



2017 ANNUAL NUNAVUT WATER BOARD REPORT FOR CAM-3 FOR THE North Warning System

Contract # W8485-100224/001/NX
SOW Ref: 16.F.5.d

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Prepared for
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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 When the revised document is issued, the previous issue is automatically superseded.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	21-Jan-2015	W. Wyman	All	Initial Document Release
2	12-Feb-2018	W. Wyman	All	Updated formatting



EXECUTIVE SUMMARY

This 2017 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-SHE0919 – Type “B”, Part B “General Conditions”, paragraph 1. This report covers the period from 01 January to 31 December 2017.

RCL is the Operations and Maintenance (O&M) Contractor for the North Warning System (NWS) including CAM-3. CAM-3 is the unattended (unmanned) NWS radar site located at Shepherd Bay, Nunavut. The site is visited quarterly by RCL staff from CAM-M, Cambridge Bay, Nunavut to complete preventive maintenance and as required for other work.

In 2017, a total of 129.7 cubic meters was drawn from the water supply lake at CAM-3. This is below the annual maximum of 1,440 cubic meters allowed by the licence.

Samples of the water contained in the berms of fuel storage facilities was sent for laboratory analysis and confirmed to be within effluent quality limits of the NWB licence 3BC-SHE0919, Part D, item 10 before the water was pumped out of the berms.

Hazardous waste and waste oil from CAM-3 were sent to an approved hazardous waste disposal facility outside of Nunavut as required by the licence. The waste was sent to Clean Harbors, P.O. Box 390, Ryley, AB, T0B 4A0. The waste receiver number for Clean Harbors is ABR1092. The hazardous waste shipped from CAM-3 in 2017 consisted of 28 drums of assorted waste (oil, Jet A1 fuel and water mixture, etc.).

Non-hazardous domestic solid waste was disposed of through a contract with the Hamlet of Cambridge Bay at the local landfill. RCL has documented authorization from the community for receiving the waste.

One outdoor spill occurred at CAM-3 in 2017. The spill was:

NT-NU Spill Report # 17-234. On 01-Jul-2017, NWS Bulk Fuel Technician was informed that the helicopter engineer was performing routine maintenance on a helicopter at CAM-3 Shepherd Bay, Nunavut on 30-Jun-2017 when he spilled less than a litre of motor oil on the ground. The soil impacted by the motor oil was collected and containerized for off-site disposal. Clean up complete.

The Spill Contingency Plan was successfully implemented.



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1.0 INTRODUCTION

This 2017 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-SHE0919 – Type “B”, Part B “General Conditions”, paragraph 1. This report covers the period from 01 January to 31 December 2017.

RCL is the Operations and Maintenance (O&M) Contractor for the North Warning System (NWS) including CAM-3. CAM-3 is an unattended (unmanned) North Warning System radar site located at Shepherd Bay, Nunavut. The site is visited quarterly for preventive maintenance inspections and as required for other work by RCL staff from CAM-M, Cambridge Bay, Nunavut.

1.1 Report Details

Licensee: Department of National Defence, Government of Canada
Licence: 3BC-SHE0919 – Type “B”
Location: CAM-3 North Warning System Site, Shepherd Bay, Kitikmeot Region, Nunavut
Report Prepared by: Raytheon Canada Limited, 15-Mar-2018
Time period covered: 01 January to 31 December 2017

2.0 WATER USE

A total of 129.7 cubic meters (m³) was drawn from the water supply lake. This is below the annual maximum of 1,440 m³ allowed by the licence. See Table 2-1 for the volume of raw water drawn at CAM-3 in 2017.

Table 2-1: Monthly Raw Water Usage at CAM-3 in 2017

Month	Raw water usage (m ³)
January	0
February	0
March	0
April	0
May	0.0
June	0.0
July	0.0
August	19.1
September	110.6
October	0
November	0
December	0
TOTAL	129.7



3.0 HAZARDOUS WASTE AND WASTE OIL DISPOSAL

Hazardous waste and waste oil were sent to an approved hazardous waste disposal facility outside of Nunavut as required by the licence. The waste was sent to Clean Harbors, P.O. Box 390, Ryley, AB, T0B 4A0. The waste receiver number for Clean Harbors is ABR1092.

