



2016 ANNUAL NUNAVUT WATER BOARD REPORT FOR DYE-M FOR THE North Warning System

Contract # W8485-100224/001/NX

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CHANGE HISTORY

This sheet is a record of each issue of this document. When the revised document is issued, the previous issue is automatically superseded.

Revision	Date	Author	Pages Changed	Reason for Change
1	16-Mar-2017	W. Wyman	All	Initial Document Release
2	29-Mar-2017	W. Wyman	All	Updated as per NWSO comments



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EXECUTIVE SUMMARY

This 2016 Annual Report for the Nunavut Water Board (NWB) has been prepared by Raytheon Canada Limited (RCL) for the Department of National Defence in order to meet the requirements of the licence issued 10 September 2009 3BC-DYE0919 – Type “B”, Part B “General Conditions”, paragraph 1. This report covers the period of 01 January to 31 December 2016.

RCL is the Operation and Maintenance (O&M) Contractor for the North Warning System (NWS), including DYE-M, the unattended (unmanned) North Warning System radar site located at Cape Dyer, Nunavut. The site is visited quarterly by RCL staff based in Iqaluit for preventive maintenance inspections and as required for other work.

A total of 191 cubic meters was drawn from the raw water sources. In 2016, all water was taken from the melt-water water source, DYE-1(b). This is below the annual maximum of 1,440 cubic meters allowed by the licence.

The water contained in the berms of fuel storage facilities was sent for laboratory analysis and confirmed to be within effluent quality limits before the water was pumped out of the berms.

Hazardous waste was removed from DYE-M for disposal outside of Nunavut in 2016. The hazardous waste was shipped to Safety Kleen, 2730 Boulevard Industriel, Chambly, QC, J3L 4V2. The hazardous waste consisted of 46 drums of assorted waste (oil, fuel, glycol, etc.), 1 cylinder of waste nitrogen, 2 crates of waste batteries, and 2 wheeled fire extinguishers (with all dangerous goods removed).

Non-hazardous domestic solid waste was flown out to the Logistics Support Site in Iqaluit and disposed of at Iqaluit's landfill. RCL has documented authorization from the community for receiving the waste.

In 2016, two outdoor spills occurred at DYE-M:

- a. NT-NU Spill Report # 16-216. On 08-Jun-2016, snow clearing was taking place at DYE-M. A brake line broke on the Case Loader spilling approximately 7.5 L of brake fluid. Staff removed the case loader from service, stopping the spill. Snow and ice that were visually impacted by the brake fluid were placed into a drum for disposal at a licenced disposal facility outside of Nunavut.
- b. NT-NU Spill Report # 16-325. On 30-Aug-2016, fuel was delivered to the NWS site DYE-M from a ship. A plug (i.e. pig) was pushed through the line to remove any fuel before the line is pulled back to the ship. The pig was forced into the tank splashing some fuel out of the vent pipe. The soil that was visually fuel impacted was removed from the site.

The Spill Contingency Plan was successfully implemented.



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1.0 INTRODUCTION

This 2016 Annual Report for the Nunavut Water Board (NWB) has been prepared by Raytheon Canada Limited (RCL) for the Department of National Defence in order to meet the requirements of the licence issued 10 September 2009 3BC-DYE0919 – Type “B”, Part B. General Conditions, paragraph 1. This report covers the period from 01 January to 31 December 2015.

RCL is the Operation and Maintenance (O&M) Contractor for the North Warning System (NWS), including DYE-M, the unattended (unmanned) North Warning System radar site located at Cape Dyer, Nunavut. The site is visited quarterly by RCL staff based in Iqaluit for preventive maintenance inspections and as required for other work.

1.1 Report Details

Licensee: Department of National Defence, Government of Canada
Licence: 3BC-DYE0919 – Type “B”
Location: DYE-M North Warning System Site, Cape Dyer, Qikiqtani Region, Nunavut
Report Prepared by: Raytheon Canada Limited, 29-Mar-2017
Time period covered: 01 January to 31 December 2016

2.0 WATER USE

A total of 191 cubic meters was drawn from the raw water sources. In 2016, all water was taken from the melt-water water source, listed in the licence as “DYE-1(b)”. This is below the annual maximum of 1,440 cubic meters allowed by the licence. See Table 2-1 for the volume of raw water drawn at DYE-M in 2016.

