



# **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 When the revised document is issued, the previous issue is automatically superseded.

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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<sup>3</sup>) per day which is below the maximum of 10 m<sup>3</sup> 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<sup>3</sup> of water taken (4.8m<sup>3</sup> from the water pump house, and 18.1 m<sup>3</sup> 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 <sup>3</sup> )
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
<b>TOTAL</b>	<b>1041.4</b>

### 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 <sup>3</sup> )
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
<b>TOTAL</b>	<b>1509.2</b>

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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	8 drums	Movement Document 2581512-7
Waste Solids containing flammable liquids n.o.s. (fuel, aviation, turbine engine)		
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		



## 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
<b>TOTAL</b>	<b>15,424</b>

## 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.



## 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.



## 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										2581512-7	
This Movement document/manifest conforms to all federal and provincial transport and environmental legislation. Ce document de mouvement/manifeste est conforme aux législations fédérales et provinciales sur l'environnement et le transport.										Movement Document / Manifest Reference No. N° de référence du document de mouvement/manifeste	
<b>A</b> Generator / consigneur Producteur / expéditeur			Registration No. / Provincial ID No. N° d'identification - d'Id. provincial <b>NUG100003</b>			<b>B</b> Carrier Transporteur			Registration No. / Provincial ID No. N° d'identification - d'Id. provincial		
Company name / Nom de l'entreprise <b>DND C/O Raytheon Canada Limited</b>			City / Ville <b>22 Wing, Bldg 109, Hornell Heights, POB 1PO</b>			Company name / Nom de l'entreprise <b>NEAS INC.</b>			City / Ville <b>2100 Ave Pierre-Dupuy W2S.1L2W6 H1L6C</b>		
Mailing address / Adresse postale <b>(705)494-2011 ext 2861</b>			Tel. No. / N° de tél. <b>(705)494-2011 ext 2861</b>			Mailing address / Adresse postale <b>2100 Ave Pierre-Dupuy W2S.1L2W6 H1L6C</b>			Tel. No. / N° de tél. <b>(514)977-0186</b>		
E-mail / Courriel électronique			E-mail / Courriel électronique			E-mail / Courriel électronique			E-mail / Courriel électronique		
Shipping site address / Adresse du lieu de l'expédition <b>NWS LSS Cambridge Bay, PO Box 1239</b>			City / Ville <b>Cambridge Bay</b>			Province <b>NU</b>			Postal code / Code postal <b>XOB 0C0</b>		
Intended Receiver / consignee Réceptionnaire / destinataire prévu <b>Safety Clean</b>			Registration No. / Provincial ID No. N° d'identification - d'Id. provincial <b>27011824-1</b>			Port of entry Point d'entrée <b>International use only</b>			Port of exit Point de sortie <b>International use only</b>		
Mailing address / Adresse postale <b>132 Ville-Sainte-Catherine, QC</b>			City / Ville <b>Chambly</b>			Province <b>QC</b>			Postal code / Code postal <b>J3L 4V2</b>		
E-mail / Courriel électronique			E-mail / Courriel électronique			E-mail / Courriel électronique			E-mail / Courriel électronique		
Recycling site address / Adresse du lieu de destination <b>2730, boulevard Industriel</b>			City / Ville <b>Chambly</b>			Province <b>QC</b>			Postal code / Code postal <b>J3L 4V2</b>		
Prox. code Code prox.			Shipping name Appellation réglementaire			Class / Classe Sub. class(es) Class(es) sub.			UN No. N° UN		
1			Waste batteries, WET filled with acid			8			2794		
2			Waste Fuel, Aviation, Turbine Engine Mixture *			3			1863		
3			Waste Fuel, Aviation, Turbine Engine *			3			1863		
4			Waste Solids Containing Aviation Turbine Engine			4.1			3175		
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## SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: <b>DTRUSSLER</b>		Date: <b>Aug 4, 2016 3:25 PM</b>		TCN-35624			
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 <b>0</b>		
Attention:		Attention: DTRUSSLER					
Carrier: NEAS	Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 PALLET	Total Weight: 849 KGS			
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 filled 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: <b>DTRUSSLER</b>		Date: <b>Aug 4, 2016 5:23 PM</b>		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 <b>0</b>			
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: <b>DTRUSSLER</b>		Date: <b>Aug 4, 2016 5:45 PM</b>		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 <b>0</b>			
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: <b>DTRUSSLER</b>		Date: <b>Aug 4, 2016 5:58 PM</b>		TCN-35627			
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 <b>0</b>		
Attention:		Attention: DTRUSSLER					
Carrier: NEAS	Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 PALLET	Total Weight: 842 KGS			
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	DRUM	842 KGS	2002406	WASTE - OIL, 45 GAL	1.63 M3		NON REGULATED WASTE/ 4 DRUMS ON 1 PALLET / ASSET'S: 332600 / 332601 / 332602 / 334853