See Table 3-1 for the list of items sent for disposal.

See Annex A for the shipping documents 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 shipped from CAM-3 in 2017 consisted of 28 drums of assorted waste (oil, Jet A1 fuel and water mixture, etc.).

Table 3-1: Hazardous Waste and Waste Oil Sent for Disposal from CAM-3 in 2017

Description, TDG shipping name	Quantity	Movement Document or Manifest #
Waste Jet A1 fuel and water mixture	10 Drums	Movement Document 2581516-8
Waste fuel, aviation, turbine engine mixture		
Waste Jet A1 fuel fuel filters	1 Drum	Movement Document 2581516-8
Waste solids containing flammable liquids, not otherwise specified (n.o.s) (fuel, aviation, turbine engine)		
Waste Jet A1 fuel soaked sorbent	1 Drum	Movement Document 2581516-8
Waste solids containing flammable liquids, n.o.s (fuel, aviation, turbine engine)		
Waste oily rags	4 Drums	Movement Document 2581516-8
Waste solids containing flammable liquids, n.o.s (fuel, aviation, turbine engine)		
Batteries, wet, filled with acid	1 Crate	Movement Document 2581516-8
Waste oil	12 Drums	NWS Manifest 37175, 37176, 37177
Not TDG regulated		

4.0 NON-HAZARDOUS SOLID WASTE DISPOSAL

Non-hazardous domestic solid waste was flown from CAM-3 to CAM-M and disposed of through a contract with the Municipality of Cambridge Bay at the local 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 CAM-3 in 2017

Month	Waste Generated (kg)
January	143
February	0
March	0
April	0
May	0
June	0
July	127
August	0
September	159
October	91
November	0
December	0
TOTAL	520

5.0 MONITORING PROGRAM

In 2017, a monitoring program was implemented at CAM-3 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 (SHE-1). The raw water monitoring information is shown in **Section 2.0 Water Use**. The volume of 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 (SHE-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.

No sewage samples were taken in 2017. 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 (SHE-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
01-Jul-2017, Spill # 17-234	Oil	1 L	<p>On 01Jul2017 NWS Bulk Fuel Technician was informed that the helicopter engineer was performing routine maintenance on a helicopter at CAM-3 Shepherd Bay, Nunavut on 30Jun2017 when he spilled less than a litre of motor oil on the ground.</p> <p>The soil impacted by the motor oil was collected and containerized for off-site disposal. Clean up complete.</p>	Helipad (68°47'34"N, 93°26'22"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 2017.

8.0 PROGRESSIVE RECLAMATION WORK UNDERTAKEN

No progressive reclamation work was undertaken in 2017.

9.0 ACRONYMS

Table 9-1: Acronyms

Acronym	Definition
n.o.s.	Not Otherwise Specified
NWB	Nunavut Water Board
NWS	North Warning System
O&M	Operations and Maintenance
PCB	Polychlorinated Biphenyl
RCL	Raytheon Canada Limited
TDGR	Transportation of Dangerous Goods Regulations



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ANNEX A: HAZARDOUS WASTE AND WASTE OIL DISPOSAL IN 2017

The 2017 Movement Documents for TDG Regulated waste and NWS Manifests for non-TDG Regulated waste described in Table 3-1 are below.

MOVEMENT DOCUMENT / MANIFEST DOCUMENT DE MOUVEMENT / MANIFESTE

This Movement document/manifest conforms to all federal and provincial transport and environmental legislation.
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'emménagement et le transport.