Table 2-1: Monthly Raw Water Usage at DYE-M in 2016

Month	Raw water usage (m ³)
January	0
February	0
March	0
April	0
May	142.1
June	0
July	0
August	38.9
September	10
October	0
November	0
December	0
TOTAL	191

3.0 HAZARDOUS WASTE AND WASTE OIL DISPOSAL

Hazardous waste and waste oil were sent to an approved hazardous waste disposal site outside of Nunavut as required by the licence. The hazardous waste was shipped to Safety Kleen, 2730 Boulevard Industriel, Chambly, QC, J3L 4V2. See Table 3-1 for the list of items sent for disposal.



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See Annex A for the shipping document including the completed movement documents for waste regulated under the Transportation of Dangerous Goods Regulations (TDGR) and NWS Manifests for non-regulated waste. The hazardous waste consisted of 46 drums of assorted waste (oil, fuel, glycol, etc.), 1 cylinder of waste nitrogen, 2 crates of waste batteries, and 2 wheeled fire extinguishers (with all dangerous goods removed).

Table 3-1: Hazardous Waste and Waste Oil Sent for Disposal from DYE-M in 2016

Description, TDG shipping name	Quantity	Movement Document or Manifest #
Waste batteries, wet, filled with acid	1 crate	Movement Document 2539175-6
Waste batteries, wet, non-spillable	1 crate	Movement Document 2539175-6
Waste fuel filters	1 drum	Movement Document 2539175-6
Waste Solids containing flammable liquids n.o.s. (fuel, aviation, turbine engine)		
Waste oily rags	3 drums	Movement Document 2539175-6
Waste Solids containing flammable liquids n.o.s. (fuel, aviation, turbine engine)		
Nitrogen cylinder	1 cylinder	Movement Document 2539176-4
Waste oil (pail)	28 drums	NWS Manifest 35705
Not TDG Regulated		
Waste oil (drum)	8 drums	NWS Manifest 35713, 35714
Not TDG Regulated		
Fire extinguisher (wheeled)	2 Units	NWS Manifest 35716, 35717
Not TDG Regulated		
Waste oil filters	2 drums	NWS Manifest 35721
Not TDG Regulated		

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4.0 NON-HAZARDOUS SOLID WASTE DISPOSAL

Non-hazardous domestic solid waste was flown out to the Logistics Support Site in Iqaluit and was disposed of at Iqaluit's landfill. RCL has documented authorization from the community for receiving the waste.

See **Table 4-1** for the quantity of waste generated.

Table 4-1: Non-hazardous Domestic Solid Waste Sent for Disposal from DYE-M in 2016

Month	Waste Generated (kg)
January	542
February	612.3
March	226.8
April	453.6
May	0
June	426.4
July	226.8
August	510.3
September	424.1
October	72.6
November	90.7
December	220
TOTAL	3,805.6

5.0 MONITORING PROGRAM

In 2016, a monitoring program was implemented at DYE-M as required by the water licence, Part I. The monitoring program included the following:

1. Volume of raw water drawn from the water Supply Lake (DYE-1a) and the melt water source (DYE-1b). The information from this monitoring is shown in **Section 2.0 Water Use**. The water drawn was within the limit stated in the water licence.
2. Quality of sewage discharged from the final discharge point of the sewage disposal facility (DYE-2). The location of the sewage effluent outfall is shown in **Annex B**, including coordinates. A sump for the sewage outfall was constructed in 2010.

A misinterpretation of sampling requirements led field staff to believe that samples were only required when the sump was pumped out, as opposed to sampling monthly during periods of flow (i.e. a sample every month the sewage holding tank is discharged). Corrective action will be taken to ensure this does not recur. As such, **Annex C: Analysis of Discharged Sewage Effluent** has been left blank.

3. Quality of the water contained in the berms of fuel storage facilities prior to discharge (DYE-3) was analyzed and confirmed within the effluent quality limits listed in the water licence, Part D. The coordinates and the results of the analysis are shown in **Annex D: Location of Bermmed Fuel Storage Facilities and Analysis of Berm Water**. All samples met the effluent requirements of the water licence, Part D.



