Manganese (and its compounds)	No	Total Releases to Water	0 tonnes	0 tonnes	2019	0	
NA - 09	Manganese (and its compounds)	No	Total Releases to Land	0 tonnes	0 tonnes	2019	0	
NA - 09	Manganese (and its compounds)	No	Total Releases to All Media	0 tonnes	0 tonnes	2019	0	
NA - M09	PM10 - Particulate Matter <= 10 Microns	No	Total Releases to Air	8.23 tonnes	10.272 tonnes	2019	-2.042	-19.88
NA - M09	PM10 - Particulate Matter <= 10 Microns	No	Total Releases to Water	0 tonnes	0 tonnes	2019	0	
NA - M09	PM10 - Particulate Matter <= 10 Microns	No	Total Releases to Land	0 tonnes	0 tonnes	2019	0	
NA - M09	PM10 - Particulate Matter <= 10 Microns	No	Total Releases to All Media	0 tonnes	0 tonnes	2019	0	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	No	Total Releases to Air	8.18 tonnes	10.181 tonnes	2019	-2.001	-19.65
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	No	Total Releases to Water	0 tonnes	0 tonnes	2019	0	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	No	Total Releases to Land	0 tonnes	0 tonnes	2019	0	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	No	Total Releases to All Media	0 tonnes	0 tonnes	2019	0	

Comparison Report - On-site Releases - Reason(s) for Change

CAS RN	Substance Name	Reason(s) for Change	Other Reason
NA - 09	Manganese (and its compounds)	Change in quantification methodology	
NA - M09	PM10 - Particulate Matter <= 10 Microns	Decrease in production levels	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	Decrease in production levels	

Comparison Report - Transfers off-site for Recycling

CAS RN	Substance Name	Is Breakdown	Category	Quantity	Last Reported Quantity	Reporting Period of Last Reported Quantity	Change	% Change
NA - 09	Manganese (and its compounds)	No	Total off-site Transfers for Recycling	135.1757 tonnes	125.880 tonnes	2019	9.2957	7.38

Comparison Report - Transfers off-site for Recycling - Reason(s) for Change

CAS RN	Substance Name	Reason(s) for Change	Other Reason
NA - 09	Manganese (and its compounds)	No reasons - quantities approximately the same	

Pollution Prevention

Does the facility have a documented pollution prevention plan?	No
Did the facility complete any pollution prevention activities in the current NPRI reporting year	No
If no, please select all applicable reasons from the list below:	Substance, process or technology alternatives are unknown or unavailable

Progress on TRA Plan - Objectives

CAS RN	Substance Name	Objectives
NA - 09	Manganese (and its compounds)	It is NATTCO's corporate environmental policy to comply with all applicable environmental regulations and guidelines to the fullest extent possible, in all areas of its operations, including implementation of best industry practices. NATTCO strives to maximize its reduction and recycling initiatives, relative to its overall manganese use, while continuing to produce a superior product that is competitive in the global marketplace in terms of cost and performance. This plan will determine the technical feasibility of potentially available manganese reduction or elimination options to determine which, if any, are viable for implementation at this time.
NA - M09	PM10 - Particulate Matter <= 10 Microns	It is NATTCO's corporate environmental policy to comply with all applicable environmental regulations and guidelines to the fullest extent possible, in all areas of its operations, including implementation of best industry practices. NATTCO strives to maximize its waste/emissions reduction and materials recycling initiatives, relative to its overall toxic substance use and creation, while continuing to produce a superior product that is competitive in the global marketplace in terms of cost and performance. This plan will identify and present potential options, and determine the technical feasibility of potentially available toxic substance reduction or elimination measures, to determine which, if any, are viable for implementation at this time.
		It is NATTCO's corporate environmental policy to comply with all applicable environmental regulations and guidelines to the fullest extent

CAS RN	Substance Name	Objectives
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	possible, in all areas of its operations, including implementation of best industry practices. NATTCO strives to maximize its waste/emissions reduction and materials recycling initiatives, relative to its overall toxic substance use and creation, while continuing to produce a superior product that is competitive in the global marketplace in terms of cost and performance. This plan will identify and present potential options, and determine the technical feasibility of potentially available toxic substance reduction or elimination measures, to determine which, if any, are viable for implementation at this time.

Progress on TRA Plan - Use Targets

CAS RN	Substance Name	Quantity	Years	Description of Target
NA - 09	Manganese (and its compounds)	No quantity target	No timeline target	
NA - M09	PM10 - Particulate Matter <= 10 Microns	No quantity target	No timeline target	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	No quantity target	No timeline target	

Progress on TRA Plan - Creation Targets

CAS RN	Substance Name	Quantity	Years	Description of Target
NA - 09	Manganese (and its compounds)	No quantity target	No timeline target	
NA - M09	PM10 - Particulate Matter <= 10 Microns	No quantity target	No timeline target	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	No quantity target	No timeline target	

Progress on TRA Plan - Additional Actions

CAS RN	Substance Name	Were there any additional actions outside the plan taken during the reporting period to reduce the use and/or creation of the substance?	Describe any additional actions that were taken during the reporting period to achieve the plan's objectives	Provide a public summary of the description of the additional action taken
NA - 09	Manganese (and its compounds)	No		
NA - M09	PM10 - Particulate Matter <= 10 Microns	No		
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	No		

Progress on TRA Plan - Reductions due to additional actions taken

CAS RN	Substance Name	Reductions due to additional actions taken	Quantity
NA - 09	Manganese (and its compounds)	The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - 09	Manganese (and its compounds)	The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - 09	Manganese (and its compounds)	The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions.	
NA - 09	Manganese (and its compounds)	The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - 09	Manganese (and its compounds)	The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - 09	Manganese (and its compounds)	The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions.	
NA - 09	Manganese (and its compounds)	The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions.	
NA - 09	Manganese (and its compounds)	The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions.	
NA - 09	Manganese (and its compounds)	The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions.	
NA - M09	PM10 - Particulate Matter <= 10 Microns	The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - M09	PM10 - Particulate Matter <= 10 Microns	The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - M09	PM10 - Particulate Matter <= 10 Microns	The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions.	
NA - M09	PM10 - Particulate Matter <= 10 Microns	The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - M09	PM10 - Particulate Matter <= 10 Microns	The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - M09	PM10 - Particulate Matter <= 10 Microns	The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions.	
NA - M09	PM10 - Particulate Matter <= 10 Microns	The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions.	

CAS RN	Substance Name	Reductions due to additional actions taken	Quantity
NA - M09	PM10 - Particulate Matter <= 10 Microns	The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions.	
NA - M09	PM10 - Particulate Matter <= 10 Microns	The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions.	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions.	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions.	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions.	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions.	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions.	
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions.	

Progress on TRA Plan - Amendments

CAS RN	Substance Name	Were any amendments made to the toxic substance reduction plan during the reporting period	Description any amendments that were made to the toxic substance reduction plan during the reporting period	Provide a public summary of the description of any amendments that were made to the toxic substance reduction plan during the reporting period
NA - 09	Manganese (and its compounds)	No		
NA - M09	PM10 - Particulate Matter <= 10 Microns	No		
NA - M10	PM2.5 - Particulate Matter <= 2.5 Microns	No		

Feedback

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