2581516-8

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

A Generator / consigneur Producteur / expéditeur Registration No. / Provincial ID No. N° d'identification - d'id. provincial NUG100003 Company name / Nom de l'entreprise DND C/O Raytheon Canada Limited Mailing address / Adresse postale 22 Wing B, Bldg 109, Hornell Heights ON P0H 1P4 City / Ville Hornell Heights Province ON Postal code / Code postal P0H 1P4 E-mail / Courriel électronique 1.05.494.2011.2010 Tel. No. / N° de tél. ext 4		B Carrier Transporteur Registration No. / Provincial ID No. N° d'identification - d'id. provincial Company name / Nom de l'entreprise Falcon Air Mailing address / Adresse postale 330-758 Harbourside Dr N. Van EC V9P 3K7 City / Ville Nanaimo Province BC Postal code / Code postal V9P 3K7 E-mail / Courriel électronique info@falconair.ca Tel. No. / N° de tél. 604.347.9018 1.05.494.2011.2010 Tel. No. / N° de tél. ext 4		C Receiver / consignee Réceptionnaire / destinataire Registration No. / Provincial ID No. N° d'identification - d'id. provincial Company name / Nom de l'entreprise Mailing address / Adresse postale City / Ville Province Postal code / Code postal E-mail / Courriel électronique Tel. No. / N° de tél. Receiving site address / Adresse du lieu de destination Year / Année Month / Mois Day / Jour Time / Heures A.M. P.M.	
Shipping site address / Adresse au lieu de l'expédition City / Ville Province Postal code / Code postal Shepherd Bay NU Intended Receiver / consignee Réceptionnaire / destinataire prévu Clean Harbours Mailing address / Adresse postale Clean Harbours P.O. Box 390, Riley AB T0B 4A0 City / Ville Riley Province AB Postal code / Code postal T0B 4A0 Receiving site address / Adresse du lieu de destination City / Ville Province Postal code / Code postal Riley AB T0B 4A0		Port of entry Point d'entrée International use only Port of exit Point de sortie International use only Carrier Certification / certify that I have received waste or recyclable material from the generator / consigneur for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct. Attestation du transporteur : j'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au réceptionnaire / destinataire, tel qu'il figure à la partie A et que les renseignements fournis à la partie B sont exacts et complets. Name of authorized person (print) Nom de l'agent autorisé (caractères d'imprimerie) Nils Gram Tel. No. / N° de tél. 604.314.9018 Signature 1.7.0.9.2.61 Year / Année Month / Mois Day / Jour		Reference No. of other movement document(s) (if any) used / N° de référence des autres documents de mouvement/manifeste utilisés Receiver / consignee information same as in Part A Les renseignements du réceptionnaire / destinataire sont les mêmes qu'à la Partie A Yes / Oui No, complete the box below / Non, remplir le case ci-dessous Company name / Nom de l'entreprise Mailing address / Adresse postale City / Ville Province Postal code / Code postal E-mail / Courriel électronique Tel. No. / N° de tél. Receiving site address / Adresse du lieu de destination Year / Année Month / Mois Day / Jour Time / Heures A.M. P.M.	
Prox. code Code prov. Shipping name Appellation réglementaire Class / Classe Sub. class (if any) Sous-classe (s'il y a lieu) UN No. N° UN Packing / pkg. g. Qté d'emballage / de mesure Quantity shipped Quantité expédiée Units L or cu ft / Unités No. / N° Codes Int. - nat. Phys. state État phys.		Quantity received Quantité reçue Units L or cu ft / Unités Comments Remarques Handling Code Code de manutention Shipment Accepted Relieved Packed Veh. Decom. Veh.		If handling code "Other" (specify) Si code de manutention « autre » (spécifier) Receiver / consignee certification / I certify that the information contained in Part C is correct and complete. Attestation du réceptionnaire / destinataire : j'atteste que les renseignements à la partie C sont exacts et complets. Signature Tel. No. / N° de tél. Special handling / Manutention spéciale Attached Copy: As follows / C-contre: Date shipped / Date d'expédition Year / Année Month / Mois Day / Jour Time / Heures A.M. P.M. Scheduled arrival date / Date d'arrivée prévue Year / Année Month / Mois Day / Jour Time / Heures A.M. P.M.	
Notice No. N° de notification Notice Line No. N° de ligne de la notification Shipment Emballage Q / De D or R code Code D ou R C code Code C Base Annex VIII or OECD Code Annexe VIII de la Bâle ou Code OCDE H code Code H Y code Code Y National code in country of I / Code du pays Support Exportation Import Importation Customs code(s) Code(s) de douanes Flashpoint 38c International use only 24 Hour number: Canutec: 1-888-226-8932 or 1-613-996-6666 Generator / consigneur certification: I certify that the information contained in Part A is correct and complete. I hereby declare that the contents of this assignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/étiqueté, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. Attestation du producteur / expéditeur : j'atteste que tous les renseignements à la partie A sont exacts et complets. Je déclare que le contenu de ce emménagement est décrit ci-dessus de façon complète et exacte par le désignation officielle de transport et qu'il est convenablement classé, emballé, marqué, étiqueté, muni de plaques-étiquettes et à tous égards bien conditionné pour être transporté conformément aux réglementations internationales et nationales applicables. Name of authorized person (print) Nom de l'agent autorisé (caractères d'imprimerie) Richard St. Louis Tel. No. / N° de tél. 1.05.494.2011.2010 Signature Andrea Elliott		Instructions on reverse Instructions au verso Copy / Copie 1 (white / blanche)			

