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2016 ANNUAL NUNAVUT WATER BOARD

REPORT FOR CAM-M

FOR THE
North Warning System

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

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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 When the revised document is issued, the previous issue is automatically superseded.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	30-Mar-2016	W. Wyman	All	Updated following NWSO review.

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EXECUTIVE SUMMARY IN ENGLISH FOLLOWS

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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 Nunavut Water Board licence issued 10 September 2009 3BC-CAM0919 – Type “B”, Part B “General Conditions”, paragraph 1. This report covers the period from 01 January to 31 December 2016.

RCL is the Operation and Maintenance (O&M) Contractor for the North Warning System (NWS), including CAM-M, the attended (manned) NWS radar site located at Cambridge Bay, Nunavut. The site population can increase due to project activity at CAM-M or at other radar sites that CAM-M supports.

The water usage for CAM-M in 2016 was 1041.4 cubic meters. This is an average of 2.8 cubic meters per day, below the maximum of 10 cubic meters per day allowed by the licence. On one occasion, more than the daily maximum was drawn due to increased site activity.

Sewage at CAM-M is processed by the tertiary wastewater treatment system. Some of the treated effluent is recycled as on site urinal/toilet flush water. The discharged treated effluent is of potable water quality. A sample of the treated effluent was sent for laboratory analysis each month in 2016.

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-CAM0919, Part D, item 10 before the water was pumped out of the berms.

Hazardous waste was removed from CAM-M for disposal outside of Nunavut. The waste went to Safety Kleen, 2730 Boulevard Industriel, Chambly, QC, J3L 4V2. The hazardous waste consisted of 79 drums of assorted waste (oil, fuel, paint, etc.), 2 crates of waste batteries, and out-of-use fire carts with dangerous goods materials removed.

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

One outdoor spill occurred at CAM-M in 2016. The spill was:

NT-NU Spill Report # 16-129. A pail had been placed under the radiator cap on a Diesel Electric Generator (DEG) as a precaution. On 20-Apr-2016, staff noticed that the pail was overfilling. The spill was stopped. Staff found that the glycol/water mix had leaked into the environment. Impacted snow, ice, and soil were placed in drums for disposal at a licenced disposal facility outside of Nunavut.

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-CAM0919 – Type “B”, Part B “General Conditions”, paragraph 1. This report covers the period from 01 January to 31 December 2016.

RCL is the Operation and Maintenance (O&M) Contractor for the North Warning System (NWS), including CAM-M. CAM-M is the attended (manned) NWS radar site located at Cambridge Bay, Nunavut. The site population can increase due to project activity at CAM-M or at other radar sites that CAM-M supports.

1.1 Report Details

Licensee: Department of National Defence, Government of Canada
Licence: 3BC-CAM0919 – Type “B”
Location: CAM-M North Warning System Site, Cambridge Bay, Kitikmeot Region, Nunavut
Report Prepared by: Raytheon Canada Limited, 30-Mar-2017
Time period covered: 01 January to 31 December 2016

2.0 WATER USE

The water usage from January to December averaged 2.9 cubic meters (m^3) per day which is below the maximum of 10 m^3 per day allowed by the licence. See Table 2-1 for raw water usage.

On 26-Jul-2016, the water usage exceeded the daily maximum limit with a total of 22.9 m^3 of water taken (4.8 m^3 from the water pump house, and 18.1 m^3 via water truck). Regardless, site staff has been reminded of the water license daily limits at CAM-M. In 2015, the licensee made application to the NWB in order to change the water usage metric from a daily value to an annual value aligning the CAM-M NWB licence with the other 5 NWB licenced NWS sites. The licensee will pursue this application with the Nunavut Planning Commission and the Nunavut Impact Review Board.

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

Month	Raw water usage (m ³)
January	104.3
February	103.1
March	98.7
April	79.7
May	86.3
June	105.9
July	139.5
August	80.8
September	56.4
October	66.1
November	65.3
December	55.3
TOTAL	1041.4

3.0 TREATED SEWAGE DISCHARGE

At CAM-M, the sewage and grey water were both processed through a Cycle-let® advanced tertiary wastewater treatment system. Some of the treated water is recycled as urinal/toilet flush water; the remainder is discharged at the designated outfall and is potable water quality. See Table 3-1, for the volume of sewage and grey water treated by the Cycle-let® system. See Section 6.0 for details on sewage effluent monitoring.

Table 3-1: Monthly and Annual Volume of Sewage and Grey Water Treated at CAM-M in 2016

Month	Volume of sewage and greywater treated then discharged or recycled (m ³)
January	138.4
February	137.4
March	120.6
April	116.9
May	125.3
June	150.2
July	156.1
August	146.2
September	91.9
October	122.0
November	133.8
December	70.5
TOTAL	1509.2

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4.0 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 4-1 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.

Table 4-1: Hazardous Waste and Waste Oil Sent for Disposal from CAM-M in 2016

Description, TDG shipping name	Quantity	Movement Document or Manifest #
Waste batteries, wet, filled with acid	2 crates	Movement Document 2581512-7
Waste fuel and water mixture	20 drums	Movement Document 2581512-7
Waste Fuel, Aviation Turbine Engine Mixture		
Waste Jet A1 fuel	7 drums	Movement Document 2581512-7
Waste Fuel, Aviation Turbine Engine		
Waste oily rags		
Waste Solids containing flammable liquids n.o.s. (fuel, aviation, turbine engine)	8 drums	Movement Document 2581512-7
Waste oil (drum)	36 drums	NWS Manifest 35624, 35625, 35626, 35627, 35631, 35632, 35633, 35740, 35779
Not TDG Regulated		
Waste oil filters	4 drums	NWS Manifest 35775
Not TDG Regulated		
Waste glycol	4 drums	NWS Manifest 35797
Not TDG Regulated		
Fire extinguisher (wheeled)	6 Units	NWS Manifest 35829, 35843
Not TDG Regulated		
Nitrogen cylinder – empty and open to the atmosphere	6 cylinders	NWS Manifest 35847
Not TDG Regulated		

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5.0 NON-HAZARDOUS SOLID WASTE DISPOSAL

Non-hazardous domestic solid waste was disposed of at the local landfill through a contract with the Municipality of Cambridge Bay. RCL has documented authorization from the community for receiving the waste. See Table 5-1 for the quantity of non-hazardous waste generated.