6.0 SPILLS (UNAUTHORIZED DISCHARGES)

Date, NT-NU Spill #	Product	Quantity	Cause and follow-up action	On-site location
09-Jun-2016, Spill # 16-216	Brake Fluid	2 L	On 08-Jun-2016, snow clearing was taking place at DYE-M. A brake line broke on the Case Loader spilling approximately 7.5 L of brake fluid. Staff removed the case loader from service, stopping the spill. Snow and ice that were visually impacted by the brake fluid were placed into a drum for disposal at a licenced disposal facility outside of Nunavut.	Outside of Garage (66°39'57.33"N, 61°21'19.70"W)
30-Aug-2016, Spill # 16-325	Jet A1	5 L	On 30-Aug-2016, fuel was delivered to the NWS site DYE-M from a ship. At the end of the delivery, a plug (also known as a pig) was forced through the line. Cleaning the line ensures that the line is free of fuel as it is retracted to the ship. In this case the pig was forced into the bulk fuel tank and was accompanied by some air, causing some fuel to splash out of the vent pipe of the tank. The soil that was visually fuel impacted was removed from the site.	Beach Tanks (66°35'42.15"N, 61°38'35.64"W)

The Spill Contingency Plan was successfully implemented.

7.0 REVISIONS TO THE SPILL CONTINGENCY PLAN

There were no revisions to the Spill Contingency Plan in 2016.

8.0 PROGRESSIVE RECLAMATION WORK UNDERTAKEN

No progressive reclamation work was undertaken in 2016.



9.0 ACRONYMS

Table 9-1: Acronyms

Acronym	Definition
CC&C	Care, Custody, and Control
DEG	Diesel Electric Generator
DND	Department of National Defence
NWB	Nunavut Water Board
NWS	North Warning System
NWSO	North Warning System Office
O&M	Operations and Maintenance
PCB	Polychlorinated Biphenyl
RCL	Raytheon Canada Limited
TDGR	Transportation of Dangerous Goods Regulations



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ENT DOCUMENT / MANIFEST
ENT DE MOUVEMENT / MANIFESTE

Document manifest conforming to all federal
sport and environmental legislation,
document manifeste conforme aux législations
fédérales sur l'environnement et le transport.

2539176-4

Movement Document / Manifest Reference No.
N° de référence du document de mouvement/transferts

A or / consigneur sur / expéditeur Registration No. / Provincial ID No. N° d'immatriculation - d'Id. provincial NUG100003		B Carrier Transporteur Registration No. / Provincial ID No. N° d'immatriculation - d'Id. provincial		27 Reference No. of other movement document(s) (vent(s) used) N° de référence des autres documents de mouvement/transferts utilisés	
2 Company name / Nom de l'entreprise Int'l of Nat'l Defense 96 RCL City / Ville 366109 Hornell Heights ON R6H1B0 Province ON Postal code / Code postal R6H1B0 Tel. No. / N° de tél. ()		Company name / Nom de l'entreprise Int'l of Nat'l Defense 96 RCL City / Ville 366109 Hornell Heights ON R6H1B0 Province ON Postal code / Code postal R6H1B0 Tel. No. / N° de tél. ()		28 Receiver / consignee Réceptionnaire / destinataire Registration No. / Provincial ID No. N° d'immatriculation - d'Id. provincial	
3 Address of the place of reception S LPR - DYE M City / Ville DYE M Province NU Postal code / Code postal NU		4 Vehicle / Véhicule Trailer - Rail car No. 1 17 80705048-39802 Trailer - Rail car No. 2 2nd remorque - wagon		29 Receiver / consignee information same as in Part A Les renseignements du réceptionnaire / destinataire sont les mêmes qu'à la Partie A <input type="checkbox"/> Yes / Oui <input type="checkbox"/> No, complete the box below / Non, remplir le case ci-dessous	
5 Consignee destinataire privé E. Klep / clean Harbors City / Ville 132 Vilk - St. Catharines Province ON Postal code / Code postal R6H1B0 Tel. No. / N° de tél. ()		6 Port of entry Point d'entrée International use only		30 Company name / Nom de l'entreprise Int'l of Nat'l Defense 96 RCL City / Ville 366109 Hornell Heights ON R6H1B0 Province ON Postal code / Code postal R6H1B0 Tel. No. / N° de tél. ()	
7 Address of the place of reception boulevard INDUSTRIEL City / Ville AC Province NU Postal code / Code postal 33L 41/2		8 Port of exit Point de sortie International use only		31 Company name / Nom de l'entreprise Int'l of Nat'l Defense 96 RCL City / Ville 366109 Hornell Heights ON R6H1B0 Province ON Postal code / Code postal R6H1B0 Tel. No. / N° de tél. ()	
9 Shipping name Appellation réglementaire NITrogen Compressed		10 Class / Classe Sub. chemical Classé 2.2		11 Quantity shipped Quantité expédiée 25 Kg	
12 UN No. UN 1066		13 Packing / Risk gr. Gr. d'emballage de risque 25		14 Units L or / ou Kg 1 07 G	
15 Base of origin Base d'origine Canada		16 Export / Import Exportation Importation Exportation		17 Customs code(s) Code(s) de douanes 107 G	
18 Handling code Code de manipulation 2 cylinders 1 date		19 Signature Sheppard		20 Signature Sheppard	
21 Date shipped / Date d'expédition Year / Année Month / Mois Day / Jour 16		22 Time / Heure A.M. <input type="checkbox"/> P.M. <input type="checkbox"/>		23 Scheduled arrival date / Date d'arrivée prévue Year / Année Month / Mois Day / Jour 16	