Figure 1: Movement Document 2581516-8

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SHIPPING MANIFEST									
Suite 3000, 400 Cooper Street, Ottawa, ON K2P 2H8						NON NEGOTIABLE			
Filled By: AELLIOTT		Date: Aug 18, 2017 7:58 PM		TCN-37175					
Ship To: CLEAN HARBORS CANADA INC. PO BOX 390 RYLEY, AB, T0B 4A0 CA 780-663-3828				From: CAM-3, SHEPHERD BAY, DND Storeroom Raytheon Canada Limited, NWS LSS Cambridge Bay, P.O. Bag 1050 Cambridge Bay, NU, X0B 0C0 867-983-2112		<table border="1" style="width: 100%;"> <tr><td>Priority</td></tr> <tr><td style="font-size: 2em; font-weight: bold;">0</td></tr> </table>		Priority	0
Priority									
0									
Attention:				Attention:		AELLIOTT			
Carrier:		Routing:		Waybill #:		Total Pcs.			
MANITOULIN 009360		SHIP TO CONSIGNEE		23519423		1 PALLET			
				Total Weight:		748 KG			
QTY	Type	Line	Item	Description	WO or PO	B/Code or S/N	Remarks		
Order		Weight							
4		748 kg	2002406	WASTE - OIL, 45 GAL	1.62 M3		NON-REGULATED WASTE: 4 DRUMS ON 1 PALLET: ASSETS: 336093 339422 342232 332531		

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

Received By:	Date

Figure 2: NWS Shipping Manifest TCN-37175

SHIPPING MANIFEST									
Suite 3000, 400 Cooper Street, Ottawa, ON K2P 2H8						NON NEGOTIABLE			
Filled By: AELLIOTT		Date: Aug 18, 2017 8:32 PM		TCN-37176					
Ship To: CLEAN HARBORS CANADA INC. PO BOX 390 RYLEY, AB, T0B 4A0 CA 780-663-3828				From: CAM-3, SHEPHERD BAY, DND Storeroom Raytheon Canada Limited, NWS LSS Cambridge Bay, P.O. Bag 1050 Cambridge Bay, NU, X0B 0C0 867-983-2112		<table border="1" style="width: 100%;"> <tr><td>Priority</td></tr> <tr><td style="font-size: 2em; font-weight: bold;">0</td></tr> </table>		Priority	0
Priority									
0									
Attention:				Attention:		AELLIOTT			
Carrier:		Routing:		Waybill #:		Total Pcs.			
MANITOULIN 009360		SHIP TO CONSIGNEE		23518423		1 PALLET			
				Total Weight:		832 KG			
QTY	Type	Line	Item	Description	WO or PO	B/Code or S/N	Remarks		
Order		Weight							
4	DRUM	832 KG	2002406	WASTE - OIL, 45 GAL	1.62 M3		NON-REGULATED WASTE: 4 DRUMS ON 1 PALLET: ASSETS: 339483 342231 334942 334943		

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

Received By:	Date

Figure 3: NWS Shipping Manifest TCN-37176

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SOW Ref: 16.F.5.d



SHIPPING MANIFEST

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

NON NEGOTIABLE

Filed By: AELLIOTT		Date: Aug 18, 2017 8:38 PM		TCN-37177	
Ship To: CLEAN HARBORS CANADA INC. PO BOX 390 RILEY, AB, T0B 4A0 CA 780-663-3828		From: CAM-3, SHEPHERD BAY, DND Storeroom Raytheon Canada Limited, NWS LSS Cambridge Bay, P.O. Bag 1050 Cambridge Bay, NU, X0B 0C0 867-983-2112		Priority 0	