Table 5-1: Non-hazardous Domestic Solid Waste Sent for Disposal from CAM-M in 2016

Month	Waste Generated (kg)
January	627
February	744
March	1,561
April	1,028
May	1,502
June	1,270
July	1,763
August	1,937
September	883
October	1,593
November	1,315
December	1,200
TOTAL	15,424

6.0 MONITORING PROGRAM

In 2016, a monitoring program was implemented at CAM-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 (CDL-1). The information from this monitoring is shown in **Section 2.0 Water Use**.
2. Quality of sewage discharged from the final discharge point of the sewage treatment facility (CDL-2). The location of the sewage effluent outfall is shown in **Annex B**, including coordinates. The treated sewage was sampled monthly. The results of the analyses are shown in **Annex C: Analysis of Treated Sewage Effluent**.
3. Quality of the water contained in the berms of fuel storage facilities prior to discharge (CDL-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 Bermed Fuel Storage Facilities and Analysis of Berm Water**. All samples met the effluent requirements of the water licence, Part D.

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7.0 SPILLS (UNAUTHORIZED DISCHARGES)

Date, NT-NU Spill #	Product	Quantity	Cause and follow-up action	On-site location
20-Apr-2016, Spill # 16-129	Glycol and water mixture	96 L	<p>A pail had been placed under the radiator cap on a Diesel Electric Generator (DEG) as a precaution. On 20-Apr-2016, staff noticed that the pail was overfilling. The DEG was turned off, stopping the spill. The failed cap was replaced. It was determined that 96 L of glycol/water mixture had leaked from the failed radiator cap.</p> <p>Approximately 10 L of the glycol/water was cleaned-up indoors and staff investigated under the building and found some impacted snow and ice. The impacted snow and ice was placed in a drum. The impacted ground area was scraped until frozen ground was reached. The impacted soil was placed in a drum. The drums were stored for shipment and disposal at a licenced disposal facility outside of Nunavut.</p>	Under the powerhouse (69° 6'57.13"N, 105° 7'8.57"W)

The Spill Contingency Plan was successfully implemented.

8.0 REVISIONS TO THE SPILL CONTINGENCY PLAN

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

9.0 PROGRESSIVE RECLAMATION WORK UNDERTAKEN

No progressive reclamation work was undertaken in 2016.

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10.0 ACRONYMS

Table 10-1: 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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ANNEX A: HAZARDOUS WASTE AND WASTE OIL DISPOSAL IN 2016

The 2016 Movement Documents for TDG Regulated waste and NWS Manifests for non-TDG Regulated waste described in Table 4-1 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'environnement et le transport.