07/07

Instructions for completion and distribution on reverse / Instructions pour compléter et distribuer au verso

Copy / Copie 1 (white / blanche)

Figure 2: Movement Document 2539176-4

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Canada Limited

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**SHIPPING MANIFEST**

Suite 3000, 400 Cooper Street, Ottawa, ON K2P 2H8

NON NEGOTIABLE

Filled By: CMACDONALD		Date: Aug 11, 2016 11:59 AM		TCN-35705			
Ship To: CLEAN HARBORS CANADA INC. 6785 ROUTE 132 SAINTE-CATHERINE, QC, J5C 1B6 CA 450-632-6640		From: DYE-M, CAPE DYER, DND Storeroom Raytheon Canada Limited, NWS LSS Iqaluit, P.O. Box 1089 Iqaluit, NU, X0A 0H0 867-979-4818		Priority 2			
Attention:		Attention:					
Carrier: NEAS		Routing: IQALUIT-MONTREAL		Waybill #:	Total Pcs. 1		
				Total Weight: 800 LBS			
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
28	CRATE	800 LBS	2003658	WASTE - OIL (5 GALLON PAIL)	N/A	N/A	Assets, 323706,323289,323287,323698,32
NOTE: All claims related to this shipment have to be filled with Raytheon within 45 hours of receipt.							
Received By:				Date			
Received By:				Date			

Figure 3: NWS Shipping Manifest TCN-35705

**SHIPPING MANIFEST**

Suite 3000, 400 Cooper Street, Ottawa, ON K2P 2H8

NON NEGOTIABLE

Filled By: RIVES		Date: Aug 12, 2016 8:28 AM		TCN-35713			
Ship To: CLEAN HARBORS CANADA INC. 6785 ROUTE 132 SAINTE-CATHERINE, QC, J5C 1B6 CA 450-632-6640		From: DYE-M, CAPE DYER, DND Storeroom Raytheon Canada Limited, NWS LSS Iqaluit, P.O. Box 1089 Iqaluit, NU, X0A 0H0 867-979-4818		Priority 2			
Attention:		Attention:					
Carrier: NEAS		Routing: Cape Dyer-Montreal		Waybill #:	Total Pcs. 1		
				Total Weight: 1750			
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	PALLET	1750	2002406	WASTE - OIL, 45 GAL			Asset 340428,340427,340425,340426
NOTE: All claims related to this shipment have to be filled with Raytheon within 45 hours of receipt.							
Received By:				Date			
Received By:				Date			

Figure 4: NWS Shipping Manifest TCN-35713

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SHIPPING MANIFEST

Suite 3000, 400 Cooper Street, Ottawa, ON K2P 2H8

NON NEGOTIABLE

Filled By: RIVES		Date: Aug 12, 2016 8:49 AM		TCN-35714		
Ship To: CLEAN HARBORS CANADA INC. 6785 ROUTE 132 SAINTE-CATHERINE, QC, J5C 1B6 CA 450-632-6640		From: DYE-M, CAPE DYER, DND Storeroom Raytheon Canada Limited, NWS LSS Iqaluit, P.O. Box 1089 Iqaluit, NU, X0A 0H0 867-979-4818		Priority 2		
Attention:		Attention:				
Carrier: NEAS		Routing: CAPE DYER-MONTREAL		Waybill #: Total Pcs. Total Weight: 1 1750		
QTY Order	Type Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	PALLET 1750	2002406	WASTE - OIL, 45 GAL			ASSET 331542,340429,335540,340430

NOTE: All claims related to this shipment have to be filled with Raytheon within 45 hours of receipt.