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

Received By:	Date
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Received By:	Date
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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: <b>DTRUSSLER</b>		Date: <b>Aug 5, 2016 10:34 AM</b>		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 <b>0</b>	
Attention:				Attention:		DTRUSSLER
Carrier: NEAS		Routing: SHIP TO CONSIGNEE		Waybill #:	Total Pcs. 1 PALLET	Total Weight: 818 KGS
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N
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: <b>DTRUSSLER</b>		Date: <b>Aug 5, 2016 10:37 AM</b>		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 <b>0</b>	
Attention:				Attention:		DTRUSSLER
Carrier: NEAS		Routing: SHIP TO CONSIGNEE		Waybill #:	Total Pcs. 1 PALLET	Total Weight: 759 KGS
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N
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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## SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: <b>DTRUSSLER</b>	Date: <b>Aug 5, 2016 10:40 AM</b>	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 <b>0</b>
---	--	----------------------

Attention:		Attention:	DTRUSSLER	
Carrier: NEAS	Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 PALLET	Total Weight: 714 KGS

QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	DRUM	714 KGS	2002406	WASTE - OIL, 45 GAL	1.63 M3		NON REGULATED WASTE / 4 DRUMS ON 1 PALLET / ASSET'S: 334997 / 334694 / 330158 / 331288

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

Received By:	Date
Received By:	Date

Figure 7: NWS Shipping Manifest TCN-35633

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**Raytheon**  
Canada Limited

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**SHIPPING MANIFEST**

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

**NON NEGOTIABLE**

Filled By: <b>DTRUSSLER</b>		Date: <b>Aug 16, 2016 1:05 PM</b>		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 <b>0</b>		
Attention:		Attention: DTRUSSLER					
Carrier: NEAS		Routing: SHIP TO CONSIGNEE		Waybill #:	Total Pcs. 1 PALLET		
				Total Weight: 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: <b>DTRUSSLER</b>		Date: <b>Aug 20, 2016 10:45 AM</b>		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 <b>0</b>		
Attention:		Attention: DTRUSSLER					
Carrier: NEAS		Routing: SHIP TO CONSIGNEE		Waybill #:	Total Pcs. 1 PALLET		
				Total Weight: 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: <b>DTRUSSLER</b>		Date: <b>Aug 20, 2016 12:47 PM</b>		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 <b>0</b>		
Attention:		Attention: DTRUSSLER					
Carrier: NEAS		Routing: SHIP TO CONSIGNEE		Waybill #:	Total Pcs. 1 PALLET		
				Total Weight: 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: <b>DTRUSSLER</b>		Date: <b>Aug 22, 2016 1:38 PM</b>		TCN-35797			
Ship To:		CLEAN HARBORS CANADA INC. 2730 BOULEVARD INDUSTRIEL CHAMBLY, QC, J3L 4V2 CA			From:		Priority
					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		<b>0</b>
Attention:					Attention:		DTRUSSLER
Carrier:		Routing:			Waybill #:		Total Pcs.
NEAS		SHIP TO CONSIGNEE					1 PALLET
Total Weight:		929 KGS					
QTY Order	Type	Line Weight	Item	Description	WO or PO	B/Code or S/N	Remarks
4	DRUM	929 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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**Raytheon**  
Canada Limited

SOW Ref: 16.F.5.d

**SHIPPING MANIFEST**

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

**NON NEGOTIABLE**

Filled By: <b>DTRUSSLER</b>		Date: <b>Aug 26, 2016 10:22 AM</b>		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 <b>0</b>		
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 KGS	1080711	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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**Raytheon**  
Canada Limited