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

2581512-7

A Generator / consignor Producteur / expéditeur		Registration No. / Provincial ID No. N° d'immatriculation - d'Id. provincial BUG100003		B Carrier / Transporteur NEAS INC.		Registration No. / Provincial ID No. N° d'immatriculation - d'Id. provincial 2100 Ave Pierre-Dupuy M2S 1Z60 MIL AC		23 Reference No. of other movement documents (manifests) used / N° de référence des autres documents de mouvement/manifeste utilisés								
Company name / Nom de l'entreprise BBM G/O Raytheon Canada Limited		Mailing address / Adresse postale 22 Wing, Bldg 109, Hornell Heights, POH 1P0		Mailing address / Adresse postale 2100 Ave Pierre-Dupuy M2S 1Z60 MIL AC		24 Receiver / consignee Récepteur/destinataire		25 Reference No. / Provincial ID No. N° d'immatriculation - d'Id. provincial								
City / Ville Cambridge Bay		Province NU		City / Ville Cambridge Bay		Province NU		26 Receiver / consignee information same as in Part A Les renseignements du récepteur/destinataire sont les mêmes qu'à la Partie A <input type="checkbox"/> Yes / Oui <input type="checkbox"/> No, complete the box below / Non, remplir la case ci-dessous								
Postal code / Code postal XOB 0C0		Postal code / Code postal XOB 0C0		Postal code / Code postal XOB 0C0		E-mail / Courrier électronique (705)494-2011 ext 2861		27								
Intended Receiver / consignee Récepteur/destinataire prévu Safety Clean		Registration No. / Provincial ID No. N° d'immatriculation - d'Id. provincial 27011824-1		Port of entry International use only Port de entrée Prise de sortie International use only		28		28								
Mailing address / Adresse postale Clean Harbours, 6785 Route 132 Villa-Ste-Catherine, QC J5C 1B6		City / Ville Chambly		Carrier Certification / I certify that I have received waste or recyclable material from the generator / consignor for the purpose of recycling / recyclage as per Part A. Part C is correct and complete. Attestation du transporteur / J'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au récepteur/destinataire, tel qu'il figure à la partie A et que les renseignements inscrits à la partie B sont exacts et complets.		29		29								
E-mail / Courrier électronique (705)494-2011 ext 2861		Year / Année 16		Name of authorized person (print) Nom de l'agent autorisé (caractères d'imprimante) Craig Ivany ext 16		Tel. No. / N° de tel. (705)494-2011 ext 2861		30								
Receiving site address / Adresse du lieu de destination 2730, boulevard Industrial		Month / Mois 09		Signature 93		Date received / Date de réception Year / Année 16		31								
City / Ville Chambly		Province QC		Day / Jour 02		Month / Mois 09		32								
Postal code / Code postal J3L 4V2		Signature 93		Day / Jour 02		Year / Année 16		33								
Prov. code / Code prov.	3	Shipping name / Appellation réglementaire	4	Class / Classe ² Sub. class(es) / Classe(s) sub.	5	UN No. / N° UN N° NNU	6	Packing / emballage / Quantité expédiée Gr. d'emballage / Gr. de boîte	7	Units Lor / kg Unités	8	Packaging/Content No. / N° Codes Int. ext	9	Phys. state / Etat phys.	10	34
(i)		Waste batteries, WKT filled with acid	8	2794		UN		1,814	KG	2	07	S			35	
(ii)		Waste Fuel, Aviation, Turbine, Engine Mixture *	3	1863	III	UN		3,400	L	20	01	L			36	
(iii)		Waste Fuel, Aviation, Turbine, Engine	3	1863	III	UN		1,190	L	7	01	L			37	
(iv)		Waste Solids Containing Turbine, Aviation, Fuel, Etc.	4.1	3175	II	UN		364	KG	8	01	S			38	
11		12	13	14	15	16	17	18	19	20	21	22	23	24		
Notice No. N° de notification	Notice Line No. N° de ligne de la notification	Shipment Envoi	Off / De Code D ou R	C code Code C	Basic Annex VIII or OECD Code Annexe VIII de l'Annexe ou Code OECD	H code Code H	Y code Code Y	Export Expédition	Import Importation	Customs code(s) Code(s) de douanes						
(i)															39	
(ii)	25	Flashpoint 38 C													40	
(iii)															41	
(iv)															42	
International use only																
-613-996-6666																
24-Hour Number: CANUTEC: 1000-2222-2222-2222 Use in Case of a DANGEROUS Goods Emergency																
Generator / consignor certification: I certify that the information contained in Part A is correct and complete. I hereby declare that, the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, 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 les éléments de cette expédition sont correctement nommés et classifiés, emballés et étiquetés conformément aux réglementations internationales et nationales applicables.																
Name of authorized person (print) Nom de l'agent autorisé (caractères d'imprimante) Craig Ivany ext 16																
Tel. No. / N° de tel. (705)494-2011 ext 2861																
Signature David Trussler																
26 Instructions on reverse Instructions au verso																
27 Date shipped / Date d'expédition Year / Année 16																
28 Time / Hours Month / Mois 09																
29 Day / Jour 02																
30 Scheduled arrival date / Date d'arrivée prévue Year / Année 16																
31 Month / Mois 09																
32 Day / Jour 16																
33 Time / Hours Year / Année 16																
34 Date received / Date de réception Month / Mois 09																
35 Day / Jour 02																
36 Year / Année 16																
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42																

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SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 4, 2016 3:25 PM	TCN-35624				
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLEY, QC, J3L 4V2 CA		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112		Priority 0			
Attention:		Attention:		DTRUSSLER			
Carrier: NEAS		Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 PALLET			
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	DRUM	849 KGS	2002406	WASTE - OIL, 45 GAL	1.63 M3		NON REGULATED WASTE/ 4 DRUMS ON 1 PALLET / ASSET'S: 338933 / 338934 / 331979 / 326597
NOTE: All claims related to this shipment have to be filed with Raytheon within 45 hours of receipt.					Received By:	Date	
					Received By:	Date	

Figure 1: NWS Shipping Manifest TCN-35624

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SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 4, 2016 5:23 PM	TCN-35625		
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLY, QC, J3L 4V2 CA		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112			Priority 0
Attention:		Attention:			DTRUSSLER
Carrier: NEAS		Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 PALLET	Total Weight: 817 KGS
QTY Order	Type	Line Weight	Item	Description	WO or PO B/Code or S/N Remarks
4	DRUM	817 KGS	2002406	WASTE - OIL, 45 GAL	1.63 M3 NON REGULATED WASTE/ 4 DRUMS ON 1 PALLET / ASSET'S: 334473 / 331550 / 335995 / 335240
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 2: NWS Shipping Manifest TCN-35625



SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 4, 2016 5:45 PM	TCN-35626		
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLY, QC, J3L 4V2 CA		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112			Priority 0
Attention:		Attention:			DTRUSSLER
Carrier: NEAS		Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 PALLET	Total Weight: 787 KGS
QTY Order	Type	Line Weight	Item	Description	WO or PO B/Code or S/N Remarks
4	DRUM	787 KGS	2002406	WASTE - OIL, 45 GAL	1.63 M3 NON REGULATED WASTE/ 4 DRUMS ON 1 PALLET / ASSET'S: 335994 / 339175 / 331753 / 336953
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-35626

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SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 4, 2016 5:58 PM	TCN-35627		
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLEY, QC, J3L 4V2 CA		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112			Priority 0
Attention: NEAS		Attention: SHIP TO CONSIGNEE			DTRUSSLER
Carrier: NEAS	Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 PALLET	Total Weight: 842 KGS	
QTY Order	Type DRUM	Line Weight 842 KGS	Item 2002406	Description WASTE - OIL, 45 GAL	WO or PO 1.63 M3 Remarks NON REGULATED WASTE/ 4 DRUMS ON 1 PALLET / ASSET'S: 332600 / 332601 / 332602 / 334853
NOTE: All claims related to this shipment have to be filed with Raytheon within 45 hours of receipt.					Received By: Received By:
					Date Date

Figure 4: NWS Shipping Manifest TCN-35627

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SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 5, 2016 10:34 AM	TCN-35631				
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLY, QC, J3L 4V2 CA			From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112		Priority 0		
Attention: Carrier: NEAS			Attention: Routing: SHIP TO CONSIGNEE				
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	DRUM	818 KGS	2002406	WASTE - OIL, 45 GAL	1.63 M3		NON REGULATED WASTE / 4 DRUMS ON 1 PALLET / ASSET'S: 334999 / 331672 / 331711 / 331569
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-35631



SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 5, 2016 10:37 AM	TCN-35632				
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLY, QC, J3L 4V2 CA			From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112		Priority 0		
Attention: Carrier: NEAS			Attention: Routing: SHIP TO CONSIGNEE				
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	DRUM	759 KGS	2002406	WASTE - OIL, 45 GAL	1.63 M3		NON REGULATED WASTE / 4 DRUMS ON 1 PALLET / ASSET'S: 331673 / 331438 / 331693 / 326051
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-35632

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SOW Ref: 16.F.5.d



SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 5, 2016 10:40 AM	TCN-35633	
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLY, QC, J3L 4V2 CA		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112		Priority 0
Attention:		Attention:		DTRUSSLER
Carrier: NEAS		Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 PALLET
QTY Order	Type Line Weight	Item Description	WO or PO B/Code or S/N	Remarks
4	DRUM KGS	2002406 WASTE - OIL, 45 GAL	1.63 M3	NON REGULATED WASTE / 4 DRUMS ON 1 PALLET / ASSETS: 334997 / 334694 / 330158 / 331288

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

Received By:	Date
--------------	------

Received By:	Date
--------------	------

Figure 7: NWS Shipping Manifest TCN-35633

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SOW Ref: 16.F.5.d



SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 16, 2016 1:05 PM	TCN-35740		
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLY, QC, J3L 4V2 CA		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112			Priority 0
Attention:		Attention:			DTRUSSLER
Carrier: NEAS		Routing: SHIP TO CONSIGNEE			Waybill #: Total Pcs. Total Weight: 1 PALLET 819 KGS
QTY Order	Type	Line Weight	Item	Description	WO or PO B/Code or S/N Remarks
4	DRUM	819 KGS	2002406	WASTE - OIL, 45 GAL	1.63 M3 NON REGULATED WASTE / 4 DRUMS ON 1 PALLET / ASSET'S: 334466 / 334998 / 331439 / 328617
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-35740

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SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER	Date: Aug 20, 2016 10:45 AM	TCN-35775					
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLY, QC, J3L 4V2 CA		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112	Priority 0				
Attention: Carrier: NEAS		Attention: Routing: SHIP TO CONSIGNEE	Waybill #: 1 PALLET	Total Pcs. 324 KGS			
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	DRUM	324 KGS	2002356	WASTE - OIL FILTERS	2.65 M3		NON REGULATED WASTE / 4 DRUMS ON 1 PALLET / ASSET'S: 339557 / 338897 / 340449 / 340450
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 9: NWS Shipping Manifest TCN-35775



SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER	Date: Aug 20, 2016 12:47 PM	TCN-35779					
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLY, QC, J3L 4V2 CA		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112	Priority 0				
Attention: Carrier: NEAS		Attention: Routing: SHIP TO CONSIGNEE	Waybill #: 1 PALLET	Total Pcs. 747 KGS			
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	DRUM	747 KGS	2002406	WASTE - OIL, 45 GAL	1.66 M3		NON REGULATED WASTE / 4 DRUMS ON 1 PALLET / ASSET'S: 338955 / 340432 / 334695 / 334826
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 10: NWS Shipping Manifest TCN-35779

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SOW Ref: 16.F.5.d



SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER	Date: Aug 22, 2016 1:38 PM	TCN-35797	
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLEY, QC, J3L 4V2 CA	From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112	Priority 0	
Attention:	Attention:	DTRUSSLER	
Carrier: NEAS	Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 PALLET
QTY Order	Type Line Weight	Item Description	WO or PO B/Code or S/N Remarks
4	DRUM KGS	2002344 WASTE - GLYCOL (DRUM)	1.66 M3 NON REGULATED WASTE / 4 DRUMS ON 1 PALLET / ASSET'S: 318328 / 332596 / 332598 / 335174

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 11: NWS Shipping Manifest TCN-35797

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SOW Ref: 16.F.5.d



SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 26, 2016 10:22 AM	TCN-35829		
Ship To: CLEAN HARBORS CANADA INC. 6785 ROUTE 132 SAINTE-CATHERINE, QC, J5C 1B6 CA 450-632-6640		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112			Priority 0
Attention:		Attention:			DTRUSSLER
Carrier: NEAS		Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 CRATE	Total Weight: 994 KGS
QTY Order	Type	Line Weight	Item	Description	WO or PO B/Code or S/N Remarks
3	994	1080711	KGS	EXTINGUISHER, FIRE, FOAM, 33 GAL	5.99 M3 MATERIAL FOR CLEAN HARBORS MONTREAL / ROS:ML15-005 APPLIES / NON TDG AS NITROGEN CYLINDERS REMOVED / ASSET'S:131622 / 131623 / 131624
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 12: NWS Shipping Manifest TCN-35829

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SOW Ref: 16.F.5.d



SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 26, 2016 10:59 AM	TCN-35843			
Ship To: CLEAN HARBORS CANADA INC. 6785 ROUTE 132 SAINTE-CATHERINE, QC, J5C 1B6 CA 450-632-6640		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112			Priority 0	
Attention:		Attention:			DTRUSSLER	
Carrier: NEAS		Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 CRATE	Total Weight: 974 KGS	
QTY Order	Type	Line Weight	Item	Description	WO or PO B/Code or S/N	Remarks
3	974	1080711	KGS	EXTINGUISHER, FIRE, FOAM, 33 GAL	5.99 M3	MATERIAL FOR CLEAN HARBORS MONTREAL / ROS:ML15-005 APPLIES / NON TDG AS NITROGEN CYLINDERS REMOVED / ASSETS:131625 / 131626 / 131627
NOTE: All claims related to this shipment have to be filed with Raytheon within 45 hours of receipt.				Received By:	Date	
				Received By:	Date	