Received By:	Date
Received By:	Date

Figure 5: NWS Shipping Manifest TCN-35714



SHIPPING MANIFEST

Suite 3000, 400 Cooper Street, Ottawa, ON K2P 2H8

NON NEGOTIABLE

Filled By: CMACDONALD		Date: Aug 12, 2016 2:08 PM		TCN-35716		
Ship To: CLEAN HARBORS CANADA INC. 6785 ROUTE 132 SAINTE-CATHERINE, QC, J5C 1B6 CA 450-632-6640		From: DYE-M, CAPE DYER, DND Storeroom Raytheon Canada Limited, NWS LSS Iqaluit, P.O. Box 1089 Iqaluit, NU, X0A 0H0 867-979-4818		Priority 2		
Attention:		Attention:				
Carrier: NEAS		Routing: CAPE DYER-MONTREAL		Waybill #: Total Pcs. Total Weight: 1 200 LBS		
QTY Order	Type Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
1	PALLET 200 LBS	1080711	EXTINGUISHER,FIRE,FOAM,33 GAL	N/A	EIN 131615	ASSET 131615 ROS DM-15-003

NOTE: All claims related to this shipment have to be filled with Raytheon within 45 hours of receipt.

Received By:	Date
Received By:	Date

Figure 6: NWS Shipping Manifest TCN-35716

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SHIPPING MANIFEST

Suite 3000, 400 Cooper Street, Ottawa, ON K2P 2H8

NON NEGOTIABLE

Filled By: CMACDONALD		Date: Aug 12, 2016 2:15 PM		TCN-35717		
Ship To: CLEAN HARBORS CANADA INC. 6785 ROUTE 132 SAINTE-CATHERINE, QC, J5C 1B6 CA 450-632-6640		From: DYE-M, CAPE DYER, DND Storeroom Raytheon Canada Limited, NWS LSS Iqaluit, P.O. Box 1089 Iqaluit, NU, X0A 0H0 867-979-4818		Priority 2		
Attention:		Attention:				
Carrier: NEAS		Routing: CAPE DYER		Waybill #:	Total Pcs. 1	
				Total Weight: 200 LBS		
QTY Order	Type Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
1	PALLET 200 LBS	1080711	EXTINGUISHER,FIRE,FOAM,33 GAL	N/A	EIN 131614	ASSET 131614 ROS-DM-15-003
NOTE: All claims related to this shipment have to be filled with Raytheon within 45 hours of receipt.						
Received By:				Date		
Received By:				Date		

Figure 7: NWS Shipping Manifest TCN-35717



SHIPPING MANIFEST

Suite 3000, 400 Cooper Street, Ottawa, ON K2P 2H8

NON NEGOTIABLE

Filled By: CMACDONALD		Date: Aug 12, 2016 3:09 PM		TCN-35721		
Ship To: CLEAN HARBORS CANADA INC. 6785 ROUTE 132 SAINTE-CATHERINE, QC, J5C 1B6 CA 450-632-6640		From: DYE-M, CAPE DYER, DND Storeroom Raytheon Canada Limited, NWS LSS Iqaluit, P.O. Box 1089 Iqaluit, NU, X0A 0H0 867-979-4818		Priority 2		
Attention:		Attention:				
Carrier: NEAS		Routing: CAPE DYER		Waybill #:	Total Pcs. 1	
				Total Weight: 550 LBS		
QTY Order	Type Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
2	DRUMS 550 LBS	2002356	WASTE - OIL FILTERS	N/A		ASSET'S 340433,340434
NOTE: All claims related to this shipment have to be filled with Raytheon within 45 hours of receipt.						
Received By:				Date		
Received By:				Date		

Figure 8: NWS Shipping Manifest TCN-35721

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ANNEX B: SEWAGE OUTFALL LOCATION (DYE-2) WITH CO-ORDINATES



Coordinates of Sewage Outfall Location (DYE-2): 66° 39' 51.26"N, 61° 21' 16.54"W

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ANNEX C: ANALYSIS OF DISCHARGED SEWAGE EFFLUENT

The sump of the sewage outfall was not pumped out therefore no samples were taken for laboratory analysis. This Annex has been left blank because there are no results to report.