SOW Ref: 16.F.5.d

**SHIPPING MANIFEST**

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

**NON NEGOTIABLE**

Filled By: <b>DTRUSSLER</b>		Date: <b>Aug 26, 2016 10:59 AM</b>		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 <b>0</b>		
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 KGS	1080711	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:131625 / 131626 / 131627
<b>NOTE: All claims related to this shipment have to be filled with Raytheon within 45 hours of receipt.</b>							
Received By:				Date			
Received By:				Date			

Figure 13: NWS Shipping Manifest TCN-35843

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## SHIPPING MANIFEST

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

NON NEGOTIABLE

Filled By: <b>DTRUSSLER</b>		Date: <b>Aug 28, 2016 11:00 AM</b>		TCN-35847			
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 <b>0</b>		
Attention:		Attention: DTRUSSLER					
Carrier: NEAS	Routing: SHIP TO CONSIGNEE	Waybill #:	Total Pcs. 1 CRATE	Total Weight: 85 KGS			
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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SOW Ref: 16.F.5.d

## 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 <sup>1</sup>
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 <sup>2</sup>	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

<sup>1</sup> This column contains the average of the Cyclet 1A, Cyclet 1B, and Cyclet 1C.<sup>2</sup> This sample was taken in place of the September sample.



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

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1223454 Sewage  2016-01-20 CAM-MAIN Cyclot 1
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			6.60
	Total Suspended Solids	1	mg/L		<1
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.

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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**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: 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-MAIIN Cyclet 1A	1223456 Sewage  2016-01-20 CAM-MAIIN Cyclet 1B	1223457 Sewage  2016-01-20 CAM-MAIIN 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**



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		6.94	1228310 Wastewater  2016-02-17 CAM-Main Cyclet 1
		Total Suspended Solids	1	mg/L	<2	
Subcontract		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

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

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**Raytheon**  
Canada Limited

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

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

		Lab I.D.		Sample Matrix	
		Sample Type		Sampling Date	
		Sample I.D.		CAM-MAIN CYCLET	
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			6.78
	Total Suspended Solids	1	mg/L		<3
Nutrients	BOD5	1	mg/L		<1
	Oil & Grease - Mineral	1	mg/L		<1
Subcontract	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 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 Cycle1 1A
Others	Faecal Coliforms	0	ct/100mL		0	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 20: March 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: 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		7.23	1240375 Wastewater  2016-04-18 Cam-Main Cyclet 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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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

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1240404 Sewage  2016-04-19 Cam-Main Cyclelet 1A	1240405 Sewage  2016-04-19 Cam-Main Cyclelet 1B	1240406 Sewage  2016-04-19 Cam-Main Cyclelet 1C
Group	Analyte	MRL	Units	Guideline				
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 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

					Lab I.D.	1240844
					Sample Matrix	Sewage
					Sample Type	2016-05-17
					Sampling Date	CAM-MAIN CYCLET
					Sample I.D.	
Group	Analyte	MRL	Units	Guideline		
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		
Visable 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 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

					Lab I.D.	1240869	1240870	1240871
					Sample Matrix	Wastewater	Wastewater	Wastewater
					Sample Type	-	-	-
					Sampling Date	2016-05-17	2016-05-17	2016-05-17
					Sample I.D.	Cam-Main Cyclet 1A	Cam-Main Cyclet 1B	Cam-Main Cyclet 1C
Group	Analyte	MRL	Units	Guideline				
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**



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
General Chemistry	pH		1.00		7.88
	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

Lab I.D. 1246524  
Sample Matrix Wastewater  
Sample Type  
Sampling Date 2016-06-13  
Sample I.D. Cam-Main Cyclet 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.  
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 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

					Lab I.D.	Sample Matrix	Sample Type	Sampling Date	Sample I.D.
					1246582	Wastewater	1246583	Wastewater	1246584
					2016-06-13	2016-06-13	2016-06-13	2016-06-13	2016-06-13
					CAM-MAIN	Cyclot 1A	CAM-MAIN	Cyclot 1B	CAM-MAIN
					Cyclot 1C				
Group	Analyte	MRL	Units	Guideline					
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**



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

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1253549 Sewage  2016-07-26 CAM-MAIN CYCLET 1
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			8.02
	Total Suspended Solids	2	mg/L		<2
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

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 27: July 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. 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