Figure 13: NWS Shipping Manifest TCN-35843

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SOW Ref: 16.F.5.d



SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: DTRUSSLER		Date: Aug 28, 2016 11:00 AM	TCN-35847		
Ship To: CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLEY, QC, J3L 4V2 CA		From: LSS-C/CAM-M CAMBRIDGE BAY, DND Storeroom Raytheon Canada Limited, LSS Cambridge Bay: P.O. Box 1239 Cambridge Bay, NU, X0B 0C0 867-983-2112			Priority 0
Attention:		Attention:			DTRUSSLER
Carrier: NEAS		Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs.	Total Weight:
QTY Order	Type	Line Weight	Item	Description	WO or PO B/Code or S/N Remarks
6	85 KGS	2002423	GAS,NITROGEN N2,23 CU FT	2.54 M3	EMPTY CYLINDERS , VALVES OPEN, FOR DISPOSAL / 6- CYLINDERS IN WOOD CRATE / ASSET'S:131667 / 139596 / 139597 / 139598 / 139600 / 140492 /
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 14: NWS Shipping Manifest TCN-35847

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



Coordinates of sewage treatment outfall: 69°7'3.20"N, 105°7'11.3"W

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ANNEX C: ANALYSIS OF TREATED SEWAGE EFFLUENT

Table C-1: Summary of Analysis of Treated Sewage Effluent at CAM-M in 2016

Sample Date	Parameter				
	pH	Oil and Grease (Present - P / Absent - A)	Biological Oxygen Demand (mg/L)	Total Suspended Solids (mg/L)	Faecal Coliforms ¹
Maximum Concentration	6.0 to 9.0 (pH units)	No visible sheen	120 mg/L	180 mg/L	10,000 CFU/100 mL
20-Jan-2016	6.6	A	<1	<1	1.0
17-Feb-2016	6.94	A	3	<2	0.0
14-Mar-2016	6.78	A	<1	<3	0.0
19-Apr-2016	7.23	A	<1	<2	0.3
17-May-2016	7.99	A	<1	<3	0.3
13-Jun-2016	7.88	A	1	<2	0.3
26-Jul-2016	8.02	A	<3	<2	0.0
23-Aug-2016	7.59	A	<1	<2	5.7
3-Oct-2016 ²	7.61	A	10	<2	0.0
25-Oct-2016	7.87	A	<1	<2	3.0
15-Nov-2016	7.86	A	<1	<2	164.0
12-Dec-2016	7.8	A	<1	<2	27.3

¹ This column contains the average of the Cyclot 1A, Cyclot 1B, and Cyclot 1C.

² This sample was taken in place of the September sample.

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1601062
Date Submitted: 2016-01-22
Date Reported: 2016-01-29
Project: CAM-MAIN
COC #: 178220

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00		6.60	1223454 Sewage
Subcontract	Total Suspended Solids	1	mg/L	<1	2016-01-20 CAM-MAIN Cyclct 1
	BOD5	1	mg/L	<1	
	Oil & Grease - Mineral	1	mg/L	<1	
	Oil & Grease - Non-mineral	1	mg/L	<1	
	Oil & Grease - Total	1	mg/L	<1	
Visible Sheen	Visible Sheen		P/A	A	

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 3

Figure 15: January 2016, sewage effluent laboratory results page 1 of 2

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SOW Ref: 16.F.5.d

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

EXOVA

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: 1601063
Date Submitted: 2016-01-22
Date Reported: 2016-01-23
Project: CAM-MAIN
COC #: 178220

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1223455 Sewage 2016-01-20 CAM-MAIN Cyclet 1A	1223456 Sewage 2016-01-20 CAM-MAIN Cyclet 1B	1223457 Sewage 2016-01-20 CAM-MAIN Cyclet 1C
Others	Faecal Coliforms	0	ct/100mL			0	1	2

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.

Analytical Method: AMBCOLM1

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 2

Figure 16: January 2016, sewage effluent laboratory results page 2 of 2

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SOW Ref: 16.F.5.d

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1602714
Date Submitted: 2016-02-24
Date Reported: 2016-03-04
Project: CAM-Main
COC #: 178217

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00			1228310 Wastewater 2016-02-17 CAM-Main Cyclct 1
Subcontract	Total Suspended Solids	1	mg/L		<2
	BOD5	1	mg/L		3
	Oil & Grease - Mineral	1	mg/L		<1
	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
	Visible Sheen	0	A/P		A

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

Page 2 of 4

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 17: February 2016, sewage effluent laboratory results page 1 of 2

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SOW Ref: 16.F.5.d

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1602707
Date Submitted: 2016-02-24
Date Reported: 2016-02-25
Project: CAM-MAIN
COC #: 178217

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1228275 Sewage 2016-02-17 CAM-MAIN Cyclet 1A	1228276 Sewage 2016-02-17 CAM-MAIN Cyclet 1B	1228277 Sewage 2016-02-17 CAM-MAIN Cyclet 1C
Others	Faecal Coliforms	0	cf/100mL	Water	0	0	0	0

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.
Analytical Method: AMBCOLM1
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 2

Figure 18: February 2016, sewage effluent laboratory results page 2 of 2

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SOW Ref: 16.F.5.d

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis



Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1604346
Date Submitted: 2016-03-28
Date Reported: 2016-04-04
Project: CAM.MAIN
COC #: 178213

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00			1232411 Wastewater 2016-03-14 CAM-MAIN CYCLET 1
	Total Suspended Solids	1	mg/L		<3
Nutrients	BOD5	1	mg/L		<1
Subcontract	Oil & Grease - Mineral	1	mg/L		<1
	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Visible Sheen	Visible Sheen		P/A		A

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.