Attention:		Attention:		AELLIOTT	
Carrier: MANITOULIN 009360		Routing: SHIP TO CONSIGNEE		Waybill #: 23519423	Total Pcs. 1 PALLET
				Total Weight: 764 KG	

QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	DRUM	764 KG	2002406	WASTE - OIL, 45 GAL	1.40 M3		NON-REGULATED WASTE: 4 DRUMS ON 1 PALLET: ASSETS: 342353 342351 342352 332529

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-37177

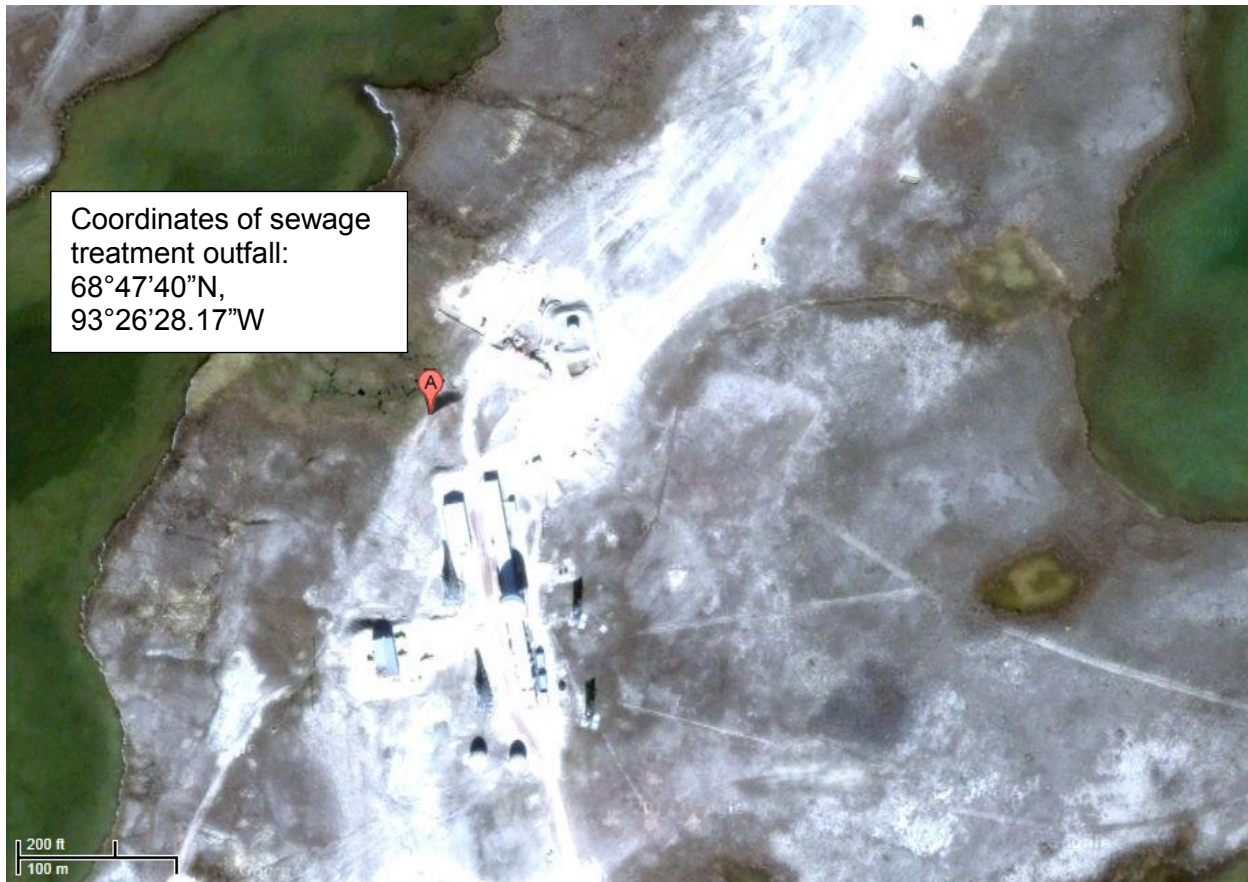
UNCONTROLLED WHEN PRINTED



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ANNEX B: SEWAGE EFFLUENT OUTFALL (CDL-2) LOCATION WITH COORDINATES



Coordinates of sewage outfall: 68°47'40"N, 93°26'28.17"W

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ANNEX C: ANALYSIS OF DISCHARGED SEWAGE EFFLUENT

This Annex has been left blank because there are no results to report.

