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2016 ANNUAL NUNAVUT WATER BOARD

REPORT FOR DYE-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 When the revised document is issued, the previous issue is automatically superseded.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 | 29-Mar-2017 | W. Wyman | All | Updated as per NWSO comments |
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EXECUTIVE SUMMARY

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

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

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

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

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

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

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

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

The Spill Contingency Plan was successfully implemented.

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1.0 INTRODUCTION

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

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

1.1 Report Details

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

2.0 WATER USE

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

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

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

3.0 HAZARDOUS WASTE AND WASTE OIL DISPOSAL

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

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

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

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

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4.0 NON-HAZARDOUS SOLID WASTE DISPOSAL

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

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

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

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

5.0 MONITORING PROGRAM

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

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

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

3. Quality of the water contained in the berms of fuel storage facilities prior to discharge (DYE-3) was analyzed and confirmed within the effluent quality limits listed in the water licence, Part D. The coordinates and the results of the analysis are shown in **Annex D: Location of 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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6.0 SPILLS (UNAUTHORIZED DISCHARGES)

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

The Spill Contingency Plan was successfully implemented.

7.0 REVISIONS TO THE SPILL CONTINGENCY PLAN

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

8.0 PROGRESSIVE RECLAMATION WORK UNDERTAKEN

No progressive reclamation work was undertaken in 2016.

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9.0 ACRONYMS

Table 9-1: Acronyms

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

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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 3-1 are below.

MOVEMENT DOCUMENT / MANIFEST DOCUMENT DE MOUVEMENT / MANIFESTE

DOCUMENTS DE MOUVEMENT
The Kovener - does merchanties conform to the federal
and provincial legislation and state taxation legislation.
Ce document de mouvement indique les conditions de transport et de
stockage et d'entreposage des denrées dans la cargaison.

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

Copy / Copie 1 (white / blanc)

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|--|-------------------------------|---|-----------------------|---|----|
| B Consignor Transporteur | | Registration No. / Numéro. D.R.C. N° d'inscr. dans le fil. 2007/08 | 15 | Registration No. / Numéro. D.R.C. N° d'inscr. dans le fil. 2007/08 | 16 |
| Consignee's name / Nom de l'entreprise | | | | | |
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Figure 1: Movement Document 2539175-6

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ENT DOCUMENT / MANIFEST ENT DE MOUVEMENT / MANIFESTE

lement/mandat conforms to all federal
sport and environmental legislation.
Le mouvement/mandat est conforme aux législations
fédérales sur l'environnement et le transport.

2539176-4

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

Copy / Copie 1 (white / blanche)

Figure 2: Movement Document 2539176-4

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SOW Ref: 16.F.5.d



SHIPPING MANIFEST

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

NON NEGOTIABLE

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

Figure 3: NWS Shipping Manifest TCN-35705



SHIPPING MANIFEST

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

NON NEGOTIABLE

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

Figure 4: NWS Shipping Manifest TCN-35713

UNCONTROLLED WHEN PRINTED



UNCLASSIFIED

SOW Ref: 16.F.5.d



SHIPPING MANIFEST

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

NON NEGOTIABLE

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

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

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

Figure 5: NWS Shipping Manifest TCN-35714



SHIPPING MANIFEST

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

NON NEGOTIABLE

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

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

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

Figure 6: NWS Shipping Manifest TCN-35716

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SOW Ref: 16.F.5.d



SHIPPING MANIFEST

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

NON NEGOTIABLE

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

Figure 7: NWS Shipping Manifest TCN-35717



SHIPPING MANIFEST

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

NON NEGOTIABLE

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

Figure 8: NWS Shipping Manifest TCN-35721

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



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

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ANNEX C: ANALYSIS OF DISCHARGED SEWAGE EFFLUENT

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

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

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

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

¹ Effluent from bermed fuel storage facilities.

² Final discharge point of bermed fuel storage facility

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SOW Ref: 16.F.5.d

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis

Exova

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

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

| Group | Analyte | MRL | Units | Guideline | Lab I.D. Sample Matrix Sample Type Sampling Date Sample I.D. |
|---------------------|----------------------------------|--------|-------|-----------|--|
| General Chemistry | pH | 1.00 | | 7.00 | 1259933 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 | 1 | mg/L | <1 | |
| VOCs | Benzene | 0.5 | ug/L | <0.5 | |
| | Ethylbenzene | 0.5 | ug/L | <0.5 | |
| | Toluene | 0.5 | ug/L | <0.5 | |
| VOCs Surrogates (%) | Toluene-d8 | 0 | % | 99 | |

Guideline = * = Guideline Exceedence

All analysis completed in Ottawa, Ontario (unless otherwise indicated by ** which indicates analysis was completed in Mississauga, Ontario).

Results relate only to the parameters tested on the samples submitted.

Methods references and/or additional QA/QC information available on request.

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

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

Page 2 of 5

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

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SOW Ref: 16.F.5.d

EXOVA ENVIRONMENTAL ONTARIO

Certificate of Analysis



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

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

| 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 | 1259934 Wastewater |
| | Co | 0.0002 | mg/L | <0.0002 | |
| | Cr | 0.001 | mg/L | <0.001 | |
| | Cu | 0.001 | mg/L | 0.001 | |
| | Ni | 0.005 | mg/L | <0.005 | |
| | Pb | 0.001 | mg/L | <0.001 | |

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

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

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