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

146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

Page 2 of 3

Figure 19: March 2016, sewage effluent 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 Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#:
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1604342
Date Submitted: 2016-03-28
Date Reported: 2016-03-29
Project: CAM.MAIN
COC #: 178213

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1232402 Wastewater 2016-03-14 CAM-Main Cyclct 1A	1232403 Wastewater 2016-03-14 CAM-Main Cyclct 1B	1232404 Wastewater 2016-03-14 CAM-Main Cyclct 1C
Others	Faecal Coliforms	0	cf/100mL		0	0	0	

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.

Analytical Method: AMBCOLM1

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 2

Figure 20: March 2016, sewage effluent laboratory results page 2 of 2

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SOW Ref: 16.F.5.d

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1607680
Date Submitted: 2016-05-17
Date Reported: 2016-05-26
Project:
COC #: 178214

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00			1240375 Wastewater 2016-04-18 Cam-Main Cyclct 1
	Total Suspended Solids	1	mg/L		<2
Subcontract	BOD5	1	mg/L		<1
	Oil & Grease - Mineral	1	mg/L		<1
	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Visible Sheen	Visible Sheen		P/A		A

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.

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

146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

Page 2 of 3

Figure 21: April 2016, sewage effluent laboratory results page 1 of 2

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

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: 1607698
Date Submitted: 2016-05-17
Date Reported: 2016-05-18
Project:
COC #: 178214

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1240404 Sewage 2016-04-19 Cam-Main Cyclet 1A	1240405 Sewage 2016-04-19 Cam-Main Cyclet 1B	1240406 Sewage 2016-04-19 Cam-Main Cyclet 1C
Others	Faecal Coliforms	0	cf/100mL		1	0	0	

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.

Analytical Method: AMBCOLM1

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 2

Figure 22: April 2016, sewage effluent laboratory results page 2 of 2

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EXOVA ENVIRONMENTAL ONTARIO

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: 1607868
Date Submitted: 2016-05-19
Date Reported: 2016-05-26
Project: CAM-MAIN
COC #: 161422

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1240844 Sewage 2016-05-17 CAM-MAIN CYCLET
General Chemistry	pH	1.00		7.99		
	Total Suspended Solids	1	mg/L	<3		
Subcontract	BOD5	1	mg/L	<1		
	Oil & Grease - Mineral	1	mg/L	<1		
	Oil & Grease - Non-mineral	1	mg/L	<1		
	Oil & Grease - Total	1	mg/L	<1		
Visible Sheen	Visible Sheen		P/A	A		

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.

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

146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

Page 2 of 3

Figure 23: May 2016, sewage effluent laboratory results page 1 of 2

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EXOVA ENVIRONMENTAL ONTARIO

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: 1607883
Date Submitted: 2016-05-19
Date Reported: 2016-05-20
Project: CAM-MAIN
COC #: 161422

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1240869 Wastewater 2016-05-17 Cam-Main Cyclct 1A	1240870 Wastewater 2016-05-17 Cam-Main Cyclct 1B	1240871 Wastewater 2016-05-17 Cam-Main Cyclct 1C
Others	Faecal Coliforms	0	ct/100mL		0	1	1	

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.
Analytical Method: AMBCOLM1
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 2

Figure 24: May 2016, sewage effluent laboratory results page 2 of 2

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1610238
Date Submitted: 2016-06-22
Date Reported: 2016-06-29
Project: CAM-Main
COC #: 182165

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00		7.88	1246524 Wastewater 2016-06-13 Cam-Main Cyclst 1
	Total Suspended Solids	1	mg/L	<2	
Subcontract	BOD5	1	mg/L	1	
	Oil & Grease - Mineral	1	mg/L	<1	
	Oil & Grease - Non-mineral	1	mg/L	<1	
	Oil & Grease - Total	1	mg/L	<1	
Visible Sheen	Visible Sheen		P/A	A	

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.

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

146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

Page 2 of 3

Figure 25: June 2016, sewage effluent laboratory results page 1 of 2

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EXOVA ENVIRONMENTAL ONTARIO

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: 1610264
Date Submitted: 2016-06-22
Date Reported: 2016-06-23
Project: CAM-MAIN
COC #: 182165

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1246582 Wastewater 2016-06-13 CAM-MAIN Cyclet 1A	1246583 Wastewater 2016-06-13 CAM-MAIN Cyclet 1B	1246584 Wastewater 2016-06-13 CAM-MAIN Cyclet 1C
Others	Faecal Coliforms	0	ct/100mL		1	0	0	

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.

Analytical Method: AMBCOLM1
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 2

Figure 26: June 2016, sewage effluent laboratory results page 2 of 2

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Gabe Landry
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1613383
Date Submitted: 2016-08-02
Date Reported: 2016-08-15
Project: CAM-MAIN
COC #: 182141

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00		8.02	1253549 Sewage
	Total Suspended Solids	2	mg/L	<2	2016-07-26 CAM-MAIN CYCLET 1
Subcontract	BOD5	3	mg/L	<3	
	Oil & Grease - Mineral	1	mg/L	<1	
	Oil & Grease - Non-mineral	1	mg/L	<1	
	Oil & Grease - Total	1	mg/L	<1	
Visible Sheen	Visible Sheen		P/A	A	

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

Page 2 of 2

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 27: July 2016, sewage effluent laboratory results page 1 of 2

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

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

Report Number: 1613382
Date Submitted: 2016-08-02
Date Reported: 2016-08-03
Project: CAM-MAIN
COC #: 182141

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1253546 Sewage 2016-07-26 CAM-MAIN CYCLET 1A	1253547 Sewage 2016-07-26 CAM-MAIN CYCLET 1B	1253548 Sewage 2016-07-26 CAM-MAIN CYCLET 1C
Others	Faecal Coliforms	0	ct/100mL	Water	0	0	0	0

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.
Analytical Method: AMBCOLM1
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 28: July 2016, sewage effluent laboratory results page 2 of 2