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1253546 Sewage	1253547 Sewage	1253548 Sewage
						2016-07-26 CAM-MAIN CYCLET 1A	2016-07-26 CAM-MAIN CYCLET 1B	2016-07-26 CAM-MAIN CYCLET 1C
Group	Analyte	MRL	Units	Guideline				
Others	Faecal Coliforms	0	ct/100mL	Water		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 28: July 2016, sewage effluent laboratory results page 2 of 2**

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**EXOVA ENVIRONMENTAL ONTARIO**

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

					Lab I.D.	1257648
					Sample Matrix	Wastewater
					Sample Type	2016-08-23
					Sampling Date	CAM-Main Cyclet
					Sample I.D.	
Group	Analyte	MRL	Units	Guideline		
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
Visable 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**

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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

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1257612 Wastewater  2016-08-23 CAM-MAIN Cyclot 1A	1257613 Wastewater  2016-08-23 CAM-MAIN Cyclot 1B	1257614 Wastewater  2016-08-23 CAM-MAIN Cyclot 1C
Group	Analyte	MRL	Units	Guideline				
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

Page 2 of 2

**Figure 30: August 2016, sewage effluent laboratory results page 2 of 2**

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

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1263730 Wastewater  2016-10-03 Cam Main Cycle 1
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.61
	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		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.  
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 31: September 2016, sewage effluent laboratory results page 1 of 2

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**EXOVA ENVIRONMENTAL ONTARIO**

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

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



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

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1267819 Sewage 2016-10-25 Cam Main Cyclet 1
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.87
	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 33: October 2016, sewage effluent laboratory results page 1 of 2**

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**Raytheon**  
Canada Limited

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

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1267948 Sewage	1267949 Sewage	1267950 Sewage
						2016-10-25 CAM-MAIN CYCLET 1A	2016-10-25 CAM-MAIN CYCLET 1B	2016-10-25 CAM-MAIN CYCLET 1C
Group	Analyte	MRL	Units	Guideline				
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****UNCONTROLLED WHEN PRINTED**



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

Lab I.D. 1270781 Sample Matrix Wastewater Sample Type 2016-11-15 Sampling Date CAM MAIN CYCLET Sample I.D. 1				
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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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: 1620682  
Date Submitted: 2016-11-18  
Date Reported: 2016-11-20  
Project: CAM-MAIN  
COC #: 182164

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1270683 Wastewater	1270684 Wastewater	1270685 Wastewater
						2016-11-15 CAM Main Cyclelet 1A	2016-11-15 CAM Main Cyclelet 1B	2016-11-15 CAM Main Cyclelet 1C
Group	Analyte	MRL	Units	Guideline				
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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Environment Testing

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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: 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		7.80	1274349 Sewage  2016-12-12 Cam0Main Cyclet 1
		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**  
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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 37: December 2016, sewage effluent laboratory results page 1 of 2

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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#:   
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 Cyclot 1A	27
Others	Faecal Coliforms	0	ct/100mL		1274362	Wastewater	2016-12-12	CAM-Main Cyclot 1B	29
					1274363	Wastewater	2016-12-12	CAM-Main Cyclot 1C	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

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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 <sup>3</sup>		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

<sup>3</sup> Final discharge point of bermed fuel storage facility



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

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1245012 Wastewater 2016-06-07 W22A
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.54
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

**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, PWWQO = Provincial Water Quality Guideline, IPWQO = Interim Provincial Water Quality Objective, TDR = Typical Desired Range

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**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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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

				Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.	1245013 Wastewater  2016-06-07 W22A - 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		0.007
	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

Page 2 of 3

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

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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

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1245008 Wastewater
Group	Analyte	MRL	Units	Guideline	
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/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 41: CAM W20B and W20C berm water laboratory results page 1 of 2 (June 2016)

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

					Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D.
					1245009 Wastewater  2016-06-07 W20B/W20C - Dissolved
Group	Analyte	MRL	Units	Guideline	
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.

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

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**SOW Ref: 16.F.5.d**

### Certificate of Analysis



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

				Lab I.D.	1245011
				Sample Matrix	Wastewater
				Sample Type	2016-06-07
				Sampling Date	W22C/W20D
				Sample I.D.	
Group	Analyte	MRL	Units	Guideline	
General Chemistry	pH	1.00			7.53
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	%		102

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

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