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ANNEX D: LOCATION OF BERMED FUEL STORAGE FACILITIES AND ANALYSIS OF BERM WATER¹

Table D-1: Analysis of Berm Water at DYE-M in 2016

Berm	Maximum concentration of any grab sample (ug/L)	DYE W20A	DYE W22K,J,I & W20B
Location on-site		Summit	Summit
Discharge Latitude ²		66°40'0.13"N	66°39'53.59"N
Discharge Longitude		61°21'25.76"W	61°21'23.78"W
Date		2-Sep-16	No 2016 Sample
pH (pH Units)	6 to 9	7	No 2016 Sample
Oil and Grease (ug/L)	5000	<1000	
Arsenic (total) (ug/L)	100	<20	
Cadmium (dissolved) (ug/L)	10	<0.1	
Chromium (dissolved) (ug/L)	100	<1	
Cobalt (dissolved) (ug/L)	50	<0.2	
Copper (dissolved) (ug/L)	200	1	
Lead (dissolved) (ug/L)	50	<1	
Mercury (total) (ug/L)	0.6	<0.1	
Nickel (dissolved) (ug/L)	200	<5	
PCB (total) (ug/L)	1000	<0.1	
Phenols (ug/L)	20	<1	
Zinc (total) (ug/L)	500	<40	
Benzene (ug/L)	370	<0.5	
Toluene (ug/L)	2	<0.5	
Ethyl benzene (ug/L)	90	<0.5	

¹ Effluent from bermed fuel storage facilities.² Final discharge point of bermed fuel storage facility

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis



Client: Raytheon Canada Ltd.
400 Cooper Street
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00343-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1616189
Date Submitted: 2016-09-12
Date Reported: 2016-09-19
Project: DYE-MAIN-BERM SAMPLE
COC #: 183369

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1259933 Wastewater 2016-09-02 DM-W20A
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.00
Mercury	Hg	0.0001	mg/L		<0.0001
Metals	Aqua-Regia Digest				Y
	As	0.02	mg/L		<0.02
	Zn	0.04	mg/L		<0.04
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L		<0.1
Phenols-4AAP	Phenols	0.001	mg/L		0.001
Subcontract	Oil & Grease - Total	1	mg/L		<1
VOCs	Benzene	0.5	ug/L		<0.5
	Ethylbenzene	0.5	ug/L		<0.5
	Toluene	0.5	ug/L		<0.5
VOCs Surrogates (%)	Toluene-d8	0	%		99

Guideline = * = Guideline Exceedence
All analysis completed in Ottawa, Ontario (unless otherwise indicated by ** which indicates analysis was completed in Mississauga, Ontario).
Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.
146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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Figure 9: DYE W20A berm water laboratory results, page 1 of 2

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SOW Ref: 16.F.5.d

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis



Client: Raytheon Canada Ltd.
400 Cooper Street
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00343-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1616190
Date Submitted: 2016-09-12
Date Reported: 2016-09-20
Project: DYE-MAIN-BERM SAMPLE
COC #: 183369

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1259934 Wastewater 2016-09-02 DW-W20A
Group	Analyte	MRL	Units	Guideline	
Metals	Cd	0.0001	mg/L		<0.0001
	Co	0.0002	mg/L		<0.0002
	Cr	0.001	mg/L		<0.001
	Cu	0.001	mg/L		0.001
	Ni	0.005	mg/L		<0.005
	Pb	0.001	mg/L		<0.001

Guideline = * = Guideline Exceedence
All analysis completed in Ottawa, Ontario (unless otherwise indicated by ** which indicates analysis was completed in Mississauga, Ontario).
Results relate only to the parameters tested on the samples submitted.
Methods references and/or additional QA/QC information available on request.

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Page 2 of 3

MRL = Method Reporting Limit, AO = Aesthetic Objective, OG = Operational Guideline, MAC = Maximum Acceptable Concentration, IMAC = Interim Maximum Acceptable Concentration, STD = Standard, PWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

Figure 10: DYE W20A berm water laboratory results, page 2 of 2

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