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis



Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1615151
Date Submitted: 2016-08-26
Date Reported: 2016-09-02
Project: CAM-MAIN
COC #: 182167

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1257648 Wastewater 2016-08-23 CAM-Main Cyclct 1
General Chemistry	pH	1.00			7.59	
	Total Suspended Solids	2	mg/L		<2	
Subcontract	BOD5	1	mg/L		<1	
	Oil & Grease - Mineral	1	mg/L		<1	
	Oil & Grease - Non-mineral	1	mg/L		5	
	Oil & Grease - Total	1	mg/L		5	
Visible Sheen	Visible Sheen	0	P/A		A	

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 4

Figure 29: August 2016, sewage effluent laboratory results page 1 of 2

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

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: 1615138
Date Submitted: 2016-08-26
Date Reported: 2016-08-28
Project: CAM-MAIN
COC #: 182167

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1257612 Wastewater 2016-08-23 CAM-MAIN Cyclt 1A	1257613 Wastewater 2016-08-23 CAM-MAIN Cyclt 1B	1257614 Wastewater 2016-08-23 CAM-MAIN Cyclt 1C
Others	Faecal Coliforms	0	ct/100mL			8	6	3

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.
Analytical Method: AMBCOLM1
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 30: August 2016, sewage effluent laboratory results page 2 of 2

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1617879
Date Submitted: 2016-10-06
Date Reported: 2016-10-14
Project: CAM-Main
COC #: 182142

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00			1263730 Wastewater 2016-10-03 Cam Main Cyclt 1
Oil & Grease	Total Suspended Solids	2	mg/L	<2	
	Oil & Grease - Mineral	1	mg/L	<1	
	Oil & Grease - Non-mineral	1	mg/L	<1	
Subcontract	Oil & Grease - Total	1	mg/L	<1	
	BOD5	1	mg/L	10	
Visible Sheen	Visible Sheen		P/A	A	

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.

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

146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

Page 2 of 3

Figure 31: September 2016, sewage effluent laboratory results page 1 of 2

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1617896
Date Submitted: 2016-10-06
Date Reported: 2016-10-07
Project: CAM-MAIN
COC #: 182142

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1263781 Sewage 2016-10-03 CAM-MAIN CYCLET 1A	1263782 Sewage 2016-10-03 CAM-MAIN CYCLET 1B	1263783 Sewage 2016-10-03 CAM-MAIN CYCLET 1C
Others	Faecal Coliforms	0	cf/100mL			0	0	0

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 2

Figure 32: September 2016, sewage effluent laboratory results page 2 of 2

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1619591
Date Submitted: 2016-11-02
Date Reported: 2016-11-08
Project: CAM-Main
COC #: 182168

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00		7.87	
Oil & Grease	Total Suspended Solids	2	mg/L	<2	
	Oil & Grease - Mineral	1	mg/L	<1	
	Oil & Grease - Non-mineral	1	mg/L	<1	
	Oil & Grease - Total	1	mg/L	<1	
Subcontract	BOD5	1	mg/L	<1	
Visible Sheen	Visible Sheen		P/A	A	1267819 Sewage 2016-10-25 Cam Main Cyclct 1

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.

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

146 Colonnade Rd. Unit 8, Ottawa, ON K2E 7Y1

Page 2 of 3

Figure 33: October 2016, sewage effluent laboratory results page 1 of 2

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EXOVA ENVIRONMENTAL ONTARIO

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: 1619631
Date Submitted: 2016-11-02
Date Reported: 2016-11-03
Project: CAM-MAIN
COC #: 182168

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1267948 Sewage 2016-10-25 CAM-MAIN CYCLET 1A	1267949 Sewage 2016-10-25 CAM-MAIN CYCLET 1B	1267950 Sewage 2016-10-25 CAM-MAIN CYCLET 1C
Others	Faecal Coliforms	0	ct/100mL		0	6	3	

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.
Analytical Method: AMBCOLM1
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 2

Figure 34: October 2016, sewage effluent laboratory results page 2 of 2

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1620715
Date Submitted: 2016-11-18
Date Reported: 2016-11-25
Project: CAM-MAIN
COC #: 182164

Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.86
	Total Suspended Solids	2	mg/L		<2
Oil & Grease	Oil & Grease - Mineral	1	mg/L		<1
	Oil & Grease - Non-mineral	1	mg/L		<1
	Oil & Grease - Total	1	mg/L		<1
Subcontract	BOD5	1	mg/L		<1
Visible Sheen	Visible Sheen		P/A		A

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 3

Figure 35: November 2016, sewage effluent laboratory results page 1 of 2

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EXOVA ENVIRONMENTAL ONTARIO

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: 1620682
Date Submitted: 2016-11-18
Date Reported: 2016-11-20
Project: CAM-MAIN
COC #: 182164

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1270683 Wastewater 2016-11-15 CAM Main Cyclet 1A	1270684 Wastewater 2016-11-15 CAM Main Cyclet 1B	1270685 Wastewater 2016-11-15 CAM Main Cyclet 1C
Others	Faecal Coliforms	0	ct/100mL			220	118	154

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.
Analytical Method: AMBCOLM1
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 36: November 2016, sewage effluent laboratory results page 2 of 2

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SOW Ref: 16.F.5.d



Environment Testing

Certificate of Analysis

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8

Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1622201
Date Submitted: 2016-12-14
Date Reported: 2016-12-21
Project: CAM-MAIN
COC #: 182163

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00			1274349 Sewage
Oil & Grease	Total Suspended Solids	2	mg/L		2016-12-12 Cam0Main Cyclct 1
	Oil & Grease - Mineral	1	mg/L	<2	
	Oil & Grease - Non-mineral	1	mg/L	<1	
Subcontract	Oil & Grease - Total	1	mg/L	<1	
	BOD5	1	mg/L	<1	
Visible Sheen	Visible Sheen		P/A	A	