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

Table D-1: Analysis of Berm Water at CAM-3 in 2017

Berm	Maximum concentration of any grab sample (ug/L)	SHE W22A	SHE W22C&D
Location on-site		Summit	Beach
Discharge Latitude²		68°47'42.00"N	68°48'7.82"N
Discharge Longitude		93°26'19.58"W	93°36'50.12"W
Date		12-Jun-17	12-Jun-17
pH (pH Units)	6 to 9	7.94	7.59
Oil and Grease (ug/L)	5000	<1000	<1000
Arsenic (total) (ug/L)	100	<20	<20
Cadmium (dissolved) (ug/L)	10	<0.1	<0.1
Chromium (dissolved) (ug/L)	100	2	<1
Cobalt (dissolved) (ug/L)	50	<0.2	<0.2
Copper (dissolved) (ug/L)	200	16	3
Lead (dissolved) (ug/L)	50	<1	<1
Mercury (total) (ug/L)	0.6	<0.1	<0.1
Nickel (dissolved) (ug/L)	200	<5	<5
PCB (total) (ug/L)	1000	<0.1	<0.1
Phenols (ug/L)	20	1	<1
Zinc (total) (ug/L)	500	<40	<40
Benzene (ug/L)	370	<0.5	<0.5
Toluene (ug/L)	2	<0.5	<0.5
Ethyl benzene (ug/L)	90	<0.5	<0.5

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



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Environment Testing

Certificate of Analysis

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 16-02610-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1709752
Date Submitted: 2017-06-16
Date Reported: 2017-06-23
Project: CAM-3 BERM SAMPLE
COC #: 176796

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1298745 Water
					2017-06-12 SHE-W-22A
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.94
Metals	Aqua-Regia Digest				Y
	As	0.02	mg/L		<0.02
	Hg	0.0001	mg/L		<0.0001
	Zn	0.04	mg/L		<0.04
Oil & Grease	Oil & Grease - Total	1	mg/L		<1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L		<0.1
Subcontract	Phenols	0.001	mg/L		0.001
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	%		111

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

Page 2 of 5

Figure 5: SHE W22A berm water laboratory results page 1 of 2 (June 2017)



Environment Testing

Certificate of Analysis

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 16-02610-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1709754
Date Submitted: 2017-06-16
Date Reported: 2017-06-23
Project: CAM-3 BERM SAMPLE
COC #: 176796

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1298747 Water
					2017-06-12 SHW-W-22A - Dissolved
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		0.002
	Cu	0.001	mg/L		0.016
	Ni	0.005	mg/L		<0.005
	Pb	0.001	mg/L		<0.001

Figure 6: SHE W22A berm water laboratory results page 2 of 2 (June 2017)

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Certificate of Analysis

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#:
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1709751
Date Submitted: 2017-06-16
Date Reported: 2017-06-23
Project: CAM-3 BERM SAMPLE
COC #: 170391

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1298744 Water 2017-06-12 SHE-W22C/W22D
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.59
Metals	Aqua-Regia Digest				Y
	As	0.02	mg/L		<0.02
	Hg	0.0001	mg/L		<0.0001
	Zn	0.04	mg/L		<0.04
Oil & Grease	Oil & Grease - Total	1	mg/L		<1
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L		<0.1
Subcontract	Phenols	0.001	mg/L		<0.001
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	%		107

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

Figure 7: SHE W22C&D berm water laboratory results page 1 of 2 (June 2017)



Certificate of Analysis

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 16-02610-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1709753
Date Submitted: 2017-06-16
Date Reported: 2017-06-23
Project: CAM-3 BERM SAMPLE
COC #: 170391

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1298746 Water 2017-06-12 SHW-W22C/W22D - Dissolved
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		0.003
	Ni	0.005	mg/L		<0.005
	Pb	0.001	mg/L		<0.001

Figure 8: SHE W22C&D berm water laboratory results page 2 of 2 (June 2017)