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 3

Figure 37: December 2016, sewage effluent laboratory results page 1 of 2

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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: 1622203
Date Submitted: 2016-12-14
Date Reported: 2016-12-15
Project: CAM-Main
COC #: 182163

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1274361 Wastewater 2016-12-12 CAM-Main Cyclct 1A	1274362 Wastewater 2016-12-12 CAM-Main Cyclct 1B	1274363 Wastewater 2016-12-12 CAM-Main Cyclct 1C
Others	Faecal Coliforms	0	ct/100mL			27	29	26

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.
Analytical Method: AMBCOLM1
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 2

Figure 38: December 2016, sewage effluent laboratory results page 2 of 2

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

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

Berm	Maximum concentration of any grab sample (ug/L)	CAM W22A	CAM W20B&C	CAM W22C & W20D
Location on-site		Summit	Airstrip	Beach
Discharge Latitude ³		69° 7'2.76"N	69° 6'12.01"N	69° 6'11.41"N
Discharge Longitude		105° 7'2.69"W	105° 7'36.60"W	105° 5'50.26"W
Date		7-Jun-2016	7-Jun-2016	7-Jun-2016
pH (pH Units)	6 to 9	7.54	7.48	7.53
Oil and Grease (ug/L)	5000	<5000	<5000	<5000
Arsenic (total) (ug/L)	100	<20	<20	<20
Cadmium (dissolved) (ug/L)	10	<0.1	<0.1	<0.1
Chromium (dissolved) (ug/L)	100	<1	<1	<1
Cobalt (dissolved) (ug/L)	50	<0.2	0.6	<0.2
Copper (dissolved) (ug/L)	200	7	5	7
Lead (dissolved) (ug/L)	50	<1	<1	<1
Mercury (total) (ug/L)	0.6	<0.1	<0.1	<0.1
Nickel (dissolved) (ug/L)	200	<5	<5	<5
PCB (total) (ug/L)	1000	<0.1	<0.1	<0.1
Phenols (ug/L)	20	<1	<1	<1
Zinc (total) (ug/L)	500	<40	70	<40
Benzene (ug/L)	370	<0.5	<0.5	<0.5
Toluene (ug/L)	2	<0.5	<0.5	<0.5
Ethyl benzene (ug/L)	90	<0.5	<0.5	<0.5

³ Final discharge point of bermed fuel storage facility

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EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1609591
Date Submitted: 2016-06-14
Date Reported: 2016-06-20
Project: CAM-M
COC #: 170390

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00		7.54	1245012 Wastewater
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	0.5	mg/L	<0.5	
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	%	97	

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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 39: CAM W22A berm water laboratory results page 1 of 2 (June 2016)

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EXOVA ENVIRONMENTAL ONTARIO

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Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1609592
Date Submitted: 2016-06-14
Date Reported: 2016-06-16
Project: CAM-M
COC #: 170390

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
Metals	Cd	0.0001	mg/L	<0.0001	1245013 Wastewater 2016-06-07 W22A - Dissolved
	Co	0.0002	mg/L	<0.0002	
	Cr	0.001	mg/L	<0.001	
	Cu	0.001	mg/L	0.007	
	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.

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 40: CAM W22A berm water laboratory results page 2 of 2 (June 2016)

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Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1609586
Date Submitted: 2016-06-14
Date Reported: 2016-06-20
Project: CAM-M
COC #: 176795

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1245008 Wastewater 2016-06-07 W20B/W20C
General Chemistry	pH	1.00			7.48	
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		0.07	
PCBs	Polychlorinated Biphenyls (PCBs)	0.1	ug/L		<0.1	
Phenols-4AAP	Phenols	0.001	mg/L		<0.001	
Subcontract	Oil & Grease - Total	0.5	mg/L		<0.5	
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	%		103	

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/CC information available on request.

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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 41: CAM W20B and W20C berm water laboratory results page 1 of 2 (June 2016)

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Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1609588
Date Submitted: 2016-06-14
Date Reported: 2016-06-16
Project: CAM-M
COC #: 176795

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1245009 Wastewater 2016-06-07 W20B/W20C - Dissolved
Metals	Cd	0.0001	mg/L	<0.0001		
	Co	0.0002	mg/L	0.0006		
	Cr	0.001	mg/L	<0.001		
	Cu	0.001	mg/L	0.005		
	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.

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 42: CAM W20B and W20C berm water laboratory results page 2 of 2 (June 2016)

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Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1609590
Date Submitted: 2016-06-14
Date Reported: 2016-06-20
Project: CAM-M
COC #: 170389

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
General Chemistry	pH	1.00			1245011 Wastewater 2016-06-07 W22C/W20D
Mercury	Hg	0.0001	mg/L	<0.0001	
Metals	Aqua-Regia Digest			Y	
		As	0.02	<0.02	
		Zn	0.04	<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	0.5	mg/L	<0.5	
VOCs	Benzene	0.5	ug/L	<0.5	
		0.5	ug/L	<0.5	
		Toluene	0.5	<0.5	
VOCs Surrogates (%)	Toluene-d8	0	%	102	

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.

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 43: CAM W22C and W20D berm water laboratory results page 1 of 2 (June 2016)

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Exova

Client: Raytheon Canada Limited Ottawa
400 Cooper St.
Ottawa, ON
K2P 2H8
Attention: Mr. Will Wyman
PO#: 15-00345-OT
Invoice to: Raytheon Canada Limited Ottawa

Report Number: 1609589
Date Submitted: 2016-06-14
Date Reported: 2016-06-16
Project: CAM-M
COC #: 170389

Group	Analyte	MRL	Units	Guideline	Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1245010 Wastewater 2016-06-07 W22CW20D - Dissolved
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		0.007	
	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/OC information available on request.

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 44: CAM W22C and W20D berm water laboratory results page 2 of 2 (June 2016)

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